Lab Notebook App Ontology Documentation

Version 0.1.0

Battery Interface Genome - Materials Acceleration Platform (BIG-MAP)

BIG MAP

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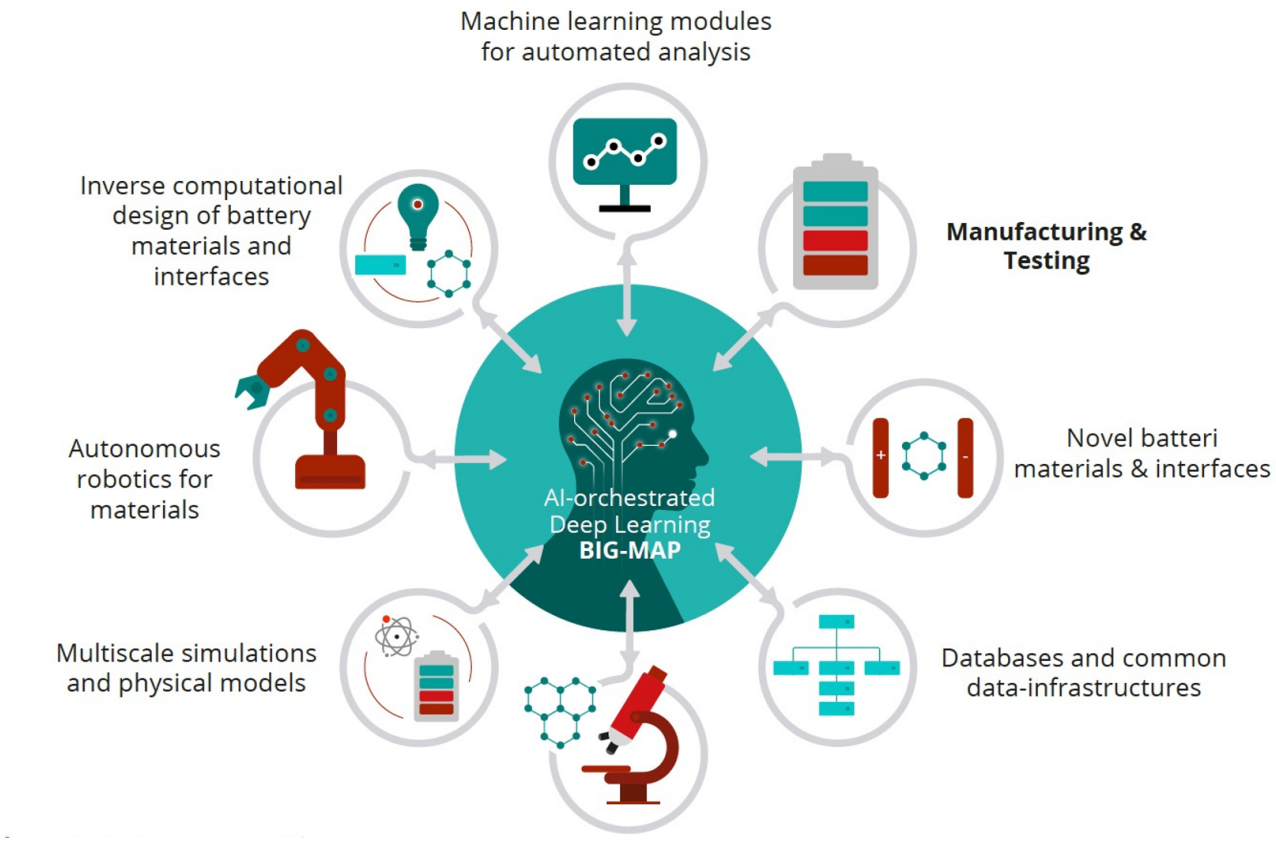

Abstract

This is a reference documentation for the Battery Interface Ontology (BattINFO).

BattINFO is an ontology of batteries and their interfaces based on the top-level European Materials and Modelling Ontology (EMMO). BattINFO aims to formalize the current state of knowledge on battery interfaces to support the development of computational tools and the deployment of interoperable data in the BIG-MAP project and beyond. The definitions included in BattINFO are based as far as possible on accepted standards defined by the International Union of Pure and Applied Chemistry (IUPAC) or other preeminent textbooks on the subject. BattINFO objects and their relations to each other are designed with three goals in mind: (i) to be scientifically rigorous and accurate, (ii) to reflect current battery orthodoxy and dominant jargon, and (iii) to be flexible to describe a range of battery chemistries, not only Li-ion.

The development of BattINFO is a mammoth undertaking and will continue throughout the project. However, it is important to establish an initial version to support the activities in other BIG-MAP work packages and provide a preliminary platform for collaboration. The objective of this deliverable is to establish the initial version of BattINFO. This report outlines the conceptual foundation for the definitions in the ontology and serves as a guide to help interpret the implementation of BattINFO in the ontology web language (OWL).

Keywords: Battery, EMMO, materials science, modelling, characterisation, materials, ontology

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Chapter 1

Introduction

This is a change in the introduction.

Battery development is one of the most important and intensely pursued technical research topics in the world today. From personal electronics to electric mobility to renewable energy storage, batteries are essential to progress. The search for better batteries is supported by a host of databases, methods, models, publications, and presentations. How can we distil this deluge of data into knowledge and translate that knowledge into action?

The answer must rely in some part on artificial intelligence (AI). The breadth of fields necessary to completely describe of battery performance, characterization, and simulation combined with the depth of research being generated in those fields is simply too great for any single person (or even group of people) to manage. However, the challenge is that the wealth of battery data that exists is formatted to be read, understood, and learned by humans, not machines. The field needs a tool to formalize the current state of knowledge about battery interfaces that is both human- and machine-readable.

The Battery Interface Ontology (BattINFO) is a domain ontology for batteries and their interfaces. It is developed with the goal of creating a formalized description of battery cells to support the interoperability of battery data and support applications of artificial intelligence in battery research.

BattINFO builds upon long-standing and widely accepted principles of electrochemistry as described in preeminent texts such as Electrochemical Systems by John Newman and Karen E. Thomas-Alyea [1], Electrochemical Methods: Fundamentals and Applications by Allen J. Bard and Larry R. Faulkner [2], and Handbook of Batteries by David Linden and Thomas B. Reddy [3], among other seminal sources [4], [5]. The terminology adheres as far as possible to the recommendations and definitions contained in the Compendium of Chemical Terminology (also known as the "Gold Book") from the International Union of Pure and Applied Chemistry (IUPAC) [6] together with IUPAC supplements on electrochemical terminology [7] and recommendations from the Electrochemical Society (ECS) on nomenclature and standards. Places where conflicts exist between sources are noted for further discussion and resolution within the electrochemical community.

BattINFO employs the European Materials and Modelling Ontology (EMMO) as a top-level ontology. EMMO aims at the development of a standard representational ontology framework based on current materials modelling and characterization of knowledge. EMMO starts from the very basic scientific fundamentals and grows to encompass a complex and wide field of knowledge, however it is still functional and clear. This makes it ideal to support the development of BattINFO as an EMMO domain ontology.

The purpose of this report is to lay the groundwork for the development of BattINFO in the BIG-MAP project.

Availability and license

The Battery Interface Domain Ontology is available from the github repository https://github.com/BIG-MAP/BattINFO.

References

1. J. Newman and K. E. Thmoas-Alyea, Electrochemical Systems, 3rd ed. Hoboken, New Jersey: John Wiley & Sons, 2004.
2. A. J. Bard and L. R. Faulkner, ELECTROCHEMICAL METHODS: Fundamentals and applications. 2001.
3. D. Linden and T. Reddy, Handbook of Batteries. 2002.
4. P. Atkins and J. De Paula, Atkins' Physical Chemistry, 8th Ed. New York: W.H. Freeman and Company, 2006.
5. M. Pourbaix, Atlas of Electrochemical Equilibria in Aqueous Solutions, Second. Houston, Texas: National Association of Corrosion Engineers, 1974.
6. IUPAC, Compendium of Chemical Terminology, 2nd (the ". Oxford: Blackwell Scientific Publications, 2014.
7. J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure Appl. Chem., vol. 92, no. 4, pp. 641-694, 2020.

Chapter 2

Classes

AbsorbedDose

IRI: http://emmo:info/emmo#EMMO_8e5dd473_808b_4a8a_b7cd_63068c12ff57

definition: Energy imparted to matter by ionizing radiation in a suitable small element of volume divided by the mass of that element of volume.

dbpediaEntry: http://dbpedia:org/page/Absorbed_dose

iupacEntry: https://doi:org/10:1351/goldbook:A00031

physicalDimension: T-2 L+2 M0 I0 Θ0 N0 J0

prefLabel: AbsorbedDose

qudtEntry: http://qudt:org/vocab/quantitykind/AbsorbedDose

Subclass of:

- is_a ISQDerivedQuantity

AbsorbedDoseDimension

IRI: http://emmo:info/emmo#EMMO_847f1d9f_205e_46c1_8cb6_a9e479421f88

prefLabel: AbsorbedDoseDimension

Subclass of:

- is_a PhysicalDimension
- equivalent_to hasSymbolData value 'T-2 L+2 M0 I0 Θ0 N0 J0'

Acceleration

IRI: http://emmo:info/emmo#EMMO_e37ac288_aa60_415a_8cb7_c375724ac8e1

dbpediaEntry: http://dbpedia:org/page/Acceleration

iupacEntry: https://doi:org/10:1351/goldbook:A00051

physicalDimension: T-2 L+1 M0 I0 Θ0 N0 J0

prefLabel: Acceleration

qudtEntry: http://qudt:org/vocab/quantitykind/Acceleration

Subclass of:

- is_a ISQDerivedQuantity
- Inverse(hasProperty) only Matter

AccumulationTerm

IRI: http://emmo:info/emmo#EMMO_3afd2a12_732e_4cdc_9312_9c93764b4d1b

prefLabel: AccumulationTerm

Subclass of:

- is_a MaterialRelation
- hasSpatialDirectPart some DiscretizationNode

Acid

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_c230694a_04ce_4719_88a4_ecfa85167c30

elucidation: A substance that increases the concentration of hydrogen cations H+ when dissolved.

–IEC60050

IECEntry: https://www:electropedia:org/iev/iev:nsf/display?openform&ievref=114-01-17

iupacEntry: https://goldbook:iupac:org/terms/view/A00071

prefLabel: Acid

wikipediaEntry: https://en:wikipedia:org/wiki/Acid

Subclass of:

- is_a ChemicalSpecies

AcidicElectrolyte

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_6592d8cc_4ce4_42ca_b010_6bfc4a8444d2

elucidation: An aqueous electrolyte with a nominal pH values less than 7.

example: HCl-H2O

prefLabel: AcidicElectrolyte

Subclass of:

- is_a AqueousElectrolyte
- hasPart some Acid

Acoustical

IRI: http://emmo:info/emmo#EMMO_4b3afb22_27cf_4ce3_88bc_492bfccb546b

elucidation: A 'Perceptual' which stands for a real world object whose spatiotemporal pattern makes it identifiable by an observer as a sound.

prefLabel: Acoustical

Subclass of:

- is_a Perceptual

AcqueousSolution

IRI: http://emmo:info/emmo#EMMO_5cb107ba_7daa_46dd_8f9f_da22a6eac676

elucidation: A liquid solution in which the solvent is water.

prefLabel: AcqueousSolution

Subclass of:

- is_a LiquidSolution

ActiveElectrochemicalMaterialContinuumModel

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_ccbaf3d8_6c17_4e3c_9c91_4deecf827aa9

prefLabel: ActiveElectrochemicalMaterialContinuumModel

Subclass of:

- is_a ReactiveSubcomponentContinuumModel

ActiveMaterial

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_79d1b273-58cd-4be6-a250-434817f7c261

elucidation: Material that is oxidized or reduced at an electrode in an electrochemical cell.

–IEC60050

IECEntry: https://www:electropedia:org/iev/iev:nsf/display?openform&ievref=114-03-14

prefLabel: ActiveMaterial

Subclass of:

- is_a ReactiveSubcomponent
- is_a ElectrochemicalMaterial

ActiveMaterialLoading

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_c955c089_6ee1_41a2_95fc_d534c5cfd3d5

elucidation: Weight of active material in an electrode per unit electrode area.

physicalDimension: T0 L-2 M+1 I0 Θ0 N0 J0

prefLabel: ActiveMaterialLoading

Subclass of:

- is_a AreaDensity
- is_a ElectrochemicalQuantity
- hasReferenceUnit some MilliGramPerSquareCentimetre

ActiveMaterialManufacturer

IRI: https://big-map:github:io/LabNotebookAppOntology#EMMO_b0f1e133_c627_4797_8fe3_6811048c3cd2

prefLabel: ActiveMaterialManufacturer

Subclass of:

- is_a Manufacturer

ActiveParticipant

IRI: http://emmo:info/emmo#EMMO_038e37a3_1684_4980_b5e4_67ab34cd5bdb

elucidation: A ‘physical’ that stands for a real world object that takes active part of a functional process.

prefLabel: ActiveParticipant

Subclass of:

- is_a Participant
- Inverse(hasProperParticipant) some FunctionalProcess

AdsorptionCurrent

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_214d925c_76c4_4f69_9afc_056a1ea82fc6

elucidation: Electric current that accompanies the adsorption of a species.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

iupacEntry: https://goldbook:iupac:org/terms/view/A00159

physicalDimension: T0 L0 M0 I+1 Θ0 N0 J0

prefLabel: AdsorptionCurrent

Subclass of:

- is_a ElectricCurrent
- is_a ElectrochemicalQuantity

Aerosol

IRI: http://emmo:info/emmo#EMMO_560d833a_6184_410c_859a_05d982712fd7

elucidation: A colloid composed of fine solid particles or liquid droplets in air or another gas.

prefLabel: Aerosol

Subclass of:

- is_a Gas
- is_a Colloid

AgreedQuantitativePropertyAssignment

IRI: http://emmo:info/emmo#EMMO_2f0e25cb_fdd3_44e3_99e3_28fef6c64a9e

elucidation: The 'Semiosis' process involving the 'Declarer' (the 'Interpreter') who declares that a 'Physical' (the 'Object') has a conventional quantitative property (the 'Sign').

prefLabel: AgreedQuantitativePropertyAssignment

Subclass of:

- is_a AgreementAssignment
- hasParticipant some ConventionalQuantitativeProperty

AgreementAssignment

IRI: http://emmo:info/emmo#EMMO_41bfd945_3971_4adf_924d_f2d123fa017f

prefLabel: AgreementAssignment

Subclass of:

- is_a PropertyAssignment

AirElectrode

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_8b40856f_1ca2_4137_9616_7fb624671909

elucidation: A gas diffusion electrode in which the gas is air.

prefLabel: AirElectrode

Subclass of:

- is_a GasDiffusionElectrode

AlgebricEquation

IRI: http://emmo:info/emmo#EMMO_98d65021_4574_4890_b2fb_46430841077f

example: 2 * a - b = c

prefLabel: AlgebricEquation

Subclass of:

- is_a Equation
- hasSpatialDirectPart some AlgebricExpression

AlgebricExpression

IRI: http://emmo:info/emmo#EMMO_1aed91a3_d00c_48af_8f43_a0c958b2512a

example: 2x+3

prefLabel: AlgebricExpression

Subclass of:

- is_a Expression

AlgebricOperator

IRI: http://emmo:info/emmo#EMMO_3c424d37_cf62_41b1_ac9d_a316f8d113d6

prefLabel: AlgebricOperator

Subclass of:

- is_a MathematicalOperator

AlkalineElectrolyte

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_615cff2a_be95_4e65_9471_98db23f4c878

elucidation: An aqueous electrolyte with a nominal pH greater than 7.

example: KOH-H2O

prefLabel: AlkalineElectrolyte

Subclass of:

- is_a AqueousElectrolyte
- hasPart some Base

AlternatingCurrent

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_26c84165_e6e3_47f6_8433_e04e755a4751

elucidation: Electric current having a sinusoidal wave form that changes direction during a cycle.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

dbpediaEntry: https://dbpedia:org/page/Alternating_current

iupacEntry: https://goldbook:iupac:org/terms/view/A00252

physicalDimension: T0 L0 M0 I+1 Θ0 N0 J0

prefLabel: AlternatingCurrent

wikipediaEntry: https://en:wikipedia:org/wiki/Alternating_current

Subclass of:

- is_a ElectricCurrent

AmountConcentration

IRI: http://emmo:info/emmo#EMMO_d5be1faf_0c56_4f5a_9b78_581e6dee949f

dbpediaEntry: http://dbpedia:org/page/Molar_concentration

iupacEntry: https://doi:org/10:1351/goldbook:A00295

physicalDimension: T0 L-3 M0 I0 Θ0 N+1 J0

prefLabel: AmountConcentration

qudtEntry: http://qudt:org/vocab/quantitykind/AmountOfSubstanceConcentrationOfB

Subclass of:

- is_a ISQDerivedQuantity
- is_a ChemicalCompositionQuantity

Individuals:

- molar_concentration_1

AmountDimension

IRI: http://emmo:info/emmo#EMMO_e501069c_34d3_4dc7_ac87_c90c7342192b

prefLabel: AmountDimension

Subclass of:

- is_a PhysicalDimension
- equivalent_to hasSymbolData value 'T0 L0 M0 I0 Θ0 N+1 J0'

AmountFraction

IRI: http://emmo:info/emmo#EMMO_04b3300c_98bd_42dc_a3b5_e6c29d69f1ac

definition: The amount of a constituent divided by the total amount of all constituents in a mixture.

dbpediaEntry: http://dbpedia:org/page/Mole_fraction

iupacEntry: https://doi:org/10:1351/goldbook:A00296

omMatch: http://www:ontology-of-units-of-measure:org/resource/om-2/AmountOfSubstanceFraction

physicalDimension: T0 L0 M0 I0 Θ0 N0 J0

prefLabel: AmountFraction

qudtEntry: http://qudt:org/vocab/quantitykind/MoleFraction

Subclass of:

- is_a ChemicalCompositionQuantity
- is_a RatioQuantity
- hasReferenceUnit only AmountFractionUnit

AmountFractionUnit

IRI: http://emmo:info/emmo#EMMO_f76f5a24_d703_4e8c_b368_f9a7777cb73a

elucidation: Unit for quantities of dimension one that are the fraction of two amount of substance.

example: Unit for amount fraction.

prefLabel: AmountFractionUnit

Subclass of:

- is_a FractionUnit

AmountOfSubstance

IRI: http://emmo:info/emmo#EMMO_8159c26a_494b_4fa0_9959_10888f152298

elucidation: The number of elementary entities present.

dbpediaEntry: http://dbpedia:org/page/Amount_of_substance

iupacEntry: https://doi:org/10:1351/goldbook:A00297

physicalDimension: T0 L0 M0 I0 Θ0 N+1 J0

prefLabel: AmountOfSubstance

qudtEntry: http://qudt:org/vocab/quantitykind/AmountOfSubstance

Subclass of:

- is_a ISQBaseQuantity
- is_a ChemicalCompositionQuantity

Ampere

IRI: http://emmo:info/emmo#EMMO_db5dd38d_ac79_4af6_8782_fee7e7150ae8

definition: The ampere, symbol A, is the SI unit of electric current. It is defined by taking the fixed numerical value of the elementary charge e to be 1.602176634×10-19 when expressed in the unit C, which is equal to A s, where the second is defined in terms of $\nabla\nu$Cs.

iupacEntry: https://doi:org/10:1351/goldbook:A00300

prefLabel: Ampere

qudtEntry: http://qudt:org/vocab/unit/A

Subclass of:

- is_a SIBaseUnit
- hasSymbolData value 'A'
- hasPhysicalDimension some ElectricCurrentDimension

AmpereHour

IRI: https://big-map:github:io/LabNotebookAppOntology#EMMO_06829fb3_dd04_4d6c_918a_14c01340dcd1

prefLabel: AmpereHour

Subclass of:

- is_a DerivedUnit
- hasPhysicalDimension some ElectricChargeDimension
- hasSymbolData value 'Ah'

Angle

IRI: http://emmo:info/emmo#EMMO_f3dd74c0_f480_49e8_9764_33b78638c235

definition: Ratio of circular arc length to radius.

dbpediaEntry: http://dbpedia:org/page/Angle

iupacEntry: https://doi:org/10:1351/goldbook:A00346

physicalDimension: T0 L0 M0 I0 Θ0 N0 J0

prefLabel: Angle

qudtEntry: http://qudt:org/vocab/quantitykind/PlaneAngle

Subclass of:

- is_a RatioQuantity
- hasReferenceUnit only LengthFractionUnit

AngularMomentum

IRI: http://emmo:info/emmo#EMMO_66d01570_36dd_42fd_844d_29b81b029cd5

dbpediaEntry: http://dbpedia:org/page/Angular_momentum

iupacEntry: https://doi:org/10:1351/goldbook:A00353

physicalDimension: T-1 L+2 M+1 I0 Θ0 N0 J0

prefLabel: AngularMomentum

qudtEntry: http://qudt:org/vocab/quantitykind/AngularMomentum

Subclass of:

- is_a ISQDerivedQuantity

AngularMomentumDimension

IRI: http://emmo:info/emmo#EMMO_501f9b3a_c469_48f7_9281_2e6a8d805d7a

prefLabel: AngularMomentumDimension

Subclass of:

- is_a PhysicalDimension
- equivalent_to hasSymbolData value 'T-1 L+2 M+1 I0 Θ0 N0 J0'

Anion

IRI: http://emmo:info/emmo#EMMO_ccca85a5_8a24_4591_93ee_1f137a386bab

elucidation: Negatively charged ion.

–IEC60050

IECEntry: https://www:electropedia:org/iev/iev:nsf/display?openform&ievref=114-01-12

prefLabel: Anion

Subclass of:

- is_a IonicSpecies

AnnularWorkingElectrode

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_3a77b5e7_9646_4154_bf8f_5f798989e5f3

elucidation: A working electrode in the shape of a ring used in a rotating ring disk electrode (RRDE).

prefLabel: AnnularWorkingElectrode

Subclass of:

- is_a WorkingElectrode

Anode

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_b6319c74_d2ce_48c0_a75a_63156776b302

elucidation: Electrode of an electrochemical cell through which net electric current flows and at which the predominating electrochemical reaction is an oxidation.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

dbpediaEntry: https://dbpedia:org/page/Anode

iupacEntry: https://goldbook:iupac:org/terms/view/A00370

prefLabel: Anode

wikipediaEntry: https://en:wikipedia:org/wiki/Anode

Subclass of:

- is_a Electrode
- Inverse(hasParticipant) some AnodicReaction

AnodicPolarization

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_28213033_4c74_441c_81c4_a0cad05f9eb6

elucidation: Electrode polarization associated with an anodic reaction.

–IEC60050

IECEntry: https://www:electropedia:org/iev/iev:nsf/display?openform&ievref=114-02-17

prefLabel: AnodicPolarization

Subclass of:

- is_a ElectrodePolarization

AnodicReaction

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_a0580fa9_5073_44af_b33e_7adbc83892d0

elucidation: Electrode reaction in which oxidation occurs at the anode.

–IEC60050

IECEntry: https://www:electropedia:org/iev/iev:nsf/display?openform&ievref=114-02-09

prefLabel: AnodicReaction

Subclass of:

- is_a ElectrodeReaction
- is_a OxidationReaction

Anolyte

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_865a40fc_2187_4549_a7e1_37aa2458448f

elucidation: Electrolyte on the anode side of an electrochemical cell that is divided into compartments.

–IEC60050

prefLabel: Anolyte

Subclass of:

- is_a ElectrolyteSolution

AppliedPotential

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_fa01b7ce_c398_45f7_be8b_31a6f6533767

elucidation: Difference of electric potentials measured between identical metallic leads to two electrodes of an electrochemical cell.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

physicalDimension: T-3 L+2 M+1 I-1 Θ0 N0 J0

prefLabel: AppliedPotential

Subclass of:

- is_a ElectrochemicalQuantity

AqueousElectrolyte

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_b812e9d0_7c58_4455_b3e7_6847f10c8e8a

elucidation: An ion-transport medium, which may be immobilized, in which water is the solvent.

–IEEE Standard Glossary of Stationary Battery Terminology (2016), https://doi.org/10.1109/IEEESTD.2016.7552407

dbpediaEntry: https://dbpedia:org/page/Aqueous_solution

prefLabel: AqueousElectrolyte

wikipediaEntry: https://en:wikipedia:org/wiki/Aqueous_solution

Subclass of:

- is_a ElectrolyteSolution

ArcMinute

IRI: http://emmo:info/emmo#EMMO_1e0b665d_db6c_4752_a6d4_262d3a8dbb46

definition: Measure of plane angle defined as 1/60 or a degree.

prefLabel: ArcMinute

qudtEntry: http://qudt:org/vocab/unit/ARCMIN

Subclass of:

- is_a SIAcceptedSpecialUnit
- hasSymbolData value ‘ ’
- hasPhysicalDimension some DimensionOne

ArcSecond

IRI: http://emmo:info/emmo#EMMO_6a4547ab_3abb_430d_b81b_ce32d47729f5

definition: Measure of plane angle defined as 1/3600 or a degree.

prefLabel: ArcSecond

qudtEntry: http://qudt:org/vocab/unit/ARCSEC

Subclass of:

- is_a SIAcceptedSpecialUnit
- hasPhysicalDimension some DimensionOne
- hasSymbolData value ‘ ’

Area

IRI: http://emmo:info/emmo#EMMO_96f39f77_44dc_491b_8fa7_30d887fe0890

dbpediaEntry: http://dbpedia:org/page/Area

iupacEntry: https://doi:org/10:1351/goldbook:A00429

physicalDimension: T0 L+2 M0 I0 Θ0 N0 J0

prefLabel: Area

qudtEntry: http://qudt:org/vocab/quantitykind/Area

Subclass of:

- is_a ISQDerivedQuantity

AreaDensity

IRI: http://emmo:info/emmo#EMMO_afea89af_ef16_4bdb_99d5_f3b2f4c85a6c

dbpediaEntry: http://dbpedia:org/page/Area_density

iupacEntry: https://doi:org/10:1351/goldbook:S06167

physicalDimension: T0 L-2 M+1 I0 Θ0 N0 J0

prefLabel: AreaDensity

Subclass of:

- is_a ISQDerivedQuantity

AreaDimension

IRI: http://emmo:info/emmo#EMMO_33433bb1_c68f_45ee_a466_f01e2c57b214

prefLabel: AreaDimension

Subclass of:

- is_a PhysicalDimension
- hasSymbolData value 'T0 L2 M0 I0 Θ0 N0 J0'

AreaFractionUnit

IRI: http://emmo:info/emmo#EMMO_6f4d704a_a7c6_4c07_b8a7_ea0bab04128f

elucidation: Unit for quantities of dimension one that are the fraction of two areas.

example: Unit for solid angle.

prefLabel: AreaFractionUnit

Subclass of:

- is_a FractionUnit

ArealCapacity

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_fe1481a4_3a8b_4d2a_904e_503ae55af2ea

elucidation: Charge capacity per unit area.

physicalDimension: T+1 L-2 M0 I+1 Θ0 N0 J0

prefLabel: ArealCapacity

Subclass of:

- is_a ElectrochemicalQuantity

ArealMass

IRI: https://big-map:github:io/LabNotebookAppOntology#EMMO_f0e4c8bf_09c8_4bb5_89fa_dbba5c55e8e8

physicalDimension: T0 L-2 M+1 I0 Θ0 N0 J0

prefLabel: ArealMass

Subclass of:

- is_a PhysicoChemical

ArgonSymbol

IRI: http://emmo:info/emmo#EMMO_86f34276_7ab7_4609_94ea_16a15c0bc9fb

prefLabel: ArgonSymbol

Subclass of:

- is_a ChemicalElement
- hasSymbolData value 'Ar'

ArithmeticEquation

IRI: http://emmo:info/emmo#EMMO_a6138ba7_e365_4f2d_b6b4_fe5a5918d403

example: 1 + 1 = 2

prefLabel: ArithmeticEquation

Subclass of:

- is_a Equation

ArithmeticExpression

IRI: http://emmo:info/emmo#EMMO_89083bab_f69c_4d06_bf6d_62973b56cdc7

example: 2+2

prefLabel: ArithmeticExpression

Subclass of:

- is_a AlgebricExpression
- is_a not hasSpatialDirectPart some Variable

ArithmeticOperator

IRI: http://emmo:info/emmo#EMMO_707f0cd1_941c_4b57_9f20_d0ba30cd6ff3

prefLabel: ArithmeticOperator

Subclass of:

- is_a AlgebricOperator

Arrangement

IRI: http://emmo:info/emmo#EMMO_25a3da5e_eab1_42dd_8081_61dd09d34e1b

elucidation: A State whose spatial direct parts are all SpatialOrdered objects.

prefLabel: Arrangement

Subclass of:

- is_a State
- is_a Ordered
- hasSpatialDirectPart some SpatialOrderedElement
- hasSpatialDirectPart only SpatialOrderedElement

Array

IRI: http://emmo:info/emmo#EMMO_28fbea28_2204_4613_87ff_6d877b855fcd

elucidation: Arrays are ordered mathematical objects who's elementary spatial parts are numbers. Their dimensionality is constructed with spatial direct parthood, where 1-dimensional arrays have spatial direct parts Number and n-dimensional array have spatial direct parts (n-1)-dimensional arrays.

example: A Vector is a 1-dimensional Array with Number as spatial direct parts, a Matrix is a 2-dimensional Array with Vector as spatial direct parts, an Array3D is a 3-dimensional Array with Matrix as spatial direct parts, and so forth…

prefLabel: Array

Subclass of:

- is_a Arrangement
- is_a Mathematical

Array3D

IRI: http://emmo:info/emmo#EMMO_20ff3b34_c864_4936_8955_9345fc0a3b3c

elucidation: 3-dimensional array who's spatial direct parts are matrices.

prefLabel: Array3D

Subclass of:

- is_a Array
- hasSpatialDirectPart some Matrix

AstronomicalUnit

IRI: http://emmo:info/emmo#EMMO_053648ea_3c0a_468c_89cb_eb009239323a

definition: One astronomical unit is defined as exactly 149597870700 m, which is roughly the distance from earth to sun.

dbpediaEntry: http://dbpedia:org/page/Astronomical_unit

prefLabel: AstronomicalUnit

qudtEntry: http://qudt:org/vocab/unit/PARSEC

wikipediaEntry: https://en:wikipedia:org/wiki/Astronomical_unit

Subclass of:

- is_a SIAcceptedSpecialUnit
- hasPhysicalDimension some LengthDimension
- hasSymbolData value 'au'

Atom

IRI: http://emmo:info/emmo#EMMO_eb77076b_a104_42ac_a065_798b2d2809ad

elucidation: A standalone atom has direct part one 'nucleus' and one 'electron_cloud'.

An O 'atom' within an O2 'molecule' is an 'e-bonded_atom'.

In this material branch, H atom is a particular case, with respect to higher atomic number atoms, since as soon as it shares its electron it has no nucleus entangled electron cloud.

We cannot say that H2 molecule has direct part two H atoms, but has direct part two H nucleus.

prefLabel: Atom

Subclass of:

- is_a MolecularEntity
- is_a State
- hasSpatialDirectPart some ElectronCloud
- hasSpatialDirectPart some Nucleus

AtomicAndNuclear

IRI: http://emmo:info/emmo#EMMO_3a591c4c_4cac_481e_b664_e2fef2312be8

prefLabel: AtomicAndNuclear

Subclass of:

- is_a CategorizedPhysicalQuantity

AtomicMass

IRI: http://emmo:info/emmo#EMMO_27367073_ed8a_481a_9b07_f836dfe31f7f

definition: The mass of an atom in the ground state.

iupacEntry: https://doi:org/10:1351/goldbook:A00496

physicalDimension: T0 L0 M+1 I0 Θ0 N0 J0

prefLabel: AtomicMass

wikipediaEntry: https://en:wikipedia:org/wiki/Atomic_mass

Subclass of:

- is_a Mass
- Inverse(hasProperty) only Atom

AtomicNumber

IRI: http://emmo:info/emmo#EMMO_07de47e0_6bb6_45b9_b55a_4f238efbb105

definition: Number of protons in an atomic nucleus.

dbpediaEntry: http://dbpedia:org/page/Atomic_number

iupacEntry: https://doi:org/10:1351/goldbook:A00499

physicalDimension: T0 L0 M0 I0 Θ0 N0 J0

prefLabel: AtomicNumber

qudtEntry: http://qudt:org/vocab/quantitykind/AtomicNumber

Subclass of:

- is_a PureNumberQuantity
- hasQuantityValue some Integer
- Inverse(hasProperty) only Atom

AtomisticModel

IRI: http://emmo:info/emmo#EMMO_84cadc45_6758_46f2_ba2a_5ead65c70213

elucidation: A physics-based model based on a physics equation describing the behaviour of atoms.

prefLabel: AtomisticModel

Subclass of:

- is_a PhysicsBasedModel

Atto

IRI: http://emmo:info/emmo#EMMO_42955b2d_b465_4666_86cc_ea3c2d685753

prefLabel: Atto

Subclass of:

- is_a SIMetricPrefix
- hasSymbolData value 'a'
- Inverse(hasVariable) only hasNumericalData value 1e-18

AvogadroConstant

IRI: http://emmo:info/emmo#EMMO_176cae33_b83e_4cd2_a6bc_281f42f0ccc8

elucidation: The number of constituent particles, usually atoms or molecules, that are contained in the amount of substance given by one mole.

It defines the base unit mole in the SI system.

codataEntry: https://physics:nist:gov/cgi-bin/cuu/Value?na

iupacEntry: https://doi:org/10:1351/goldbook:A00543

physicalDimension: T0 L0 M0 I0 Θ0 N-1 J0

prefLabel: AvogadroConstant

qudtEntry: http://qudt:org/vocab/constant/AvogadroConstant

Subclass of:

- is_a SIExactConstant

Base

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_af499b32_68a7_4b8c_972e_4ebdba8b314e

elucidation: A substance that decreases the concentration of hydrogen cations H+ when dissolved.

IECEntry: https://www:electropedia:org/iev/iev:nsf/display?openform&ievref=114-01-18

iupacEntry: https://goldbook:iupac:org/terms/view/B00601

prefLabel: Base

wikipediaEntry: https://en:wikipedia:org/wiki/Base_(chemistry)

Subclass of:

- is_a ChemicalSpecies

BaseQuantity

IRI: http://emmo:info/emmo#EMMO_acaaa124_3dde_48b6_86e6_6ec6f364f408

elucidation: "Quantity in a conventionally chosen subset of a given system of quantities, where no quantity in the subset can be expressed in terms of the other quantities within that subset" ISO 80000-1

prefLabel: BaseQuantity

Subclass of:

- is_a PhysicalQuantity
- hasReferenceUnit only BaseUnit

BaseUnit

IRI: http://emmo:info/emmo#EMMO_db716151_6b73_45ff_910c_d182fdcbb4f5

elucidation: A set of units that correspond to the base quantities in a system of units.

prefLabel: BaseUnit

Subclass of:

- is_a UnitSymbol

Battery

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_74ed2670_657d_4f0b_b0a6_3f13bc2e9c17

elucidation: One or more cells fitted with devices necessary for use, for example case, terminals, marking and protective devices.

–IEC 60050-482

dbpediaEntry: https://dbpedia:org/page/Electric_battery

prefLabel: Battery

wikipediaEntry: https://en:wikipedia:org/wiki/Electric_battery

Subclass of:

- is_a ActiveParticipant
- is_a ElectrochemicalDevice
- hasPart some Container

BatteryCell

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_68ed592a_7924_45d0_a108_94d6275d57f0

prefLabel: BatteryCell

Subclass of:

- is_a Battery
- hasPart some ElectrochemicalCell
- hasPart some Container

BatteryCellElectrolyteVolume

IRI: https://big-map:github:io/LabNotebookAppOntology#EMMO_1dbf016a_96a6_44be_9512_53352c233058

physicalDimension: T0 L-3 M0 I0 Θ0 N0 J0

prefLabel: BatteryCellElectrolyteVolume

Subclass of:

- is_a ElectrolyteVolume
- hasReferenceUnit some CubicCentimetre

BatteryContinuumModel

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_b1921f7b_afac_465a_a275_26f929f7f936

prefLabel: BatteryContinuumModel

Subclass of:

- is_a ElectrochemicalCellContinuumModel
- hasSpatialDirectPart some EnergyContinuityEquation
- hasSpatialDirectPart some ElectricChargeContinuityEquation
- hasSpatialDirectPart some ChemicalSpeciesContinuityEquation
- hasSpatialDirectPart some MassContinuityEquation

BatteryCycler

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_23e6170d_a70b_4de9_a4db_458e24a327ac

elucidation: A device for performing cycling measurements of a battery.

prefLabel: BatteryCycler

Subclass of:

- is_a MeasuringInstrument

BatteryCyclerSystem

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_bc033b97_a5b7_455c_94ce_e95676cb816b

prefLabel: BatteryCyclerSystem

Subclass of:

- is_a MeasuringSystem
- hasPart some BatteryCycler

BatteryCycling

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_1d33b96d_f362_41e5_b670_d33cd6a7ab28

prefLabel: BatteryCycling

Subclass of:

- is_a BatteryMeasurement
- hasParticipant some BatteryCyclingMeasurementResult
- hasParticipant some BatteryCyclerSystem
- hasParticipant some Battery

BatteryCyclingMeasurementResult

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_2198cf67_b5d2_4325_9b6a_dde0a26fd065

prefLabel: BatteryCyclingMeasurementResult

Subclass of:

- is_a BatteryMeasurementResult

BatteryEquivalentCircuitModel

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_4c78a492_b14d_4005_b555_d3c92e8def0f

prefLabel: BatteryEquivalentCircuitModel

Subclass of:

- is_a ElectrochemicalEquivalentCircuitModel

BatteryInterface

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_5129704d_3e08_4bee_b2d3_7b9e193cb481

elucidation: An electrochemical interface within a battery cell.

prefLabel: BatteryInterface

Subclass of:

- is_a ElectrochemicalInterface

BatteryMeasurement

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_6c481323_498b_42c6_915a_53490f409430

prefLabel: BatteryMeasurement

Subclass of:

- is_a Measurement

BatteryMeasurementResult

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_14ea92c1_2682_4c52_83a5_632adcfdb1ce

prefLabel: BatteryMeasurementResult

Subclass of:

- is_a MeasurementResult

BatteryModule

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_9acfeea6_ca7f_4b97_9844_c38edf6387ec

prefLabel: BatteryModule

Subclass of:

- is_a Battery
- hasPart some BatteryCell

BatteryPack

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_be3b35a7_75a3_4be0_9265_beb178ea7b00

prefLabel: BatteryPack

Subclass of:

- is_a Battery
- hasPart some BatteryCell

BatteryQuantity

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_230809da_bc18_42ec_ac94_4ca6a86292d1

elucidation: Physical quantities defined within the domain of batteries.

prefLabel: BatteryQuantity

Subclass of:

- is_a ElectrochemicalQuantity

Becquerel

IRI: http://emmo:info/emmo#EMMO_b71e4ba5_8f73_4199_8c96_7ea7f94d9e2a

definition: Radioactive decays per second.

iupacEntry: https://doi:org/10:1351/goldbook:B00624

prefLabel: Becquerel

qudtEntry: http://qudt:org/vocab/unit/BQ

Subclass of:

- is_a SISpecialUnit
- hasPhysicalDimension some FrequencyDimension
- hasSymbolData value 'Bq'

Bel

IRI: http://emmo:info/emmo#EMMO_6c7160fc_cc64_46f0_b43b_aba65e9952e3

definition: One bel is defined as `½ ln(10) neper`.

elucidation: Unit of measurement for quantities of type level or level difference.

prefLabel: Bel

qudtEntry: http://qudt:org/vocab/unit/B

wikipediaEntry: https://en:wikipedia:org/wiki/Decibel

Subclass of:

- is_a SIAcceptedSpecialUnit
- hasSymbolData value 'B'
- hasPhysicalDimension some DimensionOne

BifunctionalAirElectrode

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_1375560e_dec2_491c_93ac_613a1d905008

elucidation: An air electrode that is designed to perform both the oxygen reduction reaction (ORR) and the oxygen evolution reaction (OER).

prefLabel: BifunctionalAirElectrode

Subclass of:

- is_a AirElectrode

BimetallicElectrode

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_86be0987_5e21_43ec_b975_8f679999d328

elucidation: Electrode containing two different metals (e.g. platinum and ruthenium) on its surface (e.g. to modify its electrocatalytic properties).

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

prefLabel: BimetallicElectrode

Subclass of:

- is_a MetalElectrode

BinaryElectrolyte

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_4e02d727_07fe_41fd_886c_041317342086

elucidation: An electrolyte consisting of anions and cations with equal absolute charge numbers.

– A. J. Bard, G. Inzelt, and F. Scholz, Eds., Electrochemical Dictionary, 2nd Editio. Berlin: Springer-Verlag, 2012.

example: KCl (1:1), MgSO4 (2:2)

prefLabel: BinaryElectrolyte

Subclass of:

- is_a Electrolyte

Binder

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_382fc4de_b961_42ee_a787_27bbcc647481

prefLabel: Binder

Subclass of:

- is_a StructuralSubcomponent
- hasConventionalQuantity some Manufacturer
- hasConventionalQuantity some Name

BinderManufacturer

IRI: https://big-map:github:io/LabNotebookAppOntology#EMMO_82dad0b9_d022_4038_b900_9fa4b4298548

prefLabel: BinderManufacturer

Subclass of:

- is_a Manufacturer

BinderName

IRI: https://big-map:github:io/LabNotebookAppOntology#EMMO_51c36513_efd6_44d9_8c12_5615d5529237

prefLabel: BinderName

Subclass of:

- is_a Name

BoltzmannConstant

IRI: http://emmo:info/emmo#EMMO_ffc7735f_c177_46a4_98e9_a54440d29209

elucidation: A physical constant relating energy at the individual particle level with temperature. It is the gas constant R divided by the Avogadro constant.

It defines the Kelvin unit in the SI system.

codataEntry: https://physics:nist:gov/cgi-bin/cuu/Value?k

dbpediaEntry: http://dbpedia:org/page/Boltzmann_constant

iupacEntry: https://doi:org/10:1351/goldbook:B00695

physicalDimension: T-2 L+2 M+1 I0 Θ-1 N0 J0

prefLabel: BoltzmannConstant

qudtEntry: http://qudt:org/vocab/constant/BoltzmannConstant

Subclass of:

- is_a Entropy
- is_a SIExactConstant

BondedAtom

IRI: http://emmo:info/emmo#EMMO_8303a247_f9d9_4616_bdcd_f5cbd7b298e3

elucidation: An bonded atom that shares at least one electron to the atom-based entity of which is part of.

prefLabel: BondedAtom

Subclass of:

- is_a Atom

Boolean

IRI: http://emmo:info/emmo#EMMO_54dc83cb_06e1_4739_9e45_bc09cead7f48

prefLabel: Boolean

Subclass of:

- is_a Number
- hasNumericalData exactly 1 type
- hasNumericalData only type
- equivalent_to hasNumericalData some type

ButlerVolmerEquation

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_d48ea516_5cac_4f86_bc88_21b6276c0938

elucidation: The standard phenomenological model for electrode kinetics, describing the relation between the electrode current from an electrochemical charge-transfer reaction and the surface overpotential of the electrode.

prefLabel: ButlerVolmerEquation

wikipediaEntry: https://en:wikipedia:org/wiki/Butler%E2%80%93Volmer_equation

Subclass of:

- is_a ElectrochemicalRelation
- hasSpatialDirectPart some SurfaceOverpotential
- hasSpatialDirectPart some ExchangeCurrent
- hasSpatialDirectPart some MolarGasConstant
- hasSpatialDirectPart some InstantaneousCurrent
- hasSpatialDirectPart some ChargeNumber
- hasSpatialDirectPart some ThermodynamicTemperature
- hasSpatialDirectPart some FaradayConstant

CASRN

IRI: http://emmo:info/emmo#EMMO_d2a47cd8_662f_438f_855a_b4378eb992ff

elucidation: Chemical Abstact Service registry number for a chemical substance from the American Chemical Society

example: Water is 7732-18-5

prefLabel: CASRN

Subclass of:

- is_a ChemicalNomenclature

CGSUnit

IRI: http://emmo:info/emmo#EMMO_52e4cb25_da39_45e2_a6db_063ec5730499

elucidation: The centimetre–gram–second (CGS) system of units.

prefLabel: CGSUnit

wikipediaEntry: https://en:wikipedia:org/wiki/Centimetre%E2%80%93gram%E2%80%93second_system_of_units

Subclass of:

- is_a MeasurementUnit

CPlusPlus

IRI: http://emmo:info/emmo#EMMO_64aba1e5_24b7_4140_8eb4_676c35698e79

elucidation: A language object respecting the syntactic rules of C++.

prefLabel: CPlusPlus

Subclass of:

- is_a Software

CRate

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_e1fd84eb_acdb_4b2c_b90c_e899d552a3ee

physicalDimension: T0 L0 M0 I0 Θ0 N0 J0

prefLabel: CRate

Subclass of:

- is_a BatteryQuantity

CalendarDate

IRI: http://emmo:info/emmo#EMMO_e58bde09_bb09_4bd5_911f_c5d7fb3e5e46

prefLabel: CalendarDate

Subclass of:

- is_a NominalProperty

Candela

IRI: http://emmo:info/emmo#EMMO_8d00f093_3f45_4ea3_986c_b3545c3c2f4c

definition: The candela, symbol cd, is the SI unit of luminous intensity in a given direction. It is defined by taking the fixed numerical value of the luminous efficacy of monochromatic radiation of frequency 540×1012 Hz, Kcd, to be 683 when expressed in the unit lm W-1, which is equal to cd sr W-1, or cd sr kg-1 m-2 s3, where the kilogram, metre and second are defined in terms of h, c and ∇νCs.

iupacEntry: https://doi:org/10:1351/goldbook:C00787

prefLabel: Candela

qudtEntry: http://qudt:org/vocab/unit/CD

Subclass of:

- is_a SIBaseUnit
- hasSymbolData value 'cd'
- hasPhysicalDimension some LuminousIntensityDimension

Capacitance

IRI: http://emmo:info/emmo#EMMO_99dba333_0dbd_4f75_8841_8c0f97fd58e2

elucidation: The derivative of the electric charge of a system with respect to the electric potential.

dbpediaEntry: http://dbpedia:org/page/Capacitance

iupacEntry: https://doi:org/10:1351/goldbook:C00791

physicalDimension: T+4 L-2 M-1 I+2 Θ0 N0 J0

prefLabel: Capacitance

qudtEntry: http://qudt:org/vocab/quantitykind/Capacitance

Subclass of:

- is_a ISQDerivedQuantity

CapacitanceDimension

IRI: http://emmo:info/emmo#EMMO_b14d9be5_f81e_469b_abca_379c2e83feab

prefLabel: CapacitanceDimension

Subclass of:

- is_a PhysicalDimension
- equivalent_to hasSymbolData value 'T+4 L-2 M-1 I+2 Θ0 N0 J0'

Capacity

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_791c1915_a791_4450_acd8_7f94764743b5

elucidation: Amount of electric charge that can be stored.

physicalDimension: T+1 L0 M0 I+1 Θ0 N0 J0

prefLabel: Capacity

Subclass of:

- is_a ElectricCharge
- is_a ElectrochemicalQuantity

CarbonAdditiveManufacturer

IRI: https://big-map:github:io/LabNotebookAppOntology#EMMO_3dbb5afa_b61c_4294_aec4_e048350483ec

prefLabel: CarbonAdditiveManufacturer

Subclass of:

- is_a Manufacturer

CarbonAdditiveName

IRI: https://big-map:github:io/LabNotebookAppOntology#EMMO_0064d879_ca4c_4258_8799_d7d8e6684159

prefLabel: CarbonAdditiveName

Subclass of:

- is_a Name

CarbonBlack

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_1f7ba79e_3aaf_47f4_9281_53714416ea26

prefLabel: CarbonBlack

Subclass of:

- is_a ConductiveAdditive

CarbonInkElectrode

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_ec6f3d6f_bdf5_418f_9314_3ef2ff528103

elucidation: Development of a carbon paste electrode that is screen printed using a carbon/polymer mixture of suitable composition.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

prefLabel: CarbonInkElectrode

Subclass of:

- is_a CarbonPasteElectrode

CarbonPasteElectrode

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_b0a0dddb_d942_4af2_b6a7_d7165f4253f1

elucidation: Electrode of a composite of carbon powder and a pasting liquid (including mineral oil, Nujol, bromoform, bromonaphthalene).

