

Circular Economy Ontology Network (CEON) - Material Module

Metadata

IRI

<http://w3id.org/CEON/ontology/material/>

Title

Circular Economy Ontology Network (CEON) - Material Module

Creator

Huanyu Li

Contributor

Eva Blomqvist

Mikael Lindecrantz

Robin Keskisärkkä

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Version Iri

<http://w3id.org/CEON/ontology/material/0.4/>

Version Info

0.4

Preferred Namespace Prefix

material

Preferred Namespace Uri

<http://w3id.org/CEON/ontology/material/>

Description

The Material module of CEON (Circular Economy Ontology Network).

Covers Requirements

In addition to requirements covered by imported ODPs, covers the following requirements from Onto-DESIDE D3.1: CVN-Resource-2, CVN-ResourceType-4, C3-3, E1-3, E2-4, E5-2, T1-1, T10-2.

In addition to requirements covered by imported ODPs, covers the following requirements from Onto-DESIDE D3.2: CE5-2, C3-3, E1-3, E2-4, E5-2, T1-1, T10-2.

Classes

Aluminum ^C	
IRI	http://w3id.org/CEON/ontology/material/Aluminum
Sub Class Of	ChemicalElement^C

Boron ^C	
IRI	http://w3id.org/CEON/ontology/material/Boron
Sub Class Of	ChemicalElement^C

Celulose^C

IRI <http://w3id.org/CE0N/ontology/material/Celulose>

Sub Class Of [ChemicalElement^C](#)

Cerium^C

IRI <http://w3id.org/CE0N/ontology/material/Cerium>

Sub Class Of [RareEarthElement^C](#)

Chemical Element^C

IRI <http://w3id.org/CE0N/ontology/material/ChemicalElement>

Sub Class Of [Chemical substance^C](#)

Super Class Of

- [Aluminum^C](#)
- [Boron^C](#)
- [Celulose^C](#)
- [Chromium^C](#)
- [Copper^C](#)
- [Iron^C](#)
- [Magnesium^C](#)
- [Manganese^C](#)
- [Nickel^C](#)
- [Niobium^C](#)
- [RareEarthElement^C](#)
- [Silicon^C](#)
- [Titanium^C](#)
- [Zinc^C](#)

Chemical entity^C

IRI <http://w3id.org/CE0N/ontology/material/ChemicalEntity>

Description A chemical entity is an abstraction of entities that can compose matter. For instance, a chemical entity can be a molecular entity or a chemical substance.

Sub Class Of [resourceODP:Matter^C](#)

In Range Of [has chemical entity^{op}](#)

Super Class Of

- [Chemical substance^C](#)
- [Molecular entity^C](#)

Chemical substance^C

IRI <http://w3id.org/CE0N/ontology/material/ChemicalSubstance>

Description A chemical substance is made up of a collection of molecular entities.

Sub Class Of [Chemical entity^C](#)

Super Class Of [ChemicalElement^C](#)

Chromium^C

IRI <http://w3id.org/CE0N/ontology/material/Chromium>

Sub Class Of [ChemicalElement^C](#)

Copper^C

IRI <http://w3id.org/CE0N/ontology/material/Copper>

Sub Class Of [ChemicalElement^C](#)

Dysprosium^C

IRI <http://w3id.org/CE0N/ontology/material/Dysprosium>

Sub Class Of [RareEarthElement^C](#)

Erbium^C

IRI <http://w3id.org/CE0N/ontology/material/Erbium>

Sub Class Of [RareEarthElement^C](#)

Europium^C

IRI <http://w3id.org/CE0N/ontology/material/Europium>

Sub Class Of [RareEarthElement^C](#)

Gadolinium^C

IRI <http://w3id.org/CE0N/ontology/material/Gadolinium>

Sub Class Of [RareEarthElement^C](#)

Holmium^C

IRI <http://w3id.org/CE0N/ontology/material/Holmium>

Sub Class Of [RareEarthElement^C](#)

Iron^C

IRI <http://w3id.org/CE0N/ontology/material/Iron>

Sub Class Of [ChemicalElement^C](#)

Lanthanum^C

IRI <http://w3id.org/CE0N/ontology/material/Lanthanum>

Sub Class Of [RareEarthElement^C](#)

Lutetium^C

IRI <http://w3id.org/CE0N/ontology/material/Lutetium>

Sub Class Of [RareEarthElement^C](#)

Magnesium^C

IRI <http://w3id.org/CE0N/ontology/material/Magnesium>

Sub Class Of [ChemicalElement^C](#)

Manganese^C

IRI <http://w3id.org/CE0N/ontology/material/Manganese>

Sub Class Of [ChemicalElement^C](#)

Material^C

IRI <http://w3id.org/CE0N/ontology/material/Material>

Description Material as a sub-concept of Matter, can be a substance or a collection of substance which a physical object is composed of.

Sub Class Of [resourceODP:Matter^C](#)

In Domain Of [has chemical entity^{op}](#)
[has material component^{op}](#)

Restriction [has chemical entity^{op}](#) some [Material^C](#)

Material component^C

IRI <http://w3id.org/CE0N/ontology/material/MaterialComponent>

Description A material component is a part of a material.

Sub Class Of [resourceODP:Constituent^C](#)

In Range Of [has material component^{OP}](#)

Molecular entity^C

IRI <http://w3id.org/CE0N/ontology/material/MolecularEntity>

Description A molecular entity means a singular/distinguishable entity. It can be for instance, atom, ion.

