

# Circular Economy Ontology Network (CEON) - Resource ODP

## Metadata

### IRI

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

### Title

Circular Economy Ontology Network (CEON) - Resource ODP

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### Version Iri

<http://w3id.org/CEON/ontology/resourceODP/0.2/>

### Version Info

0.2

### Preferred Namespace Prefix

resourceODP

### Preferred Namespace Uri

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

### Description

A core ODP of the CEON ontology network defining aspects of the resource concept.

### Covers Requirements

Covers the following requirements from Onto-DESIDE D3.1: CVN-Resource-1,3, CVN-Composition-1,2, CVN-ResrouceType-4, C7-3, E2-2, E4-6, E5-1, E6-3, T3-1.

## Classes

Batch of objects <sup>c</sup>	
IRI	<a href="http://w3id.org/CEON/ontology/resourceODP/BatchOf0bjects">http://w3id.org/CEON/ontology/resourceODP/BatchOf0bjects</a>
Description	A batch of objects is a collection of physical objects that are of the same type, e.g. a set of items (product objects) adhering to the same product model.
Sub Class Of	<a href="#">Resource</a> <sup>c</sup> <a href="#">has physical object</a> <sup>op</sup> only <a href="#">Physical object</a> <sup>c</sup> and <a href="#">has physical object</a> <sup>op</sup> some <a href="#">Physical object</a> <sup>c</sup>
In Domain Of	<a href="#">batch size</a> <sup>dp</sup>
In Range Of	<a href="#">has batch</a> <sup>op</sup>
Restriction	<a href="#">batch size</a> <sup>dp</sup> <i>exactly</i> 1 <a href="#">Batch of objects</a> <sup>c</sup>

## Composition<sup>C</sup>

<b>IRI</b>	<a href="http://w3id.org/CE0N/ontology/resourceODP/Composition">http://w3id.org/CE0N/ontology/resourceODP/Composition</a>
<b>Description</b>	A composition is used to represent how a whole or mixture is made up. E.g., for chemical elements composing a chemical structure, the composition should hold information of the ratio of the composing chemical elements.

## Constituent<sup>C</sup>

<b>IRI</b>	<a href="http://w3id.org/CE0N/ontology/resourceODP/Constituent">http://w3id.org/CE0N/ontology/resourceODP/Constituent</a>
<b>Description</b>	A constituent is a component of object.
<b>In Range Of</b>	<a href="#">has constituent</a> <sup>op</sup>

## Digital object<sup>C</sup>

<b>IRI</b>	<a href="http://w3id.org/CE0N/ontology/resourceODP/DigitalObject">http://w3id.org/CE0N/ontology/resourceODP/DigitalObject</a>
<b>Sub Class Of</b>	<a href="#">Resource</a> <sup>C</sup>

## Information<sup>C</sup>

<b>IRI</b>	<a href="http://w3id.org/CE0N/ontology/resourceODP/Information">http://w3id.org/CE0N/ontology/resourceODP/Information</a>
<b>Description</b>	Information is an abstract concept that represents any kind of interpretations. For instance, information can be data generated by software systems or data used by people for communications.
<b>Sub Class Of</b>	<a href="#">Resource</a> <sup>C</sup>
<b>In Domain Of</b>	<a href="#">containsInformation</a> <sup>op</sup> <a href="#">isAbout</a> <sup>op</sup>
<b>In Range Of</b>	<a href="#">containsInformation</a> <sup>op</sup> <a href="#">is realization of</a> <sup>op</sup>

## Matter<sup>C</sup>

<b>IRI</b>	<a href="http://w3id.org/CE0N/ontology/resourceODP/Matter">http://w3id.org/CE0N/ontology/resourceODP/Matter</a>
<b>Description</b>	A matter is a physical substance.
<b>In Range Of</b>	<a href="#">has matter</a> <sup>op</sup>

## Physical object<sup>C</sup>

<b>IRI</b>	<a href="http://w3id.org/CE0N/ontology/resource0DP/PhysicalObject">http://w3id.org/CE0N/ontology/resource0DP/PhysicalObject</a>
<b>Description</b>	A physical object is a collection of matter.
<b>Sub Class Of</b>	<a href="#">Resource</a> <sup>C</sup> <a href="#">has constituent</a> <sup>op</sup> some <a href="#">Constituent</a> <sup>C</sup> <i>and</i> <a href="#">has constituent</a> <sup>op</sup> only <a href="#">Constituent</a> <sup>C</sup> <a href="#">has matter</a> <sup>op</sup> only <a href="#">Matter</a> <sup>C</sup> <i>and</i> <a href="#">has matter</a> <sup>op</sup> some <a href="#">Matter</a> <sup>C</sup>
<b>In Domain Of</b>	<a href="#">has constituent</a> <sup>op</sup> <a href="#">has matter</a> <sup>op</sup>
<b>In Range Of</b>	<a href="#">has physical object</a> <sup>op</sup>

## Resource<sup>C</sup>

<b>IRI</b>	<a href="http://w3id.org/CE0N/ontology/resource0DP/Resource">http://w3id.org/CE0N/ontology/resource0DP/Resource</a>
<b>Description</b>	A resource able to be handled in the context of a circular value network, e.g. data generated by software systems in the CVN, materials or prooducts as physical objects handled in the CVN.
<b>In Domain Of</b>	<a href="#">hasResourceLocation</a> <sup>op</sup>
<b>Super Class Of</b>	<a href="#">Batch of objects</a> <sup>C</sup> <a href="#">Digital object</a> <sup>C</sup> <a href="#">Information</a> <sup>C</sup> <a href="#">Physical object</a> <sup>C</sup> <a href="#">Set of objects</a> <sup>C</sup>