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

prefLabel: CarbonPasteElectrode

Subclass of:

- is_a CompositeElectrode

CatalyticActivity

IRI: http://emmo:info/emmo#EMMO_bd67d149_24c2_4bc9_833a_c2bc26f98fd3

elucidation: Increase in the rate of reaction of a specified chemical reaction that an enzyme produces in a specific assay system.

iupacEntry: https://doi:org/10:1351/goldbook:C00881

physicalDimension: T-1 L0 M0 I0 Θ0 N+1 J0

prefLabel: CatalyticActivity

qudtEntry: http://qudt:org/vocab/quantitykind/CatalyticActivity

Subclass of:

- is_a ISQDerivedQuantity

CatalyticActivityDimension

IRI: http://emmo:info/emmo#EMMO_ce7d4720_aa20_4a8c_93e8_df41a35b6723

prefLabel: CatalyticActivityDimension

Subclass of:

- is_a PhysicalDimension
- equivalent_to hasSymbolData value 'T-1 L0 M0 I0 Θ0 N+1 J0'

CatalyticCurrent

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_c55bcb85_b7b8_4e67_8a78_9a42fe25b6cf

elucidation: Faradaic current measured in a solution containing two electroactive substances, A and B, that exceeds the sum of the faradaic currents that would be obtained for A and B separately under the same experimental conditions.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

physicalDimension: T0 L0 M0 I+1 Θ0 N0 J0

prefLabel: CatalyticCurrent

Subclass of:

- is_a FaradaicCurrent

CategorizedPhysicalQuantity

IRI: http://emmo:info/emmo#EMMO_79751276_b2d0_4e2f_bbd4_99d412f43d55

elucidation: The superclass for all physical quantities classes that are categorized according to some domain of interests or application (e.g. metallurgy, chemistry)

prefLabel: CategorizedPhysicalQuantity

Subclass of:

- is_a PhysicalQuantity

Cathode

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_35c650ab_3b23_4938_b312_1b0dede2e6d5

elucidation: Electrode of an electrochemical cell through which net electric current flows and at which the predominating electrochemical reaction is a reduction.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

dbpediaEntry: https://dbpedia:org/page/Cathode

iupacEntry: https://goldbook:iupac:org/terms/view/C00905

prefLabel: Cathode

wikipediaEntry: https://en:wikipedia:org/wiki/Cathode

Subclass of:

- is_a Electrode
- Inverse(hasParticipant) some CathodicReaction

CathodicPolarization

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_187326b9_1089_4122_8e7e_1a0bcba210a1

elucidation: Electrode polarization associated with a cathodic reaction.

–IEC60050

IECEntry: https://www:electropedia:org/iev/iev:nsf/display?openform&ievref=114-02-18

prefLabel: CathodicPolarization

Subclass of:

- is_a ElectrodePolarization

CathodicReaction

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_f4a1323a_ce2b_4c1a_b89d_c80170110ed6

elucidation: Electrode reaction in which reduction occurs at the cathode.

–IEC60050

IECEntry: https://www:electropedia:org/iev/iev:nsf/display?openform&ievref=114-02-10

prefLabel: CathodicReaction

Subclass of:

- is_a ElectrodeReaction
- is_a ReductionReaction

Catholyte

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_15b852b5_19cc_49ab_849f_7df6175fb2be

elucidation: Electrolyte on the cathode side of an electrochemical cell that is divided into compartments.

–IEC60050

IECEntry: https://www:electropedia:org/iev/iev:nsf/display?openform&ievref=114-03-18

prefLabel: Catholyte

Subclass of:

- is_a ElectrolyteSolution

Cation

IRI: http://emmo:info/emmo#EMMO_ad3b994f_0ea6_4529_b863_3ff9110d6abe

elucidation: Positively charged ion.

IECEntry: https://www:electropedia:org/iev/iev:nsf/display?openform&ievref=114-01-13

prefLabel: Cation

Subclass of:

- is_a IonicSpecies

CelsiusTemperature

IRI: http://emmo:info/emmo#EMMO_66bc9029_f473_45ff_bab9_c3509ff37a22

elucidation: An objective comparative measure of hot or cold.

Temperature is a relative quantity that can be used to express temperature differences. Unlike ThermodynamicTemperature, it cannot express absolute temperatures.

dbpediaEntry: http://dbpedia:org/page/Temperature

iupacEntry: https://doi:org/10:1351/goldbook:T06261

physicalDimension: T-1 L0 M0 I0 Θ0 N+1 J0

prefLabel: CelsiusTemperature

Subclass of:

- is_a ISQDerivedQuantity

Centi

IRI: http://emmo:info/emmo#EMMO_b55cd09a_e54d_4eb1_81dd_03c29d1b878e

prefLabel: Centi

Subclass of:

- is_a SIMetricPrefix
- hasSymbolData value 'c'
- Inverse(hasVariable) only hasNumericalData value 0.01

CentreOfMass

IRI: http://emmo:info/emmo#EMMO_9d8f708a_f291_4d72_80ec_362c6e6bbca6

elucidation: The unique point where the weighted relative position of the distributed mass of an Item sums to zero. Equivalently, it is the point where if a force is applied to the Item, causes the Item to move in direction of force without rotation.

IECEntry: http://www:electropedia:org/iev/iev:nsf/display?openform&ievref=113-03-12

dbpediaEntry: http://dbpedia:org/page/Center_of_mass

physicalDimension: T0 L+1 M0 I0 Θ0 N0 J0

prefLabel: CentreOfMass

wikipediaEntry: https://en:wikipedia:org/wiki/Center_of_mass

Subclass of:

- is_a PositionVector

ChargeAccumulationTerm

IRI: http://emmo:info/emmo#EMMO_4a9030bd_a1b2_45ac_909b_f98257c2b355

prefLabel: ChargeAccumulationTerm

Subclass of:

- is_a AccumulationTerm

ChargeCarrierIon

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_d1042a12_e4be_4992_86cb_59420ef4e05c

prefLabel: ChargeCarrierIon

Subclass of:

- is_a IonicSpecies

ChargeCutoffCurrent

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_6d4f29e8_c0da_4c6e_93fc_ef422c0f9932

physicalDimension: T0 L0 M0 I+1 Θ0 N0 J0

prefLabel: ChargeCutoffCurrent

Subclass of:

- is_a ElectricCurrent
- is_a ConventionalElectrochemicalProperty

ChargeCutoffVoltage

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_6dcd5baf_58cd_43f5_a692_51508e036c88

physicalDimension: T-3 L+2 M+1 I-1 Θ0 N0 J0

prefLabel: ChargeCutoffVoltage

Subclass of:

- is_a ElectricPotential
- is_a ConventionalElectrochemicalProperty

ChargeFluxTerm

IRI: http://emmo:info/emmo#EMMO_3c4680d5_f597_4d8f_994f_d93caa71193c

prefLabel: ChargeFluxTerm

Subclass of:

- is_a FluxTerm

ChargeNumber

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_abfadc99_6e43_4d37_9b04_7fc5b0f327ae

elucidation: Number of electrons transferred in a charge transfer reaction between an electrode and a single entity (ion, radical-ion, or molecule) of an electroactive substance, whose identity must be specified.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

iupacEntry: https://goldbook:iupac:org/terms/view/C00995

physicalDimension: T0 L0 M0 I0 Θ0 N0 J0

prefLabel: ChargeNumber

Subclass of:

- is_a ElectrochemicalKineticQuantity

ChargePerAreaDimension

IRI: https://big-map:github:io/LabNotebookAppOntology#EMMO_b645f94a_8ff8_473b_a62f_28db56e09fa8

prefLabel: ChargePerAreaDimension

Subclass of:

- is_a PhysicalDimension
- hasSymbolData value 'T+1 L-2 M0 I+1 Θ0 N0 J0'

ChargePerMassDimension

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_7bfcbe2d_eac6_4953_86d6_6f075334cf29

prefLabel: ChargePerMassDimension

Subclass of:

- is_a PhysicalDimension
- equivalent_to hasSymbolData value 'T+1 L0 M-1 I+1 Θ0 N0 J0'

ChargeSourceTerm

IRI: http://emmo:info/emmo#EMMO_d4980a67_3a9f_47e3_9c8a_edc814dd8654

prefLabel: ChargeSourceTerm

Subclass of:

- is_a SourceTerm

ChargeTransferCoefficient

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_a4dfa5c1_55a9_4285_b71d_90cf6613ca31

elucidation: The fraction of the electrostatic potential energy affecting the reduction rate in an electrode reaction, with the remaining fraction affecting the corresponding oxidation rate.

R. Guidelli et al., "Defining the transfer coefficient in electrochemistry: An assessment (IUPAC Technical Report)," Pure Appl. Chem., vol. 86, no. 2, pp. 245–258, 2014. https://doi.org/10.1515/pac-2014-5026

physicalDimension: T0 L0 M0 I0 Θ0 N0 J0

prefLabel: ChargeTransferCoefficient

wikipediaEntry: https://en:wikipedia:org/wiki/Charge_transfer_coefficient

Subclass of:

- is_a ElectrochemicalKineticQuantity

ChargeTransferStep

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_3bc9e1c2_b48c_468a_8441_126fb415db19

prefLabel: ChargeTransferStep

Subclass of:

- is_a ElementaryReaction

Chemical

IRI: http://emmo:info/emmo#EMMO_abf7efbe_6b04_41b8_8326_4dd0f6be753e

elucidation: A language object that follows the syntactic rules used in the chemical field.

prefLabel: Chemical

Subclass of:

- is_a Language

ChemicalComposition

IRI: http://emmo:info/emmo#EMMO_7efd64d1_05a1_49cd_a7f0_783ca050d4f3

elucidation: A language construct that provides information about the consitutents of a substance and their fractions or amounts.

prefLabel: ChemicalComposition

Subclass of:

- is_a State
- is_a ChemicalSymbolicConstruct
- disjoint_union_of TotalComposition, SingleComponentComposition, PartialComposition

ChemicalCompositionQuantity

IRI: http://emmo:info/emmo#EMMO_a293f923_954c_4af5_9f97_9600ebd362cb

prefLabel: ChemicalCompositionQuantity

Subclass of:

- is_a PhysicoChemical

ChemicalCompound

IRI: http://emmo:info/emmo#EMMO_e2b11f6a_4191_427e_9844_2e0ac88dfc8b

elucidation: A chemical substance composed of many identical molecules (or molecular entities) composed of atoms from more than one element held together by chemical bonds.

prefLabel: ChemicalCompound

wikipediaEntry: https://en:wikipedia:org/wiki/Chemical_compound

Subclass of:

- is_a ChemicalSubstance
- disjoint_union_of InorganicCompound, OrganicCompound

ChemicalElement

IRI: http://emmo:info/emmo#EMMO_4f40def1_3cd7_4067_9596_541e9a5134cf

elucidation: The symbol for a specific chemical element, that can stand both for an atom or a substance.

iupacEntry: https://doi:org/10:1351/goldbook:C01022

prefLabel: ChemicalElement

Subclass of:

- is_a ChemicalSpecies
- is_a ChemicalSymbol
- hasSymbolData some type

ChemicalEntity

IRI: http://emmo:info/emmo#EMMO_47338839_6cca_4a8e_b565_3c4d5517e2c0

prefLabel: ChemicalEntity

Subclass of:

- is_a Matter
- disjoint_union_of MolecularEntity, ChemicalSubstance

ChemicalFormula

IRI: http://emmo:info/emmo#EMMO_9236d0aa_cb39_43a1_bbdd_6a2a714951c8

elucidation: A symbolic construct that provides informations about the chemical proportions of the elements that constitute a chemical compound or a specific molecule.

prefLabel: ChemicalFormula

Subclass of:

- is_a State
- is_a ChemicalSpecies
- hasSpatialDirectPart some ChemicalElement

ChemicalMaterial

IRI: http://emmo:info/emmo#EMMO_8a41ed1b_64f9_4be7_9b60_01fcece45075

prefLabel: ChemicalMaterial

Subclass of:

- is_a Material

ChemicalName

IRI: http://emmo:info/emmo#EMMO_26586828_3b8c_4d8b_9c6c_0bc2502f26ae

prefLabel: ChemicalName

Subclass of:

- is_a ChemicalNomenclature
- hasSymbolData some type

ChemicalNomenclature

IRI: http://emmo:info/emmo#EMMO_643d99dd_fae6_4121_a76f_47f486a4480b

elucidation: A language object following a specific nomenclature rules for defining univocal names of chemical compounds.

prefLabel: ChemicalNomenclature

Subclass of:

- is_a ChemicalSpecies

ChemicalPhenomenon

IRI: http://emmo:info/emmo#EMMO_50e36d79_b2dd_422d_81eb_a665028a1ead

elucidation: A 'process' that is recognized by chemical sciences and is catogrized accordingly.

prefLabel: ChemicalPhenomenon

Subclass of:

- is_a Process

ChemicalPotential

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_17e305af_52a9_4255_a70f_700ba1088f13

elucidation: Energy that can be absorbed or released due to a change of the particle number of the given species

iupacEntry: https://goldbook:iupac:org/terms/view/C01032

physicalDimension: T-2 L+2 M+1 I0 Θ0 N0 J0

prefLabel: ChemicalPotential

wikipediaEntry: https://en:wikipedia:org/wiki/Chemical_potential

Subclass of:

- is_a ElectrochemicalThermodynamicQuantity

ChemicalPotential

IRI: http://emmo:info/emmo#EMMO_88fc5d1b_d3ab_4626_b24c_915ebe7400ca

dbpediaEntry: http://dbpedia:org/page/Chemical_potential

iupacEntry: https://doi:org/10:1351/goldbook:C01032

physicalDimension: T-2 L+2 M+1 I0 Θ0 N-1 J0

prefLabel: ChemicalPotential

qudtEntry: http://qudt:org/vocab/quantitykind/ChemicalPotential

Subclass of:

- is_a ISQDerivedQuantity

ChemicalReaction

IRI: http://emmo:info/emmo#EMMO_ecb0395f_ee1e_4e9a_bf5c_d8e56eee2d18

elucidation: A process that results in the interconversion of chemical species. Chemical reactions may be elementary reactions or stepwise reactions. (It should be noted that this definition includes experimentally observable interconversions of conformers.) Detectable chemical reactions normally involve sets of molecular entities as indicated by this definition, but it is often conceptually convenient to use the term also for changes involving single molecular entities (i.e. 'microscopic chemical events').

- IUPAC Gold Book

prefLabel: ChemicalReaction

Subclass of:

- is_a ChemicalPhenomenon

ChemicalRepresentation

IRI: http://emmo:info/emmo#EMMO_ecc4efe9_77a2_47e3_8190_f9a883d54ac6

elucidation: A representation of objects belonging to the chemistry field.

prefLabel: ChemicalRepresentation

Subclass of:

- is_a Representation

ChemicalSpecies

IRI: http://emmo:info/emmo#EMMO_cbcf8fe6_6da6_49e0_ab4d_00f737ea9689

elucidation: Specific form of an element defined as to isotopic composition, electronic or oxidation state, and/or complex or molecular structure.

Chemical species is the macroscopic equivalent of molecular entity and refers to sets or ensembles of molecular entities.

iupacEntry: https://doi:org/10:1351/goldbook:CT06859

prefLabel: ChemicalSpecies

Subclass of:

- is_a Chemical
- equivalent_to ChemicalElement or ChemicalNomenclature or ChemicalFormula

ChemicalSpeciesAccumulationTerm

IRI: http://emmo:info/emmo#EMMO_8c505092_403d_4912_9a01_5a56793fbfc1

prefLabel: ChemicalSpeciesAccumulationTerm

Subclass of:

- is_a MassAccumulationTerm

ChemicalSpeciesContinuityEquation

IRI: http://emmo:info/emmo#EMMO_02ae528a_fe38_4e62_8eb1_64d02354901e

elucidation: Equation describing the continuum transport of chemical species.

prefLabel: ChemicalSpeciesContinuityEquation

Subclass of:

- is_a MassContinuityEquation
- hasSpatialDirectPart some ChemicalSpeciesFluxTerm
- hasSpatialDirectPart some ChemicalSpeciesSourceTerm
- hasSpatialDirectPart some ChemicalSpeciesAccumulationTerm

ChemicalSpeciesFluxTerm

IRI: http://emmo:info/emmo#EMMO_0466becd_3e08_436f_8412_e2eedbedfd39

prefLabel: ChemicalSpeciesFluxTerm

Subclass of:

- is_a MassFluxTerm

ChemicalSpeciesSourceTerm

IRI: http://emmo:info/emmo#EMMO_81cdab15_d13d_47e5_ac1b_65b6bd7c4da6

prefLabel: ChemicalSpeciesSourceTerm

Subclass of:

- is_a MassSourceTerm

ChemicalSubstance

IRI: http://emmo:info/emmo#EMMO_df96cbb6_b5ee_4222_8eab_b3675df24bea

elucidation: Matter of constant composition best characterized by the entities (molecules, formula units, atoms) it is composed of.

iupacEntry: https://doi:org/10:1351/goldbook:C01039

prefLabel: ChemicalSubstance

Subclass of:

- is_a ChemicalEntity

ChemicalSymbol

IRI: http://emmo:info/emmo#EMMO_d357e0dd_3497_4590_af6f_7954db7fecf7

prefLabel: ChemicalSymbol

Subclass of:

- is_a Symbol
- is_a Chemical
- equivalent_to Symbol and Chemical

ChemicalSymbolicConstruct

IRI: http://emmo:info/emmo#EMMO_bd8db028_aec2_4a44_ad93_1a9f8270f72c

prefLabel: ChemicalSymbolicConstruct

Subclass of:

- is_a SymbolicConstruct
- is_a Chemical
- equivalent_to SymbolicConstruct and Chemical

Circle

IRI: http://emmo:info/emmo#EMMO_b2a234a8_579a_422c_9305_b8f7e72c76cd

prefLabel: Circle

Subclass of:

- is_a OneManifold

Cogniser

IRI: http://emmo:info/emmo#EMMO_19608340_178c_4bfd_bd4d_0d3b935c6fec

prefLabel: Cogniser

Subclass of:

- is_a Interpreter

CoherenceLength

IRI: http://emmo:info/emmo#EMMO_fe581c44_a3a2_45e7_bc5b_dc7cacb73447

elucidation: The propagation distance over which a coherent wave (e.g. an electromagnetic wave) maintains a specified degree of coherence.

– Needs Citation

physicalDimension: T0 L+1 M0 I0 Θ0 N0 J0

prefLabel: CoherenceLength

wikipediaEntry: https://en:wikipedia:org/wiki/Coherence_length

Subclass of:

- is_a Length

CoinCell

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_b7fdab58_6e91_4c84_b097_b06eff86a124

prefLabel: CoinCell

Subclass of:

- is_a BatteryCell
- hasPart some CoinCellHousing

CoinCellHousing

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_ebaac955_1664_4de8_a9ae_a3868a7d8427

prefLabel: CoinCellHousing

Subclass of:

- is_a Container

Collection

IRI: http://emmo:info/emmo#EMMO_2d2ecd97_067f_4d0e_950c_d746b7700a31

elucidation: The class of all individuals that stand for a real world not self-connected object.

etymology: From Latin collectio, from colligere ‘gather together’.

prefLabel: Collection

Subclass of:

- is_a EMMO
- hasMember some Item

Colloid

IRI: http://emmo:info/emmo#EMMO_6c487fb3_03d1_4e56_91ed_c2e16dcbef60

elucidation: A mixture in which one substance of microscopically dispersed insoluble or soluble particles (from 1 nm to 1 μm) is suspended throughout another substance and that does not settle, or would take a very long time to settle appreciably.

prefLabel: Colloid

Subclass of:

- is_a Dispersion
- is_a PhaseHeterogeneousMixture

CompositeElectrode

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_7aa79b12-6b34-4724-9728-f31b5f7ed83d

elucidation: An electrode consisting of multiple ElectrochemicalSubComponent

prefLabel: CompositeElectrode

Subclass of:

- is_a Electrode

CompositeIonBridge

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_6cae5943-737a-4f88-9903-9de4cffebd11

elucidation: An ion bridge consisting of at least two subcomponents, one of which is an IonicSubcomponent.

prefLabel: CompositeIonBridge

Subclass of:

- is_a IonBridge
- hasSpatialDirectPart min 2 ElectrochemicalSubcomponent
- hasSpatialDirectPart some IonicSubcomponent

CompositeReaction

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_1150b4d8_1d86_496f_a154_731868f0b46d

elucidation: A chemical reaction for which the expression for the rate of disappearance of a reactant (or rate of appearance of a product) involves rate constants of more than a single elementary reaction.

IUPAC. Compendium of Chemical Terminology, 2nd ed. (the "Gold Book"). Compiled by A. D. McNaught and A. Wilkinson. Blackwell Scientific Publications, Oxford (1997). Online version (2019-) created by S. J. Chalk. ISBN 0-9678550-9-8. https://doi.org/10.1351/goldbook.

iupacEntry: https://goldbook:iupac:org/terms/view/C01211

prefLabel: CompositeReaction

Subclass of:

- is_a ChemicalReaction
- hasTemporalPart some ElementaryReaction

ConcentrationCell

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_8a5083b0_cd23_4f8c_99e8_b9ccd6f9f3a2

elucidation: Electrochemical cell that has two half-cells separated by a wall permeable to ions, both containing the same electrolyte differing only in their ion concentrations.

–IEC60050

IECEntry: https://www:electropedia:org/iev/iev:nsf/display?openform&ievref=114-03-08

prefLabel: ConcentrationCell

wikipediaEntry: https://en:wikipedia:org/wiki/Concentration_cell

Subclass of:

- is_a ElectrochemicalCell

ConcentrationOverpotential

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_9ed7210c_c4fa_467b_822d_ba12f885bdf4

elucidation: The concentration overpotential of an electrode reaction at a given electrode current density (c.d.) is basically the difference in equilibrium potentials across the diffusion layer. More precisely, it is the potential of a reference electrode (of the same electrode reaction as the working electrode) with the interfacial concentrations which establish themselves at c.d., relative to the potential of a similar reference electrode with the concentrations of the bulk solution. From such a measured potential difference, with c.d. flowing, one needs to subtract the ohmic potential drop prevailing between the two electrodes.

IUPAC. Compendium of Chemical Terminology, 2nd ed. (the "Gold Book"). Compiled by A. D. McNaught and A. Wilkinson. Blackwell Scientific Publications, Oxford (1997). Online version (2019-) created by S. J. Chalk. ISBN 0-9678550-9-8. https://doi.org/10.1351/goldbook.

iupacEntry: https://goldbook:iupac:org/terms/view/C01230

physicalDimension: T-3 L+2 M+1 I-1 Θ0 N0 J0

prefLabel: ConcentrationOverpotential

wikipediaEntry: https://en:wikipedia:org/wiki/Overpotential#Concentration_overpotential

Subclass of:

- is_a Overpotential

CondensedFormula

IRI: http://emmo:info/emmo#EMMO_bf836c2b_7800_474d_b674_f5d629fa0bb1

example: An expression that provides information about the element types that constiture a molecule or a molecular substance and their number, together with simple information about the connectivity of its groups by using parenthesis or by goruping element names according to its molecular structure.

prefLabel: CondensedFormula

Subclass of:

- is_a ChemicalFormula

ConductionChargeFluxEquation

IRI: http://emmo:info/emmo#EMMO_65c24b42_8074_434b_99ba_7c50cded4149

elucidation: The transport of electric charge driven by a gradient in the electric potential.

prefLabel: ConductionChargeFluxEquation

Subclass of:

- is_a ChargeFluxTerm

ConductionHeatFluxTerm

IRI: http://emmo:info/emmo#EMMO_a0d39183_16d7_4a47_9fbc_16e464402bc7

prefLabel: ConductionHeatFluxTerm

Subclass of:

- is_a HeatFluxTerm

ConductiveAdditive

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_82fef384_8eec_4765_b707_5397054df594

prefLabel: ConductiveAdditive

Subclass of:

- is_a ElectronicSubcomponent

ConductivityCell

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_b525a629_a679_464f_bc5b_b49d2fc82686

elucidation: An electrochemical cell for conductivity measurements.

–A. J. Bard, G. Inzelt, and F. Scholz, Eds., Electrochemical Dictionary, 2nd Edition. Berlin: Springer-Verlag, 2012. DOI: http://doi.org/10.1007/978-3-642-29551-5

prefLabel: ConductivityCell

Subclass of:

- is_a MeasuringInstrument

Constant

IRI: http://emmo:info/emmo#EMMO_ae15fb4f_8e4d_41de_a0f9_3997f89ba6a2

elucidation: A 'varaible' that stand for a well known constant.

example: π refers to the constant number ~3.14

prefLabel: Constant

Subclass of:

- is_a Variable
- Inverse(hasVariable) only Numerical

Container

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_d9ebf2cd_a020_46b4_b91a_9a6402736b9e

elucidation: A receptacle or vessel that holds the plates, electrolyte, and other elements of a single cell or multi-cell unit.

–IEEE Standard Glossary of Stationary Battery Terminology (2016), https://doi.org/10.1109/IEEESTD.2016.7552407

prefLabel: Container

Subclass of:

- is_a StructuralSubcomponent

ContinuityEquation

IRI: http://emmo:info/emmo#EMMO_1285a53a_a8a8_45e4_b39b_d54348721db2

elucidation: An equation that describes the transport of some conserved quantity.

prefLabel: ContinuityEquation

Subclass of:

- is_a PhysicsEquation
- hasSpatialDirectPart some SourceTerm
- hasSpatialDirectPart some FluxTerm
- hasSpatialDirectPart some AccumulationTerm

Continuum

IRI: http://emmo:info/emmo#EMMO_8b0923ab_b500_477b_9ce9_8b3a3e4dc4f2

elucidation: A state that is a collection of sufficiently large number of other parts such that: - it is the bearer of qualities that can exists only by the fact that it is a sum of parts - the smallest partition dV of the state volume in which we are interested in, contains enough parts to be statistically consistent: n [#/m3] x dV [m3] >> 1

prefLabel: Continuum

Subclass of:

- is_a Matter

ContinuumManufacturing

IRI: http://emmo:info/emmo#EMMO_71d1c8f0_c6e3_44b5_a4b6_1b74ff35698a

elucidation: A manufacturing process whose product is the result of the combination of more substances.

example: Synthesis of materials, the preparation of a cake.

prefLabel: ContinuumManufacturing

Subclass of:

- is_a Manufacturing

ContinuumModel

IRI: http://emmo:info/emmo#EMMO_4456a5d2_16a6_4ee1_9a8e_5c75956b28ea

elucidation: A physics-based model based on a physics equation describing the behaviour of continuum volume.

prefLabel: ContinuumModel

Subclass of:

- is_a PhysicsBasedModel

ControlVolume

IRI: http://emmo:info/emmo#EMMO_e55a5449_e49e_4e8c_bccb_8a1eb110b2e8

prefLabel: ControlVolume

Subclass of:

- is_a Discretization

ConvectionHeatFluxTerm

IRI: http://emmo:info/emmo#EMMO_661b9697_fefc_4389_85f2_9ebe4cfe0d21

prefLabel: ConvectionHeatFluxTerm

Subclass of:

- is_a HeatFluxTerm

ConvectionMassFluxEquation

IRI: http://emmo:info/emmo#EMMO_6b8cca3a_e6e1_41a6_a5ea_f580d2c0013c

prefLabel: ConvectionMassFluxEquation

Subclass of:

- is_a MassFluxTerm

Conventional

IRI: http://emmo:info/emmo#EMMO_35d2e130_6e01_41ed_94f7_00b333d46cf9

elucidation: A ‘Sign’ that stands for an ‘Object’ through convention, norm or habit, without any resemblance to it.

prefLabel: Conventional

Subclass of:

- is_a Sign

ConventionalBatteryProperty

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_c2ea0cf5_3698_4479_a034_394a271a7c83

prefLabel: ConventionalBatteryProperty

Subclass of:

- is_a ConventionalQuantitativeProperty

ConventionalElectrochemicalProperty

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_b6da9be9_aa1d_4044_b030_4fcfefff5bf3

elucidation: A ConventionalQuantitativeProperty that is unique to the field of electrochemistry

prefLabel: ConventionalElectrochemicalProperty

Subclass of:

- is_a ConventionalQuantitativeProperty

ConventionalNominalProperty

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_5f008bc2_a118_4665_b01e_a8d24e42a503

prefLabel: ConventionalNominalProperty

Subclass of:

- is_a NominalProperty

ConventionalQuantitativeProperty

IRI: http://emmo:info/emmo#EMMO_d8aa8e1f_b650_416d_88a0_5118de945456

elucidation: A quantitative property attributed by agreement to a quantity for a given purpose.

example: The thermal conductivity of a copper sample in my laboratory can be assumed to be the conductivity that appears in the vendor specification. This value has been obtained by measurement of a sample which is not the one I have in my laboratory. This conductivity value is then a conventional quantitiative property assigned to my sample through a semiotic process in which no actual measurement is done by my laboratory.

If I don't believe the vendor, then I can measure the actual thermal conductivity. I then perform a measurement process that semiotically assign another value for the conductivity, which is a measured property, since is part of a measurement process.

Then I have two different physical quantities that are properties thanks to two different semiotic processes.

prefLabel: ConventionalQuantitativeProperty

Subclass of:

- is_a QuantitativeProperty

ConventionalSemiosis

IRI: http://emmo:info/emmo#EMMO_47bf3513_4ae6_4858_9c45_76e23230d68d

elucidation: The 'Semiosis' process involving the 'Declarer' (the 'Interpreter') who declares that a 'Physical' (the 'Object') has a conventional sign (the 'Sign') that stands for another 'Physical' (the 'Interpretant').

prefLabel: ConventionalSemiosis

Subclass of:

- is_a Semiosis
- hasProperParticipant some Conventional
- hasProperParticipant some Interpretant
- hasProperParticipant some Declarer

ConversionCell

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_9679fc51_d9c2_484a_9dba_d86ab407fcbe

elucidation: An electrochemical cell in which the predominant reaction mechanisms at both electrodes are conversions.

example: Zinc-air cell

prefLabel: ConversionCell

Subclass of:

- is_a ElectrochemicalCell
- hasPart some ConversionElectrode

ConversionElectrode

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_670360fd_7cf9_4fe7_a9b5_c966f668ec88

elucidation: An electrode at which the predominant electrochemical reaction is a conversion.

prefLabel: ConversionElectrode

Subclass of:

- is_a Electrode
- hasPart some ConversionMaterial

ConversionMaterial

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_99f21272_3aba_4dab_a9b7_63e5e1116beb

elucidation: An electrochemical material that participates in an electrochemical conversion reaction.

example: Lithium metal

prefLabel: ConversionMaterial

Subclass of:

- is_a ActiveMaterial

Coulomb

IRI: http://emmo:info/emmo#EMMO_696ed548_9477_45ea_993c_6a8f5271914a

iupacEntry: https://doi:org/10:1351/goldbook:C01365

prefLabel: Coulomb

qudtEntry: http://qudt:org/vocab/unit/C

Subclass of:

- is_a SISpecialUnit
- hasSymbolData value 'C'
- hasPhysicalDimension some ElectricChargeDimension

CoulombMetre

IRI: http://emmo:info/emmo#EMMO_e9eaeeb5_620c_4dab_8f72_269ff85d0634

elucidation: Measurement unit for electric dipole moment.

prefLabel: CoulombMetre

Subclass of:

- is_a SICoherentDerivedUnit
- hasPhysicalDimension some MagneticDipoleMomentDimension

Coulometer

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_fb9bf7cb_dd4b_4391_99a1_628263dd694(

elucidation: Measuring instrument [VIM 3.1] to obtain the electrical charge passed in an experiment, or to produce a known amount of substance in a titration.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

dbpediaEntry: https://dbpedia:org/page/Voltmeter

prefLabel: Coulometer

wikipediaEntry: https://en:wikipedia:org/wiki/Voltameter

Subclass of:

- is_a MeasuringInstrument

CounterElectrode

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_871bc4a4_2d17_4b88_9b0f_7ab85f14afea

elucidation: Electrode whose function is to carry the electric current flowing through the electrical circuit of an electrochemical cell, the electrochemical processes on its surface not being of interest.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

iupacEntry: https://goldbook:iupac:org/terms/view/A00535

prefLabel: CounterElectrode

wikipediaEntry: https://en:wikipedia:org/wiki/Auxiliary_electrode

Subclass of:

- is_a Electrode

CubicCentimetre

IRI: https://big-map:github:io/LabNotebookAppOntology#EMMO_2a62748d_fd28_4c5b_88bb_fa583780bf82

prefLabel: CubicCentimetre

Subclass of:

- is_a SIPrefixedUnit
- hasSpatialDirectPart exactly 1 Micro
- hasPhysicalDimension some VolumeDimension

CubicMetre

IRI: http://emmo:info/emmo#EMMO_a055d311_9990_40a5_b2f2_288412f5d6a5

elucidation: SI coherent measurement unit for volume.

omMatch: http://www:ontology-of-units-of-measure:org/resource/om-2/cubicMetre

prefLabel: CubicMetre

qudtEntry: http://qudt:org/vocab/unit/M3

Subclass of:

- is_a SICoherentDerivedUnit
- hasPhysicalDimension some VolumeDimension

CurrentCollector

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_212af058_3bbb_419f_a9c6_90ba9ebb3706

elucidation: A good electron conductor support designed to transfer electrons from the external circuit to the active materials of the cell.

–A. J. Bard, G. Inzelt, and F. Scholz, Eds., Electrochemical Dictionary, 2nd Edition. Berlin: Springer-Verlag, 2012. DOI: https://doi.org/10.1007/978-3-642-29551-5

example: Copper foil Aluminum foil

prefLabel: CurrentCollector

wikipediaEntry: https://en:wikipedia:org/wiki/Current_collector

Subclass of:

- is_a ElectronicSubcomponent

CurrentCollectorContinuumModel

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_470d4c68_21b3_4405_ac3f_9588c4152437

prefLabel: CurrentCollectorContinuumModel

Subclass of:

- is_a ElectronicSubcomponentContinuumModel

CurrentCollectorThickness

IRI: https://big-map:github:io/LabNotebookAppOntology#EMMO_5a9b3775_8eaf_4654_853d_dcb08a7351fe

physicalDimension: T0 L+1 M0 I0 Θ0 N0 J0

prefLabel: CurrentCollectorThickness

Subclass of:

- is_a Length
- hasReferenceUnit some Micrometre

CurrentDensity

IRI: http://emmo:info/emmo#EMMO_7c8007b0_58a7_4486_bf1c_4772852caca0

dbpediaEntry: http://dbpedia:org/page/Current_density

iupacEntry: https://doi:org/10:1351/goldbook:E01928

physicalDimension: T0 L-2 M0 I+1 Θ0 N0 J0

prefLabel: CurrentDensity

qudtEntry: http://qudt:org/vocab/quantitykind/ElectricCurrentDensity

Subclass of:

- is_a ISQDerivedQuantity

Curve

IRI: http://emmo:info/emmo#EMMO_0ef4ff4a_5458_4f2a_b51f_4689d472a3f2

prefLabel: Curve

Subclass of:

- is_a OneManifold

Cylindrical18650Cell

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_9fb1ae03_6ae2_4bfb_b69e_fd6f88788ef2

prefLabel: Cylindrical18650Cell

Subclass of:

- is_a CylindricalCell
- hasPart some Cylindrical18650CellHousing

Cylindrical18650CellHousing

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_aafe33ca_3fe3_4ff0_bed0_e7c925e26eba

prefLabel: Cylindrical18650CellHousing

Subclass of:

- is_a CylindricalCellHousing
- hasConventionalQuantity value cylindrical_18650_cell_nominal_height
- hasConventionalQuantity value cylindrical_18650_cell_nominal_diameter

Cylindrical21700CellHousing

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_b5b8ac18_170a_4c95_a9a3_9bf3bbce0693

prefLabel: Cylindrical21700CellHousing

Subclass of:

- is_a CylindricalCellHousing
- hasConventionalQuantity value cylindrical_21700_cell_nominal_diameter
- hasConventionalQuantity value cylindrical_21700_cell_nominal_height

Cylindrical4680CellHousing

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_10f58ac2_ad4b_44c2_9d82_db154cdfeef8

prefLabel: Cylindrical4680CellHousing

Subclass of:

- is_a CylindricalCellHousing
- hasConventionalQuantity value cylindrical_4680_cell_nominal_height
- hasConventionalQuantity value cylindrical_4680_cell_nominal_diameter

CylindricalCell

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_ac604ecd_cc60_4b98_b57c_74cd5d3ccd40

prefLabel: CylindricalCell

Subclass of:

- is_a BatteryCell
- hasPart some CylindricalCellHousing

CylindricalCellHousing

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_7c2a1d4d_e622_41f2_b978_49e4fbdca82f

prefLabel: CylindricalCellHousing

Subclass of:

- is_a Container
- hasConventionalQuantity some NominalDiameter
- hasConventionalQuantity some NominalHeight

DRate

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_25e20915_c35d_4bee_ad31_736235a79780

physicalDimension: T0 L0 M0 I0 Θ0 N0 J0

prefLabel: DRate

Subclass of:

- is_a BatteryQuantity

Dalton

IRI: http://emmo:info/emmo#EMMO_00dd79e0_31a6_427e_9b9c_90f3097e4a96

definition: One dalton is defined as one twelfth of the mass of an unbound neutral atom of carbon-12 in its nuclear and electronic ground state.

dbpediaEntry: http://dbpedia:org/page/Unified_atomic_mass_unit

iupacEntry: https://doi:org/10:1351/goldbook:D01514

prefLabel: Dalton

qudtEntry: http://qudt:org/vocab/unit/Dalton

Subclass of:

- is_a SIAcceptedSpecialUnit
- hasSymbolData value 'Da'
- hasPhysicalDimension some MassDimension

DataBasedModel

IRI: http://emmo:info/emmo#EMMO_a4b14b83_9392_4a5f_a2e8_b2b58793f59b

elucidation: A computational model that uses existing data to create new insight into the behaviour of a system.

prefLabel: DataBasedModel

Subclass of:

- is_a MathematicalModel

Date

IRI: https://big-map:github:io/LabNotebookAppOntology#EMMO_11678b27_0c12_46d4_a0f4_c20e1df6084f

physicalDimension: T+1 L0 M0 I0 Θ0 N0 J0

prefLabel: Date

Subclass of:

- is_a PhysicalQuantity
- Inverse(hasVariable) only hasSymbolData some type

Day

IRI: http://emmo:info/emmo#EMMO_28ef05a7_ecc1_4df6_8116_c53251fbd4a8

definition: A measure of time defined as 86 400 seconds.

dbpediaEntry: http://dbpedia:org/page/Day

iupacEntry: https://doi:org/10:1351/goldbook:D01527

prefLabel: Day

qudtEntry: http://qudt:org/vocab/unit/DAY

Subclass of:

- is_a SIAcceptedSpecialUnit
- hasSymbolData value 'd'
- hasPhysicalDimension some TimeDimension

Deci

IRI: http://emmo:info/emmo#EMMO_1181c938_c8f0_4ad6_bc7a_2bfdc0903d29

prefLabel: Deci

Subclass of:

- is_a SIMetricPrefix
- Inverse(hasVariable) only hasNumericalData value 0.1
- hasSymbolData value 'd'

Declarer

IRI: http://emmo:info/emmo#EMMO_2d72e38c_d587_437f_98f6_f2718fb130eb

elucidation: An agent within the domain of the ontology who declares an ontological relation.

prefLabel: Declarer

Subclass of:

- is_a Interpreter

Deducer

IRI: http://emmo:info/emmo#EMMO_36a4c1ca_5085_49ca_9e13_4c70d00c50a5

prefLabel: Deducer

Subclass of:

- is_a Interpreter

Defined

IRI: http://emmo:info/emmo#EMMO_ff7ac91b_1b4b_483e_b51b_44c9164dbb9f

prefLabel: Defined

Subclass of:

- is_a CategorizedPhysicalQuantity

DefiningEquation

IRI: http://emmo:info/emmo#EMMO_29afdf54_90ae_4c98_8845_fa9ea3f143a8

elucidation: An equation that define a new variable in terms of other mathematical entities.

example: The definition of velocity as v = dx/dt.

The definition of density as mass/volume.

y = f(x)

prefLabel: DefiningEquation

Subclass of:

- is_a Equation

Degree

IRI: http://emmo:info/emmo#EMMO_b8830065_3809_41b7_be3c_e33795567fd9

definition: Degree is a measurement of plane angle, defined by representing a full rotation as 360 degrees.

dbpediaEntry: http://dbpedia:org/page/Degree_(angle)

iupacEntry: https://doi:org/10:1351/goldbook:D01560

prefLabel: Degree

qudtEntry: http://qudt:org/vocab/unit/DEG

Subclass of:

- is_a SIAcceptedSpecialUnit
- hasSymbolData value '°'
- hasPhysicalDimension some DimensionOne

DegreeCelsius

IRI: http://emmo:info/emmo#EMMO_b20be325_8bfd_4237_bee7_201ab0fd9c75

iupacEntry: https://doi:org/10:1351/goldbook:D01561

prefLabel: DegreeCelsius

qudtEntry: http://qudt:org/vocab/unit/DEG_C

Subclass of:

- is_a SISpecialUnit
- hasSymbolData value '°C'
- hasPhysicalDimension some TemperatureDimension

Deka

IRI: http://emmo:info/emmo#EMMO_1d8b370b_c672_4d0c_964e_eaafcbf2f51f

prefLabel: Deka

Subclass of:

- is_a SIMetricPrefix
- hasSymbolData value 'da'
- Inverse(hasVariable) only hasNumericalData value 10.0

Density

IRI: http://emmo:info/emmo#EMMO_06448f64_8db6_4304_8b2c_e785dba82044

dbpediaEntry: http://dbpedia:org/page/Density

iupacEntry: https://doi:org/10:1351/goldbook:D01590

physicalDimension: T0 L-3 M+1 I0 Θ0 N0 J0

prefLabel: Density

qudtEntry: http://qudt:org/vocab/quantitykind/Density

Subclass of:

- is_a ISQDerivedQuantity
- Inverse(hasProperty) only Matter

DerivedQuantity

IRI: http://emmo:info/emmo#EMMO_71f6ab56_342c_484b_bbe0_de86b7367cb3

elucidation: "Quantity, in a system of quantities, defined in terms of the base quantities of that system".

prefLabel: DerivedQuantity

Subclass of:

- is_a PhysicalQuantity

DerivedUnit

IRI: http://emmo:info/emmo#EMMO_08b308d4_31cd_4779_a784_aa92fc730f39

elucidation: Derived units are defined as products of powers of the base units corresponding to the relations defining the derived quantities in terms of the base quantities.

prefLabel: DerivedUnit

Subclass of:

- is_a NonPrefixedUnit

Device

IRI: http://emmo:info/emmo#EMMO_494b372c_cfdf_47d3_a4de_5e037c540de8

elucidation: An engineered object which is instrumental for reaching a particular purpose through its characteristic functioning process, with particular reference to mechanical or electronic equipment.

prefLabel: Device

Subclass of:

- is_a Engineered
- Inverse(hasProperParticipant) some DiscreteManufacturing

Diameter

IRI: http://emmo:info/emmo#EMMO_41c6bacf_4e5c_44db_bcbc_6a6a470ad854

physicalDimension: T0 L+1 M0 I0 Θ0 N0 J0

prefLabel: Diameter

Subclass of:

- is_a Length

DifferentialOperator

IRI: http://emmo:info/emmo#EMMO_f8a2fe9f_458b_4771_9aba_a50e76afc52d

prefLabel: DifferentialOperator

Subclass of:

- is_a MathematicalOperator

DiffusionCurrent

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_17626b8e_dfce_4d3a_ae6c_5a7215d43a90

elucidation: Faradaic current that is controlled by the rate at which electroactive species diffuse toward (or away from) and electrode-solution interface.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

iupacEntry: https://goldbook:iupac:org/terms/view/D01722

physicalDimension: T0 L0 M0 I+1 Θ0 N0 J0

prefLabel: DiffusionCurrent

wikipediaEntry: https://en:wikipedia:org/wiki/Diffusion_current

Subclass of:

- is_a FaradaicCurrent

DiffusionLimitedCurrent

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_5fb7a03f_d6dd_47ee_9317_0629681c7d00

elucidation: Diffusion current of the potential-independent value that is approached as the rate of the charge-transfer process is increased by varying the applied potential, being greater than the rate of mass transport controlled by diffusion.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

iupacEntry: https://goldbook:iupac:org/terms/view/L03534

physicalDimension: T0 L0 M0 I+1 Θ0 N0 J0

prefLabel: DiffusionLimitedCurrent

Subclass of:

- is_a DiffusionCurrent

DiffusionMassFluxEquation

IRI: http://emmo:info/emmo#EMMO_b35b8f5d_8e4c_4600_9554_f951113d2c79

elucidation: Relates the diffusive mass flux to the gradient of the concentration.

prefLabel: DiffusionMassFluxEquation

Subclass of:

- is_a ChemicalSpeciesFluxTerm
- hasSpatialDirectPart some SingleComponentDiffusivity
- hasSpatialDirectPart some MassFlux
- hasSpatialDirectPart some AmountConcentration

DiffusionMigrationMassFluxEquation

IRI: http://emmo:info/emmo#EMMO_c64231ab_d281_4263_b470_52012f59d076

prefLabel: DiffusionMigrationMassFluxEquation

Subclass of:

- is_a ChemicalSpeciesFluxTerm

DimensionOne

IRI: http://emmo:info/emmo#EMMO_3227b821_26a5_4c7c_9c01_5c24483e0bd0

prefLabel: DimensionOne

Subclass of:

- is_a PhysicalDimension
- equivalent_to hasSymbolData value 'T0 L0 M0 I0 Θ0 N0 J0'

DimensionlessUnit

IRI: https://big-map:github:io/LabNotebookAppOntology#EMMO_3a894406_d68f_4552_99ae_1ffc3ce15b87

prefLabel: DimensionlessUnit

Subclass of:

- is_a DerivedUnit

DirectCurrent

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_885b462e_f6bc_412d_8b94_9425e13af0c7

elucidation: ElectricCurrent that flows in a constant direction, i.e. a current with a constant sign.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

dbpediaEntry: https://dbpedia:org/page/Direct_current

iupacEntry: https://goldbook:iupac:org/terms/view/D01767

physicalDimension: T0 L0 M0 I+1 Θ0 N0 J0

prefLabel: DirectCurrent

wikipediaEntry: https://en:wikipedia:org/wiki/Direct_current

Subclass of:

- is_a ElectricCurrent

DischargeCutoffVoltage

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_534dd59c_904c_45d9_8550_ae9d2eb6bbc

physicalDimension: T-3 L+2 M+1 I-1 Θ0 N0 J0

prefLabel: DischargeCutoffVoltage

Subclass of:

- is_a ElectricPotential
- is_a ConventionalElectrochemicalProperty

DiscreteManufacturing

IRI: http://emmo:info/emmo#EMMO_8786cb47_8e1f_4968_9b15_f6d41fc51252

elucidation: A manufacturing process aimed to the production of a device made of specific components.

example: Assemblying a bicycle, building a car.

prefLabel: DiscreteManufacturing

Subclass of:

- is_a Manufacturing

Discretization

IRI: http://emmo:info/emmo#EMMO_ad97ebdc_6ec1_473c_adf0_bfe3e62c529c

prefLabel: Discretization

Subclass of:

- is_a Numerical

DiscretizationEdge

IRI: http://emmo:info/emmo#EMMO_6bcaf4f2_8639_40b4_9d03_5ad3c9ba9540

prefLabel: DiscretizationEdge

wikipediaEntry: https://en:wikipedia:org/wiki/Edge_(geometry)

Subclass of:

- is_a Line
- is_a DiscretizationElementary
- hasSpatialDirectPart exactly 2 DiscretizationNode

DiscretizationElementary

IRI: http://emmo:info/emmo#EMMO_4d255b9c_43bc_4c11_b68b_0e98274eb34f

prefLabel: DiscretizationElementary

Subclass of:

- is_a Discretization

DiscretizationFace

IRI: http://emmo:info/emmo#EMMO_c611d72b_0921_4c93_ab42_43b30084283e

prefLabel: DiscretizationFace

wikipediaEntry: https://en:wikipedia:org/wiki/Face_(geometry)

Subclass of:

- is_a DiscretizationElementary
- hasSpatialDirectPart some DiscretizationEdge
- hasSpatialDirectPart some DiscretizationFaceNormal

DiscretizationFaceNormal

IRI: http://emmo:info/emmo#EMMO_489bd765_c35e_48dc_a9e8_dbcda684642b

prefLabel: DiscretizationFaceNormal

wikipediaEntry: https://en:wikipedia:org/wiki/Normal_(geometry)

Subclass of:

- is_a DiscretizationElementary

DiscretizationNode

IRI: http://emmo:info/emmo#EMMO_942684c8_f693_47d2_b12f_82a6bc774c9a

prefLabel: DiscretizationNode

Subclass of:

- is_a Point
- is_a DiscretizationElementary

Dispersion

IRI: http://emmo:info/emmo#EMMO_0b15f4ae_092e_4487_9100_3c44176c545c

elucidation: A material in which distributed particles of one phase are dispersed in a different continuous phase.

prefLabel: Dispersion

Subclass of:

- is_a Mixture

- disjoint_union_of Solution, Suspension, Colloid

Dissociation

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_2f7b7d01_f44f_448d_8ce1_86fc2b4dc60f

elucidation: Process where molecules split up into ions due to being dissolved.