Sub Class Of [Chemical entity^C](#)

Neodymium^C

IRI <http://w3id.org/CE0N/ontology/material/Neodymium>

Sub Class Of [RareEarthElement^C](#)

Nickel^C

IRI <http://w3id.org/CE0N/ontology/material/Nickel>

Sub Class Of [ChemicalElement^C](#)

Niobium^C

IRI <http://w3id.org/CE0N/ontology/material/Niobium>

Sub Class Of [ChemicalElement^C](#)

Praseodymium^C

IRI <http://w3id.org/CE0N/ontology/material/Praseodymium>

Sub Class Of [RareEarthElement^C](#)

Promethium^C

IRI <http://w3id.org/CE0N/ontology/material/Promethium>

Sub Class Of [RareEarthElement^C](#)

Rare Earth Element^C

IRI <http://w3id.org/CE0N/ontology/material/RareEarthElement>

Sub Class Of [ChemicalElement^C](#)

Super Class Of

- [Cerium^C](#)
- [Dysprosium^C](#)
- [Erbium^C](#)
- [Europium^C](#)
- [Gadolinium^C](#)
- [Holmium^C](#)
- [Lanthanum^C](#)
- [Lutetium^C](#)
- [Neodymium^C](#)
- [Praseodymium^C](#)
- [Promethium^C](#)
- [Samarium^C](#)
- [Scandium^C](#)
- [Tantallum^C](#)
- [Terbium^C](#)
- [Thulium^C](#)
- [Ytterbium^C](#)
- [Yttrium^C](#)

Samarium^C

IRI <http://w3id.org/CE0N/ontology/material/Samarium>

Sub Class Of [RareEarthElement^C](#)

Scandium^C

IRI <http://w3id.org/CE0N/ontology/material/Scandium>

Sub Class Of [RareEarthElement^C](#)

Silicon^C

IRI <http://w3id.org/CE0N/ontology/material/Silicon>

Sub Class Of [ChemicalElement^C](#)

Tantallum^C

IRI <http://w3id.org/CE0N/ontology/material/Tantallum>

Sub Class Of [RareEarthElement^C](#)

Terbium^C

IRI <http://w3id.org/CE0N/ontology/material/Terbium>

Sub Class Of [RareEarthElement^C](#)

Thulium^C

IRI <http://w3id.org/CE0N/ontology/material/Thulium>

Sub Class Of [RareEarthElement^C](#)

Titanium^C

IRI <http://w3id.org/CE0N/ontology/material/Titanium>

Sub Class Of [ChemicalElement^C](#)

Ytterbium^C

IRI <http://w3id.org/CE0N/ontology/material/Ytterbium>

Sub Class Of [RareEarthElement^C](#)

Yttrium^C

IRI <http://w3id.org/CE0N/ontology/material/Yttrium>

Sub Class Of [RareEarthElement^C](#)

Zinc^C

IRI <http://w3id.org/CE0N/ontology/material/Zinc>

Sub Class Of [ChemicalElement^C](#)

Constituent^C

IRI <http://w3id.org/CE0N/ontology/resourceODP/Constituent>

Super Class Of [Material component^C](#)

Matter^C

IRI <http://w3id.org/CE0N/ontology/resourceODP/Matter>

Super Class Of [Chemical entity^C](#)
[Material^C](#)

Object Properties

has chemical entity^{op}

IRI	http://w3id.org/CE0N/ontology/material/hasChemicalEntity
Description	hasChemicalEntity intends to represent that a material can have a collection of chemical entities.
Domain	Material ^c
Range	Chemical entity ^c

has material component^{op}

IRI	http://w3id.org/CE0N/ontology/material/hasMaterialComponent
Description	hasMaterialComponent intends to represent that a material can have a collection of components.
Domain	Material ^c
Range	Material component ^c

Datatype Properties

Anonymous Formula^{dp}

IRI	http://w3id.org/CE0N/ontology/material/AnonymousFormula
Description	AnonymousFormula represents that a molecular entity has the anonymous formula in a string.

Descriptive Formula^{dp}

IRI	http://w3id.org/CE0N/ontology/material/DescriptiveFormula
Description	DescriptiveFormula represents that a molecular entity has the descriptive formula in a string.

Hill Formula^{dp}

IRI	http://w3id.org/CE0N/ontology/material/HillFormula
Description	HillFormula represents that a composition has the hill formula in a string.

Reduced Chemical Formula^{dp}

IRI <http://w3id.org/CE0N/ontology/material/ReducedChemicalFormula>

Description ReducedChemicalFormula represents that a molecular entity has the reduced chemical formula in a string.

Annotation Properties

description^{ap}

IRI <http://purl.org/dc/elements/1.1/description>

Namespaces

:

<http://w3id.org/CE0N/ontology/material/>

dc

<http://purl.org/dc/elements/1.1/>

dcterms

<http://purl.org/dc/terms/>

odp

<http://www.ontologydesignpatterns.org/schemas/cpannotationschema.owl#>

owl

<http://www.w3.org/2002/07/owl#>

prov

<http://www.w3.org/ns/prov#>

rdf

<http://www.w3.org/1999/02/22-rdf-syntax-ns#>

rdfs

<http://www.w3.org/2000/01/rdf-schema#>

resourceODP

<http://w3id.org/CE0N/ontology/resourceODP/>

vann

<http://purl.org/vocab/vann/>

Legend

c	Classes
op	Object Properties
dp	Datatype Properties
ap	Annotation Properties