–IEC60050

IECEntry: https://www:electropedia:org/iev/iev:nsf/display?openform&ievref=114-01-08

prefLabel: Dissociation

wikipediaEntry: https://en:wikipedia:org/wiki/Dissociation_(chemistry)

Subclass of:

- is_a ChemicalReaction

Division

IRI: http://emmo:info/emmo#EMMO_a365b3c1_7bde_41d7_a15b_2820762e85f4

prefLabel: Division

Subclass of:

- is_a ArithmeticOperator
- equivalent_to hasSymbolData value '/'

DoseEquivalent

IRI: http://emmo:info/emmo#EMMO_3df10765_f6ff_4c9e_be3d_10b1809d78bd

elucidation: A dose quantity used in the International Commission on Radiological Protection (ICRP) system of radiological protection.

dbpediaEntry: http://dbpedia:org/page/Energy

iupacEntry: https://doi:org/10:1351/goldbook:E02101

physicalDimension: T-2 L+2 M0 I0 Θ0 N0 J0

prefLabel: DoseEquivalent

qudtEntry: http://qudt:org/vocab/quantitykind/DoseEquivalent

Subclass of:

- is_a ISQDerivedQuantity

DoubleLayerCurrent

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_a56fc557_9dea_42e6_b936_e9d62dcaf84f

elucidation: Non-faradaic current associated with the charging of the electrical double layer at the electrode-solution interface.

—-J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

iupacEntry: https://goldbook:iupac:org/terms/view/D01847

physicalDimension: T0 L0 M0 I+1 Θ0 N0 J0

prefLabel: DoubleLayerCurrent

Subclass of:

- is_a ElectricCurrent
- is_a ElectrochemicalQuantity

DroppingMercuryElectrode

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_b76a778f_253f_4210_a67f_fb6444d0de26

elucidation: Mercury electrode formed by sequence of mercury drops falling from a small aperture.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

prefLabel: DroppingMercuryElectrode

wikipediaEntry: https://en:wikipedia:org/wiki/Dropping_mercury_electrode

Subclass of:

- is_a MercuryElectrode

Dust

IRI: http://emmo:info/emmo#EMMO_e4281979_2b07_4a43_a772_4903fb3696fe

elucidation: A suspension of fine particles in the atmosphere.

prefLabel: Dust

Subclass of:

- is_a GasSolidSuspension

EC

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_11bfbed1_b266_449b_90ba_506efc3e600d

prefLabel: EC

Subclass of:

- is_a ChemicalSubstance

EC03SingleComponentComposition

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_92b44afb_f5c0_4cb2_a374_377bbb10da7e

prefLabel: EC03SingleComponentComposition

Subclass of:

- is_a ECSingleComponentComposition
- hasSpatialDirectPart value ec_ecemc37_mass_fraction

ECEMC37

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_71a5a495_e6d5_44ee_87c5_3c091e6e451c

prefLabel: ECEMC37

Subclass of:

- is_a MixedSolvent
- hasConventionalQuantity some EMC07SingleComponentComposition
- hasSolventPart some EC
- hasSolventPart some EMC
- hasConventionalQuantity some EC03SingleComponentComposition

ECSingleComponentComposition

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_2c27f40d_9a35_4f20_8a5e_ed4e27b09ef7

prefLabel: ECSingleComponentComposition

Subclass of:

- is_a SingleComponentComposition

- hasSpatialDirectPart some EthyleneCarbonate

EMC

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_19495513_c70f_498a_8e8c_febf04935662

prefLabel: EMC

Subclass of:

- is_a ChemicalSubstance

EMC07SingleComponentComposition

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_b0431e99_a501_4a94_abad_9cf833ab080e

prefLabel: EMC07SingleComponentComposition

Subclass of:

- is_a EMCSingleComponentComposition
- hasSpatialDirectPart value emc_ecemc37_mass_fraction

EMCSingleComponentComposition

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_93cda198_c35f_4d39_976c_46c49f030a8b

prefLabel: EMCSingleComponentComposition

Subclass of:

- is_a SingleComponentComposition
- hasSpatialDirectPart some EthylMethylCarbonate

EMMO

IRI: http://emmo:info/emmo#EMMO_802d3e92_8770_4f98_a289_ccaaab7fdddf

elucidation: The class representing the collection of all the individuals declared in this ontology standing for real world objects.

prefLabel: EMMO

Subclass of:

- is_a Thing
- equivalent_to Inverse(hasPart) value Universe
- equivalent_to hasPart some Quantum
- disjoint_union_of Collection, Item

ElectricCapacitorModel

IRI: http://emmo:info/emmo#EMMO_65675235_9ba4_44cc_a1c3_244cd6ea6709

prefLabel: ElectricCapacitorModel

Subclass of:

- is_a EquivalentCircuitModelElementary

ElectricCharge

IRI: http://emmo:info/emmo#EMMO_1604f495_328a_4f28_9962_f4cc210739dd

elucidation: The physical property of matter that causes it to experience a force when placed in an electromagnetic field.

dbpediaEntry: http://dbpedia:org/page/Electric_charge

iupacEntry: https://doi:org/10:1351/goldbook:E01923

physicalDimension: T+1 L0 M0 I+1 Θ0 N0 J0

prefLabel: ElectricCharge

qudtEntry: http://qudt:org/vocab/quantitykind/ElectricCharge

Subclass of:

- is_a ISQDerivedQuantity

ElectricChargeContinuityEquation

IRI: http://emmo:info/emmo#EMMO_8836f42d_7cf3_4f26_ad15_4798261f26c0

elucidation: Equation describing the continuum transport of electric charge.

prefLabel: ElectricChargeContinuityEquation

Subclass of:

- is_a ContinuityEquation
- hasSpatialDirectPart some ChargeSourceTerm
- hasSpatialDirectPart some ChargeFluxTerm
- hasSpatialDirectPart some ChargeAccumulationTerm

ElectricChargeDimension

IRI: http://emmo:info/emmo#EMMO_ab79e92b_5377_454d_be06_d61b50db295a

prefLabel: ElectricChargeDimension

Subclass of:

- is_a PhysicalDimension
- equivalent_to hasSymbolData value 'T+1 L0 M0 I+1 Θ0 N0 J0'

ElectricConductance

IRI: http://emmo:info/emmo#EMMO_ffb73b1e_5786_43e4_a964_cb32ac7affb7

elucidation: Measure of the ease for electric current to pass through a material.

dbpediaEntry: http://dbpedia:org/page/Electrical_resistance_and_conductance

iupacEntry: https://doi:org/10:1351/goldbook:E01925

physicalDimension: T+3 L-2 M-1 I+2 Θ0 N0 J0

prefLabel: ElectricConductance

qudtEntry: http://qudt:org/vocab/quantitykind/Conductance

Subclass of:

- is_a ISQDerivedQuantity

ElectricConductanceDimension

IRI: http://emmo:info/emmo#EMMO_321af35f_f0cc_4a5c_b4fe_8c2c0303fb0c

prefLabel: ElectricConductanceDimension

Subclass of:

- is_a PhysicalDimension
- equivalent_to hasSymbolData value 'T+3 L-2 M-1 I+2 Θ0 N0 J0'

ElectricConductivity

IRI: http://emmo:info/emmo#EMMO_cde4368c_1d4d_4c94_8548_604749523c6d

dbpediaEntry: http://dbpedia:org/page/Electrical_resistivity_and_conductivity

iupacEntry: https://doi:org/10:1351/goldbook:C01245

physicalDimension: T+3 L-3 M-1 I+2 Θ0 N0 J0

prefLabel: ElectricConductivity

qudtEntry: http://qudt:org/vocab/quantitykind/ElectricConductivity

Subclass of:

- is_a ISQDerivedQuantity

ElectricCurrent

IRI: http://emmo:info/emmo#EMMO_c995ae70_3b84_4ebb_bcfc_69e6a281bb88

elucidation: A flow of electric charge.

dbpediaEntry: http://dbpedia:org/page/Electric_current

iupacEntry: https://doi:org/10:1351/goldbook:E01927

physicalDimension: T0 L0 M0 I+1 Θ0 N0 J0

prefLabel: ElectricCurrent

qudtEntry: http://qudt:org/vocab/quantitykind/ElectricCurrent

Subclass of:

- is_a ISQBaseQuantity

ElectricCurrentDimension

IRI: http://emmo:info/emmo#EMMO_d5f3e0e5_fc7d_4e64_86ad_555e74aaff84

prefLabel: ElectricCurrentDimension

Subclass of:

- is_a PhysicalDimension
- equivalent_to hasSymbolData value 'T0 L0 M0 I+1 Θ0 N0 J0'

ElectricDipoleMoment

IRI: http://emmo:info/emmo#EMMO_1a179ce4_3724_47f8_bee5_6292e3ac9942

elucidation: An electric dipole, vector quantity of magnitude equal to the product of the positive charge and the distance between the charges and directed from the negative charge to the positive charge.

IECEntry: http://www:electropedia:org/iev/iev:nsf/display?openform&ievref=121-11-35

IECEntry: http://www:electropedia:org/iev/iev:nsf/display?openform&ievref=121-11-36

dbpediaEntry: http://dbpedia:org/page/Electric_dipole_moment

iupacEntry: https://doi:org/10:1351/goldbook:E01929

omMatch: http://www:ontology-of-units-of-measure:org/resource/om-2/ElectricDipoleMoment

physicalDimension: T+1 L+1 M0 I+1 Θ0 N0 J0

prefLabel: ElectricDipoleMoment

qudtEntry: http://qudt:org/vocab/quantitykind/ElectricDipoleMoment

Subclass of:

- is_a ISQDerivedQuantity

ElectricImpedance

IRI: http://emmo:info/emmo#EMMO_79a02de5_b884_4eab_bc18_f67997d597a2

dbpediaEntry: http://dbpedia:org/page/Electrical_impedance

physicalDimension: T-3 L+2 M+1 I-2 Θ0 N0 J0

prefLabel: ElectricImpedance

qudtEntry: http://qudt:org/vocab/quantitykind/Impedance

Subclass of:

- is_a ElectricResistance

ElectricInductance

IRI: http://emmo:info/emmo#EMMO_04cc9451_5306_45d0_8554_22cee4d6e785

elucidation: A property of an electrical conductor by which a change in current through it induces an electromotive force in both the conductor itself and in any nearby conductors by mutual inductance.

dbpediaEntry: http://dbpedia:org/page/Inductance

iupacEntry: https://doi:org/10:1351/goldbook:M04076

physicalDimension: T-2 L+2 M+1 I-2 Θ0 N0 J0

prefLabel: ElectricInductance

qudtEntry: http://qudt:org/vocab/quantitykind/Inductance

Subclass of:

- is_a ISQDerivedQuantity

ElectricInductorModel

IRI: http://emmo:info/emmo#EMMO_af5ff45c_0f25_4e09_9070_0e9755ea6623

prefLabel: ElectricInductorModel

Subclass of:

- is_a EquivalentCircuitModelElementary

ElectricPotential

IRI: http://emmo:info/emmo#EMMO_4f2d3939_91b1_4001_b8ab_7d19074bf845

elucidation: Energy required to move a unit charge through an electric field from a reference point.

dbpediaEntry: http://dbpedia:org/page/Voltage

iupacEntry: https://doi:org/10:1351/goldbook:A00424

physicalDimension: T-3 L+2 M+1 I-1 Θ0 N0 J0

prefLabel: ElectricPotential

qudtEntry: http://qudt:org/vocab/quantitykind/Voltage

Subclass of:

- is_a ISQDerivedQuantity

ElectricPotentialDimension

IRI: http://emmo:info/emmo#EMMO_2e7e5796_4a80_4d73_bb84_f31138446c0c

prefLabel: ElectricPotentialDimension

Subclass of:

- is_a PhysicalDimension

- equivalent_to hasSymbolData value 'T-3 L+2 M+1 I-1 Θ0 N0 J0'

ElectricReactance

IRI: http://emmo:info/emmo#EMMO_92b2fb85_2143_4bc7_bbca_df3e6944bfc1

dbpediaEntry: http://dbpedia:org/page/Electrical_reactance

physicalDimension: T-3 L+2 M+1 I-2 Θ0 N0 J0

prefLabel: ElectricReactance

qudtEntry: http://qudt:org/vocab/quantitykind/Reactance

Subclass of:

- is_a ElectricResistance

ElectricResistance

IRI: http://emmo:info/emmo#EMMO_e88f75d6_9a17_4cfc_bdf7_43d7cea5a9a1

elucidation: Measure of the difficulty to pass an electric current through a material.

dbpediaEntry: http://dbpedia:org/page/Electrical_resistance_and_conductance

iupacEntry: https://doi:org/10:1351/goldbook:E01936

physicalDimension: T-3 L+2 M+1 I-2 Θ0 N0 J0

prefLabel: ElectricResistance

qudtEntry: http://qudt:org/vocab/quantitykind/Resistance

Subclass of:

- is_a ISQDerivedQuantity

ElectricResistanceDimension

IRI: http://emmo:info/emmo#EMMO_7610efb8_c7c6_4684_abc1_774783c62472

prefLabel: ElectricResistanceDimension

Subclass of:

- is_a PhysicalDimension
- equivalent_to hasSymbolData value 'T-3 L+2 M+1 I-2 Θ0 N0 J0'

ElectricResistivity

IRI: http://emmo:info/emmo#EMMO_e150fa8d_06dc_4bb8_bf95_04e2aea529c1

dbpediaEntry: http://dbpedia:org/page/Electrical_resistivity_and_conductivity

iupacEntry: https://doi:org/10:1351/goldbook:R05316

physicalDimension: T-3 L+3 M+1 I-2 Θ0 N0 J0

prefLabel: ElectricResistivity

qudtEntry: http://qudt:org/vocab/quantitykind/Resistivity

Subclass of:

- is_a ISQDerivedQuantity

ElectricResistorModel

IRI: http://emmo:info/emmo#EMMO_09013481_1645_4a0d_8ee8_33969e38bdfe

prefLabel: ElectricResistorModel

Subclass of:

- is_a EquivalentCircuitModelElementary

Electrocapillarity

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_5cb5548f_f774_4668_ad02_f0742581f2f1

elucidation: Change of the mechanical stress at the surface separating two bodies due to the presence of electric charges at the interface.

–IEC60050

IECEntry: https://www:electropedia:org/iev/iev:nsf/display?openform&ievref=114-04-02

prefLabel: Electrocapillarity

Subclass of:

- is_a ElectrochemicalPhenomenon

ElectrochemicalCapacitor

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_b91180e7_97ae_49e2_bf82_5bf720e7fa66

elucidation: Device that stores electrical energy using a double layer in an electrochemical cell.

–IEC60050

IECEntry: https://www:electropedia:org/iev/iev:nsf/display?openform&ievref=114-03-03

prefLabel: ElectrochemicalCapacitor

Subclass of:

- is_a ActiveParticipant

ElectrochemicalCell

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_6f2c88c9_5c04_4953_a298_032cc3ab9b77

elucidation: A system containing two electrodes that allow transport of electrons, separated by an electrolyte that allows movement of ions but blocks movement of electrons.

– J. Newman and K. E. Thmoas-Alyea, Electrochemical Systems, 3rd ed. Hoboken, New Jersey: John Wiley & Sons, 2004.

IECEntry: https://www:electropedia:org/iev/iev:nsf/display?openform&ievref=114-03-01

prefLabel: ElectrochemicalCell

wikipediaEntry: https://en:wikipedia:org/wiki/Electrochemical_cell

Subclass of:

- is_a ActiveParticipant
- hasPart some Electrode
- hasPart some IonBridge
- hasConventionalQuantity some Mass

ElectrochemicalCellContinuumModel

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_29b06e6d_d154_470a_aeed_efb96b0f69b8

prefLabel: ElectrochemicalCellContinuumModel

Subclass of:

- is_a ElectrochemicalContinuumModel

ElectrochemicalComponent

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_3597a1e0_09ef_48ad_b913_b3e71ea21c94

elucidation: A component that is essential to the function of an electrochemical cell.

prefLabel: ElectrochemicalComponent

Subclass of:

- is_a ActiveParticipant
- hasPart some ElectrochemicalSubcomponent
- hasConventionalQuantity some Mass

ElectrochemicalConstant

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_cdaf1d61_b5df_43a9_91a4_a5b7f719e2b4

prefLabel: ElectrochemicalConstant

Subclass of:

- is_a PhysicalConstant

ElectrochemicalContinuumModel

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_e1fa5985_f5a7_4637_ae1c_d6e9db45d22f

prefLabel: ElectrochemicalContinuumModel

Subclass of:

- is_a ContinuumModel

ElectrochemicalConversion

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_6c1483a0_dcf1_4194_92fd_07e40c8da9ad

elucidation: A type of electrochemical reaction in which a reactant is converted into a chemically distinct product.

prefLabel: ElectrochemicalConversion

Subclass of:

- is_a ElectrochemicalReaction
- hasParticipant some ConversionMaterial

ElectrochemicalDevice

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_0acd0fc2_1048_4604_8e90_bf4e84bd87df

elucidation: A device whose primary function is facilitating the conversion between chemical and electrical energy.

prefLabel: ElectrochemicalDevice

Subclass of:

- is_a Device
- hasPart some ElectrochemicalSystem

ElectrochemicalEquivalentCircuitModel

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_679f6984_e0dc_4285_9dbb_429c5779590c

prefLabel: ElectrochemicalEquivalentCircuitModel

Subclass of:

- is_a EquivalentCircuitModel

ElectrochemicalHalfCell

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_9da958fc_f76d_4654_8a78_99b5f98c118c

elucidation: A system comprising one electrode in contact with an ionic conductor.

prefLabel: ElectrochemicalHalfCell

wikipediaEntry: https://en:wikipedia:org/wiki/Half-cell

Subclass of:

- is_a ActiveParticipant
- hasPart some SaltBridge
- hasSpatialDirectPart exactly 1 Electrode
- hasConventionalQuantity some Mass

ElectrochemicalInsertionReaction

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_2e98bc8b_ffe9_4f0d_bfb9_4a4d71836ad5

elucidation: A type of electrochemical reaction in which a guest molecule (or ion) is inserted into a host lattice.

example: Li^+ + C_6 + e^- <-→ LiC_6

prefLabel: ElectrochemicalInsertionReaction

Subclass of:

- is_a ElectrochemicalReaction
- hasParticipant some IntercalationMaterial

ElectrochemicalInterface

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_50044b99_b858_433b_a32d_23d1e1cf88b2

elucidation: The boundary between two electrochemical materials, at which electrochemical reactions normally take place.

prefLabel: ElectrochemicalInterface

Subclass of:

- is_a Interface

ElectrochemicalKineticQuantity

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_21745019_2830_4395_bca7_15ddfd266673

elucidation: An ElectrochemicalQuantity that relates to the kinetics of a reaction.

prefLabel: ElectrochemicalKineticQuantity

Subclass of:

- is_a ElectrochemicalQuantity

ElectrochemicalMaterial

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_ebdb68e9_c4b5_4d57_a042_c0f51d446755

elucidation: A material that participates in a functional process in an electrochemical assembly.

prefLabel: ElectrochemicalMaterial

Subclass of:

- is_a FunctionalMaterial

ElectrochemicalMigration

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_63ea1c9b_0bda_4a69_9745_efb08e6be685

elucidation: Transport of ions in an electrolyte due to an electric field.

–IEC60050

IECEntry: https://www:electropedia:org/iev/iev:nsf/display?openform&ievref=114-04-06

prefLabel: ElectrochemicalMigration

Subclass of:

- is_a ElectrochemicalPhenomenon

ElectrochemicalPhenomenon

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_19abaccd_43be_4048_965c_e4fb63c5951b

elucidation: A chemical phenomenon that is accompanied by the flow of electric current

prefLabel: ElectrochemicalPhenomenon

Subclass of:

- is_a ChemicalPhenomenon

ElectrochemicalPotential

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_1422cde1_929e_46b6_b0dc_1010eebc5dfd

elucidation: The electrochemical potential is the chemical potential of an ion in the presence of an electric potential.

- Atkins and DePaula, Aktins' Physical Chemistry, 8th ed., p.952

iupacEntry: https://goldbook:iupac:org/terms/view/E01945

physicalDimension: T-2 L+2 M+1 I0 Θ0 N0 J0

prefLabel: ElectrochemicalPotential

wikipediaEntry: https://en:wikipedia:org/wiki/Electrochemical_potential

Subclass of:

- is_a ElectrochemicalThermodynamicQuantity

ElectrochemicalQuantity

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_aecc6094_c6a5_4a36_a825_8a497a2ae112

elucidation: Physical quantities defined within the domain of electrochemistry.

prefLabel: ElectrochemicalQuantity

Subclass of:

- is_a PhysicoChemical

ElectrochemicalReaction

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_a6a69e90_06b5_45b1_83cf_7c0bf39b2914

elucidation: A chemical reaction in an electrolyte involving a transfer of electrons between chemical components or between chemical components and an electrode.

–IEC60050

IECEntry: https://www:electropedia:org/iev/iev:nsf/display?openform&ievref=114-02-01

prefLabel: ElectrochemicalReaction

Subclass of:

- is_a ElectrochemicalPhenomenon
- is_a RedoxReaction
- hasParticipant some Electron
- hasParticipant some ElectrochemicalInterface
- hasParticipant some ChargeCarrierIon
- hasParticipant some ActiveMaterial

ElectrochemicalRelation

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_3d805c2a_4801_440e_9e4d_0fa5585c76ae

elucidation: A material relation in electrochemistry.

prefLabel: ElectrochemicalRelation

Subclass of:

- is_a MaterialRelation

ElectrochemicalStabilityLimit

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_8f4b90ef_fea4_47c9_99f5_a9b3290a505d

elucidation: Electric potential at which a material undergoes an oxidation or reduction decomposition.

physicalDimension: T-3 L+2 M+1 I-1 Θ0 N0 J0

prefLabel: ElectrochemicalStabilityLimit

Subclass of:

- is_a ElectricPotential
- is_a ElectrochemicalThermodynamicQuantity

ElectrochemicalSubcomponent

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_f89bb8bc-ef9b-43d5-b5df-14e12b0d93b8

elucidation: A subcomponent of an ElectrochemicalComponent.

prefLabel: ElectrochemicalSubcomponent

Subclass of:

- is_a ActiveParticipant
- hasPart some ElectrochemicalMaterial
- hasConventionalQuantity some MassFraction
- hasConventionalQuantity some Mass

ElectrochemicalSubcomponentContinuumModel

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_2d7ba193_b4be_40fc_9131_d1a91068aeae

prefLabel: ElectrochemicalSubcomponentContinuumModel

Subclass of:

- is_a ElectrochemicalContinuumModel

ElectrochemicalSystem

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_4e4d7f4b-680b-469e-bdd4-728dd3e465bf

elucidation: A system comprising at least one electrochemical cell and the components necessary to support it.

prefLabel: ElectrochemicalSystem

Subclass of:

- is_a ActiveParticipant
- hasConventionalQuantity some Mass
- hasPart some ElectrochemicalCell

ElectrochemicalThermodynamicQuantity

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_2d896559_eee3_447c_9759_87c854a4266a

elucidation: A thermodynamically derived ElectrochemicalQuantity.

prefLabel: ElectrochemicalThermodynamicQuantity

Subclass of:

- is_a ElectrochemicalQuantity

ElectrochemicalTransportQuantity

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_4a450a27_b84a_4c70_a3a9_15ec30e2f30b

elucidation: An ElectrochemicalQuantity related to the transport of mass, charge, or energy.

prefLabel: ElectrochemicalTransportQuantity

Subclass of:

- is_a ElectrochemicalQuantity

ElectrochemicalWindow

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_129926b6_fc30_441d_b359_29b44c988514

elucidation: The electrode electric potential range between which the substance is neither oxidized nor reduced.

physicalDimension: T-3 L+2 M+1 I-1 Θ0 N0 J0

prefLabel: ElectrochemicalWindow

wikipediaEntry: https://en:wikipedia:org/wiki/Electrochemical_window

Subclass of:

- is_a ElectrochemicalThermodynamicQuantity

ElectrochemicallyActiveSurfaceArea

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_bad1b6f4_1b26_40e2_b552_6d53873e3973

elucidation: The area of the electrode material that is accessible to the electrolyte that is used for charge transfer and/or storage.

physicalDimension: T0 L+2 M0 I0 Θ0 N0 J0

prefLabel: ElectrochemicallyActiveSurfaceArea

Subclass of:

- is_a ElectrodeSurfaceArea

Electrode

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_0f007072-a8dd-4798-b865-1bf9363be627

elucidation: Electronically conductive part in electric contact with a medium of lower electronic conductivity and intended to perform one or more of the functions of emitting charge carriers to or receiving charge carriers from that medium or to establish an electric field in that medium.

– IEC 60050-151: 2001, 151-13-01

IECEntry: https://www:electropedia:org/iev/iev:nsf/display?openform&ievref=114-02-03

dbpediaEntry: https://dbpedia:org/page/Electrode

prefLabel: Electrode

wikipediaEntry: https://en:wikipedia:org/wiki/Electrode

Subclass of:

- is_a ElectrochemicalComponent
- Inverse(hasParticipant) some ElectrochemicalReaction
- hasContactWith some Electrolyte
- hasConventionalQuantity some ActiveMaterialLoading
- hasSpatialDirectPart some ElectrochemicalInterface
- hasPart some ActiveMaterial
- hasConventionalQuantity some ElectrodeSurfaceArea
- hasConventionalQuantity some EquilibriumElectrodePotential

ElectrodeContinuumModel

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_b72eb3ad_8935_4420_a64e_6218de31c0d2

prefLabel: ElectrodeContinuumModel

Subclass of:

- is_a ElectronicComponentContinuumModel

ElectrodeGeometricSurfaceArea

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_fa7790d6_07bb_4b0f_9965_55966828f5f3

elucidation: The interfacial area, determined on the assumption that the interface is truly flat (2-dimensional) and calculated using the geometric data of the involved surfaces.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

physicalDimension: T0 L+2 M0 I0 Θ0 N0 J0

prefLabel: ElectrodeGeometricSurfaceArea

Subclass of:

- is_a ElectrodeSurfaceArea

ElectrodePassivation

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_01260656_ac32_472e_9513_a607366538ec

IECEntry: Formation of compounds that reduces the conductivity at the surface of an electrode.

–IEC60050

IECEntry: https://www:electropedia:org/iev/iev:nsf/display?openform&ievref=114-02-16

prefLabel: ElectrodePassivation

wikipediaEntry: https://en:wikipedia:org/wiki/Passivation_(chemistry)

Subclass of:

- is_a ElectrochemicalPhenomenon

ElectrodePolarization

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_2e6933aa_4522_4f16_a437_37110e6cbd0d

elucidation: Accumulation or depletion of electric charges at an electrode, resulting in a difference between the electrode potential with current flow, and the potential without current flow or equilibrium electrode potential.

–IEC60050

IECEntry: https://www:electropedia:org/iev/iev:nsf/display?openform&ievref=114-02-15

prefLabel: ElectrodePolarization

Subclass of:

- is_a ElectrochemicalPhenomenon

ElectrodePore

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_4f3a2ba3-7abc-4150-ba98-3973d865690f

elucidation: A pore that exists within an electrode host domain.

prefLabel: ElectrodePore

Subclass of:

- is_a Pore
- hasContactWith some PorousElectrode

ElectrodePotential

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_f509645f_eb27_470e_9112_7ab828ed40d3

elucidation: Electric potential at an electrode, reported as the difference in potential relative to a reference electrode.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

iupacEntry: https://goldbook:iupac:org/terms/view/E01956

physicalDimension: T-3 L+2 M+1 I-1 Θ0 N0 J0

prefLabel: ElectrodePotential

wikipediaEntry: https://en:wikipedia:org/wiki/Electrode_potential

Subclass of:

- is_a ElectricPotential
- is_a ElectrochemicalQuantity

ElectrodeReaction

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_2e3e14f9_4cb8_45b2_908e_47eec893dec8

elucidation: An interfacial reaction that necessarily involves a charge-transfer step.

–A. J. Bard, G. Inzelt, and F. Scholz, Eds., Electrochemical Dictionary, 2nd Edition. Berlin: Springer-Verlag, 2012. DOI: https://doi.org/10.1007/978-3-642-29551-5

elucidation: Electrochemical reaction involving the transfer of electrons between electrolyte and electrode.

–IEC60050

IECEntry: https://www:electropedia:org/iev/iev:nsf/display?openform&ievref=114-02-04

prefLabel: ElectrodeReaction

Subclass of:

- is_a ElectrochemicalReaction

ElectrodeRealSurfaceArea

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_a82e16c3_b766_482f_be94_b8e9af37f6fc

elucidation: Surface area of an electrode that takes into account non-idealities of the interface (roughness, porosity, etc.) and can be measured by a variety of electrochemical methods. The electroactive area is the area calculated from experiments with model electroactive species and may be different from the real surface area in cases where not all of the surface is electrochemically active or accessible.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

physicalDimension: T0 L+2 M0 I0 Θ0 N0 J0

prefLabel: ElectrodeRealSurfaceArea

Subclass of:

- is_a ElectrodeSurfaceArea

ElectrodeSurfaceArea

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_47ab1dad_cc09_4fd8_af23_acb36fb680dd

elucidation: Area of electrode - solution interface.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

physicalDimension: T0 L+2 M0 I0 Θ0 N0 J0

prefLabel: ElectrodeSurfaceArea

Subclass of:

- is_a ElectrochemicalQuantity

ElectrodeThickness

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_d64d7c58_2c81_496d_a186_19a23338b1e4

elucidation: Length of the electrode orthoganal to the plane of the current collector.

physicalDimension: T0 L+1 M0 I0 Θ0 N0 J0

prefLabel: ElectrodeThickness

Subclass of:

- is_a Length
- hasReferenceUnit some Micrometre

Electrodeposition

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_f0c24970_4c14_4207_bd78_5f2181a67085

elucidation: The process of forming a film or a bulk material using an electrochemical process where the electrons are supplied by an external power supply.

–A. J. Bard, G. Inzelt, and F. Scholz, Eds., Electrochemical Dictionary, 2nd Edition. Berlin: Springer-Verlag, 2012. DOI: https://doi.org/10.1007/978-3-642-29551-5

prefLabel: Electrodeposition

Subclass of:

- is_a ElectrochemicalReaction

Electrodissolution

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_4df84ec1_8a1a_4770_963f_bf48009bd043

elucidation: The electrochemical dissolution of a material to soluble species.

–A. J. Bard, G. Inzelt, and F. Scholz, Eds., Electrochemical Dictionary, 2nd Edition. Berlin: Springer-Verlag, 2012. DOI: https://doi.org/10.1007/978-3-642-29551-5

prefLabel: Electrodissolution

Subclass of:

- is_a ElectrochemicalReaction

Electrolysis

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_e2a1dae1_05e4_4bd1_a39d_0eb10db482b

elucidation: Method of separating and neutralizing ions by an electric current in an electrolytic cell.

–IEC60050

IECEntry: https://www:electropedia:org/iev/iev:nsf/display?openform&ievref=114-04-09

dbpediaEntry: https://dbpedia:org/page/Electrolysis

prefLabel: Electrolysis

wikipediaEntry: https://en:wikipedia:org/wiki/Electrolysis

Subclass of:

- is_a ElectrochemicalPhenomenon

Electrolyte

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_fb0d9eef_92af_4628_8814_e065ca255d59

elucidation: A material in which the mobile species are ions and free movement of electrons is blocked.

– J. Newman and K. E. Thmoas-Alyea, Electrochemical Systems, 3rd ed. Hoboken, New Jersey: John Wiley & Sons, 2004.

IECEntry: https://www:electropedia:org/iev/iev:nsf/display?openform&ievref=114-01-02

dbpediaEntry: https://dbpedia:org/page/Electrolyte

prefLabel: Electrolyte

wikipediaEntry: https://en:wikipedia:org/wiki/Electrolyte

Subclass of:

- is_a IonicSubcomponent
- is_a ElectrochemicalMaterial
- hasPart some ChargeCarrierIon

ElectrolyteContinuumModel

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_f1b2437a_fdf5_43fe_a26d_d9cf296ff469

prefLabel: ElectrolyteContinuumModel

Subclass of:

- is_a IonicSubcomponentContinuumModel

ElectrolyteSolution

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_fa22874b_76a9_4043_8b8f_6086c88746de

elucidation: A solution (with a solvent and one or many solutes) that generally contains ions, atoms or molecules that have lost or gained electrons, and is electrically conductive.

–Electrolyte Solutions. (2021, February 17). Retrieved April 28, 2021, from https://chem.libretexts.org/@go/page/1619

prefLabel: ElectrolyteSolution

Subclass of:

- is_a LiquidElectrolyte

ElectrolyteVolume

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_54e8cef6_b4cb_4560_947a_50811fa0f177

elucidation: Volume of electrolyte in an electrochemical cell.

physicalDimension: T0 L-3 M0 I0 Θ0 N0 J0

prefLabel: ElectrolyteVolume

Subclass of:

- is_a Volume
- hasReferenceUnit some CubicCentimetre

ElectrolyticCell

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_e931087f_7681_4096_b200_5223bcc47eb4

IECEntry: https://www:electropedia:org/iev/iev:nsf/display?openform&ievref=114-03-06

dbpediaEntry: Electrochemical cell intended to produce chemical reactions.

–IEC60050

dbpediaEntry: https://dbpedia:org/page/Electrolytic_cell

prefLabel: ElectrolyticCell

wikipediaEntry: https://en:wikipedia:org/wiki/Electrolytic_cell

Subclass of:

- is_a ElectrochemicalCell

Electromagnetic

IRI: http://emmo:info/emmo#EMMO_96d5d42d_4f76_42f7_aa4b_720c39184fac

prefLabel: Electromagnetic

Subclass of:

- is_a CategorizedPhysicalQuantity

Electron

IRI: http://emmo:info/emmo#EMMO_8043d3c6_a4c1_4089_ba34_9744e28e5b3d

elucidation: The class of individuals that stand for electrons elemntary particles.

prefLabel: Electron

Subclass of:

- is_a Massive

ElectronCharge

IRI: http://emmo:info/emmo#EMMO_cc01751d_dd05_429b_9d0c_1b7a74d1f277

definition: The charge of an electron.

iupacEntry: https://doi:org/10:1351/goldbook:E01982

physicalDimension: T+1 L0 M0 I+1 Θ0 N0 J0

prefLabel: ElectronCharge

Subclass of:

- is_a ElectricCharge
- is_a SIExactConstant
- Inverse(hasProperty) only Electron

ElectronCloud

IRI: http://emmo:info/emmo#EMMO_1067b97a_84f8_4d22_8ace_b842b8ce355c

elucidation: A 'spacetime' that stands for a quantum system made of electrons.

prefLabel: ElectronCloud

Subclass of:

- is_a State
- is_a Subatomic
- hasSpatialDirectPart some Electron

ElectronMass

IRI: http://emmo:info/emmo#EMMO_44fc8c60_7a9c_49af_a046_e1878c88862c

codataEntry: https://physics:nist:gov/cgi-bin/cuu/Value?me

dbpediaEntry: http://dbpedia:org/page/Electron_rest_mass

iupacEntry: https://doi:org/10:1351/goldbook:E02008

physicalDimension: T0 L0 M+1 I0 Θ0 N0 J0

prefLabel: ElectronMass

qudtEntry: http://qudt:org/vocab/constant/ElectronMass

Subclass of:

- is_a MeasuredConstant
- is_a Mass
- Inverse(hasProperty) only Electron

ElectronVolt

IRI: http://emmo:info/emmo#EMMO_e29f84db_4c1c_46ae_aa38_c4d47536b972

definition: The amount of energy gained (or lost) by the charge of a single electron moving across an electric potential difference of one volt.

dbpediaEntry: http://dbpedia:org/page/Electronvolt

iupacEntry: https://doi:org/10:1351/goldbook:E02014

prefLabel: ElectronVolt

qudtEntry: http://qudt:org/vocab/unit/EV

Subclass of:

- is_a SIAcceptedSpecialUnit
- hasPhysicalDimension some EnergyDimension
- hasSymbolData value 'eV'

ElectronicComponentContinuumModel

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_17b3beaa_6f91_4f73_8a9a_d960eb542b7e

prefLabel: ElectronicComponentContinuumModel

Subclass of:

- is_a ElectrochemicalContinuumModel

ElectronicConductivity

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_6a28741c_ef47_4a11_ba3d_166aef581e86

physicalDimension: T+3 L-3 M-1 I+2 Θ0 N0 J0

prefLabel: ElectronicConductivity

Subclass of:

- is_a ElectricConductivity
- is_a ElectrochemicalTransportQuantity

ElectronicCurrent

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_e73063fe_30a4_4ed5_b9f6_11979f807a42

elucidation: A flow of electric charge, in which electrons are the charge carrier.

physicalDimension: T0 L0 M0 I+1 Θ0 N0 J0

prefLabel: ElectronicCurrent

Subclass of:

- is_a ElectricCurrent

ElectronicCurrentDensity

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_bfc8c075_246e_4633_ba8e_906a9f5f2e3a

elucidation: Current density in which the charge carriers are electrons.

physicalDimension: T0 L-2 M0 I+1 Θ0 N0 J0

prefLabel: ElectronicCurrentDensity

Subclass of:

- is_a CurrentDensity

ElectronicModel

IRI: http://emmo:info/emmo#EMMO_6eca09be_17e9_445e_abc9_000aa61b7a11

elucidation: A physics-based model based on a physics equation describing the behaviour of electrons.

example: Density functional theory. Hartree-Fock.

prefLabel: ElectronicModel

Subclass of:

- is_a PhysicsBasedModel

ElectronicResistivity

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_bbcafb37_ceec_436b_bb45_080a2bc656aa

elucidation: Inverse of ElectronicConductivity

physicalDimension: T-3 L+3 M+1 I-2 Θ0 N0 J0

prefLabel: ElectronicResistivity

Subclass of:

- is_a ElectricResistivity
- is_a ElectrochemicalTransportQuantity

ElectronicSubcomponent

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_9c4e61c6-4a7b-41c2-9133-e780e144ddcd

elucidation: An ElectrochemicalSubcomponent whose primary role is electronic.

example: Current Collector Conducting Additive

prefLabel: ElectronicSubcomponent

Subclass of:

- is_a ElectrochemicalSubcomponent
- hasConventionalQuantity some ElectronicConductivity

ElectronicSubcomponentContinuumModel

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_a0070f31_7895_46cd_8d62_e53bf39a1e71

prefLabel: ElectronicSubcomponentContinuumModel

Subclass of:

- is_a ElectrochemicalSubcomponentContinuumModel

Electroosmosis

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_5641910f_6e69_4ce4_be84_4b1bf14b8916

elucidation: Movement of a fluid through a diaphragm, produced by application of an electric field.

–IEC60050

IECEntry: https://www:electropedia:org/iev/iev:nsf/display?openform&ievref=114-04-01

prefLabel: Electroosmosis

Subclass of:

- is_a ElectrochemicalPhenomenon

Electroplating

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_a2b92d2e_4431_411e_8da5_a4c08bac2c0e

elucidation: Process inside an electrolytic cell used to coat a conductive object with a layer of a material.

–IEC60050

IECEntry: https://www:electropedia:org/iev/iev:nsf/display?openform&ievref=114-04-17

prefLabel: Electroplating

wikipediaEntry: https://en:wikipedia:org/wiki/Electroplating

Subclass of:

- is_a Electrodeposition

ElementalMaterial

IRI: http://emmo:info/emmo#EMMO_a086af15_a7c3_404c_b4ce_c8e4466f1b4b

prefLabel: ElementalMaterial

Subclass of:

- is_a ChemicalMaterial

ElementalSubstance

IRI: http://emmo:info/emmo#EMMO_436b11bd_1756_4821_9f14_c9ed6b67552e

elucidation: A chemical substance composed of atoms with the same number of protons in the atomic nucleus.

iupacEntry: https://doi:org/10:1351/goldbook:C01022

prefLabel: ElementalSubstance

Subclass of:

- is_a ChemicalSubstance

Elementary

IRI: http://emmo:info/emmo#EMMO_0f795e3e_c602_4577_9a43_d5a231aa1360

elucidation: The basic constituent of 'item'-s that can be proper partitioned only in time up to quantum level.

etymology: From Latin elementārius ("elementary"), from elementum ("one of the four elements of antiquity; fundamentals").

prefLabel: Elementary

Subclass of:

- is_a Physical
- hasTemporalPart only Elementary
- hasSpatialPart only Nothing

ElementaryCharge

IRI: http://emmo:info/emmo#EMMO_58a650f0_a638_4743_8439_535a325e5c4c

elucidation: The magnitude of the electric charge carried by a single electron. It defines the base unit Ampere in the SI system.

codataEntry: https://physics:nist:gov/cgi-bin/cuu/Value?e

dbpediaEntry: http://dbpedia:org/page/Elementary_charge

iupacEntry: https://doi:org/10:1351/goldbook:E02032

physicalDimension: T+1 L0 M0 I+1 Θ0 N0 J0

prefLabel: ElementaryCharge

qudtEntry: http://qudt:org/vocab/quantitykind/ElementaryCharge

Subclass of:

- is_a ElectricCharge
- is_a SIExactConstant

ElementaryParticle

IRI: http://emmo:info/emmo#EMMO_c26a0340_d619_4928_b1a1_1a04e88bb89d

elucidation: The union of all classes categorizing elementary particles according to the Standard Model.

prefLabel: ElementaryParticle

Subclass of:

- is_a Elementary
- is_a Physicalistic
- disjoint_union_of Photon, Quark, Gluon, Electron, Graviton

ElementaryReaction

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_1409f2b5_2545_44fc_9b76_73c5434892c9

elucidation: A reaction for which no reaction intermediates have been detected or need to be postulated in order to describe the chemical reaction on a molecular scale. An elementary reaction is assumed to occur in a single step and to pass through a single transition state.

IUPAC. Compendium of Chemical Terminology, 2nd ed. (the "Gold Book"). Compiled by A. D. McNaught and A. Wilkinson. Blackwell Scientific Publications, Oxford (1997). Online version (2019-) created by S. J. Chalk. ISBN 0-9678550-9-8. https://doi.org/10.1351/goldbook.

iupacEntry: https://doi:org/10:1351/goldbook:E02035

prefLabel: ElementaryReaction

wikipediaEntry: https://en:wikipedia:org/wiki/Elementary_reaction

Subclass of:

- is_a ChemicalReaction

EmpiricalFormula

IRI: http://emmo:info/emmo#EMMO_6afdb7e8_2a0b_444d_bde3_8d67d98180c0

elucidation: An expression that provide information about the element type of a compound and their relative ratio.

example: Hydrogen peroxide is HO

prefLabel: EmpiricalFormula

Subclass of:

- is_a ChemicalFormula

Emulsion

IRI: http://emmo:info/emmo#EMMO_40e18c93_a1b5_49ff_b06a_d9d932d1fb65

elucidation: An emulsion is a mixture of two or more liquids that are normally immiscible (a liquid-liquid heterogeneous mixture).

example: Mayonnaise, milk.

prefLabel: Emulsion

Subclass of:

- is_a Colloid
- is_a Liquid

EndDate

IRI: https://big-map:github:io/LabNotebookAppOntology#EMMO_46824062_cced_46c5_89ed_f214a5e7c245

physicalDimension: T+1 L0 M0 I0 Θ0 N0 J0

prefLabel: EndDate

Subclass of:

- is_a Date

Energy

IRI: http://emmo:info/emmo#EMMO_31ec09ba_1713_42cb_83c7_b38bf6f9ced2

elucidation: A property of objects which can be transferred to other objects or converted into different forms.

dbpediaEntry: http://dbpedia:org/page/Energy

iupacEntry: https://doi:org/10:1351/goldbook:E02101

physicalDimension: T-2 L+2 M+1 I0 Θ0 N0 J0

prefLabel: Energy

qudtEntry: http://qudt:org/vocab/quantitykind/Energy

Subclass of:

- is_a ISQDerivedQuantity

EnergyAccumulationTerm

IRI: http://emmo:info/emmo#EMMO_c8a4df75_3f22_416a_8507_c49e5b0804c3

prefLabel: EnergyAccumulationTerm

Subclass of:

- is_a AccumulationTerm

EnergyContinuityEquation

IRI: http://emmo:info/emmo#EMMO_52ad5472_29eb_49d5_bff3_bb354a656020

prefLabel: EnergyContinuityEquation

Subclass of:

- is_a ContinuityEquation
- hasSpatialDirectPart some EnergyAccumulationTerm
- hasSpatialDirectPart some EnergyFluxTerm
- hasSpatialDirectPart some EnergySourceTerm

EnergyDensity

IRI: http://emmo:info/emmo#EMMO_686308bd_8ed6_49d0_a204_6487dbe56511

elucidation: Energy per unit volume.

physicalDimension: T-2 L+2 M+1 I0 Θ0 N0 J0

prefLabel: EnergyDensity

Subclass of:

- is_a ISQDerivedQuantity

EnergyDimension

IRI: http://emmo:info/emmo#EMMO_f6070071_d054_4b17_9d2d_f446f7147d0f

prefLabel: EnergyDimension

Subclass of:

- is_a PhysicalDimension
- equivalent_to hasSymbolData value 'T-2 L+2 M+1 I0 Θ0 N0 J0'

EnergyFluxTerm

IRI: http://emmo:info/emmo#EMMO_886437e2_9e44_4e7a_81cb_7404c8f76e8f

prefLabel: EnergyFluxTerm

Subclass of:

- is_a FluxTerm

EnergySourceTerm

IRI: http://emmo:info/emmo#EMMO_98e27347_42ca_4613_98c9_c573f199a50e

prefLabel: EnergySourceTerm

Subclass of:

- is_a SourceTerm

Engineered

IRI: http://emmo:info/emmo#EMMO_86ca9b93_1183_4b65_81b8_c0fcd3bba5ad

elucidation: A 'physical' that stands for a real world object that has been designed and manufactured for a particular purpose.

example: Car, tire, composite material.

prefLabel: Engineered

Subclass of:

- is_a Participant
- Inverse(hasProperParticipant) some Manufacturing

EngineeredMaterial

IRI: http://emmo:info/emmo#EMMO_ec7464a9_d99d_45f8_965b_4e9230ea8356

prefLabel: EngineeredMaterial

Subclass of:

- is_a Material
- is_a Engineered
- Inverse(hasProperParticipant) some ContinuumManufacturing

Enthalpy

IRI: http://emmo:info/emmo#EMMO_4091d5ec_a4df_42b9_a073_9a090839279f

dbpediaEntry: http://dbpedia:org/page/Enthalpy

iupacEntry: https://doi:org/10:1351/goldbook:E02141

physicalDimension: T-2 L+2 M+1 I0 Θ0 N0 J0

prefLabel: Enthalpy

qudtEntry: http://qudt:org/vocab/quantitykind/Enthalpy

Subclass of:

- is_a Energy

Entropy

IRI: http://emmo:info/emmo#EMMO_9bbab0be_f9cc_4f46_9f46_0fd271911b79

dbpediaEntry: http://dbpedia:org/page/Entropy

iupacEntry: https://doi:org/10:1351/goldbook:E02149

physicalDimension: T-2 L+2 M+1 I0 Θ-1 N0 J0

prefLabel: Entropy

qudtEntry: http://qudt:org/vocab/quantitykind/Entropy

Subclass of:

- is_a ISQDerivedQuantity

EntropyDimension

IRI: http://emmo:info/emmo#EMMO_3ecff38b_b3cf_4a78_b49f_8580abf8715b

prefLabel: EntropyDimension

Subclass of:

- is_a PhysicalDimension
- equivalent_to hasSymbolData value 'T-2 L+2 M+1 I0 Θ-1 N0 J0'

Equals

IRI: http://emmo:info/emmo#EMMO_535d75a4_1972_40bc_88c6_ca566386934f

elucidation: The equals symbol.

prefLabel: Equals

Subclass of:

- is_a MathematicalSymbol
- equivalent_to hasSymbolData value '='

Equation

IRI: http://emmo:info/emmo#EMMO_e56ee3eb_7609_4ae1_8bed_51974f0960a6

elucidation: The class of 'mathematical'-s that stand for a statement of equality between two mathematical expressions.

example: 2+3 = 5 x^2 +3x = 5x dv/dt = a sin(x) = y

prefLabel: Equation

Subclass of:

- is_a State
- is_a MathematicalFormula
- hasSpatialDirectPart some Expression

EquilibriumElectrodePotential

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_d91940f0_c8b6_4505_9b68_6bf6cfc5c544

elucidation: Potential of an electrode when no electric current flows through the cell and all local charge transfer equilibria across phase boundaries that are represented in the cell diagram (except at possible electrolyte-electrolyte junctions) and local chemical equilibria are established.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

physicalDimension: T-3 L+2 M+1 I-1 Θ0 N0 J0

prefLabel: EquilibriumElectrodePotential

wikipediaEntry: https://en:wikipedia:org/wiki/Reversal_potential

Subclass of:

- is_a OpenCircuitPotential

EquivalentCircuitModel

IRI: http://emmo:info/emmo#EMMO_dcc692cf_0e03_45ee_9d52_763b9e208dac

elucidation: A model that describes the behaviour of a physical system using electric circuit components.

prefLabel: EquivalentCircuitModel

wikipediaEntry: https://en:wikipedia:org/wiki/Equivalent_circuit

Subclass of:

- is_a PhysicsBasedModel

EquivalentCircuitModelElementary

IRI: http://emmo:info/emmo#EMMO_b37a09e6_2193_43e5_9081_327d3fe2fcb2

prefLabel: EquivalentCircuitModelElementary

Subclass of:

- is_a EquivalentCircuitModel

EthylMethylCarbonate

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_a65d105c_023f_4274_ac92_adc865d476e3

prefLabel: EthylMethylCarbonate

Subclass of:

- is_a IUPACName
- hasSymbolData value 'ethyl methyl carbonate'

EthyleneCarbonate

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_dba761d5_bc6c_47a8_b54e_db4115829382

prefLabel: EthyleneCarbonate

Subclass of:

- is_a IUPACName
- hasSymbolData value '1,3-dioxolan-2-one'

EuclideanSpace

IRI: http://emmo:info/emmo#EMMO_5f278af9_8593_4e27_a717_ccc9e07a0ddf

prefLabel: EuclideanSpace

Subclass of:

- is_a TwoManifold

Exa

IRI: http://emmo:info/emmo#EMMO_5cf9f86c_86f5_40c4_846d_60371f670e0a

prefLabel: Exa

Subclass of:

- is_a SIMetricPrefix
- hasSymbolData value 'E'
- Inverse(hasVariable) only hasNumericalData value 1e+18

ExactConstant

IRI: http://emmo:info/emmo#EMMO_89762966_8076_4f7c_b745_f718d653e8e2

prefLabel: ExactConstant

Subclass of:

- is_a PhysicalConstant

ExchangeCurrent

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_ccde24bb_790a_40ca_a06e_cea156a61031

elucidation: The common value (i0) of the anodic and cathodic partial currents when the reaction is at equilibrium.

iupacEntry: https://goldbook:iupac:org/terms/view/E02238

physicalDimension: T0 L0 M0 I+1 Θ0 N0 J0

prefLabel: ExchangeCurrent

Subclass of:

- is_a ElectricCurrent
- is_a ElectrochemicalKineticQuantity

ExchangeCurrentDensity

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_e9fd9ef9_adfe_46cb_b2f9_4558468a25e7

elucidation: Defined by j0 = i0/A, where i0 is the exchange current of the electrode reaction and A is usually taken as the geometric area of the electrode.

iupacEntry: https://goldbook:iupac:org/terms/view/M03777

physicalDimension: T0 L-2 M0 I+1 Θ0 N0 J0

prefLabel: ExchangeCurrentDensity

wikipediaEntry: https://en:wikipedia:org/wiki/Exchange_current_density

Subclass of:

- is_a ElectrochemicalKineticQuantity

Existent

IRI: http://emmo:info/emmo#EMMO_52211e5e_d767_4812_845e_eb6b402c476a

elucidation: A 'Physical' which is a tessellation of 'State' temporal direct parts.

prefLabel: Existent

Subclass of:

- is_a Reductionistic
- hasTemporalDirectPart only State
- hasTemporalDirectPart some State

Experiment

IRI: http://emmo:info/emmo#EMMO_22522299_4091_4d1f_82a2_3890492df6db

elucidation: An experiment is a process that is intended to replicate a physical phenomenon in a controlled environment.

prefLabel: Experiment

Subclass of:

- is_a Observation
- hasParticipant some PhysicalPhenomenon

ExperimentalCapacity

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_e8e41092_cc75_4952_bc54_af1a72d19fcd

elucidation: A capacity measured under a given set of experimental conditions.

physicalDimension: T+1 L0 M0 I+1 Θ0 N0 J0

prefLabel: ExperimentalCapacity

Subclass of:

- is_a Capacity
- hasReferenceUnit some MilliAmpereHourPerSquareCentimetre

Exponent

IRI: http://emmo:info/emmo#EMMO_223d9523_4169_4ecd_b8af_acad1215e1ff

prefLabel: Exponent

Subclass of:

- is_a AlgebricOperator

Expression

IRI: http://emmo:info/emmo#EMMO_f9bc8b52_85e9_4b53_b969_dd7724d5b8e4

elucidation: A well-formed finite combination of mathematical symbols according to some specific rules.

prefLabel: Expression

Subclass of:

- is_a MathematicalSymbolicConstruct

Farad

IRI: http://emmo:info/emmo#EMMO_a9201b2f_e6de_442a_b3a6_d292a5820bc5

iupacEntry: https://doi:org/10:1351/goldbook:F02320

prefLabel: Farad

qudtEntry: http://qudt:org/vocab/unit/FARAD

Subclass of:

- is_a SISpecialUnit
- hasSymbolData value 'F'
- hasPhysicalDimension some CapacitanceDimension

FaradaicCurrent

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_2a2f59b7_aa16_40aa_9c8b_0de8a2720456

elucidation: Electric current that results from the electrooxidation or electroreduction of an electroactive substance.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

dbpediaEntry: https://dbpedia:org/page/Faradaic_current

iupacEntry: https://goldbook:iupac:org/terms/view/F02321

physicalDimension: T0 L0 M0 I+1 Θ0 N0 J0

prefLabel: FaradaicCurrent

wikipediaEntry: https://en:wikipedia:org/wiki/Faradaic_current

Subclass of:

- is_a ElectricCurrent
- is_a ElectrochemicalQuantity

FaradayConstant

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_499a652b_5be6_4931_be7b_15d42e544b0

definition: Product of ElectronCharge and AvagadroConstant

elucidation: Fundamental physical constant representing molar elementary charge: F=9.648 533 99(24)×10^4 C mol-1.

iupacEntry: https://goldbook:iupac:org/terms/view/F02325

physicalDimension: T+1 L0 M0 I+1 Θ0 N-1 J0

prefLabel: FaradayConstant

Subclass of:

- is_a ElectrochemicalConstant

FaradaysFirstLawOfElectrolysis

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_1152ae6b_8b57_4d99_912e_40c6a29342fb

elucidation: Mass m of electrochemically-transformed substance is proportional to the charge Q passed, m Q.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

prefLabel: FaradaysFirstLawOfElectrolysis

Subclass of:

- is_a FaradaysLawsOfElectrolysis

FaradaysLawsOfElectrolysis

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_579eed46_6918_4275_9a70_dfd0409ab418

prefLabel: FaradaysLawsOfElectrolysis

Subclass of:

- is_a PhysicalLaw

FaradaysSecondLawOfElectrolysis

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_60c5b2e5_164a_4ce6_8409_f386f5e50c03

elucidation: When the same electric charge (quantity of electricity) Q is passed through several electrolytes, the mass, m_i, of the substances deposited are proportional to their respective chemical equivalent molar mass, M_i/z_i.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

prefLabel: FaradaysSecondLawOfElectrolysis

Subclass of:

- is_a FaradaysLawsOfElectrolysis

Femto

IRI: http://emmo:info/emmo#EMMO_23bfe79a_cade_48f1_9a8c_fd96e6bac8ba

prefLabel: Femto

Subclass of:

- is_a SIMetricPrefix
- hasSymbolData value 'f'
- Inverse(hasVariable) only hasNumericalData value 1e-15

FicksFirstLaw

IRI: http://emmo:info/emmo#EMMO_15699598_29e3_4c8d_b016_c7254df8f2bc

elucidation: The flux of matter (the number of particles passing through an imaginary window in a given interval divided by the area of the window and the duration of the interval) is proportional to the density gradient at that point.

–P. Atkins and J. De Paula, Atkins' Physical Chemistry, 8th Ed. New York: W.H. Freeman and Company, 2006, p.757.

prefLabel: FicksFirstLaw

wikipediaEntry: https://en:wikipedia:org/wiki/Fick%27s_laws_of_diffusion#Fick's_first_law

Subclass of:

- is_a PhysicalLaw

Field

IRI: http://emmo:info/emmo#EMMO_70dac51e_bddd_48c2_8a98_7d8395e91fc2

elucidation: A 'Physical' with 'Massless' parts that are mediators of interactions.

prefLabel: Field

Subclass of:

- is_a Physicalistic
- hasTemporalPart only Field
- hasPart some Massless

FineStructureConstant

IRI: http://emmo:info/emmo#EMMO_d7d2ca25_03e1_4099_9220_c1a58df13ad0

codataEntry: https://physics:nist:gov/cgi-bin/cuu/Value?alph

dbpediaEntry: http://dbpedia:org/page/Fine-structure_constant

iupacEntry: https://doi:org/10:1351/goldbook:F02389

physicalDimension: T0 L0 M0 I0 Θ0 N0 J0

prefLabel: FineStructureConstant

qudtEntry: http://qudt:org/vocab/constant/FineStructureConstant

Subclass of:

- is_a MeasuredConstant

FiniteDifferenceModel

IRI: http://emmo:info/emmo#EMMO_d5c1857a_46bb_4826_92c8_44a37d6ec230

prefLabel: FiniteDifferenceModel

Subclass of:

- is_a ContinuumModel

FiniteElementMesh

IRI: http://emmo:info/emmo#EMMO_06700060_1326_4478_be51_d8037b986230

prefLabel: FiniteElementMesh

Subclass of:

- is_a Mesh

FiniteElementModel

IRI: http://emmo:info/emmo#EMMO_ac9b6e13_f89b_4378_8a2a_a291fe0ec339

prefLabel: FiniteElementModel

Subclass of:

- is_a ContinuumModel
- hasSpatialDirectPart some FiniteElementMesh

FiniteVolumeCell

IRI: http://emmo:info/emmo#EMMO_1b8d1cf9_7b79_4de2_b9ba_3fb7b02a36f0

prefLabel: FiniteVolumeCell

Subclass of:

- is_a ControlVolume
- hasSpatialDirectPart some DiscretizationFace
- hasSpatialDirectPart some DiscretizationEdge
- hasSpatialDirectPart some DiscretizationNode

FiniteVolumeMesh

IRI: http://emmo:info/emmo#EMMO_cdbf555a_6352_40b1_af1d_89eff215d506

prefLabel: FiniteVolumeMesh

Subclass of:

- is_a Mesh
- hasSpatialDirectPart some FiniteVolumeCell

FiniteVolumeModel

IRI: http://emmo:info/emmo#EMMO_6adc3c54_96ea_4319_b7b6_2af3bfc10c33

prefLabel: FiniteVolumeModel

Subclass of:

- is_a ContinuumModel
- hasSpatialDirectPart some FiniteVolumeMesh

Fluid

IRI: http://emmo:info/emmo#EMMO_87ac88ff_8379_4f5a_8c7b_424a8fff1ee8

elucidation: A continuum that has no fixed shape and yields easily to external pressure.

example: Gas, liquid, plasma,

prefLabel: Fluid

Subclass of:

- is_a Continuum

FluxTerm

IRI: http://emmo:info/emmo#EMMO_70cbd515_d278_4d47_9631_4b48931cc83b

prefLabel: FluxTerm

Subclass of:

- is_a MaterialRelation
- hasSpatialDirectPart some DiscretizationFace

Foam

IRI: http://emmo:info/emmo#EMMO_1f5e3e7e_72c9_40d4_91dd_ae432d7b7018

elucidation: A colloid formed by trapping pockets of gas in a liquid or solid.

prefLabel: Foam

Subclass of:

- is_a Colloid

Force

IRI: http://emmo:info/emmo#EMMO_1f087811_06cb_42d5_90fb_25d0e7e068ef

elucidation: Any interaction that, when unopposed, will change the motion of an object

dbpediaEntry: http://dbpedia:org/page/Force

iupacEntry: https://doi:org/10:1351/goldbook:F02480

physicalDimension: T-2 L+1 M+1 I0 Θ0 N0 J0

prefLabel: Force

qudtEntry: http://qudt:org/vocab/quantitykind/Force

Subclass of:

- is_a ISQDerivedQuantity

ForceDimension

IRI: http://emmo:info/emmo#EMMO_53e825d9_1a09_483c_baa7_37501ebfbe1c

prefLabel: ForceDimension

Subclass of:

- is_a PhysicalDimension
- equivalent_to hasSymbolData value 'T-2 L+1 M+1 I0 Θ0 N0 J0'

FormalElectrodePotential

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_b21de1ef_6c15_4d63_b320_c9b96fbf186f

elucidation: Equilibrium electrode potential under conditions of unit concentration of species involved in the electrode reaction.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

physicalDimension: T-3 L+2 M+1 I-1 Θ0 N0 J0

prefLabel: FormalElectrodePotential

Subclass of:

- is_a EquilibriumElectrodePotential

FractionUnit

IRI: http://emmo:info/emmo#EMMO_c2f5ee66_579c_44c6_a2e9_fa2eaa9fa4da

elucidation: Unit for fractions of quantities of the same kind, to aid the understanding of the quantity being expressed.

prefLabel: FractionUnit

Subclass of:

- is_a UnitOne

Frequency

IRI: http://emmo:info/emmo#EMMO_852b4ab8_fc29_4749_a8c7_b92d4fca7d5a

elucidation: Number of periods per time interval.

dbpediaEntry: http://dbpedia:org/page/Frequency

iupacEntry: https://doi:org/10:1351/goldbook:FT07383

physicalDimension: T-1 L0 M0 I0 Θ0 N0 J0

prefLabel: Frequency

qudtEntry: http://qudt:org/vocab/quantitykind/Frequency

Subclass of:

- is_a ISQDerivedQuantity

FrequencyDimension

IRI: http://emmo:info/emmo#EMMO_515b5579_d526_4842_9e6f_ecc34db6f368

prefLabel: FrequencyDimension

Subclass of:

- is_a PhysicalDimension
- equivalent_to hasSymbolData value 'T-1 L0 M0 I0 Θ0 N0 J0'

FrequencyResponseAnalyser

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_279ecc9f_bfbc_4108_ae40_3c1c0f735e60

prefLabel: FrequencyResponseAnalyser

Subclass of:

- is_a MeasuringInstrument

FrequentlyUsed

IRI: http://emmo:info/emmo#EMMO_f68728e9_10a9_4d56_8d9f_e1f15d4c34a9

prefLabel: FrequentlyUsed

Subclass of:

- is_a CategorizedPhysicalQuantity

FuelCell

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_bd33779c_6f40_4354_ab5d_f6c17396414d

elucidation: Galvanic cell that transforms chemical energy from continuously supplied reactants to electric energy by an electrochemical process.

–IEC60050

IECEntry: https://www:electropedia:org/iev/iev:nsf/display?openform&ievref=114-03-05

dbpediaEntry: https://dbpedia:org/page/Fuel_cell

prefLabel: FuelCell

wikipediaEntry: https://en:wikipedia:org/wiki/Fuel_cell

Subclass of:

- is_a GalvanicCell

FunctionDefinition

IRI: http://emmo:info/emmo#EMMO_4bc29b0f_8fcc_4026_a291_f9774a66d9b8

elucidation: A function defined using functional notation.

example: y = f(x)

prefLabel: FunctionDefinition

Subclass of:

- is_a DefiningEquation

FunctionalMaterial

IRI: http://emmo:info/emmo#EMMO_d95e6e0d-e8eb-411a-b407-0d1a517e8767

elucidation: Materials that have one or more properties that can be significantly changed in a controlled fashion by external stimuli (temperature, electric/magnetic field, etc.) and are therefore applied in a broad range of technological devices as for example in memories, displays and telecommunication. - NTNU FY3114 - Functional Materials

prefLabel: FunctionalMaterial

Subclass of:

- is_a ActiveParticipant
- is_a Material

FunctionalProcess

IRI: http://emmo:info/emmo#EMMO_f7dbce66_2822_4855_9f42_1da71aa9e923

elucidation: The process that makes a product work as intended when in use.

example: - The light-emitting process of a diode. - The car crash process for a crash box in a car. - The discharging process of a battery.

prefLabel: FunctionalProcess

Subclass of:

- is_a Process

GalvanicCell

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_e248373f_294f_4ca4_9edf_0ad6653bb64f

elucidation: Electrochemical cell in which chemical reactions occur spontaneously and chemical energy is converted into electrical energy.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

IECEntry: https://www:electropedia:org/iev/iev:nsf/display?openform&ievref=114-03-02

dbpediaEntry: https://dbpedia:org/page/Galvanic_cell

prefLabel: GalvanicCell

wikipediaEntry: https://en:wikipedia:org/wiki/Galvanic_cell

Subclass of:

- is_a ElectrochemicalCell

Galvanostat

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_22725105_c941_4b14_a4a2_fcb627958607

elucidation: Instrument which controls the electric current between the working electrode and the auxiliary electrode.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

prefLabel: Galvanostat

wikipediaEntry: https://en:wikipedia:org/wiki/Galvanostat

Subclass of:

- is_a MeasuringInstrument

Gas

IRI: http://emmo:info/emmo#EMMO_04f2a2d5_e799_4692_a654_420e76f5acc1

elucidation: Gas is a compressible fluid, a state of matter that has no fixed shape and no fixed volume.

prefLabel: Gas

Subclass of:

- is_a Fluid
- is_a StateOfMatter

GasDiffusionElectrode

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_bbb1d95b_72d1_44f6_b07e_a3d7d41ac21

elucidation: A type of electrode specifically designed for gaseous reactants or products or both.

–IEC 60050

prefLabel: GasDiffusionElectrode

wikipediaEntry: https://en:wikipedia:org/wiki/Gas_diffusion_electrode

Subclass of:

- is_a PorousElectrode

GasLiquidSuspension

IRI: http://emmo:info/emmo#EMMO_e0edfb9e_9a96_4fae_b942_831ffe27b84a

elucidation: A coarse dispersion of liquid in a gas continuum phase.

example: Rain, spray.

prefLabel: GasLiquidSuspension

Subclass of:

- is_a Gas
- is_a Suspension

GasMixture

IRI: http://emmo:info/emmo#EMMO_5be9c137_325a_43d8_b7cd_ea93e7721c2d

elucidation: A gaseous solution made of more than one component type.

prefLabel: GasMixture

Subclass of:

- is_a Gas
- is_a Solution

GasSolidSuspension

IRI: http://emmo:info/emmo#EMMO_d4f37e32_16ae_4cc6_b4cd_fd896b2449c4

elucidation: A coarse dispersion of solid in a gas continuum phase.

example: Dust, sand storm.

prefLabel: GasSolidSuspension

Subclass of:

- is_a Gas
- is_a Suspension

Gel

IRI: http://emmo:info/emmo#EMMO_3995e22d_5720_4dcf_ba3b_d0ce03f514c6

elucidation: A soft, solid or solid-like colloid consisting of two or more components, one of which is a liquid, present in substantial quantity.

prefLabel: Gel

Subclass of:

- is_a Colloid
- is_a Solid

Geometrical

IRI: http://emmo:info/emmo#EMMO_b5957cef_a287_442d_a3ce_fd39f20ba1cd

elucidation: A 'graphical' aimed to represent a geometrical concept.

prefLabel: Geometrical

Subclass of:

- is_a Graphical

GibbsFreeEnergyOfReaction

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_d62ff300_26ac_4b00_bfcd_04a68aff5dc3

elucidation: Change in the Gibbs free energy between the products and reactants in a reaction.

physicalDimension: T-2 L+2 M+1 I0 Θ0 N0 J0

prefLabel: GibbsFreeEnergyOfReaction

Subclass of:

- is_a ElectrochemicalThermodynamicQuantity

Giga

IRI: http://emmo:info/emmo#EMMO_a8eb4bbb_1bd3_4ad4_b114_2789bcbd2134

prefLabel: Giga

Subclass of:

- is_a SIMetricPrefix
- Inverse(hasVariable) only hasNumericalData value 1000000000.0
- hasSymbolData value 'G'

Gluon

IRI: http://emmo:info/emmo#EMMO_7db59e56_f68b_48b7_ae99_891c35ae5c3b

elucidation: The class of individuals that stand for gluons elementary particles.

prefLabel: Gluon

Subclass of:

- is_a Massless

GoldElectrode

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_6fec8cc1_4e6c_428e_8343_6cf3c286a185

elucidation: Foil, wire or disc electrode made of gold which is easily fabricated into a variety of electrode geometries.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

prefLabel: GoldElectrode

Subclass of:

- is_a MetalElectrode

Gradient

IRI: http://emmo:info/emmo#EMMO_b5c58790_fb2d_42eb_b184_2a3f6ca60acb

prefLabel: Gradient

Subclass of:

- is_a DifferentialOperator
- equivalent_to hasSymbolData value '∇'

Grain

IRI: https://big-map:github:io/LabNotebookAppOntology#EMMO_f14e38a0_d4bd_48a8_969c_efde9cc526b0

elucidation: Individual crystal in a polycrystal of an irregular shape determined by the nuclear and growth conditions.

– Novikov, Concise Dictionary of Materials Science, CRC Press, 2003

prefLabel: Grain

Subclass of:

- is_a PhaseOfMatter
- hasConventionalQuantity some GrainSize

GrainSize

IRI: https://big-map:github:io/LabNotebookAppOntology#EMMO_2fac2ddd_6cd6_4e62_a626_8f2914281977

elucidation: Characteristic length associated to the size of a grain.

physicalDimension: T0 L+1 M0 I0 Θ0 N0 J0

prefLabel: GrainSize

Subclass of:

- is_a Length
- hasReferenceUnit some Micrometre

Gram

IRI: http://emmo:info/emmo#EMMO_f992dc76_f9a6_45f6_8873_c8e20d16fbbe

definition: Gram is defined as one thousandth of the SI unit kilogram.

iupacEntry: https://doi:org/10:1351/goldbook:G02680

prefLabel: Gram

qudtEntry: http://qudt:org/vocab/unit/GM

wikipediaEntry: https://en:wikipedia:org/wiki/Gram

Subclass of:

- is_a UnitSymbol
- is_a CGSUnit
- hasPhysicalDimension some MassDimension
- hasSymbolData value 'g'

Graphical

IRI: http://emmo:info/emmo#EMMO_c74da218_9147_4f03_92d1_8894abca55f3

elucidation: A 'Perceptual' which stands for a real world object whose spatial configuration shows a pattern identifiable by an observer.

example: 'Graphical' objects include writings, pictures, sketches …

prefLabel: Graphical

Subclass of:

- is_a Perceptual

Graphite

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_0c1e58c3_83c1_4de8_8863_bc742cda5e3b

prefLabel: Graphite

Subclass of:

- is_a LithiumIntercalationMaterial

Graviton

IRI: http://emmo:info/emmo#EMMO_eb3c61f0_3983_4346_a0c6_e7f6b90a67a8

elucidation: The class of individuals that stand for gravitons elementary particles.

prefLabel: Graviton

Subclass of:

- is_a Massless

Gray

IRI: http://emmo:info/emmo#EMMO_00199e76_69dc_45b6_a9c6_98cc90cdc0f5

iupacEntry: https://doi:org/10:1351/goldbook:G02696

prefLabel: Gray

qudtEntry: http://qudt:org/vocab/unit/GRAY

Subclass of:

- is_a SISpecialUnit
- hasSymbolData value 'Gy'
- hasPhysicalDimension some AbsorbedDoseDimension

Heat

IRI: http://emmo:info/emmo#EMMO_12d4ba9b_2f89_4ea3_b206_cd376f96c875

iupacEntry: https://doi:org/10:1351/goldbook:H02752

physicalDimension: T-2 L+2 M+1 I0 Θ0 N0 J0

prefLabel: Heat

qudtEntry: http://qudt:org/vocab/quantitykind/Heat

Subclass of:

- is_a Energy

HeatAccumulationTerm

IRI: http://emmo:info/emmo#EMMO_3cc59a03_3837_4504_900b_6ce3e589f610

prefLabel: HeatAccumulationTerm

Subclass of:

- is_a EnergyAccumulationTerm

HeatCapacity

IRI: http://emmo:info/emmo#EMMO_802c167d_b792_4cb8_a315_35797345c0e3

elucidation: The amount of heat to be applied to a given mass of material to produce a unit change in its temperature.

physicalDimension: T-2 L+2 M+1 I0 Θ-1 N0 J0

prefLabel: HeatCapacity

Subclass of:

- is_a ISQDerivedQuantity
- is_a PhysicoChemical

HeatContinuityEquation

IRI: http://emmo:info/emmo#EMMO_98909c8e_7f1f_4a9b_a0b1_a4a33cfb626a

prefLabel: HeatContinuityEquation

Subclass of:

- is_a EnergyContinuityEquation
- hasSpatialDirectPart some HeatFluxTerm
- hasSpatialDirectPart some HeatSourceTerm
- hasSpatialDirectPart some HeatAccumulationTerm

HeatFluxTerm

IRI: http://emmo:info/emmo#EMMO_89f827fa_f3c4_4071_a69c_084132f780a7

prefLabel: HeatFluxTerm

Subclass of:

- is_a EnergyFluxTerm

HeatSourceTerm

IRI: http://emmo:info/emmo#EMMO_e3d442e5_eae4_4fc5_a062_553bf900d9cd

prefLabel: HeatSourceTerm

Subclass of:

- is_a EnergySourceTerm

Hectare

IRI: http://emmo:info/emmo#EMMO_d6eb0176_a0d7_4b4e_8df0_50e912be2342

definition: A non-SI metric unit of area defined as the square with 100-metre sides.

dbpediaEntry: http://dbpedia:org/page/Hectare

prefLabel: Hectare

qudtEntry: http://qudt:org/vocab/unit/HA

wikipediaEntry: https://en:wikipedia:org/wiki/Hectare

Subclass of:

- is_a SIAcceptedSpecialUnit
- hasSymbolData value 'ha'
- hasPhysicalDimension some AreaDimension

Hecto

IRI: http://emmo:info/emmo#EMMO_21aaefc1_3f86_4208_b7db_a755f31f0f8c

prefLabel: Hecto

Subclass of:

- is_a SIMetricPrefix
- Inverse(hasVariable) only hasNumericalData value 100.0
- hasSymbolData value 'h'

Height

IRI: http://emmo:info/emmo#EMMO_08bcf1d6_e719_46c8_bb21_24bc9bf34dba

physicalDimension: T0 L+1 M0 I0 Θ0 N0 J0

prefLabel: Height

Subclass of:

- is_a Length

Henry

IRI: http://emmo:info/emmo#EMMO_fab003c8_f7a6_4346_9988_7161325ed7a3

iupacEntry: https://doi:org/10:1351/goldbook:H02782

prefLabel: Henry

qudtEntry: http://qudt:org/vocab/unit/H

Subclass of:

- is_a SISpecialUnit
- hasSymbolData value 'H'
- hasPhysicalDimension some InductanceDimension

Hertz

IRI: http://emmo:info/emmo#EMMO_e75f580e_52bf_4dd5_af70_df409cec08fd

iupacEntry: https://doi:org/10:1351/goldbook:H02785

prefLabel: Hertz

qudtEntry: http://qudt:org/vocab/unit/HZ

Subclass of:

- is_a SISpecialUnit
- hasSymbolData value 'Hz'
- hasPhysicalDimension some FrequencyDimension

Heteronuclear

IRI: http://emmo:info/emmo#EMMO_50967f46_51f9_462a_b1e4_e63365b4a184

prefLabel: Heteronuclear

Subclass of:

- is_a Molecule

Holistic

IRI: http://emmo:info/emmo#EMMO_0277f24a_ea7f_4917_81b7_fb0406c8fc62

elucidation: A union of classes that categorize physicals under a holistic perspective: the interest is on the whole 4D object (process) and the role of its 4D parts (participants) without going further into specifying the spatial hierarchy or the temporal position of each part.

prefLabel: Holistic

Subclass of:

- is_a Perspective
- equivalent_to Process or Participant

HomemadeBatteryCell

IRI: https://big-map:github:io/LabNotebookAppOntology#EMMO_7673b84b_ea82_4044_b197_2a21fd43ad1a

prefLabel: HomemadeBatteryCell

Subclass of:

- is_a BatteryCell

HomemadeElectrode

IRI: https://big-map:github:io/LabNotebookAppOntology#EMMO_19c2342d_2f7b_41b1_9855_7f39fcff294d

prefLabel: HomemadeElectrode

Subclass of:

- is_a Electrode

Homonuclear

IRI: http://emmo:info/emmo#EMMO_e024544d_e374_45b7_9340_1982040bc6b7

prefLabel: Homonuclear

Subclass of:

- is_a Molecule

Hour

IRI: http://emmo:info/emmo#EMMO_21ef2ed6_c086_4d24_8a75_980d2bcc9282

definition: Measure of time defined as 3600 seconds.

iupacEntry: https://doi:org/10:1351/goldbook:H02866

prefLabel: Hour

qudtEntry: http://qudt:org/vocab/unit/HR

Subclass of:

- is_a SIAcceptedSpecialUnit
- hasSymbolData value 'h'
- hasPhysicalDimension some TimeDimension

HybridCell

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_1259d305_349a_4c91_9490_c494c12d1e2c

elucidation: An electrochemical cell in which the predominant reaction mechanisms at each electrode are different (e.g. conversion & intercalation).

example: Zinc-ion cell

prefLabel: HybridCell

Subclass of:

- is_a ElectrochemicalCell
- hasPart some ConversionElectrode
- hasPart some IntercalationElectrode

HydrogenElectrode

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_c4a778c7_33da_4e1a_960e_402a210bfeff

elucidation: Platinized platinum electrode saturated by a stream of pure gaseous hydrogen.

–IEC60050

IECEntry: https://www:electropedia:org/iev/iev:nsf/display?openform&ievref=114-03-16

prefLabel: HydrogenElectrode

Subclass of:

- is_a Electrode

HydrogenEvolutionReaction

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_9ffd191e_8ee2_46ca_aa94_f2dcdd9fc3b4

elucidation: The process of generating molecular hydrogen (H2) by a chemical reaction, usually from water (H2O).

prefLabel: HydrogenEvolutionReaction

Subclass of:

- is_a ElectrochemicalConversion

HydrogenSymbol

IRI: http://emmo:info/emmo#EMMO_6756e9c2_8b89_40b2_bee7_52cd1dad3395

prefLabel: HydrogenSymbol

Subclass of:

- is_a ChemicalElement
- hasSymbolData value 'H'

HyperfineTransitionFrequencyOfCs

IRI: http://emmo:info/emmo#EMMO_f96feb3f_4438_4e43_aa44_7458c4d87fc2

elucidation: The frequency standard in the SI system in which the photon absorption by transitions between the two hyperfine ground states of caesium-133 atoms are used to control the output frequency.

It defines the base unit second in the SI system.

codataEntry: https://physics:nist:gov/cgi-bin/cuu/Value?nucs

physicalDimension: T-1 L0 M0 I0 Θ0 N0 J0

prefLabel: HyperfineTransitionFrequencyOfCs

Subclass of:

- is_a Frequency
- is_a SIExactConstant

ISQBaseQuantity

IRI: http://emmo:info/emmo#EMMO_1a4c1a97_88a7_4d8e_b2f9_2ca58e92dde4

elucidation: Base quantities defined in the International System of Quantities (ISQ).

prefLabel: ISQBaseQuantity

wikipediaEntry: https://en:wikipedia:org/wiki/International_System_of_Quantities

Subclass of:

- is_a BaseQuantity
- is_a InternationalSystemOfQuantity
- disjoint_union_of LuminousIntensity, AmountOfSubstance, ThermodynamicTemperature, ElectricCurrent, Length, Time, Mass

ISQDerivedQuantity

IRI: http://emmo:info/emmo#EMMO_2946d40b_24a1_47fa_8176_e3f79bb45064

elucidation: Derived quantities defined in the International System of Quantities (ISQ).

prefLabel: ISQDerivedQuantity

Subclass of:

- is_a DerivedQuantity
- is_a InternationalSystemOfQuantity

ISQDimensionlessQuantity

IRI: http://emmo:info/emmo#EMMO_a66427d1_9932_4363_9ec5_7d91f2bfda1e

elucidation: A quantity to which no physical dimension is assigned and with a corresponding unit of measurement in the SI of the unit one.

dbpediaEntry: http://dbpedia:org/page/Dimensionless_quantity

iupacEntry: https://doi:org/10:1351/goldbook:D01742

physicalDimension: T0 L0 M0 I0 Θ0 N0 J0

prefLabel: ISQDimensionlessQuantity

wikipediaEntry: https://en:wikipedia:org/wiki/Dimensionless_quantity

Subclass of:

- is_a ISQDerivedQuantity

IUPACName

IRI: http://emmo:info/emmo#EMMO_16a3bd5c_75f0_42b3_b000_cb0d018f840e

prefLabel: IUPACName

Subclass of:

- is_a ChemicalName
- is_a IUPACNomencalture

IUPACNomencalture

IRI: http://emmo:info/emmo#EMMO_91a0635a_a89a_46de_8928_04a777d145c7

prefLabel: IUPACNomencalture

Subclass of:

- is_a ChemicalNomenclature

Icon

IRI: http://emmo:info/emmo#EMMO_d7788d1a_020d_4c78_85a1_13563fcec168

elucidation: A 'Sign' that stands for an 'Object' by resembling or imitating it, in shape or by sharing a similar logical structure.

example: A picture that reproduces the aspect of a person.

An equation that reproduces the logical connection of the properties of a physical entity.

prefLabel: Icon

Subclass of:

- is_a Sign

IconSemiosis

IRI: http://emmo:info/emmo#EMMO_7cdc375d_d371_4d78_acd5_d51732f52126

prefLabel: IconSemiosis

Subclass of:

- is_a Semiosis

Idiomatic

IRI: http://emmo:info/emmo#EMMO_48716718_225f_4c88_89e2_d819d30c90a2

elucidation: A language object that follows syntactic rules of a an idiom (e.g. english, italian).

prefLabel: Idiomatic

Subclass of:

- is_a Language

IdiomaticSymbol

IRI: http://emmo:info/emmo#EMMO_0a318776_b067_4de0_a2a6_cba2cf6333f8

prefLabel: IdiomaticSymbol

Subclass of:

- is_a Idiomatic
- is_a Symbol
- equivalent_to Idiomatic and Symbol

Illuminance

IRI: http://emmo:info/emmo#EMMO_b51fbd00_a857_4132_9711_0ef70e7bdd20

definition: The total luminous flux incident on a surface, per unit area.

dbpediaEntry: http://dbpedia:org/page/Illuminance

iupacEntry: https://doi:org/10:1351/goldbook:I02941

physicalDimension: T0 L-2 M0 I0 Θ0 N0 J+1

prefLabel: Illuminance

qudtEntry: http://qudt:org/vocab/quantitykind/Illuminance

Subclass of:

- is_a ISQDerivedQuantity

IlluminanceDimension

IRI: http://emmo:info/emmo#EMMO_668e6ead_1530_40cc_ad5e_24b880edff50

prefLabel: IlluminanceDimension

Subclass of:

- is_a PhysicalDimension
- equivalent_to hasSymbolData value 'T0 L-2 M0 I0 Θ0 N0 J+1'

InChI

IRI: http://emmo:info/emmo#EMMO_d74ed682_894f_46c5_87cb_167f60926965

elucidation: The International Chemical Identifier (InChI) textual identifier proposed by IUPAC to provide a standard encoding for databases of molecular information.

prefLabel: InChI

Subclass of:

- is_a IUPACNomencalture

Index

IRI: http://emmo:info/emmo#EMMO_0cd58641_824c_4851_907f_f4c3be76630c

elucidation: A 'Sign' that stands for an 'Object' due to causal continguity.

example: Smoke stands for a combustion process (a fire). My facial expression stands for my emotional status.

prefLabel: Index

Subclass of:

- is_a Sign

IndexSemiosis

IRI: http://emmo:info/emmo#EMMO_39a4e2a4_d835_426d_b497_182d06e1caff

prefLabel: IndexSemiosis

Subclass of:

- is_a Semiosis

IndicatorElectrode

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_f6fcd255_248d_4603_b128_04dab960a676

elucidation: Electrode that responds to one, or more than one, species in the solution being investigated, with no appreciable change of bulk solution composition during the measurement.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

iupacEntry: https://goldbook:iupac:org/terms/view/I03006

prefLabel: IndicatorElectrode

Subclass of:

- is_a Electrode

InductanceDimension

IRI: http://emmo:info/emmo#EMMO_585e0ff0_9429_4d3c_b578_58abb1ba21d1

prefLabel: InductanceDimension

Subclass of:

- is_a PhysicalDimension
- equivalent_to hasSymbolData value 'T-2 L+2 M+1 I-2 Θ0 N0 J0'

Inequality

IRI: http://emmo:info/emmo#EMMO_0b6ebe5a_0026_4bef_a1c1_5be00df9f98e

elucidation: A relation which makes a non-equal comparison between two numbers or other mathematical expressions.

example: f(x) > 0

prefLabel: Inequality

Subclass of:

- is_a MathematicalFormula

InertElectrode

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_a0a619d7_da95_41f0_8bc3_9c19d636d543

elucidation: Electrode that serves only as a source or sink for electrons without playing a chemical role in the electrode reaction.

–IEC60050

IECEntry: https://www:electropedia:org/iev/iev:nsf/display?openform&ievref=114-02-08

prefLabel: InertElectrode

Subclass of:

- is_a Electrode

InorganicCompound

IRI: http://emmo:info/emmo#EMMO_4e659c69_ca2d_4569_8a96_f99857a1fa32

prefLabel: InorganicCompound

Subclass of:

- is_a ChemicalCompound

InstantaneousCurrent

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_a24f8581_a5a4_41a4_bb45_d0fdd5c0d810

elucidation: Value of an electric current at an instant in time, t.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

iupacEntry: https://goldbook:iupac:org/terms/view/I03062

physicalDimension: T0 L0 M0 I+1 Θ0 N0 J0

prefLabel: InstantaneousCurrent

Subclass of:

- is_a ElectricCurrent

Integer

IRI: http://emmo:info/emmo#EMMO_f8bd64d5_5d3e_4ad4_a46e_c30714fecb7f

prefLabel: Integer

Subclass of:

- is_a Number
- hasNumericalData exactly 1 type
- hasNumericalData only type
- equivalent_to hasNumericalData some type

IntercalationCell

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_b0413a83_d22f_48a4_b5f4_e4a7d88765bc

elucidation: An electrochemical cell in which the predominant reaction mechanisms at both electrodes are intercalations.

example: Li-ion cell

prefLabel: IntercalationCell

Subclass of:

- is_a ElectrochemicalCell
- hasPart some IntercalationElectrode

IntercalationElectrode

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_757eae08_4d43_42d4_8b4e_8a0bfd2f9a1c

elucidation: An electrode at which the predominant electrochemical reaction is an intercalation.

prefLabel: IntercalationElectrode

Subclass of:

- is_a Electrode
- hasPart some IntercalationMaterial

IntercalationMaterial

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_3f0a19ba_d90c_4ed3_b2e6_b5e16d594af1

elucidation: An electrochemical material that can act as a host lattice in an electrochemical intercalation reaction.

example: Graphite

prefLabel: IntercalationMaterial

Subclass of:

- is_a ActiveMaterial

Interface

IRI: http://emmo:info/emmo#EMMO_b17cd88e_9bb7_4d87_ade5_6e181d921f93

elucidation: In chemistry and physics ‘interface’ means the two-dimensional plane separating two phases.

–A. J. Bard, G. Inzelt, and F. Scholz, Eds., Electrochemical Dictionary, 2nd Edition. Berlin: Springer-Verlag, 2012. DOI: https://doi.org/10.1007/978-3-642-29551-5

prefLabel: Interface

Subclass of:

- is_a ActiveParticipant

InternalConductance

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_0c9655c6_6b0b_4819_a219_f286ad196fa9

physicalDimension: T+3 L-2 M-1 I+2 Θ0 N0 J0

prefLabel: InternalConductance

Subclass of:

- is_a ElectricConductance
- is_a ElectrochemicalTransportQuantity

InternalEnergy

IRI: http://emmo:info/emmo#EMMO_830b59f7_d047_438c_90cd_62845749efcb

elucidation: A state quantity equal to the difference between the total energy of a system and the sum of the macroscopic kinetic and potential energies of the system.

IECEntry: http://www:electropedia:org/iev/iev:nsf/display?openform&ievref=113-04-20

dbpediaEntry: http://dbpedia:org/page/Internal_energy

iupacEntry: https://doi:org/10:1351/goldbook:I03103

omMatch: http://www:ontology-of-units-of-measure:org/resource/om-2/InternalEnergy

physicalDimension: T-2 L+2 M+1 I0 Θ0 N0 J0

prefLabel: InternalEnergy

qudtEntry: http://qudt:org/vocab/quantitykind/InternalEnergy

Subclass of:

- is_a Energy

InternalResistance

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_9bf40017_3f58_4030_ada7_cb37a3dfda2d

elucidation: Impetance associated with a power source.

physicalDimension: T-3 L+2 M+1 I-2 Θ0 N0 J0

prefLabel: InternalResistance

Subclass of:

- is_a ElectricResistance

InternationalSystemOfQuantity

IRI: http://emmo:info/emmo#EMMO_f35cff4d_dc09_44cf_a729_22fb79e3bfb2

elucidation: Quantities declared under the ISO 80000.

prefLabel: InternationalSystemOfQuantity

wikipediaEntry: https://en:wikipedia:org/wiki/International_System_of_Quantities

Subclass of:

- is_a StandardizedPhysicalQuantity

Interpretant

IRI: http://emmo:info/emmo#EMMO_054af807_85cd_4a13_8eba_119dfdaaf38b

elucidation: The interpreter's internal representation of the object in a semiosis process.

prefLabel: Interpretant

Subclass of:

- is_a Sign

Interpreter

IRI: http://emmo:info/emmo#EMMO_0527413c_b286_4e9c_b2d0_03fb2a038dee

elucidation: The entity (or agent, or observer, or cognitive entity) who connects 'Sign', 'Interpretant' and 'Object'.

prefLabel: Interpreter

Subclass of:

- is_a Semiotic
- hasSpatialPart some Interpretant

IonAtom

IRI: http://emmo:info/emmo#EMMO_db03061b_db31_4132_a47a_6a634846578b

elucidation: A standalone atom with an unbalanced number of electrons with respect to its atomic number.

prefLabel: IonAtom

Subclass of:

- is_a StandaloneAtom

IonBridge

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_20314893_9351_4e6e_ae58_fb22c6ae7dca

elucidation: An electrochemical component resposible for transporting ions and maintaining physical separation between electrodes.

prefLabel: IonBridge

Subclass of:

- is_a ElectrochemicalComponent

IonicConductivity

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_64e6ed6a_8d17_40ba_937f_f385a54a86c3

physicalDimension: T+3 L-3 M-1 I+2 Θ0 N0 J0

prefLabel: IonicConductivity

Subclass of:

- is_a ElectricConductivity
- is_a ElectrochemicalTransportQuantity

IonicCurrent

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_569a62a5_3b7e_4099_8a4c_f76e229a0347

elucidation: A flow of electric charge, in which ions are the charge carrier.

physicalDimension: T0 L0 M0 I+1 Θ0 N0 J0

prefLabel: IonicCurrent

Subclass of:

- is_a ElectricCurrent

IonicCurrentDensity

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_683e4991_38f3_42e1_84de_5ee25942d2e8

elucidation: Current density in which the charge carriers are ions.

physicalDimension: T0 L-2 M0 I+1 Θ0 N0 J0

prefLabel: IonicCurrentDensity

Subclass of:

- is_a CurrentDensity

IonicLiquidElectrolyte

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_c3f4b34a_0e2c_46f3_baab_4ebd2682d26f

elucidation: An ionic liquid is an electrolyte composed of a salt that is liquid below 100 °C. Ionic liquids have found uses in electrochemical analysis, because their unconventional properties include a negligible vapor pressure, a high thermal and electrochemical stability, and exceptional dissolution properties for both organic and inorganic chemical species.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

dbpediaEntry: https://dbpedia:org/page/Ionic_liquid

prefLabel: IonicLiquidElectrolyte

wikipediaEntry: https://en:wikipedia:org/wiki/Ionic_liquid

Subclass of:

- is_a LiquidElectrolyte

IonicResistivity

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_c90a4ca0_493f_4880_a838_3a2c4b808a03

elucidation: Inverse of IonicConductivity

physicalDimension: T-3 L+3 M+1 I-2 Θ0 N0 J0

prefLabel: IonicResistivity

Subclass of:

- is_a ElectricResistivity
- is_a ElectrochemicalTransportQuantity

IonicSpecies

IRI: http://emmo:info/emmo#EMMO_04943e49_1304_4119_8a65_2e91a4f5f02a

elucidation: A ChemicalSpecies with a net electric charge.

prefLabel: IonicSpecies

Subclass of:

- is_a ChemicalSpecies
- hasPart some Atom

IonicSubcomponent

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_23b866e8-27c6-4fd8-a1d2-6b58ad4445af

elucidation: An ElectrochemicalSubcomponent whose primary role is related to ionic transport.

example: Electrolyte

prefLabel: IonicSubcomponent

Subclass of:

- is_a ElectrochemicalSubcomponent

IonicSubcomponentContinuumModel

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_5f918eae_2666_47dc_8ca8_c79fbcce3b86

prefLabel: IonicSubcomponentContinuumModel

Subclass of:

- is_a ElectrochemicalSubcomponentContinuumModel

Item

IRI: http://emmo:info/emmo#EMMO_eb3a768e_d53e_4be9_a23b_0714833c36de

etymology: From Latin item, “likewise, just so, moreover”.

prefLabel: Item

Subclass of:

- is_a EMMO
- disjoint_union_of Void, Physical

Java

IRI: http://emmo:info/emmo#EMMO_09007bc0_b5f2_4fb9_af01_caf948cf2044

prefLabel: Java

Subclass of:

- is_a Software

JosephsonConstant

IRI: http://emmo:info/emmo#EMMO_ba380bc6_2bfd_4f11_94c7_b3cbaafd1631

elucidation: Inverse of the magnetic flux quantum.

codataEntry: https://physics:nist:gov/cgi-bin/cuu/Value?kjos

physicalDimension: T+2 L-1 M-1 I+1 Θ0 N0 J0

prefLabel: JosephsonConstant

qudtEntry: http://qudt:org/vocab/constant/JosephsonConstant

Subclass of:

- is_a SIExactConstant

Joule

IRI: http://emmo:info/emmo#EMMO_8a70dea4_d6ab_4260_b931_a3e990982416

iupacEntry: https://doi:org/10:1351/goldbook:J03363

prefLabel: Joule

qudtEntry: http://qudt:org/vocab/unit/J

Subclass of:

- is_a SISpecialUnit
- hasPhysicalDimension some EnergyDimension
- hasSymbolData value ‘J’

Katal

IRI: http://emmo:info/emmo#EMMO_33b67e69_3645_4c73_b100_5ea6759221b4

iupacEntry: https://doi:org/10:1351/goldbook:K03372

prefLabel: Katal

qudtEntry: http://qudt:org/vocab/unit/KAT

Subclass of:

- is_a SISpecialUnit
- hasSymbolData value 'kat'
- hasPhysicalDimension some CatalyticActivityDimension

Kelvin

IRI: http://emmo:info/emmo#EMMO_2e5e45fc_f52c_4294_bdc2_5ed7a06dfce7

definition: The kelvin, symbol K, is the SI unit of thermodynamic temperature. It is defined by taking the fixed numerical value of the Boltzmann constant k to be 1.380649×10-23 when expressed in the unit J K-1, which is equal to kg m2 s-2 K-1, where the kilogram, metre and second are defined in terms of h, c and ∇νCs.

iupacEntry: https://doi:org/10:1351/goldbook:K03374

prefLabel: Kelvin

qudtEntry: http://qudt:org/vocab/unit/K

Subclass of:

- is_a SIBaseUnit
- hasSymbolData value 'K'
- hasPhysicalDimension some TemperatureDimension

Kilo

IRI: http://emmo:info/emmo#EMMO_74931b1b_c133_4e59_9a75_1bf0e1626201

prefLabel: Kilo

Subclass of:

- is_a SIMetricPrefix
- hasSymbolData value 'k'
- Inverse(hasVariable) only hasNumericalData value 1000.0

Kilogram

IRI: http://emmo:info/emmo#EMMO_9bfd6f1e_b0ce_459c_beb7_8f1f41708bba

definition: The kilogram, symbol kg, is the SI unit of mass. It is defined by taking the fixed numerical value of the Planck constant h to be 6.62607015×10-34 when expressed in the unit J s, which is equal to kg m2 s-1, where the metre and the second are defined in terms of c and ∇νCs.

iupacEntry: https://doi:org/10:1351/goldbook:K03391

prefLabel: Kilogram

qudtEntry: http://qudt:org/vocab/unit/KiloGM

Subclass of:

- is_a SIBaseUnit
- hasPhysicalDimension some MassDimension
- hasSymbolData value 'kg'

KineticCurrent

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_98b6e9d7_d5df_46a5_87dd_79642b8b2e4

elucidation: Faradaic current of an electroactive substance B formed by a prior chemical reaction from another substance Y that is no electroactive at the potential at which B is electrochemically transformed.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

iupacEntry: https://goldbook:iupac:org/terms/view/K03399

physicalDimension: T0 L0 M0 I+1 Θ0 N0 J0

prefLabel: KineticCurrent

Subclass of:

- is_a FaradaicCurrent

KineticEnergy

IRI: http://emmo:info/emmo#EMMO_ac540a9d_0131_43f6_a33b_17e5cfc432ed

elucidation: The energy of an object due to its motion.

IECEntry: http://www:electropedia:org/iev/iev:nsf/display?openform&ievref=113-03-49

dbpediaEntry: http://dbpedia:org/page/Kinetic_energy

iupacEntry: https://doi:org/10:1351/goldbook:K03402

omMatch: http://www:ontology-of-units-of-measure:org/resource/om-2/KineticEnergy

physicalDimension: T-2 L+2 M+1 I0 Θ0 N0 J0

prefLabel: KineticEnergy

qudtEntry: http://qudt:org/vocab/quantitykind/KineticEnergy

Subclass of:

- is_a Energy

KohlrauschsLaw

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_598ae3d0_76e9_429c_a0e1_8694525cb574

elucidation: For any electrolyte A_xB_y, the limiting molar conductivity is expressed as x times the limiting molar conductivity of A^{y+} and y times the limiting molar conductivity of B^{x-}.

prefLabel: KohlrauschsLaw

Subclass of:

- is_a MaterialLaw

LCO

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_0e840617_26ee_4ec2_adc3_5d0b2b221995

prefLabel: LCO

Subclass of:

- is_a LithiumIntercalationMaterial

LFPReferenceElectrode

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_249848f9_308a_40aa_b560_e77cb167da50

prefLabel: LFPReferenceElectrode

Subclass of:

- is_a ReferenceElectrode

LNMO

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_14113a11_a342_4bdd_a6b3_8a279ce9d49c

prefLabel: LNMO

Subclass of:

- is_a LithiumIntercalationMaterial

LNO

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_708cc414_2607_4f32_b473_f01aa74962f2

prefLabel: LNO

Subclass of:

- is_a LithiumIntercalationMaterial

LP57

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_8365b096_c1f4_4fde_86a6_27cd70787ff9

prefLabel: LP57

Subclass of:

- is_a NonAqueousElectrolyte
- hasConventionalQuantity some LiPF61MSingleComposition

Language

IRI: http://emmo:info/emmo#EMMO_d8d2144e_5c8d_455d_a643_5caf4d8d9df8

elucidation: A language object is a symbolic object respecting a specific language syntactic rules (a well-formed formula).

prefLabel: Language

Subclass of:

- is_a Symbolic

Laplacian

IRI: http://emmo:info/emmo#EMMO_048a14e3_65fb_457d_8695_948965c89492

prefLabel: Laplacian

Subclass of:

- is_a DifferentialOperator
- equivalent_to hasSymbolData value ‘Δ’

LawOfMassAction

IRI: http://emmo:info/emmo#EMMO_46ef0f56_2b15_4fc5_83bd_79b58b996b93

elucidation: The rate of a chemical reaction is directly proportional to the product of the activities or concentrations of the reactants.

prefLabel: LawOfMassAction

wikipediaEntry: https://en:wikipedia:org/wiki/Law_of_mass_action

Subclass of:

- is_a PhysicalLaw

Length

IRI: http://emmo:info/emmo#EMMO_cd2cd0de_e0cc_4ef1_b27e_2e88db027bac

elucidation: Extend of a spatial dimension.

IECEntry: http://www:electropedia:org/iev/iev:nsf/display?openform&ievref=113-01-19

dbpediaEntry: http://dbpedia:org/page/Length

iupacEntry: https://doi:org/10:1351/goldbook:L03498

physicalDimension: T0 L+1 M0 I0 Θ0 N0 J0

prefLabel: Length

Subclass of:

- is_a ISQBaseQuantity

LengthDimension

IRI: http://emmo:info/emmo#EMMO_b3600e73_3e05_479d_9714_c041c3acf5cc

prefLabel: LengthDimension

Subclass of:

- is_a PhysicalDimension
- equivalent_to hasSymbolData value 'T0 L+1 M0 I0 Θ0 N0 J0'

LengthFractionUnit

IRI: http://emmo:info/emmo#EMMO_cdc962d8_f3ea_4764_a57a_c7caa4859179

elucidation: Unit for quantities of dimension one that are the fraction of two lengths.

example: Unit for plane angle.

prefLabel: LengthFractionUnit

Subclass of:

- is_a FractionUnit

Letter

IRI: http://emmo:info/emmo#EMMO_bed2fe4c_dc7e_43a8_8200_6aac44030bff

prefLabel: Letter

Subclass of:

- is_a Symbol

LiCation

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_90a6f1ac_4b98_4d4a_bd28_943c0df29257

prefLabel: LiCation

Subclass of:

- is_a Solute

LiPF61MSingleComposition

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_62114aea_17fb_40ad_8575_ac6647ac8a6c

elucidation: 1M LiPF6

prefLabel: LiPF61MSingleComposition

Subclass of:

- is_a LiPF6SingleComponentComposition

LiPF6SingleComponentComposition

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_76e6c5be_5e00_4001_b4ec_0b4ee67b7809

prefLabel: LiPF6SingleComponentComposition

Subclass of:

- is_a SingleComponentComposition

LimitingCurrent

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_d5ac8868_d318_4065_aa23_72140ae888ae

elucidation: Faradaic current that is approached as the rate of the charge-transfer process is increased by varying the applied potential, being greater than the rate of mass transport controlled by diffusion.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

iupacEntry: https://goldbook:iupac:org/terms/view/L03532

physicalDimension: T0 L0 M0 I+1 Θ0 N0 J0

prefLabel: LimitingCurrent

Subclass of:

- is_a FaradaicCurrent

LimitingMolarConductivity

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_a17ee4e0_c81a_4a64_9ecb_9c6fa022cf4d

elucidation: Molar conductivity at infinite dilution

physicalDimension: T+3 L0 M-1 I+2 Θ0 N-1 J0

prefLabel: LimitingMolarConductivity

Subclass of:

- is_a ElectrochemicalTransportQuantity

Line

IRI: http://emmo:info/emmo#EMMO_3e309118_e8b7_4021_80f4_642d2df65d94

prefLabel: Line

Subclass of:

- is_a OneManifold

Liquid

IRI: http://emmo:info/emmo#EMMO_7509da43_56b1_4d7f_887a_65d1663df4ba

elucidation: A liquid is a nearly incompressible fluid that conforms to the shape of its container but retains a (nearly) constant volume independent of pressure.

prefLabel: Liquid

Subclass of:

- is_a Fluid
- is_a StateOfMatter

LiquidAerosol

IRI: http://emmo:info/emmo#EMMO_94010cbc_c2a6_4cb9_b29a_83aa99d2ff70

elucidation: An aerosol composed of liquid droplets in air or another gas.

prefLabel: LiquidAerosol

Subclass of:

- is_a Aerosol

LiquidElectrolyte

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_609b340f_3450_4a10_95c2_c457e3eb8a89

definition: An electrolyte in the liquid phase.

prefLabel: LiquidElectrolyte

Subclass of:

- is_a Electrolyte

LiquidFoam

IRI: http://emmo:info/emmo#EMMO_d69d2e95_b22f_499a_a552_17fde0d778fc

elucidation: A foam of trapped gas in a liquid.

prefLabel: LiquidFoam

Subclass of:

- is_a Foam
- is_a Liquid

LiquidGasSuspension

IRI: http://emmo:info/emmo#EMMO_42185fe7_122c_4e0c_a3cd_659d3e21c389

elucidation: A coarse dispersion of gas in a liquid continuum phase.

example: Sparkling water

prefLabel: LiquidGasSuspension

Subclass of:

- is_a Suspension
- is_a Liquid

LiquidJunction

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_634467ad_feed_4979_adb2_877d98fe1768

elucidation: Any junction between two electrolyte solutions of different composition.

iupacEntry: https://goldbook:iupac:org/terms/view/L03584

prefLabel: LiquidJunction

Subclass of:

- is_a ElectrochemicalInterface

LiquidLiquidSuspension

IRI: http://emmo:info/emmo#EMMO_47fe2379_be21_48d1_9ede_402f0faf494b

elucidation: A coarse dispersion of liquid in a liquid continuum phase.

prefLabel: LiquidLiquidSuspension

Subclass of:

- is_a Suspension
- is_a Liquid

LiquidSol

IRI: http://emmo:info/emmo#EMMO_4354ac74_7425_43ab_92e4_6dc19d1afee9

elucidation: A type of sol in the form of one solid dispersed in liquid.

prefLabel: LiquidSol

Subclass of:

- is_a Sol
- is_a Liquid

LiquidSolidSuspension

IRI: http://emmo:info/emmo#EMMO_e9e02156_651f_41c8_9efb_d5da0d4ce5e2

elucidation: A coarse dispersion of solids in a liquid continuum phase.

example: Mud

prefLabel: LiquidSolidSuspension

Subclass of:

- is_a Suspension
- is_a Liquid

LiquidSolution

IRI: http://emmo:info/emmo#EMMO_4b3e2374_52a1_4420_8e3f_3ae6b9bf7dff

elucidation: A liquid solution made of two or more component substances.

prefLabel: LiquidSolution

Subclass of:

- is_a Solution
- is_a Liquid

LithiumHexafluorophosphate

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_098b2c3e_6d89_4c75_a638_9c4650a5e616

prefLabel: LithiumHexafluorophosphate

Subclass of:

- is_a IUPACName
- hasSymbolData value 'lithium;hexafluorophosphate'

LithiumIntercalationElectrode

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_347a15e7_1cc2_4508_b972_1ab7240d5549

prefLabel: LithiumIntercalationElectrode

Subclass of:

- is_a IntercalationElectrode
- hasPart some LithiumIntercalationMaterial

LithiumIntercalationMaterial

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_80964bbe_8efd_44d0_b8c8_4939b9dee25c

elucidation: Active electrochemical materials suitable for intercalating Li/Li+.

prefLabel: LithiumIntercalationMaterial

Subclass of:

- is_a IntercalationMaterial

LithiumIonBatteryCurrentCollector

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_967d9455_ad6d_4266_a0ca_170f5e8b11b8

prefLabel: LithiumIonBatteryCurrentCollector

Subclass of:

- is_a CurrentCollector
- hasConventionalQuantity some Manufacturer

LithiumIonBatteryElectrode

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_1d3ad695_4a44_47e7_ae3b_7f8a37a6ac6c

prefLabel: LithiumIonBatteryElectrode

Subclass of:

- is_a LithiumIntercalationElectrode
- is_a PorousElectrode
- is_a CompositeElectrode
- hasPart some Binder
- hasPart some LithiumIonBatteryCurrentCollector

LithiumIonBatteryNegativeElectrode

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_4ce0335a_5e04_42ae_b25f_0b7de008e307

prefLabel: LithiumIonBatteryNegativeElectrode

Subclass of:

- is_a LithiumIonBatteryElectrode
- is_a NegativeElectrode

LithiumIonBatteryPositiveElectrode

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_de6f02d3_ea77_4e15_8e39_a066eb9d63cc

prefLabel: LithiumIonBatteryPositiveElectrode

Subclass of:

- is_a LithiumIonBatteryElectrode
- is_a PositiveElectrode

LithiumIonCell

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_96addc62_ea04_449a_8237_4cd541dd8e5f

prefLabel: LithiumIonCell

Subclass of:

- is_a IntercalationCell
- hasPart some LithiumIntercalationElectrode

LithiumMetalReferenceElectrode

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_d38f2125_115e_4df5_a8a0_bdb4b88940c2

prefLabel: LithiumMetalReferenceElectrode

Subclass of:

- is_a MetalReferenceElectrode

Litre

IRI: http://emmo:info/emmo#EMMO_a155dc93_d266_487e_b5e7_2a2c72d5ebf9

definition: A non-SI unit of volume defined as 1 cubic decimetre (dm3),

iupacEntry: https://doi:org/10:1351/goldbook:L03594

prefLabel: Litre

qudtEntry: http://qudt:org/vocab/unit/L

Subclass of:

- is_a SIAcceptedSpecialUnit
- hasSymbolData value 'l'
- hasPhysicalDimension some VolumeDimension

Lumen

IRI: http://emmo:info/emmo#EMMO_d7b7fd1e_645a_42cb_8f40_85f0d034d3ae

iupacEntry: https://doi:org/10:1351/goldbook:L03639

prefLabel: Lumen

qudtEntry: http://qudt:org/vocab/unit/LM

Subclass of:

- is_a SISpecialUnit
- hasPhysicalDimension some LuminousIntensityDimension
- hasSymbolData value 'lm'

Luminance

IRI: http://emmo:info/emmo#EMMO_97589322_710c_4af4_9431_1e5027f2be42

dbpediaEntry: http://dbpedia:org/page/Luminance

iupacEntry: https://doi:org/10:1351/goldbook:L03640

physicalDimension: T0 L-2 M0 I0 Θ0 N0 J+1

prefLabel: Luminance

qudtEntry: http://qudt:org/vocab/quantitykind/Luminance

Subclass of:

- is_a ISQDerivedQuantity

LuminousEfficacyDimension

IRI: http://emmo:info/emmo#EMMO_5c003f53_20a2_4bd7_8445_58187e582578

prefLabel: LuminousEfficacyDimension

Subclass of:

- is_a PhysicalDimension
- equivalent_to hasSymbolData value 'T+3 L-1 M-1 I0 Θ0 N0 J+1'

LuminousEfficacyOf540THzRadiation

IRI: http://emmo:info/emmo#EMMO_506f7823_52bc_40cb_be07_b3b1e10cce13

elucidation: The luminous efficacy of monochromatic radiation of frequency 540 × 10 12 Hz, K cd , is a technical constant that gives an exact numerical relationship between the purely physical characteristics of the radiant power stimulating the human eye (W) and its photobiological response defined by the luminous flux due to the spectral responsivity of a standard observer (lm) at a frequency of 540 × 10 12 hertz.

codataEntry: https://physics:nist:gov/cgi-bin/cuu/Value?kcd

physicalDimension: T+3 L-1 M-1 I0 Θ0 N0 J+1

prefLabel: LuminousEfficacyOf540THzRadiation

Subclass of:

- is_a SIExactConstant

LuminousFlux

IRI: http://emmo:info/emmo#EMMO_e2ee1c98_497a_4f66_b4ed_5711496a848e

elucidation: Perceived power of light.

dbpediaEntry: http://dbpedia:org/page/Luminous_flux

iupacEntry: https://doi:org/10:1351/goldbook:L03646

physicalDimension: T0 L0 M0 I0 Θ0 N0 J+1

prefLabel: LuminousFlux

qudtEntry: http://qudt:org/vocab/quantitykind/LuminousFlux

Subclass of:

- is_a ISQDerivedQuantity

LuminousIntensity

IRI: http://emmo:info/emmo#EMMO_50bf79a6_a48b_424d_9d2c_813bd631231a

elucidation: A measure of the wavelength-weighted power emitted by a light source in a particular direction per unit solid angle. It is based on the luminosity function, which is a standardized model of the sensitivity of the human eye.

dbpediaEntry: http://dbpedia:org/page/Luminous_intensity

physicalDimension: T0 L0 M0 I0 Θ0 N0 J+1

prefLabel: LuminousIntensity

qudtEntry: http://qudt:org/vocab/quantitykind/Length

Subclass of:

- is_a ISQBaseQuantity

LuminousIntensityDimension

IRI: http://emmo:info/emmo#EMMO_14ff4393_0f28_4fb4_abc7_c2cc00bc761d

prefLabel: LuminousIntensityDimension

Subclass of:

- is_a PhysicalDimension
- equivalent_to hasSymbolData value 'T0 L0 M0 I0 Θ0 N0 J+1'

Lux

IRI: http://emmo:info/emmo#EMMO_da1dd4a7_c611_4ad4_bef6_7646f28aa598

iupacEntry: https://doi:org/10:1351/goldbook:L03651

prefLabel: Lux

qudtEntry: http://qudt:org/vocab/unit/LUX

Subclass of:

- is_a SISpecialUnit
- hasPhysicalDimension some IlluminanceDimension
- hasSymbolData value 'lx'

Macromolecule

IRI: http://emmo:info/emmo#EMMO_a14dd591_8b7a_4847_8c91_3a2f421a45b4

prefLabel: Macromolecule

Subclass of:

- is_a PolyatomicEntity

MagneticDipoleMoment

IRI: http://emmo:info/emmo#EMMO_81e767f1_59b1_4d7a_bf69_17f322241831

elucidation: Vector quantity μ causing a change to its energy ΔW in an external magnetic field of field flux density B:

`$\Updelta$W = -$\upmu$ · B`

IECEntry: http://www:electropedia:org/iev/iev:nsf/display?openform&ievref=121-11-55

ISO80000Ref: 10-9.1

dbpediaEntry: http://dbpedia:org/page/Magnetic_moment

iupacEntry: http://goldbook:iupac:org/terms/view/M03688

physicalDimension: T0 L+2 M0 I+1 Θ0 N0 J0

prefLabel: MagneticDipoleMoment

qudtEntry: http://qudt:org/vocab/quantitykind/MagneticDipoleMoment

Subclass of:

- is_a ISQDerivedQuantity

MagneticDipoleMomentDimension

IRI: http://emmo:info/emmo#EMMO_1c2226a9_22f0_40c8_8928_5a01d398f96e

prefLabel: MagneticDipoleMomentDimension

Subclass of:

- is_a PhysicalDimension
- equivalent_to hasSymbolData value 'T+1 L+1 M0 I+1 Θ0 N0 J0'

MagneticFieldStrength

IRI: http://emmo:info/emmo#EMMO_b4895f75_41c8_4fd9_b6d6_4d5f7c99c423

dbpediaEntry: http://dbpedia:org/page/Magnetic_field

iupacEntry: https://doi:org/10:1351/goldbook:M03683

physicalDimension: T0 L-1 M0 I+1 Θ0 N0 J0

prefLabel: MagneticFieldStrength

qudtEntry: http://qudt:org/vocab/quantitykind/MagneticFieldStrength

Subclass of:

- is_a ISQDerivedQuantity

MagneticFlux

IRI: http://emmo:info/emmo#EMMO_3b931698_937e_49be_ab1b_36fa52d91181

elucidation: Measure of magnetism, taking account of the strength and the extent of a magnetic field.

dbpediaEntry: http://dbpedia:org/page/Magnetic_flux

iupacEntry: https://doi:org/10:1351/goldbook:M03684

physicalDimension: T-2 L+2 M+1 I-1 Θ0 N0 J0

prefLabel: MagneticFlux

qudtEntry: http://qudt:org/vocab/quantitykind/MagneticFlux

Subclass of:

- is_a ISQDerivedQuantity

MagneticFluxDensity

IRI: http://emmo:info/emmo#EMMO_961d1aba_f75e_4411_aaa4_457f7516ed6b

elucidation: Strength of the magnetic field.

dbpediaEntry: http://dbpedia:org/page/Magnetic_field

iupacEntry: https://doi:org/10:1351/goldbook:M03686

physicalDimension: T-2 L0 M+1 I-1 Θ0 N0 J0

prefLabel: MagneticFluxDensity

qudtEntry: http://qudt:org/vocab/quantitykind/MagneticFluxDensity

Subclass of:

- is_a ISQDerivedQuantity

MagneticFluxDensityDimension

IRI: http://emmo:info/emmo#EMMO_ec903946_ddc9_464a_903c_7373e0d1eeb5

prefLabel: MagneticFluxDensityDimension

Subclass of:

- is_a PhysicalDimension
- equivalent_to hasSymbolData value 'T-2 L0 M+1 I-1 Θ0 N0 J0'

MagneticFluxDimension

IRI: http://emmo:info/emmo#EMMO_4c49ab58_a6f6_409e_b849_f873ae1dcbee

prefLabel: MagneticFluxDimension

Subclass of:

- is_a PhysicalDimension
- equivalent_to hasSymbolData value 'T-2 L+2 M+1 I-1 Θ0 N0 J0'

Manufacturer

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_7fc6941c_0c7b_4d29_bb75_ddcb884156dd

prefLabel: Manufacturer

Subclass of:

- is_a ConventionalNominalProperty

Manufacturing

IRI: http://emmo:info/emmo#EMMO_a4d66059_5dd3_4b90_b4cb_10960559441b

elucidation: The process of transforming raw materials into a product by the use of manual labor, machinery or chemical/biological processes.

prefLabel: Manufacturing

Subclass of:

- is_a Process
- hasProperParticipant some Engineered

Mass

IRI: http://emmo:info/emmo#EMMO_ed4af7ae_63a2_497e_bb88_2309619ea405

elucidation: Property of a physical body that express its resistance to acceleration (a change in its state of motion) when a force is applied.

dbpediaEntry: http://dbpedia:org/page/Mass

iupacEntry: https://doi:org/10:1351/goldbook:M03709

physicalDimension: T0 L0 M+1 I0 Θ0 N0 J0

prefLabel: Mass

qudtEntry: http://qudt:org/vocab/quantitykind/Mass

Subclass of:

- is_a ISQBaseQuantity
- Inverse(hasProperty) only Matter

MassAccumulationTerm

IRI: http://emmo:info/emmo#EMMO_42b9bd2b_20af_4b8a_b001_0c0dce9f9745

prefLabel: MassAccumulationTerm

Subclass of:

- is_a AccumulationTerm

MassConcentration

IRI: http://emmo:info/emmo#EMMO_16f2fe60_2db7_43ca_8fee_5b3e416bfe87

dbpediaEntry: http://dbpedia:org/page/Mass_concentration_(chemistry)

iupacEntry: https://doi:org/10:1351/goldbook:M03713

physicalDimension: T0 L-3 M+1 I0 Θ0 N0 J0

prefLabel: MassConcentration

qudtEntry: http://qudt:org/vocab/quantitykind/MassConcentration

Subclass of:

- is_a Density
- is_a ChemicalCompositionQuantity

MassContinuityEquation

IRI: http://emmo:info/emmo#EMMO_7d20b67d_3565_492e_9d59_f29c2c525276

elucidation: An equation describing the continuum transport of mass.

prefLabel: MassContinuityEquation

Subclass of:

- is_a ContinuityEquation
- hasSpatialDirectPart some MassSourceTerm
- hasSpatialDirectPart some MassAccumulationTerm
- hasSpatialDirectPart some MassFluxTerm

MassDimension

IRI: http://emmo:info/emmo#EMMO_77e9dc31_5b19_463e_b000_44c6e79f98aa

prefLabel: MassDimension

Subclass of:

- is_a PhysicalDimension
- equivalent_to hasSymbolData value 'T0 L0 M+1 I0 Θ0 N0 J0'

MassFlux

IRI: http://emmo:info/emmo#EMMO_9536a2c6_fddd_48b3_ae48_842ba3e78310

elucidation: Rate of mass movement through a unit area.

physicalDimension: T-1 L-2 M+1 I0 Θ0 N0 J0

prefLabel: MassFlux

wikipediaEntry: https://en:wikipedia:org/wiki/Mass_flux

Subclass of:

- is_a ISQDerivedQuantity

MassFluxTerm

IRI: http://emmo:info/emmo#EMMO_5bc88245_45a1_4163_b640_f8320cc780de

prefLabel: MassFluxTerm

Subclass of:

- is_a FluxTerm

MassFraction

IRI: http://emmo:info/emmo#EMMO_7c055d65_2929_40e1_af4f_4bf10995ad50

dbpediaEntry: http://dbpedia:org/page/Mass_fraction_(chemistry)

iupacEntry: https://doi:org/10:1351/goldbook:M03722

omMatch: http://www:ontology-of-units-of-measure:org/resource/om-2/MassFraction

physicalDimension: T0 L0 M0 I0 Θ0 N0 J0

prefLabel: MassFraction

qudtEntry: http://qudt:org/vocab/quantitykind/MassFraction

Subclass of:

- is_a ChemicalCompositionQuantity
- is_a RatioQuantity
- hasReferenceUnit only MassFractionUnit

Individuals:

- emc_ecemc37_mass_fraction
- ec_ecemc37_mass_fraction

MassFractionUnit

IRI: http://emmo:info/emmo#EMMO_18448443_dcf1_49b8_a321_cf46e2c393e1

elucidation: Unit for quantities of dimension one that are the fraction of two masses.

example: Unit for mass fraction.

prefLabel: MassFractionUnit

Subclass of:

- is_a FractionUnit

MassNumber

IRI: http://emmo:info/emmo#EMMO_dc6c8de0_cfc4_4c66_a7dc_8f720e732d54

definition: Number of nucleons in an atomic nucleus.

physicalDimension: T0 L0 M0 I0 Θ0 N0 J0

prefLabel: MassNumber

qudtEntry: http://qudt:org/vocab/quantitykind/MassNumber

Subclass of:

- is_a PureNumberQuantity
- Inverse(hasProperty) only Atom

MassPerAreaDimension

IRI: https://big-map:github:io/LabNotebookAppOntology#EMMO_ac3d4dee_f90c_4978_8fb7_cffb86974eec

prefLabel: MassPerAreaDimension

Subclass of:

- is_a PhysicalDimension
- hasSymbolData value 'T0 L-2 M+1 I0 Θ0 N0 J0'

MassSourceTerm

IRI: http://emmo:info/emmo#EMMO_d0592008_1de9_4ce1_99a4_3c38547c240f

prefLabel: MassSourceTerm

Subclass of:

- is_a SourceTerm

Massive

IRI: http://emmo:info/emmo#EMMO_385b8f6e_43ac_4596_ad76_ac322c68b7ca

elucidation: The union of classes of elementary particles that possess mass.

prefLabel: Massive

Subclass of:

- is_a ElementaryParticle
- equivalent_to Quark or Electron

Massless

IRI: http://emmo:info/emmo#EMMO_e5488299_8dab_4ebb_900a_26d2abed8396

elucidation: The union of classes of elementary particles that do not possess mass.

prefLabel: Massless

Subclass of:

- is_a ElementaryParticle
- equivalent_to Photon or Gluon or Graviton

Material

IRI: http://emmo:info/emmo#EMMO_4207e895_8b83_4318_996a_72cfb32acd94

elucidation: A matter individual that stands for a real world object representing an amount of a physical substance (or mixture of substances) in different states of matter or phases.

prefLabel: Material

Subclass of:

- is_a Matter

MaterialLaw

IRI: http://emmo:info/emmo#EMMO_f19ff3b4_6bfe_4c41_a2b2_9affd39c140b

prefLabel: MaterialLaw

Subclass of:

- is_a NaturalLaw

MaterialRelation

IRI: http://emmo:info/emmo#EMMO_e5438930_04e7_4d42_ade5_3700d4a52ab7

elucidation: An 'equation' that stands for a physical assumption specific to a material, and provides an expression for a 'physics_quantity' (the dependent variable) as function of other variables, physics_quantity or data (independent variables).

example: The Lennard-Jones potential.

A force field.

An Hamiltonian.

prefLabel: MaterialRelation

Subclass of:

- is_a Equation
- hasSpatialDirectPart some PhysicalQuantity

Mathematical

IRI: http://emmo:info/emmo#EMMO_54ee6b5e_5261_44a8_86eb_5717e7fdb9d0

elucidation: The class of general mathematical symbolic objects respecting mathematical syntactic rules.

prefLabel: Mathematical

Subclass of:

- is_a Language

MathematicalFormula

IRI: http://emmo:info/emmo#EMMO_88470739_03d3_4c47_a03e_b30a1288d50c

elucidation: A mathematical string that can be evaluated as true or false.

prefLabel: MathematicalFormula

Subclass of:

- is_a MathematicalSymbolicConstruct

MathematicalModel

IRI: http://emmo:info/emmo#EMMO_f7ed665b_c2e1_42bc_889b_6b42ed3a36f0

prefLabel: MathematicalModel

Subclass of:

- is_a Mathematical
- is_a Model
- equivalent_to Mathematical and Model

MathematicalOperator

IRI: http://emmo:info/emmo#EMMO_f6d0c26a_98b6_4cf8_8632_aa259131faaa

prefLabel: MathematicalOperator

Subclass of:

- is_a MathematicalSymbol

MathematicalSymbol

IRI: http://emmo:info/emmo#EMMO_5be83f9c_a4ba_4b9a_be1a_5bfc6e891231

prefLabel: MathematicalSymbol

Subclass of:

- is_a Mathematical
- is_a Symbol
- hasProperPart only not Mathematical
- equivalent_to Mathematical and Symbol

MathematicalSymbolicConstruct

IRI: http://emmo:info/emmo#EMMO_11271bf8_eae0_4394_bddf_2ab5d5d52875

prefLabel: MathematicalSymbolicConstruct

Subclass of:

- is_a Mathematical
- is_a SymbolicConstruct
- equivalent_to Mathematical and SymbolicConstruct

Matrix

IRI: http://emmo:info/emmo#EMMO_1cba0b27_15d0_4326_933f_379d0b3565b6

elucidation: 2-dimensional array who's spatial direct parts are vectors.

prefLabel: Matrix

Subclass of:

- is_a Array
- hasSpatialDirectPart some Vector

Matter

IRI: http://emmo:info/emmo#EMMO_5b2222df_4da6_442f_8244_96e9e45887d1

elucidation: A 'Physical' that possesses some 'Massive' parts.

prefLabel: Matter

Subclass of:

- is_a Physicalistic
- hasTemporalPart only Matter
- hasPart some Massive

MaxContinuousDischargeCurrent

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_ba7ac581_0e13_4815_b888_013c378932f5

physicalDimension: T0 L0 M0 I+1 Θ0 N0 J0

prefLabel: MaxContinuousDischargeCurrent

Subclass of:

- is_a ElectricCurrent
- is_a ConventionalElectrochemicalProperty

MaxOperatingTemperature

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_74293727_07f7_4b7b_9e23_bea328144ad7

physicalDimension: T0 L0 M0 I0 Θ+1 N0 J0

prefLabel: MaxOperatingTemperature

Subclass of:

- is_a ThermodynamicTemperature
- is_a ConventionalElectrochemicalProperty

MaxPulseDischargeCurrent

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_3e54f9e3_a31d_4821_9bfb_ef953a42c35b

physicalDimension: T0 L0 M0 I+1 Θ0 N0 J0

prefLabel: MaxPulseDischargeCurrent

Subclass of:

- is_a ElectricCurrent
- is_a ConventionalElectrochemicalProperty

MaxPulseDischargeTime

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_d5dc0c1d_0926_4268_89f0_4519a326eabc

physicalDimension: T+1 L0 M0 I0 Θ0 N0 J0

prefLabel: MaxPulseDischargeTime

Subclass of:

- is_a Time
- is_a ConventionalElectrochemicalProperty

MeasuredConstant

IRI: http://emmo:info/emmo#EMMO_3f15d200_c97b_42c8_8ac0_d81d150361e2

elucidation: For a given unit system, measured constants are physical constants that are not used to define the unit system. Hence, these constants have to be measured and will therefore be associated with an uncertainty.

prefLabel: MeasuredConstant

Subclass of:

- is_a PhysicalConstant

MeasuredQuantitativeProperty

IRI: http://emmo:info/emmo#EMMO_873b0ab3_88e6_4054_b901_5531e01f14a4

elucidation: Measured value of a quantity representing a 'MeasurementResult'.

– VIM

VIMTerm: measured quantity value

prefLabel: MeasuredQuantitativeProperty

Subclass of:

- is_a QuantitativeProperty

MeasuredUncertainty

IRI: http://emmo:info/emmo#EMMO_847724b7_acef_490e_9f0d_67da967f2812

elucidation: A non-negative parameter characterising the dispersion of the quantity being measured.

example: - Standard deviation

- Half-width of an interval with a stated coverage probability

VIMTerm: measured uncertainty

prefLabel: MeasuredUncertainty

Subclass of:

- is_a QuantitativeProperty

Measurement

IRI: http://emmo:info/emmo#EMMO_463bcfda_867b_41d9_a967_211d4d437cfb

elucidation: An 'observation' that results in a quantitative comparison of a 'property' of an 'object' with a standard reference.

VIMTerm: measurement

prefLabel: Measurement

Subclass of:

- is_a Observation
- hasParticipant some MeasuringSystem
- hasParticipant some MeasurementResult

MeasurementResult

IRI: http://emmo:info/emmo#EMMO_0f6f0120_c079_4d95_bb11_4ddee05e530e

elucidation: Result of a measurement.

A MeasurementResult is in EMMO expressed as a single MeasurendQuantitativeProperty and a MeasuredUncertainty

VIMTerm: measurement result

prefLabel: MeasurementResult

Subclass of:

- is_a ObjectiveProperty

MeasurementUnit

IRI: http://emmo:info/emmo#EMMO_b081b346_7279_46ef_9a3d_2c088fcd79f4

elucidation: A 'Quantity' that stands for the standard reference magnitude of a specific class of measurement processes, defined and adopted by convention or by law.

The numerical quantity value of the 'MeasurementUnit' is conventionally 1 and does not appear.

Quantitative measurement results are expressed as a multiple of the 'MeasurementUnit'.

prefLabel: MeasurementUnit

Subclass of:

- is_a ReferenceUnit
- is_a Object
- hasPhysicalDimension exactly 1 PhysicalDimension
- disjoint_union_of NonPrefixedUnit, PrefixedUnit

MeasuringCell

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_89ff4fa5_142f_49ec_bfe8_117a38648ed8

prefLabel: MeasuringCell

Subclass of:

- is_a MeasuringInstrument

MeasuringInstrument

IRI: http://emmo:info/emmo#EMMO_f2d5d3ad_2e00_417f_8849_686f3988d929

elucidation: Device used for making measurements, alone or in conjunction with one or more supplementary devices.

– VIM

VIMTerm: measuring instrument

prefLabel: MeasuringInstrument

Subclass of:

- is_a Observer

MeasuringSystem

IRI: http://emmo:info/emmo#EMMO_7dea2572_ab42_45bd_9fd7_92448cec762a

elucidation: A set of one or more 'MeasuringInstruments' and often other devices, including any reagent and supply, assembled and adapted to give information used to generate 'MeasuredQuantityProperty' within specified intervals for quantities of specified kinds.

– VIM

VIMTerm: measuring system

prefLabel: MeasuringSystem

Subclass of:

- is_a Observer
- hasPart some MeasuringInstrument

Mega

IRI: http://emmo:info/emmo#EMMO_5eaecadc_4f0d_4a3a_afc7_1fc0b83cc928

prefLabel: Mega

Subclass of:

- is_a SIMetricPrefix
- Inverse(hasVariable) only hasNumericalData value 1000000.0
- hasSymbolData value 'M'

MembranePotential

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_25c5bd91_bbc4_40dd_8d54_1f817371b21

elucidation: Electric potential difference between two solutions separated by an ion-selective membrane in the absence of any electric current flowing through the membrane.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

physicalDimension: T-3 L+2 M+1 I-1 Θ0 N0 J0

prefLabel: MembranePotential

Subclass of:

- is_a ElectricPotential
- is_a ElectrochemicalQuantity

MercuryElectrode

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_df78745e_f9db_4830_88f0_8ce074fcb8ff

elucidation: Liquid metal electrode used in polarography.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

prefLabel: MercuryElectrode

Subclass of:

- is_a MetalElectrode

Mesh

IRI: http://emmo:info/emmo#EMMO_66305f3d_6eef_448a_953d_17abb87788ae

prefLabel: Mesh

Subclass of:

- is_a Discretization

MesoscopicModel

IRI: http://emmo:info/emmo#EMMO_53935db0_af45_4426_b9e9_244a0d77db00

elucidation: A physics-based model based on a physics equation describing the behaviour of mesoscopic entities, i.e. a set of bounded atoms like a molecule, bead or nanoparticle.

prefLabel: MesoscopicModel

Subclass of:

- is_a PhysicsBasedModel

MetalElectrode

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_5adb91e0_ffe1_41f3_b779_c6966f65fb0e

elucidation: An electrode in which the actve electrochemical material is a metal.

prefLabel: MetalElectrode

Subclass of:

- is_a ConversionElectrode

MetalReferenceElectrode

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_dceedbd8_abac_4fb2_932f_41369a69b9cb

prefLabel: MetalReferenceElectrode

Subclass of:

- is_a ReferenceElectrode

Metre

IRI: http://emmo:info/emmo#EMMO_7db11dbf_a643_464a_9b56_07eabcc3e9c5

definition: The metre, symbol m, is the SI unit of length. It is defined by taking the fixed numerical value of the speed of light in vacuum c to be 299792458 when expressed in the unit m s-1, where the second is defined in terms of $\nabla\nu$Cs.

iupacEntry: https://doi:org/10:1351/goldbook:M03884

prefLabel: Metre

qudtEntry: http://qudt:org/vocab/unit/M

Subclass of:

- is_a SIBaseUnit
- hasSymbolData value 'm'
- hasPhysicalDimension some LengthDimension

MetrePerSecond

IRI: http://emmo:info/emmo#EMMO_4a27950a_0d31_4175_bd4e_14995aa94702

elucidation: SI coherent measurement unit for speed.

omMatch: http://www:ontology-of-units-of-measure:org/resource/om-2/metrePerSecond-Time

prefLabel: MetrePerSecond

qudtEntry: http://qudt:org/vocab/unit/M-PER-SEC

Subclass of:

- is_a SICoherentDerivedUnit
- hasPhysicalDimension some VelocityDimension

MetricPrefix

IRI: http://emmo:info/emmo#EMMO_7d2afa66_ae9e_4095_a9bf_421d0be401b6

elucidation: Dimensionless multiplicative unit prefix.

prefLabel: MetricPrefix

Subclass of:

- is_a MetrologicalSymbol
- is_a MathematicalSymbol
- is_a Constant

Metrological

IRI: http://emmo:info/emmo#EMMO_985bec21_989f_4b9e_a4b3_735d88099c3c

elucidation: A language object used in metrology.

prefLabel: Metrological

Subclass of:

- is_a Language

MetrologicalSymbol

IRI: http://emmo:info/emmo#EMMO_50a3552e_859a_4ff7_946d_76d537cabce6

elucidation: A symbol that stands for a concept in the language of the meterological domain of ISO 80000.

prefLabel: MetrologicalSymbol

Subclass of:

- is_a Metrological
- is_a Symbol
- hasProperPart only not Metrological
- equivalent_to Metrological and Symbol

Micro

IRI: http://emmo:info/emmo#EMMO_9ff3bf8e_2168_406e_8251_1d158fc948ae

prefLabel: Micro

Subclass of:

- is_a SIMetricPrefix
- Inverse(hasVariable) only hasNumericalData value 1e-06
- hasSymbolData value 'μ'

Micrometre

IRI: https://big-map:github:io/LabNotebookAppOntology#EMMO_a977d0ca_6960_48af_9de6_fedea2f87a43

prefLabel: Micrometre

Subclass of:

- is_a SIPrefixedUnit
- hasSpatialDirectPart some Micro
- hasSpatialDirectPart some Metre
- hasPhysicalDimension some LengthDimension

MigrationCurrent

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_22cec04f_c7f3_4ff8_a34b_e512379c9dcb

elucidation: Component of electric current due to transport of ions in the electric field between the electrodes.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

iupacEntry: https://goldbook:iupac:org/terms/view/M03921

physicalDimension: T0 L0 M0 I+1 Θ0 N0 J0

prefLabel: MigrationCurrent

Subclass of:

- is_a ElectricCurrent
- is_a ElectrochemicalQuantity

Milli

IRI: http://emmo:info/emmo#EMMO_a3a701ed_6f7d_4a10_9aee_dfa1961fc7b7

prefLabel: Milli

Subclass of:

- is_a SIMetricPrefix
- hasSymbolData value 'm'
- Inverse(hasVariable) only hasNumericalData value 0.001

MilliAmpereHour

IRI: https://big-map:github:io/LabNotebookAppOntology#EMMO_fcf124bf_7e48_4309_99fe_6c97d482ebaa

prefLabel: MilliAmpereHour

Subclass of:

- is_a PrefixedUnit
- hasPhysicalDimension some ElectricChargeDimension
- hasSpatialDirectPart some Milli
- hasSymbolData value 'mAh'

MilliAmpereHourPerSquareCentimetre

IRI: https://big-map:github:io/LabNotebookAppOntology#EMMO_cb8ca3f3_1d3e_42c6_9fa5_9181d7313bd2

prefLabel: MilliAmpereHourPerSquareCentimetre

Subclass of:

- is_a SpecialUnit
- hasPhysicalDimension some ChargePerAreaDimension

MilliGram

IRI: https://big-map:github:io/LabNotebookAppOntology#EMMO_7031bca2_b434_4d7f_bfb6_87ec368d8511

prefLabel: MilliGram

Subclass of:

- is_a PrefixedUnit
- hasSpatialDirectPart some Milli
- hasPhysicalDimension some MassDimension
- hasSymbolData value 'mg'

MilliGramPerSquareCentimetre

IRI: https://big-map:github:io/LabNotebookAppOntology#EMMO_7d7808c5_e5e8_4c20_b5c9_a7748349c802

prefLabel: MilliGramPerSquareCentimetre

Subclass of:

- is_a SpecialUnit
- hasPhysicalDimension some MassPerAreaDimension

Millimetre

IRI: https://big-map:github:io/LabNotebookAppOntology#EMMO_67064447_41e7_42b2_8b58_7a3db87eece7

prefLabel: Millimetre

Subclass of:

- is_a SIPrefixedUnit
- hasSpatialDirectPart some Metre
- hasPhysicalDimension some LengthDimension

- hasSpatialDirectPart some Milli

MinOperatingTemperature

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_22fa1067_3964_4efd_8973_cc91eeb27451

physicalDimension: T0 L0 M0 I0 Θ+1 N0 J0

prefLabel: MinOperatingTemperature

Subclass of:

- is_a ThermodynamicTemperature
- is_a ConventionalElectrochemicalProperty

Minus

IRI: http://emmo:info/emmo#EMMO_46d5643b_9706_4b67_8bea_ed77d6026539

prefLabel: Minus

Subclass of:

- is_a ArithmeticOperator
- equivalent_to hasSymbolData value '-'

Minute

IRI: http://emmo:info/emmo#EMMO_cabb20f0_05c7_448f_9485_e129725f15a4

definition: Non-SI time unit defined as 60 seconds.

dbpediaEntry: http://dbpedia:org/page/Minute

prefLabel: Minute

qudtEntry: http://qudt:org/vocab/unit/MIN

Subclass of:

- is_a SIAcceptedSpecialUnit
- hasSymbolData value 'min'
- hasPhysicalDimension some TimeDimension

MixedSolvent

IRI: http://emmo:info/emmo#EMMO_c2fd1dde_f64e_4115_9f3a_139410a763c2

prefLabel: MixedSolvent

Subclass of:

- is_a Solvent
- hasSolventPart min 2 Solvent

Mixture

IRI: http://emmo:info/emmo#EMMO_ec2c8ac8_98c5_4c74_b85b_ff8e8ca6655c

elucidation: A Miixture is a material made up of two or more different substances which are physically (not chemically) combined.

prefLabel: Mixture

Subclass of:

- is_a Continuum

Model

IRI: http://emmo:info/emmo#EMMO_939483b1_0148_43d1_8b35_851d2cd5d939

elucidation: A 'sign' that not only stands for a 'physical' or a 'process', but it is also a simplified representation, aimed to assist calculations for its description or for predictions of its behaviour.

A 'model' represents a 'physical' or a 'process' by direct similitude (e.g. small scale replica) or by capturing in a logical framework the relations between its properties (e.g. mathematical model).

prefLabel: Model

Subclass of:

- is_a Icon
- equivalent_to Inverse(hasModel) some Physical

ModelledQuantitativeProperty

IRI: http://emmo:info/emmo#EMMO_d0200cf1_e4f4_45ae_873f_b9359daea3cd

prefLabel: ModelledQuantitativeProperty

Subclass of:

- is_a QuantitativeProperty

MolarChemicalPotential

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_68dc1bf8_9813_43c8_b428_6bd614c3161c

elucidation: ChemicalPotential per mole.

physicalDimension: T-2 L+2 M+1 I0 Θ0 N-1 J0

prefLabel: MolarChemicalPotential

Subclass of:

- is_a ChemicalPotential

MolarConductivity

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_4ca08596_c873_4de1_8784_0cdf3fbcb4dc

elucidation: Conductivity of an electrolyte solution divided by its molar concentration.

physicalDimension: T+3 L0 M-1 I+2 Θ0 N-1 J0

prefLabel: MolarConductivity

Subclass of:

- is_a ElectrochemicalTransportQuantity

MolarElectrochemicalPotential

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_7fe804b8_6126_4132_be8f_b4985d61b1f6

elucidation: ElectrochemicalPotential per mole.

iupacEntry: https://goldbook:iupac:org/terms/view/E01945

physicalDimension: T-2 L+2 M+1 I0 Θ0 N-1 J0

prefLabel: MolarElectrochemicalPotential

Subclass of:

- is_a ElectrochemicalPotential

MolarGasConstant

IRI: http://emmo:info/emmo#EMMO_ad6c76cf_b400_423e_820f_cf0c4e77f455

elucidation: Equivalent to the Boltzmann constant, but expressed in units of energy per temperature increment per mole (rather than energy per temperature increment per particle).

codataEntry: https://physics:nist:gov/cgi-bin/cuu/Value?r

dbpediaEntry: http://dbpedia:org/page/Gas_constant

iupacEntry: https://doi:org/10:1351/goldbook:G02579

physicalDimension: T-2 L+2 M+1 I0 Θ-1 N-1 J0

prefLabel: MolarGasConstant

qudtEntry: http://qudt:org/vocab/constant/MolarGasConstant

Subclass of:

- is_a SIExactConstant

MolarHeatCapacity

IRI: http://emmo:info/emmo#EMMO_50c5d440_683c_400f_909e_b03c0327de9c

elucidation: The molar heat capacity of a substance is the heat capacity of one mole of material.

physicalDimension: T-2 L+2 M+1 I0 Θ-1 N-1 J0

prefLabel: MolarHeatCapacity

Subclass of:

- is_a ISQDerivedQuantity
- is_a PhysicoChemical

Mole

IRI: http://emmo:info/emmo#EMMO_df6eeb01_1b41_4bd8_9257_a04fbd7cf000

definition: The mole, symbol mol, is the SI unit of amount of substance. One mole contains exactly 6.022 140 76 × 1023 elementary entities. This number is the fixed numerical value of the Avogadro constant, NA, when expressed in the unit mol-1 and is called the Avogadro number. The amount of substance, symbol n, of a system is a measure of the number of specified elementary entities. An elementary entity may be an atom, a molecule, an ion, an electron, any other particle or specified group of particles.

iupacEntry: https://doi:org/10:1351/goldbook:M03980

prefLabel: Mole

qudtEntry: http://qudt:org/vocab/unit/MOL

Subclass of:

- is_a SIBaseUnit
- hasPhysicalDimension some AmountDimension
- hasSymbolData value 'mol'

MolePerLitre

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_3ab3cde9_3b18_4f97_a86d_d95ba346af95

physicalDimension: T0 L-3 M0 I0 Θ0 N+1 J0

prefLabel: MolePerLitre

Subclass of:

- is_a SpecialUnit

Individuals:

- mole_per_litre

MolecularEntity

IRI: http://emmo:info/emmo#EMMO_21205421_5783_4d3e_81e5_10c5d894a88a

elucidation: Any constitutionally or isotopically distinct atom, molecule, ion, ion pair, radical, radical ion, complex, conformer etc., identifiable as a separately distinguishable entity.

example: Hydrogen molecule is an adequate definition of a certain molecular entity for some purposes, whereas for others it is necessary to distinguish the electronic state and/or vibrational state and/or nuclear spin, etc. of the hydrogen molecule.

example: Methane, may mean a single molecule of CH4 (molecular entity) or a molar amount, specified or not (chemical species), participating in a reaction. The degree of precision necessary to describe a molecular entity depends on the context.

iupacEntry: https://doi:org/10:1351/goldbook:M03986

prefLabel: MolecularEntity

Subclass of:

- is_a ChemicalEntity

MolecularFormula

IRI: http://emmo:info/emmo#EMMO_4208f937_8bad_47cf_af46_4ada75e63adb

elucidation: An expression that provides information about the element types that constiture a molecule or a molecular substance and their number.

example: Hydrogen peroxide is H2O2

prefLabel: MolecularFormula

Subclass of:

- is_a ChemicalFormula
- hasSpatialDirectPart some ChemicalElement

Molecule

IRI: http://emmo:info/emmo#EMMO_3397f270_dfc1_4500_8f6f_4d0d85ac5f71

elucidation: An atom_based state defined by an exact number of e-bonded atomic species and an electron cloud made of the shared electrons.

example: H20, C6H12O6, CH4

prefLabel: Molecule

Subclass of:

- is_a PolyatomicEntity
- disjoint_union_of Heteronuclear, Homonuclear

Momentum

IRI: http://emmo:info/emmo#EMMO_43776fc9_d712_4571_85f0_72183678039a

dbpediaEntry: http://dbpedia:org/page/Momentum

iupacEntry: https://doi:org/10:1351/goldbook:M04007

physicalDimension: T-1 L+1 M+1 I0 Θ0 N0 J0

prefLabel: Momentum

qudtEntry: http://qudt:org/vocab/quantitykind/Momentum

Subclass of:

- is_a ISQDerivedQuantity

MultipleUnit

IRI: http://emmo:info/emmo#EMMO_62f0d847_3603_45b4_bfc4_dd4511355ff2

elucidation: Measurement unit obtained by multiplying a given measurement unit by an integer greater than one.

prefLabel: MultipleUnit

Subclass of:

- is_a PrefixedUnit

Multiplication

IRI: http://emmo:info/emmo#EMMO_2b1303e8_d4c3_453b_9918_76f1d009543f

prefLabel: Multiplication

Subclass of:

- is_a ArithmeticOperator
- equivalent_to hasSymbolData value '*'

NMC

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_7c6c9b1e_a7d7_4fc1_aa37_96811f73f633

prefLabel: NMC

Subclass of:

- is_a LithiumIntercalationMaterial

NMC111

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_f67b8129_8d47_4f02_be71_18cb482d2d57

prefLabel: NMC111

Subclass of:

- is_a NMC

NMC532

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_e525f02e_78e7_4e8b_9402_ce756a768868

prefLabel: NMC532

Subclass of:

- is_a NMC

NMC622

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_7f423927_944e_4503_8e79_1518c4d7cf56

prefLabel: NMC622

Subclass of:

- is_a NMC

NMC811

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_0ff373b5_a835_46cf_9b02_552f1ab739d3

prefLabel: NMC811

Subclass of:

- is_a NMC

Name

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_77fc28f8_a045_4cb9_984a_2804feef4bd6

prefLabel: Name

Subclass of:

- is_a ConventionalNominalProperty

Nano

IRI: http://emmo:info/emmo#EMMO_e1981c25_7c55_4020_aa7a_d2e14ced86d4

prefLabel: Nano

Subclass of:

- is_a SIMetricPrefix
- hasSymbolData value 'n'
- Inverse(hasVariable) only hasNumericalData value 1e-09

NanoMaterial

IRI: http://emmo:info/emmo#EMMO_5d659e25_a508_43ed_903c_3707c7c7cd4b

elucidation: Nanomaterials are Materials possessing, at minimum, one external dimension measuring 1-100nm

prefLabel: NanoMaterial

Subclass of:

- is_a Material

NaturalLaw

IRI: http://emmo:info/emmo#EMMO_db9a009e_f097_43f5_9520_6cbc07e7610b

prefLabel: NaturalLaw

Subclass of:

- is_a Theory

NaturalMaterial

IRI: http://emmo:info/emmo#EMMO_75fe4fd1_0f7e_429b_b91d_59d248561bae

elucidation: A Material occurring in nature, without the need of human intervention.

prefLabel: NaturalMaterial

Subclass of:

- is_a Material

NearNeutralElectrolyte

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_dc205ac2_314e_415c_a2b6_b12e8359d54c

elucidation: An aqueous electrolyte with a nominal pH value between 6 and 8.

prefLabel: NearNeutralElectrolyte

Subclass of:

- is_a AqueousElectrolyte

NegativeElectrode

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_b7091902_c136_455c_855c_8466c0b70256

elucidation: Electrode with the lowest electric potential in the cell.

prefLabel: NegativeElectrode

Subclass of:

- is_a Electrode

NegativeHomemadeElectrode

IRI: https://big-map:github:io/LabNotebookAppOntology#EMMO_517b056d_d3eb_409f_8ff8_d0aad1bc140f

prefLabel: NegativeHomemadeElectrode

Subclass of:

- is_a HomemadeElectrode

NegativeHomemadeElectrodeActiveMaterial

IRI: https://big-map:github:io/LabNotebookAppOntology#EMMO_5c9b3420_8b44_4f7f_b88d_eb9b8cdef20b

example: Graphite, Silicon, LTO, Li Metal

elnLabel: negative_homemade_electrode_active_material

prefLabel: NegativeHomemadeElectrodeActiveMaterial

Subclass of:

- is_a ActiveMaterial

NegativeSuppliedElectrode

IRI: https://big-map:github:io/LabNotebookAppOntology#EMMO_cb0cf2ba_d643_4e31_b015_ac3a0c75508a

prefLabel: NegativeSuppliedElectrode

Subclass of:

- is_a SuppliedElectrode

NegativeSuppliedElectrodeActiveMaterial

IRI: https://big-map:github:io/LabNotebookAppOntology#EMMO_b2459d59_1732_4d0a_9b5a_9f8634e73480

example: Graphite, Silicon, LTO, Li Metal

elnLabel: negative_supplied_electrode_active_material

prefLabel: NegativeSuppliedElectrodeActiveMaterial

Subclass of:

- is_a ActiveMaterial

Neper

IRI: http://emmo:info/emmo#EMMO_b41515a9_28d8_4d78_8165_74b2fc72f89e

definition: Unit of measurement for quantities of type level or level difference, which are defined as the natural logarithm of the ratio of power- or field-type quantities.

The value of a ratio in nepers is given by `ln(x1/x2)` where `x1` and `x2` are the values of interest (amplitudes), and ln is the natural logarithm. When the values are quadratic in the amplitude (e.g. power), they are first linearised by taking the square root before the logarithm is taken, or equivalently the result is halved.

Wikipedia

dbpediaEntry: http://dbpedia:org/page/Neper

iupacEntry: https://doi:org/10:1351/goldbook:N04106

prefLabel: Neper

qudtEntry: http://qudt:org/vocab/unit/NP

wikipediaEntry: https://en:wikipedia:org/wiki/Neper

Subclass of:

- is_a SIAcceptedSpecialUnit
- hasSymbolData value 'Np'
- hasPhysicalDimension some DimensionOne

NernstEinsteinEquation

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_9d7e5fea_a49a_4a19_a8de_8e24c60e420c

elucidation: An equation relating the limiting molar conductivity Λ_m^0 (see Kohlrausch's law) to the ionic diffusion coefficients.

prefLabel: NernstEinsteinEquation

Subclass of:

- is_a ElectrochemicalRelation
- hasSpatialDirectPart some FaradayConstant
- hasSpatialDirectPart some SingleComponentDiffusivity
- hasSpatialDirectPart some StoichiometricCoefficient
- hasSpatialDirectPart some ThermodynamicTemperature
- hasSpatialDirectPart some LimitingMolarConductivity
- hasSpatialDirectPart some ChargeNumber
- hasSpatialDirectPart some MolarGasConstant

NernstEquation

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_fe3a6c9a_85b8_4da6_aa4f_71c8de74939e

elucidation: An equation that relates the reduction potential of an electrochemical reaction (half-cell or full cell reaction) to the standard electrode potential, temperature, and activities (often approximated by concentrations) of the chemical species undergoing reduction and oxidation.

dbpediaEntry: https://dbpedia:org/page/Nernst_equation

prefLabel: NernstEquation

wikipediaEntry: https://en:wikipedia:org/wiki/Nernst_equation

Subclass of:

- is_a ElectrochemicalRelation
- hasSpatialDirectPart some ThermodynamicTemperature
- hasSpatialDirectPart some StandardElectrodePotential
- hasSpatialDirectPart some ReactionQuotient
- hasSpatialDirectPart some MolarGasConstant
- hasSpatialDirectPart some FaradayConstant
- hasSpatialDirectPart some ChargeNumber
- hasSpatialDirectPart some EquilibriumElectrodePotential

NetFaradaicCurrent

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_14577b99_a8a9_4358_9bc5_ab8c401dd34

elucidation: Algebraic sum of faradaic currents flowing through an electrode.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

physicalDimension: T0 L0 M0 I+1 Θ0 N0 J0

prefLabel: NetFaradaicCurrent

Subclass of:

- is_a FaradaicCurrent

NeutralAtom

IRI: http://emmo:info/emmo#EMMO_4588526f_8553_4f4d_aa73_a483e88d599b

elucidation: A standalone atom that has no net charge.

prefLabel: NeutralAtom

Subclass of:

- is_a StandaloneAtom

Neutron

IRI: http://emmo:info/emmo#EMMO_df808271_df91_4f27_ba59_fa423c51896c

prefLabel: Neutron

Subclass of:

- is_a Nucleon

Newton

IRI: http://emmo:info/emmo#EMMO_a979c531_f9fa_4a6e_93c1_a2960241ca64

iupacEntry: https://doi:org/10:1351/goldbook:N04135

prefLabel: Newton

qudtEntry: http://qudt:org/vocab/unit/N

Subclass of:

- is_a SISpecialUnit
- hasPhysicalDimension some ForceDimension
- hasSymbolData value 'N'

NewtonMetre

IRI: http://emmo:info/emmo#EMMO_c10b7090_7284_4719_8e15_c743b13ca6ad

elucidation: SI coherent measurement unit for torque.

omMatch: http://www:ontology-of-units-of-measure:org/resource/om-2/newtonMetre

prefLabel: NewtonMetre

qudtEntry: http://qudt:org/vocab/unit/N-M

Subclass of:

- is_a SICoherentDerivedUnit
- hasPhysicalDimension some EnergyDimension

NewtonianConstantOfGravity

IRI: http://emmo:info/emmo#EMMO_da831168_975a_41f8_baae_279c298569da

codataEntry: https://physics:nist:gov/cgi-bin/cuu/Value?bg

dbpediaEntry: http://dbpedia:org/page/Gravitational_constant

iupacEntry: https://doi:org/10:1351/goldbook:G02695

physicalDimension: T-2 L+3 M-1 I0 Θ0 N0 J0

prefLabel: NewtonianConstantOfGravity

qudtEntry: http://qudt:org/vocab/constant/NewtonianConstantOfGravitation

Subclass of:

- is_a MeasuredConstant

NominalCapacity

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_932a4121_9970_4cf0_a241_5cfdff79e54a

physicalDimension: T+1 L0 M0 I+1 Θ0 N0 J0

prefLabel: NominalCapacity

Subclass of:

- is_a NominalElectrochemicalProperty
- is_a Capacity

NominalCycleLife

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_0605e641_1652_4575_b2fb_75f3de54a0aa

physicalDimension: T0 L0 M0 I0 Θ0 N0 J0

prefLabel: NominalCycleLife

Subclass of:

- is_a NominalElectrochemicalProperty

NominalDiameter

IRI: http://emmo:info/emmo#EMMO_ebcd70ca_c439_46ab_8bcc_c77b3930d9d9

physicalDimension: T0 L+1 M0 I0 Θ0 N0 J0

prefLabel: NominalDiameter

Subclass of:

- is_a Diameter
- is_a ConventionalQuantitativeProperty
- hasReferenceUnit some Millimetre

Individuals:

- cylindrical_4680_cell_nominal_diameter
- cylindrical_21700_cell_nominal_diameter
- cylindrical_18650_cell_nominal_diameter

NominalElectrochemicalProperty

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_057f3082_960a_4c68_8708_cbef88584e9f

prefLabel: NominalElectrochemicalProperty

Subclass of:

- is_a ConventionalElectrochemicalProperty

NominalEnergy

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_374878d4_5682_4bef_a8cd_3b4ff6d87931

physicalDimension: T-2 L+2 M+1 I0 Θ0 N0 J0

prefLabel: NominalEnergy

Subclass of:

- is_a NominalElectrochemicalProperty
- is_a StoredEnergy

NominalEnergyDensity

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_90b614bd_e09f_425d_b454_8f3cc4ab25df

physicalDimension: T-2 L-1 M+1 I0 Θ0 N0 J0

prefLabel: NominalEnergyDensity

Subclass of:

- is_a EnergyDensity
- is_a NominalElectrochemicalProperty

NominalHeight

IRI: http://emmo:info/emmo#EMMO_12e2f253_caeb_4e3c_9749_edb3683ab732

physicalDimension: T0 L+1 M0 I0 Θ0 N0 J0

prefLabel: NominalHeight

Subclass of:

- is_a Height
- is_a ConventionalQuantitativeProperty
- hasReferenceUnit some Millimetre

Individuals:

- cylindrical_4680_cell_nominal_height
- cylindrical_21700_cell_nominal_height
- cylindrical_18650_cell_nominal_height

NominalInternalResistance

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_5d24e4e2_df0f_4407_9873_548e6a93ac02

physicalDimension: T-3 L+2 M+1 I-2 Θ0 N0 J0

prefLabel: NominalInternalResistance

Subclass of:

- is_a NominalElectrochemicalProperty
- is_a InternalResistance

NominalParticleDiameter

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_ec40e6af_ab61_4086_973f_ccfda762627e

prefLabel: NominalParticleDiameter

Subclass of:

- is_a NominalElectrochemicalProperty

NominalProperty

IRI: http://emmo:info/emmo#EMMO_909415d1_7c43_4d5e_bbeb_7e1910159f66

elucidation: An 'ObjectiveProperty' that cannot be quantified.

example: CFC is a 'sign' that stands for the fact that the morphology of atoms composing the microstructure of an entity is predominantly Cubic Face Centered

A color is a nominal property.

Sex of a human being.

prefLabel: NominalProperty

Subclass of:

- is_a ObjectiveProperty

NominalRadius

IRI: http://emmo:info/emmo#EMMO_61b69d7d_ae90_44d0_b78f_5bde7ad1a326

physicalDimension: T0 L+1 M0 I0 Θ0 N0 J0

prefLabel: NominalRadius

Subclass of:

- is_a Radius
- is_a ConventionalQuantitativeProperty

NominalShelfLife

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_9fedc1d7_133a_49b0_bff3_9996225b25a0

physicalDimension: T+1 L0 M0 I0 Θ0 N0 J0

prefLabel: NominalShelfLife

Subclass of:

- is_a Time
- is_a NominalElectrochemicalProperty

NominalSpecificEnergy

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_0d0ca626_acfc_42df_a4d6_bfd124c9dc0e

physicalDimension: T-2 L+2 M0 I0 Θ0 N0 J0

prefLabel: NominalSpecificEnergy

Subclass of:

- is_a NominalElectrochemicalProperty
- is_a SpecificEnergy

NominalVoltage

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_1d7b0888_160c_4e24_9931_6ecec83ff136

physicalDimension: T-3 L+2 M+1 I-1 Θ0 N0 J0

prefLabel: NominalVoltage

Subclass of:

- is_a ElectricPotential
- is_a NominalElectrochemicalProperty

NominalVolume

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_4aab7f4c_97a9_45ee_830a_8bb6521c80c9

physicalDimension: T0 L-3 M0 I0 Θ0 N0 J0

prefLabel: NominalVolume

Subclass of:

- is_a Volume
- is_a NominalElectrochemicalProperty

NominalWeight

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_c41a9a98_cc1a_42ef_8d84_04e01ec582f4

physicalDimension: T-2 L+1 M+1 I0 Θ0 N0 J0

prefLabel: NominalWeight

Subclass of:

- is_a Weight
- is_a NominalElectrochemicalProperty

NonAqueousElectrolyte

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_5f9a9411_05f9_4576_acd3_81d7d41cfe98

elucidation: An ion-transport medium that does not contain water.

–IEEE Standard Glossary of Stationary Battery Terminology (2016), https://doi.org/10.1109/IEEESTD.2016.7552407

prefLabel: NonAqueousElectrolyte

Subclass of:

- is_a ElectrolyteSolution

NonPolarizableElectrode

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_9f466223_e20a_474d_ac4d_6d4b6131c275

elucidation: A non-polarizable electrode is an electrode that holds its potential essentially constant by efficiently allowing electric current to pass. This is a desirable characteristic for a reference electrode.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

prefLabel: NonPolarizableElectrode

Subclass of:

- is_a Electrode

NonPrefixedUnit

IRI: http://emmo:info/emmo#EMMO_868ae137_4d25_493e_b270_21ea3d94849e

elucidation: A measurement unit symbol that do not have a metric prefix as a direct spatial part.

prefLabel: NonPrefixedUnit

Subclass of:

- is_a MeasurementUnit
- hasSpatialDirectPart only not MetricPrefix
- equivalent_to DerivedUnit or UnitSymbol

NonSIUnits

IRI: http://emmo:info/emmo#EMMO_523838e8_2af3_415c_855e_cb0283c3ac5e

prefLabel: NonSIUnits

Subclass of:

- is_a CategorizedPhysicalQuantity

NormalHydrogenElectrode

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_83ee23b3_2f5c_4afa_b972_ac85e91d7306

elucidation: Potential of a platinum electrode in 1 M acid solution.

prefLabel: NormalHydrogenElectrode

Subclass of:

- is_a ReferenceElectrode

Nucleon

IRI: http://emmo:info/emmo#EMMO_50781fd9_a9e4_46ad_b7be_4500371d188d

prefLabel: Nucleon

Subclass of:

- is_a State
- is_a Subatomic
- hasSpatialDirectPart some Quark
- disjoint_union_of Proton, Neutron

Nucleus

IRI: http://emmo:info/emmo#EMMO_f835f4d4_c665_403d_ab25_dca5cc74be52

prefLabel: Nucleus

Subclass of:

- is_a State
- is_a Subatomic
- hasSpatialDirectPart some Nucleon

Number

IRI: http://emmo:info/emmo#EMMO_21f56795_ee72_4858_b571_11cfaa59c1a8

elucidation: A numerical data value.

prefLabel: Number

Subclass of:

- is_a Numerical
- is_a MathematicalSymbol

NumberOfElements

IRI: http://emmo:info/emmo#EMMO_f17133c2_bb33_4ffd_89fa_eef2b403d5e6

elucidation: Number of direct parts of a Reductionistic.

physicalDimension: T0 L0 M0 I0 Θ0 N0 J0

prefLabel: NumberOfElements

Subclass of:

- is_a PureNumberQuantity
- Inverse(hasProperty) only Reductionistic

Numeral

IRI: http://emmo:info/emmo#EMMO_74b05aed_66bf_43c8_aa2c_752a9ca8be03

prefLabel: Numeral

Subclass of:

- is_a Symbol

Numerical

IRI: http://emmo:info/emmo#EMMO_4ce76d7f_03f8_45b6_9003_90052a79bfaa

elucidation: A ‘Mathematical’ that has no unknown value, i.e. all its ‘Variable”-s parts refers to a ’Number’ (for scalars that have a built-in datatype) or to another ‘Numerical’ (for complex numerical data structures that should rely on external implementations).

prefLabel: Numerical

Subclass of:

- is_a Mathematical

Object

IRI: http://emmo:info/emmo#EMMO_6f5af708_f825_4feb_a0d1_a8d813d3022b

elucidation: The object, in Peirce semiotics.

prefLabel: Object

Subclass of:

- is_a Semiotic

ObjectiveProperty

IRI: http://emmo:info/emmo#EMMO_2a888cdf_ec4a_4ec5_af1c_0343372fc978

elucidation: A 'Property' that is determined by each 'Observer' following a well defined 'Observation' procedure through a specific perception channel.

prefLabel: ObjectiveProperty

Subclass of:

- is_a Property

Observation

IRI: http://emmo:info/emmo#EMMO_10a5fd39_06aa_4648_9e70_f962a9cb2069

elucidation: A 'Semiosis' that involves an 'Observer' that perceives another 'Physical' (the 'Object') through a specific perception mechanism and produces a 'Property' (the 'Sign') that stands for the result of that particular perception.

prefLabel: Observation

Subclass of:

- is_a PropertyAssignment
- hasParticipant some Property
- hasParticipant some Observer

ObservationAssignment

IRI: http://emmo:info/emmo#EMMO_9c8bb507_f1a4_4818_8b95_666de47180c9

prefLabel: ObservationAssignment

Subclass of:

- is_a PropertyAssignment

Observer

IRI: http://emmo:info/emmo#EMMO_1b52ee70_121e_4d8d_8419_3f97cd0bd89c

elucidation: An 'interpreter' that perceives another 'entity' (the 'object') through a specific perception mechanism and produces a 'property' (the 'sign') that stands for the result of that particular perception.

prefLabel: Observer

Subclass of:

- is_a Declarer
- Inverse(hasParticipant) some Observation

OffSystemUnit

IRI: http://emmo:info/emmo#EMMO_591e02fd_8d37_45a6_9d11_bb21cef391a0

elucidation: A unit that does not belong to any system of units.

example: eV barn

prefLabel: OffSystemUnit

Subclass of:

- is_a MeasurementUnit

Ohm

IRI: http://emmo:info/emmo#EMMO_59c10c5c_47bd_4348_ba39_38836607dfa1

iupacEntry: https://doi:org/10:1351/goldbook:O04280

prefLabel: Ohm

qudtEntry: http://qudt:org/vocab/unit/OHM

Subclass of:

- is_a SISpecialUnit
- hasSymbolData value 'Ω'
- hasPhysicalDimension some ElectricResistanceDimension

OhmsLaw

IRI: http://emmo:info/emmo#EMMO_fc4e0f47_ed67_4f27_ad2d_72312d9cc105

elucidation: The current through a conductor between two points is directly proportional to the voltage across the two points.

prefLabel: OhmsLaw

wikipediaEntry: https://en:wikipedia:org/wiki/Ohm%27s_law

Subclass of:

- is_a PhysicalLaw

OneManifold

IRI: http://emmo:info/emmo#EMMO_0c576e13_4ee7_4f3d_bfe9_1614243df018

prefLabel: OneManifold

Subclass of:

- is_a Geometrical

OpenCircuitPotential

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_9c657fdc_b9d3_4964_907c_f9a6e8c5f52b

elucidation: Electrode potential of working electrode relative to the reference electrode when no potential or electric current is being applied to the electrochemical cell.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

physicalDimension: T-3 L+2 M+1 I-1 Θ0 N0 J0

prefLabel: OpenCircuitPotential

Subclass of:

- is_a ElectricPotential
- is_a ElectrochemicalThermodynamicQuantity

Ordered

IRI: http://emmo:info/emmo#EMMO_c03bab53_fed3_4142_9741_cc7fc806f0a6

definition: The union of Arrangement and Sequence.

prefLabel: Ordered

Subclass of:

- is_a Reductionistic
- equivalent_to Arrangement or Sequence

OrderedElement

IRI: http://emmo:info/emmo#EMMO_2e9ace8a_1155_45b5_a066_d5fd9774e76c

prefLabel: OrderedElement

Subclass of:

- is_a Reductionistic
- equivalent_to SpatialOrderedElement or TemporalOrderedElement

OrdinalQuantity

IRI: http://emmo:info/emmo#EMMO_c46f091c_0420_4c1a_af30_0a2c8ebcf7d7

elucidation: "Quantity, defined by a conventional measurement procedure, for which a total ordering relation can be established, according to magnitude, with other quantities of the same kind, but for which no algebraic operations among those quantities exist" International vocabulary of metrology (VIM)

example: Hardness Resilience

prefLabel: OrdinalQuantity

Subclass of:

- is_a Quantity

OrganicCompound

IRI: http://emmo:info/emmo#EMMO_704630b8_fee3_49b9_baca_40e2dd276370

prefLabel: OrganicCompound

Subclass of:

- is_a ChemicalCompound

Overpotential

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_1cd1d777_e67b_47eb_81f1_edac35d9f2c6

elucidation: Electrode potential (E) minus the equilibrium electrode potential (Eeq) of an electrochemical reaction.

J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

iupacEntry: https://goldbook:iupac:org/terms/view/O04358

physicalDimension: T-3 L+2 M+1 I-1 Θ0 N0 J0

prefLabel: Overpotential

wikipediaEntry: https://en:wikipedia:org/wiki/Overpotential

Subclass of:

- is_a ElectricPotential
- is_a ElectrochemicalThermodynamicQuantity

Oxidant

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_e438f539_b8f5_41ae_b2a6_254a6c90414e

elucidation: An element or compound that accepts an electron from an electron donator (reducing agent) in a redox chemical reaction.

prefLabel: Oxidant

Subclass of:

- is_a ChemicalSubstance
- hasTemporalPart some Reactant
- hasTemporalPart some Product

OxidationReaction

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_3f99828c_268a_442f_998d_15c89dc4c1b3

elucidation: A reaction in which a substance (molecule, atom or ion) loses electrons.

–A. J. Bard, G. Inzelt, and F. Scholz, Eds., Electrochemical Dictionary, 2nd Edition. Berlin: Springer-Verlag, 2012. DOI: https://doi.org/10.1007/978-3-642-29551-5

prefLabel: OxidationReaction

wikipediaEntry: https://en:wikipedia:org/wiki/Redox

Subclass of:

- is_a RedoxReaction

OxygenEvolutionReaction

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_4f4c61a2_b823_4c36_ace2_141fcb9355d5

elucidation: The OER is the back reaction of the ORR.

elucidation: The OER usually requires a catalyst in practical electrodes.

elucidation: The process of generating molecular oxygen (O2) by a chemical reaction, usually from water (H2O).

prefLabel: OxygenEvolutionReaction

wikipediaEntry: https://en:wikipedia:org/wiki/Oxygen_evolution

Subclass of:

- is_a ElectrochemicalConversion

OxygenReductionReaction

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_c5e5ce2f_6dd5_4b42_97ea_0eb12ff03854

elucidation: The reduction half reaction whereby molecular oxygen (O2) is reduced to water (H2O) or hydrogen peroxide (H2O2).

prefLabel: OxygenReductionReaction

wikipediaEntry: https://en:wikipedia:org/wiki/Oxygen_reduction_reaction

Subclass of:

- is_a ElectrochemicalConversion

P2DModel

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_52ed5408_da62_483d_97d5_a45755022582

prefLabel: P2DModel

Subclass of:

- is_a BatteryContinuumModel

P3DModel

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_0e9e80a1_1fb6_45d9_a1dd_d18ebfc48ae2

prefLabel: P3DModel

Subclass of:

- is_a BatteryContinuumModel

P4DModel

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_ef791f05_41d4_4bdb_a1fc_fd455ed0ecb2

prefLabel: P4DModel

Subclass of:

- is_a BatteryContinuumModel

PF6Anion

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_e1a6ee3f_95ae_4cd3_a72f_067a0843bd9b

prefLabel: PF6Anion

Subclass of:

- is_a Solute

Parameter

IRI: http://emmo:info/emmo#EMMO_d1d436e7_72fc_49cd_863b_7bfb4ba5276a

example: viscosity in the Navier-Stokes equation

prefLabel: Parameter

Subclass of:

- is_a Variable

ParasiticReaction

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_26d8e2a6_10bb_4623_a79d_fd2d90cd1ea4

elucidation: An unwanted side reaction.

IECEntry: https://www:electropedia:org/iev/iev:nsf/display?openform&ievref=114-02-07

prefLabel: ParasiticReaction

Subclass of:

- is_a SideReaction

PartialComposition

IRI: http://emmo:info/emmo#EMMO_90963312_d9a9_4474_8d10_835aef5b168e

prefLabel: PartialComposition

Subclass of:

- is_a ChemicalComposition
- hasSpatialDirectPart some SingleComponentComposition

Participant

IRI: http://emmo:info/emmo#EMMO_49804605_c0fe_4538_abda_f70ba1dc8a5d

elucidation: A portion of a 'Process' that participates to the process with a specific role.

prefLabel: Participant

Subclass of:

- is_a Holistic
- Inverse(hasParticipant) some Process

Pascal

IRI: http://emmo:info/emmo#EMMO_a80dc6f5_b1aa_41a7_a3a8_cd5040da2162

iupacEntry: https://doi:org/10:1351/goldbook:P04442

prefLabel: Pascal

qudtEntry: http://qudt:org/vocab/unit/PA

Subclass of:

- is_a SISpecialUnit
- hasPhysicalDimension some PressureDimension
- hasSymbolData value 'Pa'

PeakCurrent

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_382b10dc_83aa_4e77_a1d5_1edd06fd1e05

elucidation: In dynamic voltammetric techniques, the maximum value of the faradaic current attained by varying the applied potential in the current-potential or I-E curve.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

example: Typical examples of imposed potential programmes in dynamic voltammetric techniques resulting in peak-shaped responses are linear-scan voltammetry, cyclic voltammetry, ac voltammetry, differential pulse voltammetry, square-wave voltammetry, stripping voltammetry, and derivative techniques.

iupacEntry: https://goldbook:iupac:org/terms/view/P04457

physicalDimension: T0 L0 M0 I+1 Θ0 N0 J0

prefLabel: PeakCurrent

Subclass of:

- is_a ElectricCurrent
- is_a ElectrochemicalQuantity

PerAmountDimension

IRI: http://emmo:info/emmo#EMMO_af24ae20_8ef2_435a_86a1_2ea44488b318

prefLabel: PerAmountDimension

Subclass of:

- is_a PhysicalDimension
- equivalent_to hasSymbolData value 'T0 L0 M0 I0 Θ0 N-1 J0'

PerTemperatureDimension

IRI: http://emmo:info/emmo#EMMO_6e9aef15_272b_4eea_aaa9_2f38b8ae951f

prefLabel: PerTemperatureDimension

Subclass of:

- is_a PhysicalDimension
- equivalent_to hasSymbolData value 'T0 L0 M0 I0 Θ-1 N0 J0'

Perceptual

IRI: http://emmo:info/emmo#EMMO_649bf97b_4397_4005_90d9_219755d92e34

elucidation: A 'Physical' which stands for a real world object that can stimulate a perception (e.g. a mental impression, the excitation of a sensor) to an interpreter (human or non-human).

example: A line scratched on a surface. A sound. A smell. The word 'cat' and the sound of the word 'cat' (the first one is graphical and the second acoustical).

example: The meta-semiotic process: I see a cloud in the sky. Since I'm an EMMO ontologist, I create an individual named Cloud under the 'Impression' class. This semiotic process occurs at meta-level: it's how I use the EMMO as tool for a direct representation of the world.

The semiotic process within EMMO: My friend looks at the same cloud and says: "It is an elephant". I use the EMMO to record this experience by declaring: - my friend as MyFriend individual, belonging to 'Interpreter' classes - the sound of the word "elephant" as an acoustical impression individual named ElephantWord, belonging to 'Impression' - a relation hasSign between Cloud and ElephantWord, that makes ElephantWord also belonging to 'Sign' class and Cloud belonging also to 'Object' class - a 'Semiosis' individual called MyFriendElephantCloud that hasParticipant: Cloud, ElephantWord and MyFriend, respectively as object, sign and interpreter.

etymology: From Latin perceptiō ("a receiving or collecting, perception, comprehension"), from perceptus ("perceived, observed").

prefLabel: Perceptual

Subclass of:

- is_a Perspective

Permeability

IRI: http://emmo:info/emmo#EMMO_09663630_1b84_4202_91e6_e641104f579e

dbpediaEntry: http://dbpedia:org/page/Permeability_(electromagnetism)

iupacEntry: https://doi:org/10:1351/goldbook:P04503

physicalDimension: T-2 L+1 M+1 I-2 Θ0 N0 J0

prefLabel: Permeability

qudtEntry: http://qudt:org/vocab/quantitykind/ElectromagneticPermeability

Subclass of:

- is_a ISQDerivedQuantity

Permission

IRI: http://emmo:info/emmo#EMMO_6ed96a06_0efd_4f0e_95d8_483902c6fb38

prefLabel: Permission

Subclass of:

- is_a NominalProperty

Permittivity

IRI: http://emmo:info/emmo#EMMO_0ee5779e_d798_4ee5_9bfe_c392d5bea112

dbpediaEntry: http://dbpedia:org/page/Permittivity

iupacEntry: https://doi:org/10:1351/goldbook:P04507

omMatch: http://www:ontology-of-units-of-measure:org/resource/om-2/Permittivity

physicalDimension: T+4 L-3 M-1 I+2 Θ0 N0 J0

prefLabel: Permittivity

qudtEntry: http://qudt:org/vocab/quantitykind/Permittivity

Subclass of:

- is_a ISQDerivedQuantity

Perspective

IRI: http://emmo:info/emmo#EMMO_49267eba_5548_4163_8f36_518d65b583f9

elucidation: The class of individuals that stand for real world objects according to a specific representational perspective.

prefLabel: Perspective

Subclass of:

- is_a Physical

Peta

IRI: http://emmo:info/emmo#EMMO_43a6b269_da31_4bb6_a537_c97df4fff32a

prefLabel: Peta

Subclass of:

- is_a SIMetricPrefix
- hasSymbolData value 'P'
- Inverse(hasVariable) only hasNumericalData value 1000000000000000.0

PhaseHeterogeneousMixture

IRI: http://emmo:info/emmo#EMMO_0e030040_98a7_49b2_a871_dced1f3a6131

elucidation: A mixture in which more than one phases of matter cohexists.

prefLabel: PhaseHeterogeneousMixture

Subclass of:

- is_a Mixture
- hasProperPart some PhaseOfMatter

PhaseHomogeneousMixture

IRI: http://emmo:info/emmo#EMMO_0e6378df_1ce8_4321_b00c_ee9beea60a67

elucidation: A single phase mixture.

prefLabel: PhaseHomogeneousMixture

Subclass of:

- is_a Mixture

PhaseOfMatter

IRI: http://emmo:info/emmo#EMMO_668fbd5b_6f1b_405c_9c6b_d6067bd0595a

elucidation: A matter object throughout which all physical properties of a material are essentially uniform.

prefLabel: PhaseOfMatter

Subclass of:

- is_a Continuum

PhotoelectrolyticCell

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_7760b241_775f_4be1_b827_59f9bde9e5b2

elucidation: Electrolytic cell in which a chemical reaction is influenced by the absorption of light.

–IEC60050

IECEntry: https://www:electropedia:org/iev/iev:nsf/display?openform&ievref=114-04-19

prefLabel: PhotoelectrolyticCell

Subclass of:

- is_a ElectrolyticCell

Photon

IRI: http://emmo:info/emmo#EMMO_25f8b804_9a0b_4387_a3e7_b35bce5365ee

elucidation: The class of individuals that stand for photons elementary particles.

prefLabel: Photon

Subclass of:

- is_a Massless

Physical

IRI: http://emmo:info/emmo#EMMO_c5ddfdba_c074_4aa4_ad6b_1ac4942d300d

elucidation: A 'Item' that has part some 'Elementary' and whose temporal proper parts are only 'Physical'-s (i.e. it can be perceived without interruptions in time).

etymology: From Latin physica "study of nature" (and Ancient Greek φυσικός, "natural").

Here the word relates to things perceived through the senses as opposed to the mind; tangible or concrete.

prefLabel: Physical

Subclass of:

- is_a Item
- hasTemporalPart only Physical
- hasPart some Elementary

PhysicalConstant

IRI: http://emmo:info/emmo#EMMO_b953f2b1_c8d1_4dd9_b630_d3ef6580c2bb

prefLabel: PhysicalConstant

wikipediaEntry: https://en:wikipedia:org/wiki/List_of_physical_constants

Subclass of:

- is_a PhysicalQuantity
- disjoint_union_of MeasuredConstant, ExactConstant

PhysicalDimension

IRI: http://emmo:info/emmo#EMMO_9895a1b4_f0a5_4167_ac5e_97db40b8bfcc

elucidation: A symbol that, following SI specifications, describe the physical dimensionality of a physical quantity and the exponents of the base units in a measurement unit.

prefLabel: PhysicalDimension

Subclass of:

- is_a MetrologicalSymbol

PhysicalLaw

IRI: http://emmo:info/emmo#EMMO_9c32fd69_f480_4130_83b3_fb25d9face14

prefLabel: PhysicalLaw

Subclass of:

- is_a NaturalLaw

PhysicalPhenomenon

IRI: http://emmo:info/emmo#EMMO_314d0bd5_67ed_437e_a609_36d46147cea7

elucidation: A 'process' that is recognized by physical sciences and is catogrized accordingly.

prefLabel: PhysicalPhenomenon

Subclass of:

- is_a Process

PhysicalQuantity

IRI: http://emmo:info/emmo#EMMO_02c0621e_a527_4790_8a0f_2bb51973c819

elucidation: A 'Mathematical' entity that is made of a 'Numeral' and a 'MeasurementUnit' defined by a physical law, connected to a physical entity through a model perspective. Measurement is done according to the same model.

prefLabel: PhysicalQuantity

Subclass of:

- is_a Mathematical
- is_a Quantity
- Inverse(hasProperty) only Physical
- hasReferenceUnit only MeasurementUnit
- disjoint_union_of DerivedQuantity, BaseQuantity

Physicalistic

IRI: http://emmo:info/emmo#EMMO_98ada9d8_f1c8_4f13_99b5_d890f5354152

elucidation: The perspective for which physical objects are categorized only by concepts coming from applied physical sciences.

prefLabel: Physicalistic

Subclass of:

- is_a Perspective
- equivalent_to Matter or Field

PhysicoChemical

IRI: http://emmo:info/emmo#EMMO_daf05011_df3f_44a0_bb31_f8d565d7a854

prefLabel: PhysicoChemical

Subclass of:

- is_a CategorizedPhysicalQuantity

PhysicsBasedModel

IRI: http://emmo:info/emmo#EMMO_b29fd350_39aa_4af7_9459_3faa0544cba6

elucidation: A solvable set of one Physics Equation and one or more Materials Relations.

prefLabel: PhysicsBasedModel

Subclass of:

- is_a MathematicalModel
- hasSpatialPart some PhysicsEquation
- hasSpatialPart some MaterialRelation

PhysicsEquation

IRI: http://emmo:info/emmo#EMMO_27c5d8c6_8af7_4d63_beb1_ec37cd8b3fa3

elucidation: An 'equation' that stands for a 'physical_law' by mathematically defining the relations between physics_quantities.

example: The Newton's equation of motion.

The Schrödinger equation.

The Navier-Stokes equation.

prefLabel: PhysicsEquation

Subclass of:

- is_a Equation
- is_a MathematicalModel
- Inverse(hasModel) some PhysicalPhenomenon
- hasSpatialDirectPart some PhysicalQuantity

Pico

IRI: http://emmo:info/emmo#EMMO_068c4e58_2470_4b1c_8454_010dd4906100

prefLabel: Pico

Subclass of:

- is_a SIMetricPrefix
- Inverse(hasVariable) only hasNumericalData value 1e-12
- hasSymbolData value 'p'

Pictorial

IRI: http://emmo:info/emmo#EMMO_1da53c06_9577_4008_8652_272fa3b62be7

elucidation: A 'Graphical' that stands for a real world object that shows a recognizable pictorial pattern without being necessarily associated to a symbolic language.

example: A drawing of a cat. A circle on a paper sheet. The Mona Lisa.

prefLabel: Pictorial

Subclass of:

- is_a Graphical

PlanckConstant

IRI: http://emmo:info/emmo#EMMO_76cc4efc_231e_42b4_be83_2547681caed6

elucidation: The quantum of action. It defines the kg base unit in the SI system.

codataEntry: https://physics:nist:gov/cgi-bin/cuu/Value?h

dbpediaEntry: http://dbpedia:org/page/Planck_constant

iupacEntry: https://doi:org/10:1351/goldbook:P04685

physicalDimension: T-1 L+2 M+1 I0 Θ0 N0 J0

prefLabel: PlanckConstant

qudtEntry: http://qudt:org/vocab/constant/PlanckConstant

Subclass of:

- is_a AngularMomentum
- is_a SIExactConstant

Plane

IRI: http://emmo:info/emmo#EMMO_25f5ca8e_8f7f_44d8_a392_bd3fe8894458

prefLabel: Plane

Subclass of:

- is_a ThreeManifold

Plasma

IRI: http://emmo:info/emmo#EMMO_4c21fb86_fdcf_444e_b498_86fe656295af

elucidation: A fluid in which a gas is ionized to a level where its electrical conductivity allows long-range electric and magnetic fields to dominate its behaviour.

prefLabel: Plasma

Subclass of:

- is_a Fluid
- is_a StateOfMatter

PlatinumElectrode

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_2d32a81a_2148_41bd_84fb_467aa8de4a8f

elucidation: Foil, wire, disc, or mesh electrode made of platinum, which is the most commonly used metallic working electrode in electrochemistry.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

prefLabel: PlatinumElectrode

Subclass of:

- is_a MetalElectrode

Plus

IRI: http://emmo:info/emmo#EMMO_8de14a59_660b_454f_aff8_76a07ce185f4

prefLabel: Plus

Subclass of:

- is_a ArithmeticOperator
- equivalent_to hasSymbolData value '+'

Point

IRI: http://emmo:info/emmo#EMMO_39362460_2a97_4367_8f93_0418c2ac9a08

prefLabel: Point

Subclass of:

- is_a ZeroManifold

PolarizableElectrode

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_c2024587_3237_474e_8df9_91d10db2df47

elucidation: Electrode whose potential changes with an applied potential.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

prefLabel: PolarizableElectrode

Subclass of:

- is_a Electrode

PolyatomicEntity

IRI: http://emmo:info/emmo#EMMO_9fa966c7_5231_409e_841f_b4c5fd33732a

prefLabel: PolyatomicEntity

Subclass of:

- is_a MolecularEntity

Polynomial

IRI: http://emmo:info/emmo#EMMO_91447ec0_fb55_49f2_85a5_3172dff6482c

example: 2 * x^2 + x + 3

prefLabel: Polynomial

Subclass of:

- is_a AlgebricExpression

Pore

IRI: http://emmo:info/emmo#EMMO_69b9aead-bb43-4bd5-9168-728cea2116b1

elucidation: A space within a solid host domain that is filled by a liquid, gas, or vacuum. The characteristic length of the pore is much less than the characteristic length of the host domain. An exception is possible for 1 dimension (e.g. long pores).

prefLabel: Pore

Subclass of:

- is_a Physicalistic
- is_a Gas or Vacuum or Liquid
- hasContactWith some Solid

Porosity

IRI: http://emmo:info/emmo#EMMO_7f8db4c8_4dc5_4e39_bfb0_0a123679d831

elucidation: Porosity or void fraction is a measure of the void (i.e. “empty”) spaces in a material, and is a fraction of the volume of voids over the total volume, between 0 and 1, or as a percentage between 0% and 100%.

physicalDimension: T0 L0 M0 I0 Θ0 N0 J0

prefLabel: Porosity

Subclass of:

- is_a RatioQuantity
- hasReferenceUnit some VolumeFractionUnit

PorousElectrode

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_3663991d-9319-4f7a-922b-f0e428b58801

elucidation: Porous electrodes consist of porous matrices of a single reactive electronic conductor or a mixture of solids that include essentially non-conducting, reactive materials in addition to electronic conductors. An electrolytic solution fills the void spaces of the porous matrix. At a given time, there may be a large range of reaction rates within the pores. The distribution of these rates will depend on physical structure, conductivity of the matrix and of the electrolyte, and on parameters characterizing the electrode processes themselves.

–Newman and Thomas-Alyea, Electrochemical Systems, 3rd Edition, p. 518

prefLabel: PorousElectrode

Subclass of:

- is_a Electrode
- hasSpatialPart some ElectrodePore
- hasConventionalQuantity some Tortuosity
- hasConventionalQuantity some Porosity

PositionVector

IRI: http://emmo:info/emmo#EMMO_44da6d75_54a4_4aa8_bd3a_156f6e9abb8e

definition: Vector r characterizing a point P in a point space with a given origin point O.

IECEntry: http://www:electropedia:org/iev/iev:nsf/display?openform&ievref=113-03-12

physicalDimension: T0 L+1 M0 I0 Θ0 N0 J0

prefLabel: PositionVector

Subclass of:

- is_a ISQDerivedQuantity
- hasQuantityValue some Shape3Vector

PositiveElectrode

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_d0af3c6d_45de_405f_94b9_a83f0bc4f1aa

elucidation: Electrode with the highest electric potential in the cell.

prefLabel: PositiveElectrode

Subclass of:

- is_a Electrode

PositiveHomemadeElectrode

IRI: https://big-map:github:io/LabNotebookAppOntology#EMMO_06611705_c0ad_40ea_b1d6_84c000ef9e88

prefLabel: PositiveHomemadeElectrode

Subclass of:

- is_a HomemadeElectrode

PositiveHomemadeElectrodeActiveMaterial

IRI: https://big-map:github:io/LabNotebookAppOntology#EMMO_3a4355cc_ce7c_4e9a_9691_fd9d0194ed48

example: NMC, LFP, NCA, LCO, LNMO

elnLabel: positive_homemade_electrode_active_material

prefLabel: PositiveHomemadeElectrodeActiveMaterial

Subclass of:

- is_a ActiveMaterial

PositiveSuppliedElectrode

IRI: https://big-map:github:io/LabNotebookAppOntology#EMMO_33605f77_9096_4d05_b7bd_333256a18d05

prefLabel: PositiveSuppliedElectrode

Subclass of:

- is_a SuppliedElectrode

PositiveSuppliedElectrodeActiveMaterial

IRI: https://big-map:github:io/LabNotebookAppOntology#EMMO_ace58a75_d121_4a6e_ad15_82b82a7a1b9d

elucidation: This is what you want to show in the help.

example: NMC, LFP, NCA, LCO, LNMO

elnLabel: positive_supplied_electrode_active_material

prefLabel: PositiveSuppliedElectrodeActiveMaterial

Subclass of:

- is_a ActiveMaterial

PotentialEnergy

IRI: http://emmo:info/emmo#EMMO_4c151909_6f26_4ef9_b43d_7c9e9514883a

elucidation: The energy possessed by a body by virtue of its position or orientation in a potential field.

IECEntry: http://www:electropedia:org/iev/iev:nsf/display?openform&ievref=113-03-48

dbpediaEntry: http://dbpedia:org/page/Potential_energy

iupacEntry: https://doi:org/10:1351/goldbook:P04778

omMatch: http://www:ontology-of-units-of-measure:org/resource/om-2/PotentialEnergy

physicalDimension: T-2 L+2 M+1 I0 Θ0 N0 J0

prefLabel: PotentialEnergy

qudtEntry: http://qudt:org/vocab/quantitykind/PotentialEnergy

Subclass of:

- is_a Energy

Potentiometer

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_1355816f_a2b5_4800_8001_fc888f5d6b1b

prefLabel: Potentiometer

Subclass of:

- is_a MeasuringInstrument

Potentiostat

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_a9fc3f77_e48e_4bce_b118_044d608722f6

elucidation: Measuring instrument [VIM 3.1] for electric current that controls the potential difference between a working electrode and a reference electrode and measures the electric current between a working electrode and an auxiliary electrode.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

prefLabel: Potentiostat

wikipediaEntry: https://en:wikipedia:org/wiki/Potentiostat

Subclass of:

- is_a MeasuringInstrument

PouchCell

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_392b3f47_d62a_4bd4_a819_b58b09b8843a

prefLabel: PouchCell

Subclass of:

- is_a BatteryCell
- hasPart some PouchCellHousing

PouchCellHousing

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_17e530cf_739c_4171_8a1d_8fe58625fc60

prefLabel: PouchCellHousing

Subclass of:

- is_a Container

Power

IRI: http://emmo:info/emmo#EMMO_09b9021b_f97b_43eb_b83d_0a764b472bc2

elucidation: Rate of transfer of energy per unit time.

dbpediaEntry: http://dbpedia:org/page/Power_(physics)

iupacEntry: https://doi:org/10:1351/goldbook:P04792

physicalDimension: T-3 L+2 M+1 I0 Θ0 N0 J0

prefLabel: Power

qudtEntry: http://qudt:org/vocab/quantitykind/Power

Subclass of:

- is_a ISQDerivedQuantity

PowerDimension

IRI: http://emmo:info/emmo#EMMO_c8d084ad_f88e_4596_8e4d_982c6655ce6f

prefLabel: PowerDimension

Subclass of:

- is_a PhysicalDimension
- equivalent_to hasSymbolData value 'T-3 L+2 M+1 I0 Θ0 N0 J0'

PrefixedUnit

IRI: http://emmo:info/emmo#EMMO_c6d4a5e0_7e95_44df_a6db_84ee0a8bbc8e

elucidation: A measurement unit that is made of a metric prefix and a unit symbol.

prefLabel: PrefixedUnit

Subclass of:

- is_a State
- is_a MeasurementUnit
- hasSpatialDirectPart only (UnitSymbol or MetricPrefix)
- hasSpatialDirectPart exactly 1 UnitSymbol
- hasSpatialDirectPart exactly 1 MetricPrefix

- disjoint_union_of MultipleUnit, SubMultipleUnit

Pressure

IRI: http://emmo:info/emmo#EMMO_50a44256_9dc5_434b_bad4_74a4d9a29989

elucidation: The force applied perpendicular to the surface of an object per unit area over which that force is distributed.

dbpediaEntry: http://dbpedia:org/page/Pressure

iupacEntry: https://doi:org/10:1351/goldbook:P04819

physicalDimension: T-2 L-1 M+1 I0 Θ0 N0 J0

prefLabel: Pressure

qudtEntry: http://qudt:org/vocab/quantitykind/Pressure

Subclass of:

- is_a ISQDerivedQuantity

PressureDimension

IRI: http://emmo:info/emmo#EMMO_53bd0c90_41c3_46e2_8779_cd2a80f7e18b

prefLabel: PressureDimension

Subclass of:

- is_a PhysicalDimension
- equivalent_to hasSymbolData value 'T-2 L-1 M+1 I0 Θ0 N0 J0'

PrimaryBattery

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_448de413_b4ed_43d0_941c_bf138167dcb9

elucidation: An battery that is not capable of being electrically recharged following discharge.

Adapted from: –IEEE Standard Glossary of Stationary Battery Terminology (2016), https://doi.org/10.1109/IEEESTD.2016.

prefLabel: PrimaryBattery

Subclass of:

- is_a Battery
- hasPart some PrimaryCell

PrimaryCell

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_3b0b0d6e_8b0e_4491_885e_8421d3eb3b6

elucidation: An electrochemical cell which is not designed to be electrically recharged.

Adapted from: –IEC 60050, International electro technical vocabulary. Chapter 486: Secondary cells and batteries. https://www.electropedia.org/iev/iev.nsf/index?openform&part=482

prefLabel: PrimaryCell

Subclass of:

- is_a GalvanicCell

PrimaryParticle

IRI: https://big-map:github:io/LabNotebookAppOntology#EMMO_ade77044_2222_4bdf_8b5e_48d459f15e77

prefLabel: PrimaryParticle

Subclass of:

- is_a SolidParticle

PrismaticCellHousing

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_da15df91_45aa_429c_a1e7_21f49a281f23

prefLabel: PrismaticCellHousing

Subclass of:

- is_a Container

Probability

IRI: http://emmo:info/emmo#EMMO_0a88be81_343d_4388_92c1_09228ff95ada

elucidation: Probability is a dimensionless quantity that can attain values between 0 and 1; zero denotes the impossible event and 1 denotes a certain event.

iupacEntry: https://doi:org/10:1351/goldbook:P04855

physicalDimension: T0 L0 M0 I0 Θ0 N0 J0

prefLabel: Probability

Subclass of:

- is_a RatioQuantity
- hasReferenceUnit only UnitOne

ProcedureUnit

IRI: http://emmo:info/emmo#EMMO_c9c8f824_9127_4f93_bc21_69fe78a7f6f2

elucidation: A reference unit provided by a measurement procedure.

example: Rockwell C hardness of a given sample (150 kg load): 43.5HRC(150 kg)

prefLabel: ProcedureUnit

Subclass of:

- is_a ReferenceUnit

Process

IRI: http://emmo:info/emmo#EMMO_43e9a05d_98af_41b4_92f6_00f79a09bfce

elucidation: A temporal part of a physical that identifies a particular type of evolution in time.

prefLabel: Process

Subclass of:

- is_a Holistic
- hasParticipant some Participant

Product

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_7ded61d8_2e4b_4994_9c40_54ec1fd60564

elucidation: A substance that is formed during a chemical reaction.

prefLabel: Product

Subclass of:

- is_a ChemicalSubstance

Property

IRI: http://emmo:info/emmo#EMMO_b7bcff25_ffc3_474e_9ab5_01b1664bd4ba

elucidation: A 'Perceptual' referring to a specific code that is used as 'Conventional' sign to represent an 'Object' according to a specific interaction mechanism by an 'Observer'.

(A property is always a partial representation of an 'Object' since it reflects the 'Object' capability to be part of a specific 'Observation' process)

example: Hardness is a subclass of properties.

Vickers hardness is a subclass of hardness that involves the procedures and instruments defined by the standard hardness test.

example: Let's define the class 'colour' as the subclass of the properties that involve photon emission and an electromagnetic radiation sensible observer.

An individual C of this class 'colour' can be defined be declaring the process individual (e.g. daylight illumination) and the observer (e.g. my eyes)

Stating that an entity E hasProperty C, we mean that it can be observed by such setup of process + observer (i.e. observed by my eyes under daylight).

This definition can be generalized by using a generic human eye, so that the observer can be a generic human.

This can be used in material characterization, to define exactly the type of measurement done, including the instrument type.

prefLabel: Property

Subclass of:

- is_a Conventional
- Inverse(hasProperty) some Object
- Inverse(hasParticipant) some Observation
- disjoint_union_of SubjectiveProperty, ObjectiveProperty

PropertyAssignment

IRI: http://emmo:info/emmo#EMMO_57fdae87_9ba8_4723_8983_5ae427b43a7a

prefLabel: PropertyAssignment

Subclass of:

- is_a ConventionalSemiosis

Proton

IRI: http://emmo:info/emmo#EMMO_8f87e700_99a8_4427_8ffb_e493de05c217

prefLabel: Proton

Subclass of:

- is_a Nucleon

ProtonMass

IRI: http://emmo:info/emmo#EMMO_8d689295_7d84_421b_bc01_d5cceb2c2086

codataEntry: https://physics:nist:gov/cgi-bin/cuu/Value?mp

iupacEntry: https://doi:org/10:1351/goldbook:P04914

physicalDimension: T0 L0 M+1 I0 Θ0 N0 J0

prefLabel: ProtonMass

qudtEntry: http://qudt:org/vocab/constant/ProtonMass

Subclass of:

- is_a MeasuredConstant
- is_a Mass
- Inverse(hasProperty) only Proton

Punctuation

IRI: http://emmo:info/emmo#EMMO_a817035a_3e3c_4709_8ede_3205df3031a3

prefLabel: Punctuation

Subclass of:

- is_a Symbol

PureNumberQuantity

IRI: http://emmo:info/emmo#EMMO_ba882f34_0d71_4e4f_9d92_0c076c633a2c

elucidation: A pure number, typically the number of something.

example: 1, i, π, the number of protons in the nucleus of an atom

physicalDimension: T0 L0 M0 I0 Θ0 N0 J0

prefLabel: PureNumberQuantity

Subclass of:

- is_a ISQDimensionlessQuantity

PureNumberUnit

IRI: http://emmo:info/emmo#EMMO_15d62b55_38ea_4aec_b7c4_25db1a2e5a01

elucidation: Unit for dimensionless units that cannot be expressed as a 'FractionUnit'.

example: Unit of AtomicNumber

prefLabel: PureNumberUnit

Subclass of:

- is_a UnitOne

Python

IRI: http://emmo:info/emmo#EMMO_add2e29d_6d87_4b78_9706_588e25557093

prefLabel: Python

Subclass of:

- is_a Software

QuantitativeProperty

IRI: http://emmo:info/emmo#EMMO_dd4a7f3e_ef56_466c_ac1a_d2716b5f87ec

definition: "A property of a phenomenon, body, or substance, where the property has a magnitude that can be expressed by means of a number and a reference" ISO 80000-1

"A reference can be a measurement unit, a measurement procedure, a reference material, or a combination of such." International vocabulary of metrology (VIM)

elucidation: A 'Quantity' that can be quantified with respect to a standardized reference physical instance (e.g. the prototype meter bar, the kg prototype) or method (e.g. resilience) through a measurement process.

prefLabel: QuantitativeProperty

Subclass of:

- is_a ObjectiveProperty
- is_a Quantity

- equivalent_to MeasuredUncertainty or MeasuredQuantitativeProperty or ModelledQuantitativeProperty or ConventionalQuantitativeProperty

Quantity

IRI: http://emmo:info/emmo#EMMO_f658c301_ce93_46cf_9639_4eace2c5d1d5

elucidation: A symbolic that has parts a reference unit and a numerical object separated by a space expressing the value of a quantitative property (expressed as the product of the numerical and the unit).

example: 6.8 m 0.9 km 8 K 6 MeV 43.5 HRC(150 kg)

VIMTerm: quantity value

prefLabel: Quantity

Subclass of:

- is_a State
- is_a Metrological
- hasReferenceUnit exactly 1 ReferenceUnit
- hasQuantityValue exactly 1 Numerical
- disjoint_union_of PhysicalQuantity, OrdinalQuantity

Quantum

IRI: http://emmo:info/emmo#EMMO_3f9ae00e_810c_4518_aec2_7200e424cf68

elucidation: The class of 'EMMO' individuals that stand for real world objects that can't be further divided in time nor in space.

example: For a physics based ontology the 'Quantum' can stand for the smallest identifiable portion of spacetime defined by the Planck limit in length (1.616e-35 m) and time (5.39e-44 s).

However, the quantum mereotopology approach is not restricted only to physics. For example, in a manpower management ontology, a 'Quantum' can stand for an hour (time) of a worker (space) activity.

etymology: From Latin quantum (plural quanta) "as much as, so much as;", introduced in physics directly from Latin by Max Planck, 1900.

prefLabel: Quantum

Subclass of:

- is_a Item
- hasProperPart only Nothing

Quark

IRI: http://emmo:info/emmo#EMMO_72d53756_7fb1_46ed_980f_83f47efbe105

elucidation: The class of individuals that stand for quarks elementary particles.

prefLabel: Quark

Subclass of:

- is_a Massive

Radian

IRI: http://emmo:info/emmo#EMMO_a121bb1d_5225_4c78_809b_0268c3012208

elucidation: Measure of plane angle.

iupacEntry: https://doi:org/10:1351/goldbook:R05036

prefLabel: Radian

qudtEntry: http://qudt:org/vocab/unit/RAD

Subclass of:

- is_a LengthFractionUnit
- is_a SISpecialUnit
- hasPhysicalDimension some DimensionOne
- hasSymbolData value 'rad'

RadiantFlux

IRI: http://emmo:info/emmo#EMMO_e46f3f24_c2ec_4552_8dd4_cfc5c0a89c09

dbpediaEntry: http://dbpedia:org/page/Radiant_flux

iupacEntry: https://doi:org/10:1351/goldbook:R05046

physicalDimension: T-3 L+2 M+1 I0 Θ0 N0 J0

prefLabel: RadiantFlux

qudtEntry: http://qudt:org/vocab/quantitykind/RadiantFlux

Subclass of:

- is_a Power

RadiationHeatFluxTerm

IRI: http://emmo:info/emmo#EMMO_78fb85da_e6d2_4a3e_8fae_e21e63c7b117

prefLabel: RadiationHeatFluxTerm

Subclass of:

- is_a HeatFluxTerm

Radioactivity

IRI: http://emmo:info/emmo#EMMO_8d3da9ac_2265_4382_bee5_db72046722f8

elucidation: Decays per unit time.

iupacEntry: https://doi:org/10:1351/goldbook:A00114

physicalDimension: T-1 L0 M0 I0 Θ0 N0 J0

prefLabel: Radioactivity

qudtEntry: http://qudt:org/vocab/quantitykind/SpecificActivity

Subclass of:

- is_a ISQDerivedQuantity

Radius

IRI: http://emmo:info/emmo#EMMO_32dcd601_47c7_4028_b7fa_5e972ae57f12

physicalDimension: T0 L+1 M0 I0 Θ0 N0 J0

prefLabel: Radius

Subclass of:

- is_a Length

RandlesCircuitModel

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_e939a312_661c_4b21_9651_06f34659e20a

elucidation: An equivalent electrical circuit that consists of an active electrolyte resistance RS in series with the parallel combination of the double-layer capacitance Cdl and an impedance of a faradaic reaction.

dbpediaEntry: https://dbpedia:org/page/Randles_circuit

prefLabel: RandlesCircuitModel

wikipediaEntry: https://en:wikipedia:org/wiki/Randles_circuit

Subclass of:

- is_a ElectrochemicalEquivalentCircuitModel

RateDeterminingStep

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_142ec80c_ea80_423b_882b_e21f802316d4

elucidation: A rate-controlling (rate-determining or rate-limiting) step in a reaction occurring by a composite reaction sequence is an elementary reaction the rate constant for which exerts a strong effect — stronger than that of any other rate constant — on the overall rate.

IUPAC. Compendium of Chemical Terminology, 2nd ed. (the "Gold Book"). Compiled by A. D. McNaught and A. Wilkinson. Blackwell Scientific Publications, Oxford (1997). Online version (2019-) created by S. J. Chalk. ISBN 0-9678550-9-8. https://doi.org/10.1351/goldbook.

iupacEntry: https://doi:org/10:1351/goldbook:R05140

prefLabel: RateDeterminingStep

wikipediaEntry: https://en:wikipedia:org/wiki/Rate-determining_step

Subclass of:

- is_a ElementaryReaction

RatioQuantity

IRI: http://emmo:info/emmo#EMMO_faab3f84_e475_4a46_af9c_7d249f0b9aef

elucidation: The class of quantities that are the ratio of two quantities with the same physical dimensionality.

example: refractive index, volume fraction, fine structure constant

physicalDimension: T0 L0 M0 I0 Θ0 N0 J0

prefLabel: RatioQuantity

Subclass of:

- is_a ISQDimensionlessQuantity

Reactant

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_5b95ac64_2724_4c64_a7ca_db08bde7f5ab

elucidation: A substance that is consumed in the course of a chemical reaction. It is sometimes known, especially in the older literature, as a reagent, but this term is better used in a more specialized sense as a test substance that is added to a system in order to bring about a reaction or to see whether a reaction occurs (e.g. an analytical reagent).

prefLabel: Reactant

Subclass of:

- is_a ChemicalSubstance

ReactionOrder

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_29a57599_aa0d_458f_b23e_666a2da55883

elucidation: If the macroscopic (observed, empirical or phenomenological) rate of reaction (v) for any reaction can be expressed by an empirical differential rate equation (or rate law) which contains a factor of the form k [A]α [B]β … (expressing in full the dependence of the rate of reaction on the concentrations [A], [B] …) where α, β are constant exponents (independent of concentration and time) and k is independent of [A] and [B] etc. (rate constant, rate coefficient), then the reaction is said to be of order α with respect to A, of order β with respect to B, … , and of (total or overall) order n=α+β+… The exponents α, β, … can be positive or negative integral or rational nonintegral numbers.

iupacEntry: https://goldbook:iupac:org/terms/view/O04322

physicalDimension: T0 L0 M0 I0 Θ0 N0 J0

prefLabel: ReactionOrder

Subclass of:

- is_a ElectrochemicalKineticQuantity

ReactionQuotient

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_740d5817_3fa7_464a_90c3_55552e51a3df

elucidation: A quantity that provides a measurement of the relative quantities of products and reactants present in a reaction mixture for a reaction with well-defined overall stoichiometry, at a particular point in time.

physicalDimension: T0 L0 M0 I0 Θ0 N0 J0

prefLabel: ReactionQuotient

wikipediaEntry: https://en:wikipedia:org/wiki/Reaction_quotient

Subclass of:

- is_a ElectrochemicalThermodynamicQuantity

ReactionRate

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_47b7d606_7030_4674_9828_cf83fb4a2995

elucidation: For the general chemical reaction:

aA+bB→pP+qQ+…

occurring under constant-volume conditions, without an appreciable build-up of reaction intermediates, the rate of reaction ν is defined as:

ν = -1/a *d[A]/dt* = *-1/b* d[B]/dt = 1/p * d[P]/dt = 1/q * d[Q]/dt

where symbols placed inside square brackets denote amount (or amount of substance) concentrations (conventionally expressed in units of mol dm-3). The symbols R and r are also commonly used in place of ν.

iupacEntry: https://goldbook:iupac:org/terms/view/R05156

physicalDimension: T-1 L0 M0 I0 Θ0 N+1 J0

prefLabel: ReactionRate

wikipediaEntry: https://en:wikipedia:org/wiki/Reaction_rate

Subclass of:

- is_a ElectrochemicalKineticQuantity

ReactionRateConstant

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_dbd808a7_8a8f_43be_9870_02cc35bd1646

iupacEntry: https://goldbook:iupac:org/terms/view/O04322

prefLabel: ReactionRateConstant

Subclass of:

- is_a ElectrochemicalKineticQuantity

ReactiveMaterial

IRI: http://emmo:info/emmo#EMMO_68390bfb_e307_479d_8f78_d66d8773cb1d

elucidation: A material that undergoes chemical changes.

prefLabel: ReactiveMaterial

Subclass of:

- is_a Material

ReactiveSubcomponent

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_6ab1ca1a-3809-4e9a-aaf7-374915288f73

elucidation: An ElectrochemicalSubcomponent whose primary role is to participate in a reaction.

prefLabel: ReactiveSubcomponent

Subclass of:

- is_a ElectrochemicalSubcomponent

ReactiveSubcomponentContinuumModel

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_149bb81f_e724_42f0_9560_184ff916bdba

prefLabel: ReactiveSubcomponentContinuumModel

Subclass of:

- is_a ElectrochemicalSubcomponentContinuumModel

Real

IRI: http://emmo:info/emmo#EMMO_18d180e4_5e3e_42f7_820c_e08951223486

prefLabel: Real

Subclass of:

- is_a Number
- hasNumericalData only type
- hasNumericalData exactly 1 type
- equivalent_to hasNumericalData some type

ReciprocalLength

IRI: http://emmo:info/emmo#EMMO_ecec2983_7c26_4f8d_a981_51ca29668baf

elucidation: The inverse of length.

dbpediaEntry: http://dbpedia:org/page/Reciprocal_length

physicalDimension: T0 L-1 M0 I0 Θ0 N0 J0

prefLabel: ReciprocalLength

qudtEntry: http://qudt:org/vocab/quantitykind/InverseLength

wikipediaEntry: https://en:wikipedia:org/wiki/Reciprocal_length

Subclass of:

- is_a ISQDerivedQuantity

RedoxReaction

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_d07d939a_7865_406d_867a_0500b02cba4

elucidation: Chemical reactions in which the reactants exchange electrons between each other.

–A. J. Bard, G. Inzelt, and F. Scholz, Eds., Electrochemical Dictionary, 2nd Edition. Berlin: Springer-Verlag, 2012. DOI: https://doi.org/10.1007/978-3-642-29551-5

dbpediaEntry: https://dbpedia:org/page/Redox

prefLabel: RedoxReaction

wikipediaEntry: https://en:wikipedia:org/wiki/Redox

Subclass of:

- is_a ChemicalReaction
- hasParticipant some Reductant
- hasParticipant some Oxidant
- hasParticipant some Electron

Reductant

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_5562e8ed_b297_4fb4_8db8_a36b99fd53b1

elucidation: An element or compound that loses (or "donates") an electron to an electron recipient (oxidizing agent) in a redox chemical reaction.

prefLabel: Reductant

Subclass of:

- is_a ChemicalSubstance
- hasTemporalPart some Product
- hasTemporalPart some Reactant

ReductionReaction

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_f1f61589_831a_44a7_ad1f_246d8a029453

elucidation: A reaction in which a substance gains electrons from another reagent called reductant which itself is oxidized.

–A. J. Bard, G. Inzelt, and F. Scholz, Eds., Electrochemical Dictionary, 2nd Edition. Berlin: Springer-Verlag, 2012. DOI: https://doi.org/10.1007/978-3-642-29551-5

iupacEntry: https://doi:org/10:1351/goldbook:R05222

prefLabel: ReductionReaction

wikipediaEntry: https://en:wikipedia:org/wiki/Redox

Subclass of:

- is_a RedoxReaction

Reductionistic

IRI: http://emmo:info/emmo#EMMO_15db234d_ecaf_4715_9838_4b4ec424fb13

elucidation: A class devoted to categorize 'Physical'-s according to their granularity relations, first in terms of time evolution (Existent) and then in terms of their composition (State), up to the spatial a-tomistic element (Elementary).

prefLabel: Reductionistic

Subclass of:

- is_a Perspective
- equivalent_to State or Existent

ReferenceElectrode

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_7729c34e_1ae9_403d_b933_1765885e7f29

example: The standard hydrogen electrode represents the primary standard in electrochemistry. Elec- trodes of the 2nd kind, such as Ag | AgCl, Hg | Hg2 Cl2, Hg | Hg2SO4, and Hg | HgO, can be used as reference electrodes in aqueous solutions containing ions Cl^{-}, SO_4^{2-}, and OH^{-}, respectively.

IECEntry: https://www:electropedia:org/iev/iev:nsf/display?openform&ievref=114-03-15

iupacEntry: https://goldbook:iupac:org/terms/view/R05229

prefLabel: ReferenceElectrode

wikipediaEntry: https://en:wikipedia:org/wiki/Reference_electrode

Subclass of:

- is_a NonPolarizableElectrode

ReferenceUnit

IRI: http://emmo:info/emmo#EMMO_18ce5200_00f5_45bb_8c6f_6fb128cd41ae

prefLabel: ReferenceUnit

Subclass of:

- is_a Metrological

RefractiveIndex

IRI: http://emmo:info/emmo#EMMO_5eedba4d_105b_44d8_b1bc_e33606276ea2

dbpediaEntry: http://dbpedia:org/page/Refractive_index

iupacEntry: https://doi:org/10:1351/goldbook:R05240

physicalDimension: T0 L0 M0 I0 Θ0 N0 J0

prefLabel: RefractiveIndex

qudtEntry: http://qudt:org/vocab/quantitykind/RefractiveIndex

Subclass of:

- is_a RatioQuantity
- hasReferenceUnit only SpeedFractionUnit

Representation

IRI: http://emmo:info/emmo#EMMO_eb7de1a1_c30e_4f0d_94c6_fe70414d7e61

elucidation: A graphical object aimed to represent schematically the conceptual, tempral or spatial structure of another object.

prefLabel: Representation

Subclass of:

- is_a Graphical

ResidualCurrent

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_07e219c3_890f_488f_bd96_bee8e445d764

elucidation: Electric current that flows, at a particular value of the applied potential, in the absence of the substance whose electrode behaviour is being investigated, i.e. a “blank” solution.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

iupacEntry: https://goldbook:iupac:org/terms/view/R05311

physicalDimension: T0 L0 M0 I+1 Θ0 N0 J0

prefLabel: ResidualCurrent

Subclass of:

- is_a ElectricCurrent
- is_a ElectrochemicalQuantity

RestingTime

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_2678a656_4a27_4706_8dde_b0a93e9b92fa

physicalDimension: T+1 L0 M0 I0 Θ0 N0 J0

prefLabel: RestingTime

Subclass of:

- is_a Time
- is_a ElectrochemicalQuantity

ReversibleHydrogenElectrode

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_0d9ba00d_04bc_4bdc_85af_3380694f6f68

elucidation: A practical hydrogen electrode whose potential depends on the pH of the solution

prefLabel: ReversibleHydrogenElectrode

wikipediaEntry: https://en:wikipedia:org/wiki/Reversible_hydrogen_electrode

Subclass of:

- is_a ReferenceElectrode

RotatingDiskElectrode

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_6c421175_477f_45e0_8b6c_c3464f5351c5

elucidation: A disc electrode that is embedded in the centre of a cylinder which rotates in solution around the longitudinal cylinder axis.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

prefLabel: RotatingDiskElectrode

wikipediaEntry: https://en:wikipedia:org/wiki/Rotating_disk_electrode

Subclass of:

- is_a Electrode

RotatingRingDiskElectrode

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_7f4d74cd_d0a5_4908_9da9_7629fe419917

elucidation: A second annular working electrode positioned concentric with a rotating disc electrode to make a rotating ring-disc electrode (RRDE).

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

prefLabel: RotatingRingDiskElectrode

Subclass of:

- is_a RotatingDiskElectrode
- hasPart some AnnularWorkingElectrode

RybergConstant

IRI: http://emmo:info/emmo#EMMO_a3c78d6f_ae49_47c8_a634_9b6d86b79382

codataEntry: https://physics:nist:gov/cgi-bin/cuu/Value?ryd

dbpediaEntry: http://dbpedia:org/page/Rydberg_constant

iupacEntry: https://doi:org/10:1351/goldbook:R05430

physicalDimension: T0 L-1 M0 I0 Θ0 N0 J0

prefLabel: RybergConstant

qudtEntry: http://qudt:org/vocab/constant/RydbergConstant

Subclass of:

- is_a MeasuredConstant
- is_a Wavenumber

SIAcceptedSpecialUnit

IRI: http://emmo:info/emmo#EMMO_6795a4b8_ffd0_4588_a581_a9413fe49cac

elucidation: Non-SI units mentioned in the SI.

prefLabel: SIAcceptedSpecialUnit

wikipediaEntry: https://en:wikipedia:org/wiki/Non-SI_units_mentioned_in_the_SI

Subclass of:

- is_a SpecialUnit
- is_a OffSystemUnit
- disjoint_union_of Dalton, AstronomicalUnit, ArcMinute, Hour, Day, ArcSecond, Bel, Litre, Neper, Degree, Minute, Hectare, ElectronVolt, Tonne

SIBaseUnit

IRI: http://emmo:info/emmo#EMMO_3a185e6c_9e19_4776_b583_19c978156aa0

elucidation: The base units in the SI system.

prefLabel: SIBaseUnit

Subclass of:

- is_a SIUnitSymbol
- is_a BaseUnit
- disjoint_union_of Kelvin, Second, Metre, Candela, Kilogram, Ampere, Mole

SICoherentDerivedUnit

IRI: http://emmo:info/emmo#EMMO_1273eb34_de48_43a9_925f_104110469dd2

elucidation: A SI derived unit whos numerical factor in front of the product of SI base units is one.

example: m/s kg/m^3

prefLabel: SICoherentDerivedUnit

Subclass of:

- is_a DerivedUnit
- is_a SICoherentUnit

SICoherentUnit

IRI: http://emmo:info/emmo#EMMO_707c6032_e272_4a20_98b5_d35c4f67be68

prefLabel: SICoherentUnit

Subclass of:

- is_a NonPrefixedUnit
- is_a SIUnit
- disjoint_union_of SICoherentDerivedUnit, SIBaseUnit, SISpecialUnit

SIExactConstant

IRI: http://emmo:info/emmo#EMMO_f2ca6dd0_0e5f_4392_a92d_cafdae6cfc95

elucidation: Physical constant that by definition (after the latest revision of the SI system that was enforsed May 2019) has a known exact numerical value when expressed in SI units.

prefLabel: SIExactConstant

Subclass of:

- is_a ExactConstant
- is_a StandardizedPhysicalQuantity

SIMetricPrefix

IRI: http://emmo:info/emmo#EMMO_471cb92b_edca_4cf9_bce8_a75084d876b8

prefLabel: SIMetricPrefix

Subclass of:

- is_a MetricPrefix
- disjoint_union_of Pico, Deci, Deka, Hecto, Femto, Zepto, Tera, Atto, Peta, Exa, Mega, Kilo, Micro, Milli, Giga, Centi, Zetta, Nano, Yotta, Yocto

SINonCoherentDerivedUnit

IRI: http://emmo:info/emmo#EMMO_60b78cc3_6011_4134_95ab_956f56d4bdc1

elucidation: A derived unit whos numerical factor in front of the product of base units is NOT equal to one.

prefLabel: SINonCoherentDerivedUnit

Subclass of:

- is_a SINonCoherentUnit

SINonCoherentUnit

IRI: http://emmo:info/emmo#EMMO_8246541a_f1f6_4d03_8bd7_fc6b76d17375

prefLabel: SINonCoherentUnit

Subclass of:

- is_a SIUnit
- disjoint_union_of SINonCoherentDerivedUnit, SIPrefixedUnit

SIPrefixedUnit

IRI: http://emmo:info/emmo#EMMO_d41ce84b_4317_41fb_a5d1_6cd281fca106

elucidation: A SI base or special unit with a metric prefix.

prefLabel: SIPrefixedUnit

Subclass of:

- is_a SINonCoherentUnit
- is_a PrefixedUnit

SISpecialUnit

IRI: http://emmo:info/emmo#EMMO_e9ffc696_5228_4ff9_8a60_0f5e05e9931b

elucidation: The 22 derived units that are given a special name in the SI system that stands for units derived by SI base units.

prefLabel: SISpecialUnit

wikipediaEntry: https://en:wikipedia:org/wiki/International_System_of_Units#Derived_units

Subclass of:

- is_a SIUnitSymbol
- is_a SpecialUnit
- disjoint_union_of Gray, Watt, Katal, Ohm, Coulomb, Joule, Radian, Pascal, Farad, Newton, Tesla, DegreeCelsius, Becquerel, Steradian, Lumen, Weber, Lux, Sievert, Volt, Hertz, Siemens, Henry

SIUnit

IRI: http://emmo:info/emmo#EMMO_feb03a8a_bbb6_4918_a891_46713ef557f4

elucidation: The set of units provided by the SI referring to the ISQ.

prefLabel: SIUnit

Subclass of:

- is_a MeasurementUnit
- disjoint_union_of SICoherentDerivedUnit, SIBaseUnit, SINonCoherentDerivedUnit, SIPrefixedUnit, SISpecialUnit

SIUnitSymbol

IRI: http://emmo:info/emmo#EMMO_32129fb5_df25_48fd_a29c_18a2f22a2dd5

prefLabel: SIUnitSymbol

Subclass of:

- is_a UnitSymbol
- is_a SICoherentUnit
- disjoint_union_of SIBaseUnit, SISpecialUnit

Salt

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_b6a52fdb_ba40_4caf_a8d9_523a467eb799

definition: "A chemical compound consisting of an assembly of cations and anions." IUPAC Gold Book

iupacEntry: https://goldbook:iupac:org/terms/view/S05447

prefLabel: Salt

Subclass of:

- is_a ChemicalSpecies

SaltBridge

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_637c576e_a50e_47ae_8c74_2024ce4c6d0f

elucidation: Means of making electrolytic connection between two half cells without introducing a significant liquid junction potential.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

dbpediaEntry: https://dbpedia:org/page/Salt_bridge

prefLabel: SaltBridge

wikipediaEntry: https://en:wikipedia:org/wiki/Salt_bridge

Subclass of:

- is_a CompositeIonBridge

SaltBridgeContinuumModel

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_bc9b6500_60bb_434f_bf29_ea3b189c7236

prefLabel: SaltBridgeContinuumModel

Subclass of:

- is_a ElectronicComponentContinuumModel

SaturatedCalomelElectrode

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_82b66bfe_ec25_417b_ba65_b631ddaaca0e

elucidation: A reference electrode based on the reaction between elemental mercury and mercury(I) chloride.

prefLabel: SaturatedCalomelElectrode

wikipediaEntry: https://en:wikipedia:org/wiki/Saturated_calomel_electrode

Subclass of:

- is_a ReferenceElectrode

Second

IRI: http://emmo:info/emmo#EMMO_314ba716_2d3d_4462_9a4f_d3419ae1df43

definition: The second, symbol s, is the SI unit of time. It is defined by taking the fixed numerical value of the caesium frequency $\nabla\nu$Cs, the unperturbed ground-state hyperfine transition frequency of the caesium 133 atom, to be 9192631770 when expressed in the unit Hz, which is equal to s-1.

iupacEntry: https://doi:org/10:1351/goldbook:S05513

prefLabel: Second

qudtEntry: http://qudt:org/vocab/unit/SEC

Subclass of:

- is_a SIBaseUnit
- hasPhysicalDimension some TimeDimension
- hasSymbolData value 's'

SecondaryBattery

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_4eeaec00_3453_4ff0_83c4_d1649ad84fc1

elucidation: An battery that is capable of being recharged following discharge.

Adapted from: –IEEE Standard Glossary of Stationary Battery Terminology (2016), https://doi.org/10.1109/IEEESTD.2016.

dbpediaEntry: https://dbpedia:org/page/Rechargeable_battery

prefLabel: SecondaryBattery

wikipediaEntry: https://en:wikipedia:org/wiki/Rechargeable_battery

Subclass of:

- is_a Battery
- hasPart some SecondaryCell

SecondaryCell

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_efc38420_ecbb_42e4_bb3f_208e7c417098

elucidation: An electrochemical cell which is designed to be electrically recharged.

Adapted from: –IEC 60050, International electro technical vocabulary. Chapter 486: Secondary cells and batteries. https://www.electropedia.org/iev/iev.nsf/index?openform&part=482

prefLabel: SecondaryCell

Subclass of:

- is_a ElectrochemicalCell

SecondaryParticle

IRI: https://big-map:github:io/LabNotebookAppOntology#EMMO_d4e08ac7_7db7_43c2_b35e_51dc96be8dc9

elucidation: Aggregate of primary particles.

prefLabel: SecondaryParticle

Subclass of:

- is_a SolidParticle
- hasConventionalQuantity some SecondaryParticleDiameter
- hasPart some PrimaryParticle

SecondaryParticleDiameter

IRI: https://big-map:github:io/LabNotebookAppOntology#EMMO_1984a43e_5d25_4f7b_bef5_76cda57296ab

physicalDimension: T0 L+1 M0 I0 Θ0 N0 J0

prefLabel: SecondaryParticleDiameter

Subclass of:

- is_a Length
- hasReferenceUnit some Micrometre

Semiosis

IRI: http://emmo:info/emmo#EMMO_008fd3b2_4013_451f_8827_52bceab11841

elucidation: A 'Process', that has participant an 'Interpreter', that is aimed to produce a 'Sign' representing another participant, the 'Object'.

example: Me looking a cat and saying loud: "Cat!" → the semiosis process

me → interpreter cat → object (in Peirce semiotics) the cat perceived by my mind → interpretant "Cat!" → sign, the produced sign

prefLabel: Semiosis

Subclass of:

- is_a Process
- hasProperParticipant some Object
- hasProperParticipant some Interpreter
- hasProperParticipant some Sign

Semiotic

IRI: http://emmo:info/emmo#EMMO_b803f122_4acb_4064_9d71_c1e5fd091fc9

elucidation: The class of individuals that stands for semiotic objects, i.e. objects that take part on a semiotic process.

prefLabel: Semiotic

Subclass of:

- is_a Participant
- Inverse(hasProperParticipant) some Semiosis
- equivalent_to Interpreter or Object or Sign

Separator

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_331e6cca_f260_4bf8_af55_35304fe1bbe0

elucidation: In an electrochemical cell, device made of insulating material permeable to the ions of the electrolyte and prohibiting totally or partially the mixing of the substances on both sides.

–IEC60050

IECEntry: https://www:electropedia:org/iev/iev:nsf/display?openform&ievref=114-03-17

prefLabel: Separator

Subclass of:

- is_a ElectrochemicalComponent

SeparatorContinuumModel

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_21d661a7_73de_4ee6_8bd5_53a948eda8cc

prefLabel: SeparatorContinuumModel

Subclass of:

- is_a StructuralSubcomponentContinuumModel

Sequence

IRI: http://emmo:info/emmo#EMMO_406f9b74_c927_4e05_b9af_5edbe5e280c5

elucidation: An Existent whose temporal direct parts are all TemporalOrdered.

prefLabel: Sequence

Subclass of:

- is_a Existent
- is_a Ordered
- hasTemporalDirectPart only TemporalOrderedElement
- hasTemporalDirectPart some TemporalOrderedElement

SerialNumber

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_13ab56f8_59f0_4301_8114_d6b98ca09f6f

prefLabel: SerialNumber

Subclass of:

- is_a ConventionalNominalProperty

Shape3Vector

IRI: http://emmo:info/emmo#EMMO_2ff07b07_c447_490f_903a_f6a72a12d7bf

elucidation: A real vector with 3 elements.

example: The quantity value of physical quantities if real space is a Shape3Vector.

prefLabel: Shape3Vector

Subclass of:

- is_a Vector

Shape4x3Matrix

IRI: http://emmo:info/emmo#EMMO_24b30ba4_90f4_423d_93d2_fd0fde349087

elucidation: A real matrix with shape 4x3.

prefLabel: Shape4x3Matrix

Subclass of:

- is_a Matrix

SideReaction

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_aea54471_e0d4_479c_8c11_fd0a4bfe276c

elucidation: Chemical reaction which occurs in addition to the main process.

–IEC60050

IECEntry: https://www:electropedia:org/iev/iev:nsf/display?openform&ievref=114-02-06

prefLabel: SideReaction

wikipediaEntry: https://en:wikipedia:org/wiki/Side_reaction

Subclass of:

- is_a ChemicalReaction

Siemens

IRI: http://emmo:info/emmo#EMMO_f2523820_04a6_44ab_bb67_8237dda2b0c2

prefLabel: Siemens

Subclass of:

- is_a SISpecialUnit
- hasPhysicalDimension some ElectricConductanceDimension
- hasSymbolData value 'S'

Sievert

IRI: http://emmo:info/emmo#EMMO_dc232f53_8ed8_4ddd_9f41_cc057985eadb

iupacEntry: https://doi:org/10:1351/goldbook:S05658

prefLabel: Sievert

qudtEntry: http://qudt:org/vocab/unit/SV

wikipediaEntry: https://en:wikipedia:org/wiki/Equivalent_dose

Subclass of:

- is_a SISpecialUnit
- hasSymbolData value 'Sv'
- hasPhysicalDimension some AbsorbedDoseDimension

Sign

IRI: http://emmo:info/emmo#EMMO_b21a56ed_f969_4612_a6ec_cb7766f7f31d

elucidation: An 'Physical' that is used as sign ("semeion" in greek) that stands for another 'Physical' through an semiotic process.

example: A novel is made of chapters, paragraphs, sentences, words and characters (in a direct parthood mereological hierarchy).

Each of them are 'sign'-s.

A character can be the a-tomistic 'sign' for the class of texts.

The horizontal segment in the character "A" is direct part of "A" but it is not a 'sign' itself.

For plain text we can propose the ASCII symbols, for math the fundamental math symbols.

prefLabel: Sign

Subclass of:

- is_a Semiotic
- equivalent_to Index or Conventional or Icon

Silicon

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_4682cec6_f601_40f0_b463_b5345efdda3e

prefLabel: Silicon

Subclass of:

- is_a LithiumIntercalationMaterial

SilverChlorideElectrode

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_6ec59f99_5f26_4a7d_9b90_b52e0f8ad190

elucidation: A type of reference electrode based on the reaction between sliver and silver chloride.

prefLabel: SilverChlorideElectrode

wikipediaEntry: https://en:wikipedia:org/wiki/Silver_chloride_electrode

Subclass of:

- is_a ReferenceElectrode

SilverElectrode

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_a462859d_d8bd_48ea_8bde_1576f1248a1e

elucidation: Electrode in the form of foil, mesh, wire, rod, tube, powder, pellets, or single crystal of silver.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

prefLabel: SilverElectrode

Subclass of:

- is_a MetalElectrode

SimpleElectrode

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_029f0b45-70a7-481f-8154-bf982a77e08c

elucidation: An electrode consisting of a single ElectrochemicalSubComponent

example: Metal foil.

prefLabel: SimpleElectrode

Subclass of:

- is_a Electrode

SimpleIonBridge

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_6e4f4681-f327-4300-96e4-5905fcea36e3

elucidation: An ion bridge consisting of exactly 1 subcomponent that is an IonicSubcomponent.

prefLabel: SimpleIonBridge

Subclass of:

- is_a IonBridge
- hasSpatialDirectPart exactly 1 IonicSubcomponent

SingleComponentActivationEnergyOfDiffusion

IRI: http://emmo:info/emmo#EMMO_2f761aff_88d1_4e79_a85e_09d6f400de56

elucidation: The energy barrier for diffusion of a given component.

physicalDimension: T-2 L+2 M+1 I0 Θ0 N0 J0

prefLabel: SingleComponentActivationEnergyOfDiffusion

Subclass of:

- is_a Energy
- is_a PhysicoChemical

SingleComponentComposition

IRI: http://emmo:info/emmo#EMMO_172e2c96_180b_40f8_a3e7_b624471f40c2

prefLabel: SingleComponentComposition

Subclass of:

- is_a ChemicalComposition
- hasSpatialDirectPart some ChemicalCompositionQuantity
- hasSpatialDirectPart some ChemicalSpecies

SingleComponentDiffusivity

IRI: http://emmo:info/emmo#EMMO_498d80ae_9339_49c7_8c74_44aa704e0395

elucidation: Transport of particles belonging to one component of a material due to a concentration gradient.

physicalDimension: T-1 L+2 M0 I0 Θ0 N-1 J0

prefLabel: SingleComponentDiffusivity

Subclass of:

- is_a ISQDerivedQuantity
- is_a PhysicoChemical

SingleComponentMaximalDiffusivity

IRI: http://emmo:info/emmo#EMMO_3bd39834_7eb9_4c97_bb25_db88c3df6bab

etymology: Pre-factor in the Arrhenius expression for diffusion.

physicalDimension: T-1 L+2 M0 I0 Θ0 N-1 J0

prefLabel: SingleComponentMaximalDiffusivity

Subclass of:

- is_a ISQDerivedQuantity
- is_a PhysicoChemical

Smoke

IRI: http://emmo:info/emmo#EMMO_5a2af26d_99de_4e5e_b1cd_514be71420c3

elucidation: Smoke is a solid aerosol made of particles emitted when a material undergoes combustion or pyrolysis.

prefLabel: Smoke

Subclass of:

- is_a SolidAerosol

Software

IRI: http://emmo:info/emmo#EMMO_8681074a_e225_4e38_b586_e85b0f43ce38

elucidation: A language object that follows syntactic rules of a programming language.

prefLabel: Software

Subclass of:

- is_a Language

Sol

IRI: http://emmo:info/emmo#EMMO_31557fae_b039_491c_bcbb_0ccb8711d5a6

elucidation: A colloid in which small particles (1 nm to 100 nm) are suspended in a continuum phase.

prefLabel: Sol

Subclass of:

- is_a Colloid

Solid

IRI: http://emmo:info/emmo#EMMO_a2b006f2_bbfd_4dba_bcaa_3fca20cd6be1

elucidation: A continuum characterized by structural rigidity and resistance to changes of shape or volume, that retains its shape and density when not confined.

prefLabel: Solid

Subclass of:

- is_a StateOfMatter

SolidAerosol

IRI: http://emmo:info/emmo#EMMO_96c8d72f_b436_44e2_9f7f_085c24094292

elucidation: An aerosol composed of fine solid particles in air or another gas.

prefLabel: SolidAerosol

Subclass of:

- is_a Aerosol

SolidAmalgamElectrode

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_65c90d8d_9712_4f3f_b830_d8163ec4cfcc

elucidation: Electrode made of a solid amalgam of an appropriate metal.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

prefLabel: SolidAmalgamElectrode

Subclass of:

- is_a CompositeElectrode

SolidAngle

IRI: http://emmo:info/emmo#EMMO_e7c9f7fd_e534_4441_88fe_1fec6cb20f26

elucidation: Ratio of area on a sphere to its radius squared.

dbpediaEntry: http://dbpedia:org/page/Solid_angle

iupacEntry: https://doi:org/10:1351/goldbook:S05732

physicalDimension: T0 L0 M0 I0 Θ0 N0 J0

prefLabel: SolidAngle

qudtEntry: http://qudt:org/vocab/quantitykind/SolidAngle

Subclass of:

- is_a RatioQuantity
- hasReferenceUnit only AreaFractionUnit

SolidElectrolyte

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_0508a114_544a_4f54_a7de_9b947fb4b618

definition: A solid electrolyte is a solid material where the predominant charge carriers are ions.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

example: NASICON (Na Super Ionic Conductor), which has the general formula Na1+xZr2P3-xSix O12 , 0 < x < 3.

prefLabel: SolidElectrolyte

wikipediaEntry: https://en:wikipedia:org/wiki/Fast_ion_conductor

Subclass of:

- is_a Electrolyte

SolidFoam

IRI: http://emmo:info/emmo#EMMO_9bed5d66_805a_4b3a_9153_beaf67143848

elucidation: A foam of trapped gas in a solid.

example: Aerogel

prefLabel: SolidFoam

Subclass of:

- is_a Foam
- is_a Solid

SolidGasSuspension

IRI: http://emmo:info/emmo#EMMO_c457b6b9_5e73_4853_ae08_d776c12b8058

elucidation: A coarse dispersion of gas in a solid continuum phase.

prefLabel: SolidGasSuspension

Subclass of:

- is_a Suspension
- is_a Solid

SolidLiquidSuspension

IRI: http://emmo:info/emmo#EMMO_33e0ac8b_a318_4285_b1de_e95347784632

elucidation: A coarse dispersion of liquid in a solid continuum phase.

prefLabel: SolidLiquidSuspension

Subclass of:

- is_a Suspension
- is_a Solid

SolidParticle

IRI: https://big-map:github:io/LabNotebookAppOntology#EMMO_97fe42e9_995f_4efc_a458_dbb4a419fc91

prefLabel: SolidParticle

Subclass of:

- is_a Solid

SolidPowder

IRI: https://big-map:github:io/LabNotebookAppOntology#EMMO_31fa7e83_257d_4bb7_9602_ce1292171556

prefLabel: SolidPowder

Subclass of:

- is_a Solid
- hasPart some SecondaryParticle

SolidSol

IRI: http://emmo:info/emmo#EMMO_5add9885_dc98_4fa5_8482_fdf9ba5e3889

elucidation: A type of sol in the form of one solid dispersed in another continuous solid.

prefLabel: SolidSol

Subclass of:

- is_a Sol
- is_a Solid

SolidSolidSuspension

IRI: http://emmo:info/emmo#EMMO_2dd512a1_5187_47cc_b0b8_141214e22b59

elucidation: A coarse dispersion of solid in a solid continuum phase.

example: Granite, sand, dried concrete.

prefLabel: SolidSolidSuspension

Subclass of:

- is_a Suspension
- is_a Solid

SolidSolution

IRI: http://emmo:info/emmo#EMMO_5e77f00d_5c0a_44e7_baf1_2c2a4cb5b3ae

elucidation: A solid solution made of two or more component substances.

prefLabel: SolidSolution

Subclass of:

- is_a Solution
- is_a Solid

Solute

IRI: http://emmo:info/emmo#EMMO_a7c3542a_fe8a_480e_b6a9_364497d576d4

elucidation: Substance dissolved into another substance.

–IEC60050

IECEntry: https://www:electropedia:org/iev/iev:nsf/display?openform&ievref=114-01-05

prefLabel: Solute

Subclass of:

- is_a ChemicalSubstance

Solution

IRI: http://emmo:info/emmo#EMMO_2031516a_2be7_48e8_9af7_7e1270e308fe

elucidation: A solution is a homogeneous mixture composed of two or more substances.

prefLabel: Solution

Subclass of:

- is_a Dispersion
- is_a PhaseHomogeneousMixture

Solvent

IRI: http://emmo:info/emmo#EMMO_e9dd942e_db98_4aad_b9c3_931dff6f13b0

elucidation: Substance into which another substance is dissolved.

IECEntry: https://www:electropedia:org/iev/iev:nsf/display?openform&ievref=114-01-06

prefLabel: Solvent

wikipediaEntry: https://en:wikipedia:org/wiki/Solvent

Subclass of:

- is_a ChemicalSubstance

SourceTerm

IRI: http://emmo:info/emmo#EMMO_ba4137a3_e467_4925_9bf7_3084ed733ac5

prefLabel: SourceTerm

Subclass of:

- is_a MaterialRelation
- hasSpatialDirectPart some DiscretizationNode

Spacing

IRI: http://emmo:info/emmo#EMMO_432192c4_111f_4e80_b7cd_c6ce1c1129ea

prefLabel: Spacing

Subclass of:

- is_a Symbol

SpatialOrderedElement

IRI: http://emmo:info/emmo#EMMO_42fc460a_4bf3_4d0b_8dee_3c7efcefebb5

prefLabel: SpatialOrderedElement

Subclass of:

- is_a OrderedElement

SpecialUnit

IRI: http://emmo:info/emmo#EMMO_3ee80521_3c23_4dd1_935d_9d522614a3e2

elucidation: A unit symbol that stands for a derived unit.

example: Pa stands for N/m2 J stands for N m

prefLabel: SpecialUnit

Subclass of:

- is_a DerivedUnit
- is_a UnitSymbol
- is_a Sign
- Inverse(hasSign) some DerivedUnit

SpecificCapacity

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_1e3dc60d_dd6b_47d6_8161_70004fc5ee30

elucidation: Electric charge per unit mass.

physicalDimension: T+1 L0 M-1 I+1 Θ0 N0 J0

prefLabel: SpecificCapacity

Subclass of:

- is_a ISQDerivedQuantity
- is_a ElectrochemicalQuantity

SpecificEnergy

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_fb0b984f_5704_4716_9aaf_19235b032da3

physicalDimension: T-2 L+2 M0 I0 Θ0 N0 J0

prefLabel: SpecificEnergy

Subclass of:

- is_a ISQDerivedQuantity

SpecificHeatCapacity

IRI: http://emmo:info/emmo#EMMO_b4f4ed28_d24c_4a00_9583_62ab839abeca

elucidation: The specific heat capacity (symbol cp) of a substance is the heat capacity of a sample of the substance divided by the mass of the sample.

physicalDimension: T-2 L+2 M0 I0 Θ-1 N0 J0

prefLabel: SpecificHeatCapacity

Subclass of:

- is_a ISQDerivedQuantity
- is_a PhysicoChemical

Speed

IRI: http://emmo:info/emmo#EMMO_81369540_1b0e_471b_9bae_6801af22800e

dbpediaEntry: http://dbpedia:org/page/Speed

iupacEntry: https://doi:org/10:1351/goldbook:S05852

omMatch: http://www:ontology-of-units-of-measure:org/resource/om-2/Speed

physicalDimension: T-1 L+1 M0 I0 Θ0 N0 J0

prefLabel: Speed

qudtEntry: http://qudt:org/vocab/quantitykind/Speed

Subclass of:

- is_a ISQDerivedQuantity

SpeedDimension

IRI: http://emmo:info/emmo#EMMO_4f5c7c54_1c63_4d17_b12b_ea0792c2b187

prefLabel: SpeedDimension

Subclass of:

- is_a PhysicalDimension
- equivalent_to hasSymbolData value 'T-1 L+1 M0 I0 Θ0 N0 J0'
- equivalent_to VelocityDimension

SpeedFractionUnit

IRI: http://emmo:info/emmo#EMMO_e7bc8939_7ff8_4917_beb5_c42730b390f3

elucidation: Unit for quantities of dimension one that are the fraction of two speeds.

example: Unit for refractive index.

prefLabel: SpeedFractionUnit

Subclass of:

- is_a FractionUnit

SpeedOfLightInVacuum

IRI: http://emmo:info/emmo#EMMO_99296e55_53f7_4333_9e06_760ad175a1b9

elucidation: The speed of light in vacuum. Defines the base unit metre in the SI system.

codataEntry: https://physics:nist:gov/cgi-bin/cuu/Value?c

dbpediaEntry: http://dbpedia:org/page/Speed_of_light

iupacEntry: https://doi:org/10:1351/goldbook:S05854

physicalDimension: T-1 L+1 M0 I0 Θ0 N0 J0

prefLabel: SpeedOfLightInVacuum

qudtEntry: http://qudt:org/vocab/constant/SpeedOfLight_Vacuum

Subclass of:

- is_a Speed
- is_a SIExactConstant

Sphere

IRI: http://emmo:info/emmo#EMMO_d7bf784a_db94_4dd9_861c_54f262846fbf

prefLabel: Sphere

Subclass of:

- is_a ThreeManifold

Spray

IRI: http://emmo:info/emmo#EMMO_498aad49_f8d4_40a4_a9eb_efd563a0115f

elucidation: A suspension of liquid droplets dispersed in a gas through an atomization process.

prefLabel: Spray

Subclass of:

- is_a GasLiquidSuspension

SquareMetre

IRI: http://emmo:info/emmo#EMMO_b0d1c460_d06b_4c7f_8832_148bc1c8e7dc

elucidation: SI coherent measurement unit for area.

omMatch: http://www:ontology-of-units-of-measure:org/resource/om-2/squareMetre

prefLabel: SquareMetre

qudtEntry: http://qudt:org/vocab/unit/M2

Subclass of:

- is_a SICoherentDerivedUnit
- hasPhysicalDimension some AreaDimension

SquareWaveCurrent

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_327eb3e1_f74a_4076_96de_5a2e3f63cb65

elucidation: Component of an electric current that is associated with the presence of an analyate in square-wave voltammetry.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

iupacEntry: https://goldbook:iupac:org/terms/view/S05897

physicalDimension: T0 L0 M0 I+1 Θ0 N0 J0

prefLabel: SquareWaveCurrent

Subclass of:

- is_a ElectricCurrent
- is_a ElectrochemicalQuantity

StandaloneAtom

IRI: http://emmo:info/emmo#EMMO_2fd3f574_5e93_47fe_afca_ed80b0a21ab4

elucidation: An atom that does not share electrons with other atoms.

prefLabel: StandaloneAtom

Subclass of:

- is_a Atom
- disjoint_union_of NeutralAtom, IonAtom

StandardElectrodePotential

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_7fc10197_41d9_4c1e_a107_928f03eb2d36

elucidation: Equilibrium electrode potential of an electrode under standard conditions.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

dbpediaEntry: https://dbpedia:org/page/Standard_electrode_potential

iupacEntry: https://goldbook:iupac:org/terms/view/S05912

physicalDimension: T-3 L+2 M+1 I-1 Θ0 N0 J0

prefLabel: StandardElectrodePotential

Subclass of:

- is_a EquilibriumElectrodePotential

StandardHydrogenElectrode

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_2a40b878_7d09_49db_91b2_d0ee3019228

elucidation: For solutions in protic solvents, the universal reference electrode for which, under standard conditions, the standard electrode potential (H+ / H2) is zero at all temperatures.

–IUPAC. Compendium of Chemical Terminology, 2nd ed. (the "Gold Book"). Compiled by A. D. McNaught and A. Wilkinson. Blackwell Scientific Publications, Oxford (1997). Online version (2019-) created by S. J. Chalk. ISBN 0-9678550-9-8. https://doi.org/10.1351/goldbook.

iupacEntry: https://goldbook:iupac:org/terms/view/S05917

prefLabel: StandardHydrogenElectrode

wikipediaEntry: https://en:wikipedia:org/wiki/Standard_hydrogen_electrode

Subclass of:

- is_a ReferenceElectrode

StandardUnit

IRI: http://emmo:info/emmo#EMMO_acd1a504_ca32_4f30_86ad_0b62cea5bc02

elucidation: A reference unit provided by a reference material. International vocabulary of metrology (VIM)

example: Arbitrary amount-of-substance concentration of lutropin in a given sample of plasma (WHO international standard 80/552): 5.0 International Unit/l

prefLabel: StandardUnit

Subclass of:

- is_a ReferenceUnit

StandardizedPhysicalQuantity

IRI: http://emmo:info/emmo#EMMO_9c407ac0_fd4c_4178_8763_95fad9fe29ec

elucidation: The superclass for all physical quantities classes that are categorized according to a standard (e.g. ISQ).

prefLabel: StandardizedPhysicalQuantity

Subclass of:

- is_a PhysicalQuantity

StartDate

IRI: https://big-map:github:io/LabNotebookAppOntology#EMMO_5538a30d_1e16_41fd_8e90_009aa53d07db

physicalDimension: T+1 L0 M0 I0 Θ0 N0 J0

prefLabel: StartDate

Subclass of:

- is_a Date

State

IRI: http://emmo:info/emmo#EMMO_36c79456_e29c_400d_8bd3_0eedddb82652

elucidation: A 'Physical' which is a tessellation of spatial direct parts.

example: e.g. the existent in my glass is declared at t = t_start as made of two direct parts: the ice and the water. It will continue to exists as state as long as the ice is completely melt at t = t_end. The new state will be completely made of water. Between t_start and t_end there is an exchange of molecules between the ice and the water, but this does not affect the existence of the two states.

If we partition the existent in my glass as ice surrounded by several molecules (we do not use the object water as direct part) then the appearance of a molecule coming from the ice will cause a state to end and another state to begin.

prefLabel: State

Subclass of:

- is_a Reductionistic
- hasSpatialDirectPart some Physical

StateOfMatter

IRI: http://emmo:info/emmo#EMMO_b9695e87_8261_412e_83cd_a86459426a28

elucidation: A superclass made as the disjoint union of all the form under which matter can exist.

prefLabel: StateOfMatter

Subclass of:

- is_a Continuum
- disjoint_union_of Gas, Plasma, Liquid, Solid

Steradian

IRI: http://emmo:info/emmo#EMMO_cf3dd6cc_c5d6_4b3d_aef4_82f3b7a361af

elucidation: Dimensionless measurement unit for solid angle.

iupacEntry: https://doi:org/10:1351/goldbook:S05971

prefLabel: Steradian

qudtEntry: http://qudt:org/vocab/unit/SR

Subclass of:

- is_a AreaFractionUnit
- is_a SISpecialUnit
- hasPhysicalDimension some DimensionOne
- hasSymbolData value 'sr'

StoichiometricCoefficient

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_cbc0116d_7cc5_4d09_aed7_963c1262a07a

elucidation: The number of molecules and/or formula units that participate in the reaction as written

physicalDimension: T0 L0 M0 I0 Θ0 N0 J0

prefLabel: StoichiometricCoefficient

wikipediaEntry: https://en:wikipedia:org/wiki/Stoichiometry#Stoichiometric_coefficient_and_stoichimetric_number

Subclass of:

- is_a ElectrochemicalThermodynamicQuantity

StoichiometricEquation

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_1e72986e_e19f_4c24_8663_cadd4318bd72

elucidation: The symbolic representation of a chemical reaction in the form of symbols and formulae, wherein the reactant entities are given on the left-hand side and the product entities on the right-hand side.

IUPAC. Compendium of Chemical Terminology, 2nd ed. (the "Gold Book"). Compiled by A. D. McNaught and A. Wilkinson. Blackwell Scientific Publications, Oxford (1997). Online version (2019-) created by S. J. Chalk. ISBN 0-9678550-9-8. https://doi.org/10.1351/goldbook.

dbpediaEntry: https://dbpedia:org/page/Chemical_equation

iupacEntry: https://doi:org/10:1351/goldbook:C01034

prefLabel: StoichiometricEquation

wikipediaEntry: https://en:wikipedia:org/wiki/Chemical_equation

Subclass of:

- is_a Mathematical
- is_a ChemicalSymbolicConstruct

StoichiometricNumber

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_e9136287_78a1_44df_aeb1_56e2dae88f44

elucidation: Product of the stoichiometric coefficient and +1 for a product and -1 for a reactant.

iupacEntry: https://goldbook:iupac:org/terms/view/S06025

physicalDimension: T0 L0 M0 I0 Θ0 N0 J0

prefLabel: StoichiometricNumber

wikipediaEntry: https://en:wikipedia:org/wiki/Stoichiometry#Stoichiometric_coefficient_and_stoichimetric_number

Subclass of:

- is_a ElectrochemicalThermodynamicQuantity

StoredEnergy

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_4f1ed4ee_06ba_44a4_8ece_1ee56bf12afe

elucidation: Amount of energy stored in a physical object.

physicalDimension: T-2 L+2 M+1 I0 Θ0 N0 J0

prefLabel: StoredEnergy

Subclass of:

- is_a InternalEnergy
- is_a ElectrochemicalQuantity

Strain

IRI: http://emmo:info/emmo#EMMO_acf636d4_9ac2_4ce3_960a_d54338e6cae3

elucidation: Change of the relative positions of parts of a body, excluding a displacement of the body as a whole.

IECEntry: http://www:electropedia:org/iev/iev:nsf/display?openform&ievref=113-03-57

omMatch: http://www:ontology-of-units-of-measure:org/resource/om-2/Strain

physicalDimension: T0 L0 M0 I0 Θ0 N0 J0

prefLabel: Strain

qudtEntry: http://qudt:org/vocab/quantitykind/Strain

Subclass of:

- is_a RatioQuantity
- hasReferenceUnit only LengthFractionUnit

Stress

IRI: http://emmo:info/emmo#EMMO_d1917609_db5e_4b8a_9b76_ef1d6f860a81

dbpediaEntry: http://dbpedia:org/page/Stress_(mechanics)

physicalDimension: T-2 L-1 M+1 I0 Θ0 N0 J0

prefLabel: Stress

qudtEntry: http://qudt:org/vocab/quantitykind/Stress

Subclass of:

- is_a ISQDerivedQuantity

String

IRI: http://emmo:info/emmo#EMMO_50ea1ec5_f157_41b0_b46b_a9032f17ca10

elucidation: A physical made of more than one symbol sequentially arranged.

example: The word “cat” considered as a collection of ‘symbol’-s respecting the rules of english language.

In this example the ‘symbolic’ entity “cat” is not related to the real cat, but it is only a word (like it would be to an italian person that ignores the meaning of this english word).

If an ‘interpreter’ skilled in english language is involved in a ‘semiotic’ process with this word, that “cat” became also a ‘sign’ i.e. it became for the ‘interpreter’ a representation for a real cat.

prefLabel: String

Subclass of:

- is_a State
- is_a SymbolicConstruct
- hasSpatialDirectPart only Symbol
- hasSpatialDirectPart some Symbol

StrongAcid

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_c9e0fb9b_c11e_48ab_9245_04b45e15dcfb

elucidation: An acid that completely dissociates in water.

prefLabel: StrongAcid

Subclass of:

- is_a Acid

StrongBase

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_a1bbb273_bc05_4e80_8817_82479178bb4

definition: A base that completely dissociates in water.

prefLabel: StrongBase

Subclass of:

- is_a Base

StructuralFormula

IRI: http://emmo:info/emmo#EMMO_a466b60b_d973_4b8f_897f_d0b837a59df3

elucidation: A graphical representation of a molecular structure showing the relative position in space of the atomic constituents and their bonds.

prefLabel: StructuralFormula

Subclass of:

- is_a ChemicalRepresentation

StructuralSubcomponent

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_dd15b4b0-11e7-4900-b379-9702a8caa6bb

elucidation: An ElectrochemicalSubcomponent whose primary role is to provide structural integrity.

prefLabel: StructuralSubcomponent

Subclass of:

- is_a ElectrochemicalSubcomponent

StructuralSubcomponentContinuumModel

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_7649a57c_d842_429f_97a1_b9612a8fdb2b

prefLabel: StructuralSubcomponentContinuumModel

Subclass of:

- is_a ElectrochemicalSubcomponentContinuumModel

SubMultipleUnit

IRI: http://emmo:info/emmo#EMMO_a2f94f33_71fa_443c_a1fb_d1685fc537ec

elucidation: Measurement unit obtained by dividing a given measurement unit by an integer greater than one.

prefLabel: SubMultipleUnit

Subclass of:

- is_a PrefixedUnit

Subatomic

IRI: http://emmo:info/emmo#EMMO_7d66bde4_b68d_41cc_b5fc_6fd98c5e2ff0

prefLabel: Subatomic

Subclass of:

- is_a Matter

SubjectiveProperty

IRI: http://emmo:info/emmo#EMMO_251cfb4f_5c75_4778_91ed_6c8395212fd8

elucidation: A 'Property' that cannot be univocally determined and depends on an agent (e.g. a human individual, a community) acting as black-box.

example: The beauty of that girl. The style of your clothing.

prefLabel: SubjectiveProperty

Subclass of:

- is_a Property

SuppliedBatteryCell

IRI: https://big-map:github:io/LabNotebookAppOntology#EMMO_5e45dbcf_ff51_4cc5_aa92_fb32808acb57

prefLabel: SuppliedBatteryCell

Subclass of:

- is_a BatteryCell

SuppliedElectrode

IRI: https://big-map:github:io/LabNotebookAppOntology#EMMO_3d08103a_5d73_4ea2_8bd1_ee0c475b0d14

prefLabel: SuppliedElectrode

Subclass of:

- is_a Electrode

SupportingElectrolyte

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_1fc5642c_b7b2_43bf_ad20_f96001db8800

definition: Electrolyte solution, the ions of which are electroinactive in the range of applied potential being studied, and whose ionic strength (and, therefore, contribution to the overall conductivity) is usually much greater than the concentration of an electroactive substance to be dissolved in it.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

iupacEntry: https://goldbook:iupac:org/terms/view/S06149

prefLabel: SupportingElectrolyte

wikipediaEntry: https://en:wikipedia:org/wiki/Supporting_electrolyte

Subclass of:

- is_a ElectrolyteSolution

SurfaceOverpotential

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_60741c58_a10d_4aa6_bb68_0066a6ff8e30

elucidation: The potential of a working electrode relative to a reference electrode of the same kinds placed in the solution adjacent to the surface of the working electrode (just outside the double layer).

J. Newman and K. E. Thomas-Alyea, Electrochemical Systems, 3rd Edition, p. 204.

physicalDimension: T-3 L+2 M+1 I-1 Θ0 N0 J0

prefLabel: SurfaceOverpotential

wikipediaEntry: A positive surface overpotential produces a positive (anodic) current.

Subclass of:

- is_a Overpotential
- hasSpatialDirectPart some EquilibriumElectrodePotential

Suspension

IRI: http://emmo:info/emmo#EMMO_4a464c8d_8895_44a8_a628_aed13509f1bd

elucidation: An heterogeneous mixture that contains coarsly dispersed particles (no Tyndall effect), that generally tend to separate in time to the dispersion medium phase.

prefLabel: Suspension

Subclass of:

- is_a Dispersion
- is_a PhaseHeterogeneousMixture
- is_a StateOfMatter
- disjoint_union_of SolidSolidSuspension, SolidLiquidSuspension, LiquidGasSuspension, LiquidLiquidSuspension, SolidGasSuspension, GasSolidSuspension, GasLiquidSuspension, LiquidSolidSuspension

SwagelokCell

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_74d6a5a9_efd6_43de_ad4b_e7b5f6b64aae

prefLabel: SwagelokCell

Subclass of:

- is_a BatteryCell
- hasPart some SwagelokCellHousing

SwagelokCellHousing

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_7528b81a_97dd_47a3_86b1_128f285b5ffc

prefLabel: SwagelokCellHousing

Subclass of:

- is_a Container

Symbol

IRI: http://emmo:info/emmo#EMMO_a1083d0a_c1fb_471f_8e20_a98f881ad527

elucidation: The class of individuals that stand for an elementary mark of a specific symbolic code (alphabet).

example: The class of letter "A" is the symbol as idea and the letter A that you see on the screen is the mark.

prefLabel: Symbol

Subclass of:

- is_a Symbolic

Symbolic

IRI: http://emmo:info/emmo#EMMO_057e7d57_aff0_49de_911a_8861d85cef40

elucidation: An 'Graphical' that stands for a token or a composition of tokens from one or more alphabets, without necessarily respecting syntactic rules.

example: fe780 emmo !5*a cat for(i=0;i<N;++i)

prefLabel: Symbolic

Subclass of:

- is_a Graphical

SymbolicConstruct

IRI: http://emmo:info/emmo#EMMO_89a0c87c_0804_4013_937a_6fe234d9499c

elucidation: A symbolic entity made of other symbolic entities according to a specific spatial configuration.

prefLabel: SymbolicConstruct

Subclass of:

- is_a Symbolic
- hasSpatialPart some Symbolic

TemperatureDimension

IRI: http://emmo:info/emmo#EMMO_a77a0a4b_6bd2_42b2_be27_4b63cebbb59e

prefLabel: TemperatureDimension

Subclass of:

- is_a PhysicalDimension
- equivalent_to hasSymbolData value 'T0 L0 M0 I0 Θ+1 N0 J0'

TemporalOrderedElement

IRI: http://emmo:info/emmo#EMMO_e0954911_fc88_492a_9830_fdb238e28cc2

prefLabel: TemporalOrderedElement

Subclass of:

- is_a OrderedElement

Tera

IRI: http://emmo:info/emmo#EMMO_3a204900_2b33_47d1_b444_815cc4c8cffa

prefLabel: Tera

Subclass of:

- is_a SIMetricPrefix
- hasSymbolData value 'T'
- Inverse(hasVariable) only hasNumericalData value 1000000000000.0

Tesla

IRI: http://emmo:info/emmo#EMMO_acb50123_87a2_4753_b36c_f87114ad4de2

iupacEntry: https://doi:org/10:1351/goldbook:T06283

prefLabel: Tesla

qudtEntry: http://qudt:org/vocab/unit/T

Subclass of:

- is_a SISpecialUnit
- hasPhysicalDimension some MagneticFluxDensityDimension
- hasSymbolData value 'T'

TheoreticalCapacity

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_b7781ebc_90a7_4f19_997f_aed28dee1b01

physicalDimension: T+1 L0 M0 I+1 Θ0 N0 J0

prefLabel: TheoreticalCapacity

Subclass of:

- is_a Capacity

TheoreticalEnergy

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_0139e120_c0b6_4657_8504_5fb39308fe31

physicalDimension: T-2 L+2 M+1 I0 Θ0 N0 J0

prefLabel: TheoreticalEnergy

Subclass of:

- is_a StoredEnergy

TheoreticalSpecificCapacity

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_458c65dc_9331_473f_ba96_0bf244ec5e98

physicalDimension: T+1 L0 M-1 I+1 Θ0 N0 J0

prefLabel: TheoreticalSpecificCapacity

Subclass of:

- is_a SpecificCapacity

Theorisation

IRI: http://emmo:info/emmo#EMMO_6c739b1a_a774_4416_bb31_1961486fa9ed

elucidation: The 'semiosis' process of interpreting a 'physical' and provide a complec sign, 'theory' that stands for it and explain it to another interpreter.

prefLabel: Theorisation

Subclass of:

- is_a Semiosis
- hasParticipant some Theory

Theory

IRI: http://emmo:info/emmo#EMMO_8d2d9374_ef3a_47e6_8595_6bc208e07519

elucidation: A 'conventional' that stand for a 'physical'.

prefLabel: Theory

Subclass of:

- is_a Conventional

ThermalConductivity

IRI: http://emmo:info/emmo#EMMO_8dd40ec6_2c5a_43f3_bf64_cadcd447a1c1

elucidation: The ability of a material to conduct heat.

physicalDimension: T-3 L+1 M+1 I0 Θ-1 N0 J0

prefLabel: ThermalConductivity

Subclass of:

- is_a ISQDerivedQuantity
- is_a PhysicoChemical

ThermalExpansionCoefficient

IRI: http://emmo:info/emmo#EMMO_7684ddff_d99b_405d_aad2_90e830b8403c

elucidation: The coefficient of thermal expansion describes how the fractional change in size of an object changes with a change in temperature.

physicalDimension: T0 L0 M0 I0 Θ-1 N0 J0

prefLabel: ThermalExpansionCoefficient

Subclass of:

- is_a ISQDerivedQuantity
- is_a PhysicoChemical

Thermocell

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_113e0469_8ae0_407f_892d_4b988f8d8a08

elucidation: Electrochemical cell that has two half-cells separated by a wall permeable to ions, both containing the same electrolyte differing only in their temperatures.

–IEC60050

IECEntry: https://www:electropedia:org/iev/iev:nsf/display?openform&ievref=114-03-09

prefLabel: Thermocell

Subclass of:

- is_a ElectrochemicalCell

ThermodynamicTemperature

IRI: http://emmo:info/emmo#EMMO_affe07e4_e9bc_4852_86c6_69e26182a17f

elucidation: Thermodynamic temperature is the absolute measure of temperature. It is defined by the third law of thermodynamics in which the theoretically lowest temperature is the null or zero point.

dbpediaEntry: http://dbpedia:org/page/Thermodynamic_temperature

iupacEntry: https://doi:org/10:1351/goldbook:T06321

physicalDimension: T0 L0 M0 I0 Θ+1 N0 J0

prefLabel: ThermodynamicTemperature

qudtEntry: qudt.org/vocab/quantitykind/ThermodynamicTemperature

Subclass of:

- is_a ISQBaseQuantity

ThreeElectrodeCell

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_b9bece97_a511_4cb9_88a2_b5bd5c5e5d7

elucidation: Electrochemical cell with a working electrode, reference electrode, and auxiliary electrode.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

prefLabel: ThreeElectrodeCell

Subclass of:

- is_a ElectrochemicalCell
- hasPart some WorkingElectrode
- hasPart some CounterElectrode
- hasPart some ReferenceElectrode

ThreeManifold

IRI: http://emmo:info/emmo#EMMO_9268958f_7f54_48ab_a693_febe2645892b

prefLabel: ThreeManifold

Subclass of:

- is_a Geometrical

Time

IRI: http://emmo:info/emmo#EMMO_d4f7d378_5e3b_468a_baa1_a7e98358cda7

definition: One-dimensional subspace of space-time, which is locally orthogonal to space.

elucidation: The indefinite continued progress of existence and events that occur in apparently irreversible succession from the past through the present to the future.

IECEntry: http://www:electropedia:org/iev/iev:nsf/display?openform&ievref=113-01-03

dbpediaEntry: http://dbpedia:org/page/Time

iupacEntry: https://doi:org/10:1351/goldbook:T06375

physicalDimension: T+1 L0 M0 I0 Θ0 N0 J0

prefLabel: Time

qudtEntry: qudt.org/vocab/quantitykind/Time

Subclass of:

- is_a ISQBaseQuantity

TimeDimension

IRI: http://emmo:info/emmo#EMMO_02e894c3_b793_4197_b120_3442e08f58d1

prefLabel: TimeDimension

Subclass of:

- is_a PhysicalDimension

- equivalent_to hasSymbolData value ‘T+1 L0 M0 I0 Θ0 N0 J0’

Tonne

IRI: http://emmo:info/emmo#EMMO_f8b92999_3cde_46e3_99d5_664da3090a02

definition: A non-SI unit defined as 1000 kg.

iupacEntry: https://doi:org/10:1351/goldbook:T06394

prefLabel: Tonne

qudtEntry: http://qudt:org/vocab/unit/TON_M

wikipediaEntry: https://en:wikipedia:org/wiki/Tonne

Subclass of:

- is_a SIAcceptedSpecialUnit
- hasSymbolData value ‘t’
- hasPhysicalDimension some MassDimension

Torque

IRI: http://emmo:info/emmo#EMMO_aaf9dd7f_0474_40d0_9606_02def8515249

elucidation: The effectiveness of a force to produce rotation about an axis, measured by the product of the force and the perpendicular distance from the line of action of the force to the axis.

IECEntry: http://www:electropedia:org/iev/iev:nsf/display?openform&ievref=113-03-26

dbpediaEntry: http://dbpedia:org/page/Torque

iupacEntry: https://doi:org/10:1351/goldbook:T06400

omMatch: http://www:ontology-of-units-of-measure:org/resource/om-2/Torque

physicalDimension: T-2 L+2 M+1 I0 Θ0 N0 J0

prefLabel: Torque

qudtEntry: http://qudt:org/vocab/quantitykind/Torque

Subclass of:

- is_a ISQDerivedQuantity
- Inverse(hasProperty) only Matter

Tortuosity

IRI: http://emmo:info/emmo#EMMO_4937ad81_eeb8_4cd9_a02f_53e0644e2f02

elucidation: A measure of deviation from a straight line. It is the ratio of the actual distance traveled divided by the straight line distance.

physicalDimension: T0 L0 M0 I0 Θ0 N0 J0

prefLabel: Tortuosity

Subclass of:

- is_a RatioQuantity

Torus

IRI: http://emmo:info/emmo#EMMO_86060335_31c2_4820_b433_27c64aea0366

prefLabel: Torus

Subclass of:

- is_a ThreeManifold

TotalComposition

IRI: http://emmo:info/emmo#EMMO_0eabfde6_c6c5_4b1f_bf10_e4e0e06e9b2e

prefLabel: TotalComposition

Subclass of:

- is_a ChemicalComposition
- hasSpatialDirectPart some SingleComponentComposition

TransportNumber

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_5c0ad135_89ea_44da_8df7_f108f8ee1d75

elucidation: Quotient of the current carried by an ionic component and the total current.

– IUPAC, Compendium of Chemical Terminology, 2014. DOI: 10.1351/goldbook.I03352

iupacEntry: https://goldbook:iupac:org/terms/view/T06489

physicalDimension: T0 L0 M0 I0 Θ0 N0 J0

prefLabel: TransportNumber

Subclass of:

- is_a ElectrochemicalTransportQuantity

TwoManifold

IRI: http://emmo:info/emmo#EMMO_46f0f8df_4dc6_418f_8036_10427a3a288e

prefLabel: TwoManifold

Subclass of:

- is_a Geometrical

UTF8

IRI: http://emmo:info/emmo#EMMO_e13b2173_1dec_4b97_9ac1_1dc4b418612a

prefLabel: UTF8

Subclass of:

- is_a Symbol

UnitOne

IRI: http://emmo:info/emmo#EMMO_5ebd5e01_0ed3_49a2_a30d_cd05cbe72978

elucidation: Represents the number 1, used as an explicit unit to say something has no units.

example: Refractive index or volume fraction.

example: Typically used for ratios of two units whos dimensions cancels out.

prefLabel: UnitOne

qudtEntry: http://qudt:org/vocab/unit/UNITLESS

Subclass of:

- is_a DimensionlessUnit
- hasPhysicalDimension some DimensionOne

UnitSymbol

IRI: http://emmo:info/emmo#EMMO_216f448e_cdbc_4aeb_a529_7a5fe7fc38bb

elucidation: A symbol that stands for a single unit.

example: Some examples are “Pa”, “m” and “J”.

prefLabel: UnitSymbol

Subclass of:

- is_a MetrologicalSymbol
- is_a NonPrefixedUnit
- equivalent_to Symbol and MeasurementUnit
- disjoint_union_of SpecialUnit, BaseUnit

Universal

IRI: http://emmo:info/emmo#EMMO_dd60a650_1b2f_4080_8f8d_96e87edabea9

prefLabel: Universal

Subclass of:

- is_a CategorizedPhysicalQuantity

Unknown

IRI: http://emmo:info/emmo#EMMO_fe7e56ce_118b_4243_9aad_20eb9f4f31f6

elucidation: The dependent variable for which an equation has been written.

example: Velocity, for the Navier-Stokes equation.

prefLabel: Unknown

Subclass of:

- is_a Variable

UraniumSymbol

IRI: http://emmo:info/emmo#EMMO_844d1ded_2ede_43fd_a3c0_d33f332b2da6

prefLabel: UraniumSymbol

Subclass of:

- is_a ChemicalElement
- hasSymbolData value ‘U’

Vacuum

IRI: http://emmo:info/emmo#EMMO_3c218fbe_60c9_4597_8bcf_41eb1773af1f

elucidation: A ‘Physical’ with no ‘Massive’ parts.

prefLabel: Vacuum

Subclass of:

- is_a Field
- equivalent_to Field and not Matter

VacuumElectricPermittivity

IRI: http://emmo:info/emmo#EMMO_61a32ae9_8200_473a_bd55_59a9899996f4

codataEntry: https://physics:nist:gov/cgi-bin/cuu/Value?ep0

iupacEntry: https://doi:org/10:1351/goldbook:P04508

physicalDimension: T+4 L-3 M-1 I+2 Θ0 N0 J0

prefLabel: VacuumElectricPermittivity

qudtEntry: http://qudt:org/vocab/constant/PermittivityOfVacuum

Subclass of:

- is_a Permittivity
- is_a MeasuredConstant

VacuumMagneticPermeability

IRI: http://emmo:info/emmo#EMMO_de021e4f_918f_47ef_a67b_11120f56b9d7

codataEntry: https://physics:nist:gov/cgi-bin/cuu/Value?mu0

physicalDimension: T-2 L+1 M+1 I-2 Θ0 N0 J0

prefLabel: VacuumMagneticPermeability

qudtEntry: http://qudt:org/vocab/constant/ElectromagneticPermeabilityOfVacuum

Subclass of:

- is_a Permeability
- is_a MeasuredConstant

Vapor

IRI: http://emmo:info/emmo#EMMO_4d604a13_d1f6_42fd_818f_d3138d5e308c

elucidation: A liquid aerosol composed of water droplets in air or another gas.

prefLabel: Vapor

Subclass of:

- is_a LiquidAerosol

Variable

IRI: http://emmo:info/emmo#EMMO_1eed0732_e3f1_4b2c_a9c4_b4e75eeb5895

elucidation: A 'Variable' is a symbolic object that stands for a numerical defined 'Mathematical' object like e.g. a number, a vector, a matrix.

example: x k

prefLabel: Variable

Subclass of:

- is_a Conventional
- is_a Mathematical
- Inverse(hasVariable) some Mathematical

Vector

IRI: http://emmo:info/emmo#EMMO_06658d8d_dcde_4fc9_aae1_17f71c0bcdec

elucidation: 1-dimensional array who's spatial direct parts are numbers.

prefLabel: Vector

Subclass of:

- is_a Array
- hasSpatialDirectPart some Number

Velocity

IRI: http://emmo:info/emmo#EMMO_0329f1f5_8339_4ce4_8505_a264c6d606ba

definition: Vector quantity giving the rate of change of a position vector.

– ISO 80000-3

IECEntry: http://www:electropedia:org/iev/iev:nsf/display?openform&ievref=113-01-32

ISO80000Ref: 3-10.1

physicalDimension: T-1 L+1 M0 I0 Θ0 N0 J0

prefLabel: Velocity

qudtEntry: http://qudt:org/vocab/quantitykind/Velocity

Subclass of:

- is_a ISQDerivedQuantity
- hasQuantityValue some Shape3Vector

VelocityDimension

IRI: http://emmo:info/emmo#EMMO_f84792eb_ec64_4a6b_941f_c9f3e9ef052c

prefLabel: VelocityDimension

Subclass of:

- is_a PhysicalDimension
- equivalent_to hasSymbolData value 'T-1 L+1 M0 I0 Θ0 N0 J0'

Vergence

IRI: http://emmo:info/emmo#EMMO_1e7603a7_1365_49b8_b5e5_3711c8e6b904

dbpediaEntry: http://dbpedia:org/page/Vergence

physicalDimension: T0 L-1 M0 I0 Θ0 N0 J0

prefLabel: Vergence

Subclass of:

- is_a ISQDerivedQuantity

Void

IRI: http://emmo:info/emmo#EMMO_29072ec4_ffcb_42fb_bdc7_26f05a2e9873

elucidation: A 'Item' that has no 'Physical' parts.

etymology: From Latin vacuus, "empty".

prefLabel: Void

Subclass of:

- is_a Item
- hasPart only Void

Volt

IRI: http://emmo:info/emmo#EMMO_e2207e91_02b0_4a8a_b13e_61d2a2a839f1

iupacEntry: https://doi:org/10:1351/goldbook:V06634

prefLabel: Volt

qudtEntry: http://qudt:org/vocab/unit/V

Subclass of:

- is_a SISpecialUnit
- hasPhysicalDimension some ElectricPotentialDimension
- hasSymbolData value 'V'

Volume

IRI: http://emmo:info/emmo#EMMO_f1a51559_aa3d_43a0_9327_918039f0dfed

dbpediaEntry: http://dbpedia:org/page/Volume

physicalDimension: T0 L-3 M0 I0 Θ0 N0 J0

prefLabel: Volume

qudtEntry: http://qudt:org/vocab/quantitykind/Volume

Subclass of:

- is_a ISQDerivedQuantity
- Inverse(hasProperty) only Matter

VolumeDimension

IRI: http://emmo:info/emmo#EMMO_9141801c_c539_4c72_b423_8c74ff6b8f05

prefLabel: VolumeDimension

Subclass of:

- is_a PhysicalDimension
- equivalent_to hasSymbolData value 'T0 L+3 M0 I0 Θ0 N0 J0'

VolumeFraction

IRI: http://emmo:info/emmo#EMMO_a8eb87b5_4d10_4137_a75c_e04ee59ca095

elucidation: Volume of a constituent of a mixture divided by the sum of volumes of all constituents prior to mixing.

dbpediaEntry: http://dbpedia:org/page/Volume_fraction

iupacEntry: https://doi:org/10:1351/goldbook:V06643

omMatch: http://www:ontology-of-units-of-measure:org/resource/om-2/VolumeFraction

physicalDimension: T0 L0 M0 I0 Θ0 N0 J0

prefLabel: VolumeFraction

qudtEntry: http://qudt:org/vocab/quantitykind/VolumeFraction

Subclass of:

- is_a ChemicalCompositionQuantity
- is_a RatioQuantity
- hasReferenceUnit only VolumeFractionUnit

VolumeFractionUnit

IRI: http://emmo:info/emmo#EMMO_9fd1e79d_41d1_44f8_8142_66dbdf0fc7ad

elucidation: Unit for quantities of dimension one that are the fraction of two volumes.

example: Unit for volume fraction.

prefLabel: VolumeFractionUnit

Subclass of:

- is_a FractionUnit

VolumetricThermalExpansionCoefficient

IRI: http://emmo:info/emmo#EMMO_1c1ec02e_4def_4979_aff9_572c06a95391

physicalDimension: T0 L0 M0 I0 Θ-1 N0 J0

prefLabel: VolumetricThermalExpansionCoefficient

Subclass of:

- is_a ThermalExpansionCoefficient

VonKlitzingConstant

IRI: http://emmo:info/emmo#EMMO_eb561764_276e_413d_a8cb_3a3154fd9bf8

definition: The von Klitzing constant is defined as Planck constant divided by the square of the elementary charge.

codataEntry: https://physics:nist:gov/cgi-bin/cuu/Value?rk

physicalDimension: T-3 L+2 M+1 I-2 Θ0 N0 J0

prefLabel: VonKlitzingConstant

qudtEntry: http://qudt:org/vocab/constant/VonKlitzingConstant

Subclass of:

- is_a ElectricResistance
- is_a SIExactConstant

WarburgElementModel

IRI: http://emmo:info/emmo#EMMO_8758dcf9_df3c_42cb_954a_98c17ace5783

prefLabel: WarburgElementModel

Subclass of:

- is_a EquivalentCircuitModelElementary

Watt

IRI: http://emmo:info/emmo#EMMO_080052a1_f295_44be_a60f_1326ce13f1ba

iupacEntry: https://doi:org/10:1351/goldbook:W06656

prefLabel: Watt

qudtEntry: http://qudt:org/vocab/unit/W

Subclass of:

- is_a SISpecialUnit
- hasSymbolData value 'W'
- hasPhysicalDimension some PowerDimension

Wavenumber

IRI: http://emmo:info/emmo#EMMO_d859588d_44dc_4614_bc75_5fcd0058acc8

dbpediaEntry: http://dbpedia:org/page/Wavenumber

iupacEntry: https://doi:org/10:1351/goldbook:W06664

omMatch: http://www:ontology-of-units-of-measure:org/resource/om-2/Wavenumber

physicalDimension: T0 L-1 M0 I0 Θ0 N0 J0

prefLabel: Wavenumber

qudtEntry: http://qudt:org/vocab/quantitykind/Wavenumber

Subclass of:

- is_a ISQDerivedQuantity
- Inverse(hasProperty) only Field

WeakAcid

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_e3ec1307_09d7_4b61_97e3_a69ec87fb408

elucidation: An acid that partially dissociates in water.

prefLabel: WeakAcid

Subclass of:

- is_a Acid

WeakBase

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_ce548161_c987_4beb_9091_adcf80027310

definition: A base that partially dissociates in water.

prefLabel: WeakBase

Subclass of:

- is_a Base

Weber

IRI: http://emmo:info/emmo#EMMO_d7f11b34_a121_4519_87c0_aa754f1c4737

iupacEntry: https://doi:org/10:1351/goldbook:W06666

prefLabel: Weber

qudtEntry: http://qudt:org/vocab/unit/WB

Subclass of:

- is_a SISpecialUnit
- hasSymbolData value 'Wb'
- hasPhysicalDimension some MagneticFluxDimension

Weight

IRI: http://emmo:info/emmo#EMMO_04cf0295_3e8f_4693_a87f_3130d125cf05

dbpediaEntry: http://dbpedia:org/page/Weight

iupacEntry: https://doi:org/10:1351/goldbook:W06668

physicalDimension: T-2 L+1 M+1 I0 Θ0 N0 J0

prefLabel: Weight

qudtEntry: http://qudt:org/vocab/quantitykind/Weight

Subclass of:

- is_a Force

WeightRatio

IRI: https://big-map:github:io/LabNotebookAppOntology#EMMO_e78e99d3_2121_42a8_a836_e8999100299c

physicalDimension: T0 L0 M0 I0 Θ0 N0 J0

prefLabel: WeightRatio

Subclass of:

- is_a RatioQuantity

Work

IRI: http://emmo:info/emmo#EMMO_624d72ee_e676_4470_9434_c22b4190d3d5

definition: Product of force and displacement.

dbpediaEntry: http://dbpedia:org/page/Heat

dbpediaEntry: http://dbpedia:org/page/Work_(physics)

iupacEntry: https://doi:org/10:1351/goldbook:W06684

physicalDimension: T-2 L+2 M+1 I0 Θ0 N0 J0

prefLabel: Work

qudtEntry: http://qudt:org/vocab/quantitykind/Work

Subclass of:

- is_a Energy

WorkingElectrode

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_fb988878_ee54_4350_9ee9_228c00c3ad35

elucidation: Electrode at which one or more electroactive substances undergo reaction in the solution being investigated.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

iupacEntry: https://goldbook:iupac:org/terms/view/W06686

prefLabel: WorkingElectrode

wikipediaEntry: https://en:wikipedia:org/wiki/Working_electrode

Subclass of:

- is_a Electrode

WorkingElectrodeActiveMaterialMass

IRI: https://big-map:github:io/LabNotebookAppOntology#EMMO_1f622046_23c6_429c_b149_409060985aa4

physicalDimension: T0 L0 M+1 I0 Θ0 N0 J0

prefLabel: WorkingElectrodeActiveMaterialMass

Subclass of:

- is_a ElectrochemicalQuantity
- hasReferenceUnit some MilliGram

WorkingGeometricArea

IRI: https://big-map:github:io/LabNotebookAppOntology#EMMO_373b4a90_4b5f_46bf_8189_a5e1ff913100

physicalDimension: T0 L+2 M0 I0 Θ0 N0 J0

prefLabel: WorkingGeometricArea

Subclass of:

- is_a ElectrochemicalQuantity

WorkingPotentialRange

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_c39b2498_783e_48e1_9814_6164bd99823c

elucidation: Range of electrode potentials of a given working electrode in a given electrolyte, where the electric current from reactions of the electrode or electrolyte is negligible compared with the current from reactions of the system under investigation.

–J. M. Pingarrón et al., Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019), Pure and Applied Chemistry, 4, 92, 2020, 641-694. https://doi.org/10.1515/pac-2018-0109

physicalDimension: T-3 L+2 M+1 I-1 Θ0 N0 J0

prefLabel: WorkingPotentialRange

Subclass of:

- is_a ElectrochemicalQuantity

Yocto

IRI: http://emmo:info/emmo#EMMO_f5769206_9257_4b08_bf7b_dad7868c6afc

prefLabel: Yocto

Subclass of:

- is_a SIMetricPrefix
- Inverse(hasVariable) only hasNumericalData value 1e-24
- hasSymbolData value 'y'

Yotta

IRI: http://emmo:info/emmo#EMMO_e79c62ff_10ad_4ec0_baba_c19ddd4eaa11

prefLabel: Yotta

Subclass of:

- is_a SIMetricPrefix
- hasSymbolData value 'Y'
- Inverse(hasVariable) only hasNumericalData value 1e+24

Zepto

IRI: http://emmo:info/emmo#EMMO_254472c6_3dbd_4f02_bc43_571389cd281f

prefLabel: Zepto

Subclass of:

- is_a SIMetricPrefix
- Inverse(hasVariable) only hasNumericalData value 1e-21
- hasSymbolData value 'z'

ZeroManifold

IRI: http://emmo:info/emmo#EMMO_0ab0485c_9e5b_4257_a679_90a2dfba5c7c

prefLabel: ZeroManifold

Subclass of:

- is_a Geometrical

Zetta

IRI: http://emmo:info/emmo#EMMO_daa9ee97_4c5f_42e5_918c_44d7523e8958

prefLabel: Zetta

Subclass of:

- is_a SIMetricPrefix
- hasSymbolData value 'Z'
- Inverse(hasVariable) only hasNumericalData value 1e+21

Ångström

IRI: http://emmo:info/emmo#EMMO_27c530c4_dfcd_486e_b324_54ad4448cd26

definition: Measure of length defined as 1e-10 metres.

dbpediaEntry: http://dbpedia:org/page/%C3%85ngstr%C3%B6m

iupacEntry: https://doi:org/10:1351/goldbook:N00350

prefLabel: Ångström

qudtEntry: http://qudt:org/vocab/unit/ANGSTROM

wikipediaEntry: https://en:wikipedia:org/wiki/Angstrom

Subclass of:

- is_a UnitSymbol
- is_a OffSystemUnit
- hasPhysicalDimension some LengthDimension
- hasSymbolData value 'Å'

Chapter 3

Individuals

Universe

IRI: http://emmo:info/emmo#EMMO_08cb807c_e626_447b_863f_e2835540e918

prefLabel: Universe

Subclass of:

- is_a Thing

cylindrical_18650_cell_nominal_diameter

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_6c1725c6_4c38_4774_8e39_1f3e76556359

prefLabel: cylindrical_18650_cell_nominal_diameter

Subclass of:

- is_a NominalDiameter

cylindrical_18650_cell_nominal_height

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_405dd1bc_8f22_41ad_9a17_e82946d91494

prefLabel: cylindrical_18650_cell_nominal_height

Subclass of:

- is_a NominalHeight

cylindrical_21700_cell_nominal_diameter

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_2f274126_f94c_4bfc_b870_9f74e18457b3

prefLabel: cylindrical_21700_cell_nominal_diameter

Subclass of:

- is_a NominalDiameter

cylindrical_21700_cell_nominal_height

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_0488a9ff_b76c_4e78_b11a_304a10b1d93c

prefLabel: cylindrical_21700_cell_nominal_height

Subclass of:

- is_a NominalHeight

cylindrical_4680_cell_nominal_diameter

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_7e323492_c252_4274_a5e4_950547f8ae79

prefLabel: cylindrical_4680_cell_nominal_diameter

Subclass of:

- is_a NominalDiameter

cylindrical_4680_cell_nominal_height

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_afa1cf12_a4c0_482c_800a_d834ba47e6bc

prefLabel: cylindrical_4680_cell_nominal_height

Subclass of:

- is_a NominalHeight

ec_ecemc37_mass_fraction

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_8d29cee5_1860_4801_beb8_82c32181b2bd

prefLabel: ec_ecemc37_mass_fraction

Subclass of:

- is_a MassFraction

emc_ecemc37_mass_fraction

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_5b580586_8ab2_4195_85e0_d0387f646dfe

prefLabel: emc_ecemc37_mass_fraction

Subclass of:

- is_a MassFraction

molar_concentration_1

IRI: https://big-map:github:io/BattINFO/ontology/BattINFO#EMMO_30c2c2b9_deda_4adc_aacc_31b7aa8ec5e8

prefLabel: molar_concentration_1

Subclass of:

- is_a AmountConcentration

mole_per_litre

IRI: https://big-map:github:io/BattINFO/ontology/electrochemistry#EMMO_fafdb90d_7312_4d1c_8e8c_23be19098a5a

prefLabel: mole_per_litre

Subclass of:

- is_a MolePerLitre