## Set of objects<sup>C</sup>

<b>IRI</b>	<a href="http://w3id.org/CE0N/ontology/resource0DP/SetOfObjects">http://w3id.org/CE0N/ontology/resource0DP/SetOfObjects</a>
<b>Description</b>	A set of objects is a set of physical objects (items) that can be of different types, i.e. different kinds of items.
<b>Sub Class Of</b>	<a href="#">Resource</a> <sup>C</sup> <a href="#">has batch</a> <sup>op</sup> some <a href="#">Batch of objects</a> <sup>C</sup> <i>and</i> <a href="#">has batch</a> <sup>op</sup> only <a href="#">Batch of objects</a> <sup>C</sup> <a href="#">has physical object</a> <sup>op</sup> some <a href="#">Physical object</a> <sup>C</sup> <i>and</i> <a href="#">has physical object</a> <sup>op</sup> only <a href="#">Physical object</a> <sup>C</sup>

## Geometry<sup>c</sup>

<b>IRI</b>	<a href="http://www.opengis.net/ont/geosparql#Geometry">http://www.opengis.net/ont/geosparql#Geometry</a>
<b>Description</b>	A coherent set of direct positions in space. The positions are held within a Spatial Reference System (SRS).
<b>In Domain Of</b>	<a href="#">as GML</a> <sup>dp</sup> <a href="#">as GeoJSON</a> <sup>dp</sup> <a href="#">as WKT</a> <sup>dp</sup>
<b>In Range Of</b>	<a href="#">hasResourceLocation</a> <sup>op</sup>

## Object Properties

### contains information<sup>op</sup>

<b>IRI</b>	<a href="http://w3id.org/CE0N/ontology/resourceODP/containsInformation">http://w3id.org/CE0N/ontology/resourceODP/containsInformation</a>
<b>Sub Property Of</b>	<a href="#">hasPart</a> <sup>op</sup>
<b>Domain</b>	<a href="#">Information</a> <sup>c</sup>
<b>Range</b>	<a href="#">Information</a> <sup>c</sup>

### has batch<sup>op</sup>

<b>IRI</b>	<a href="http://w3id.org/CE0N/ontology/resourceODP/hasBatch">http://w3id.org/CE0N/ontology/resourceODP/hasBatch</a>
<b>Description</b>	hasBatch intends to represent that a set or batch of objects can be captured by a number of batches where each batch contains a number of physical objects.
<b>Domain</b>	<a href="#">Set of objects</a> <sup>c</sup> or <a href="#">Batch of objects</a> <sup>c</sup>
<b>Range</b>	<a href="#">Batch of objects</a> <sup>c</sup>

### has constituent<sup>op</sup>

<b>IRI</b>	<a href="http://w3id.org/CE0N/ontology/resourceODP/hasConstituent">http://w3id.org/CE0N/ontology/resourceODP/hasConstituent</a>
<b>Description</b>	hasConstituent intends to represent that a physical object can have a collection of composing components.
<b>Sub Property Of</b>	<a href="#">hasPart</a> <sup>op</sup>
<b>Domain</b>	<a href="#">Physical object</a> <sup>c</sup>
<b>Range</b>	<a href="#">Constituent</a> <sup>c</sup>

## has matter<sup>op</sup>

<b>IRI</b>	<a href="http://w3id.org/CE0N/ontology/resource0DP/hasMatter">http://w3id.org/CE0N/ontology/resource0DP/hasMatter</a>
<b>Description</b>	hasMatter intends to represent that a physical object can have a collection of matter.
<b>Domain</b>	<a href="#">Physical object</a> <sup>c</sup>
<b>Range</b>	<a href="#">Matter</a> <sup>c</sup>

## has part<sup>op</sup>

<b>IRI</b>	<a href="http://w3id.org/CE0N/ontology/resource0DP/hasPart">http://w3id.org/CE0N/ontology/resource0DP/hasPart</a>
<b>Super Property Of</b>	<ul style="list-style-type: none"><li>• <a href="#">containsInformation</a><sup>op</sup></li><li>• <a href="#">has constituent</a><sup>op</sup></li></ul>

## has physical object<sup>op</sup>

<b>IRI</b>	<a href="http://w3id.org/CE0N/ontology/resource0DP/hasPhysicalObject">http://w3id.org/CE0N/ontology/resource0DP/hasPhysicalObject</a>
<b>Description</b>	hasPhysicalObject intends to represent that a batch of objects or a set of objects can have composing components of physical objects.
<b>Domain</b>	<a href="#">Set of objects</a> <sup>c</sup> or <a href="#">Batch of objects</a> <sup>c</sup>
<b>Range</b>	<a href="#">Physical object</a> <sup>c</sup>

## has resource location<sup>op</sup>

<b>IRI</b>	<a href="http://w3id.org/CE0N/ontology/resource0DP/hasResourceLocation">http://w3id.org/CE0N/ontology/resource0DP/hasResourceLocation</a>
<b>Domain</b>	<a href="#">Resource</a> <sup>c</sup>
<b>Range</b>	<a href="#">Geometry</a> <sup>c</sup>

## is about<sup>op</sup>

<b>IRI</b>	<a href="http://w3id.org/CE0N/ontology/resource0DP/isAbout">http://w3id.org/CE0N/ontology/resource0DP/isAbout</a>
<b>Domain</b>	<a href="#">Information</a> <sup>c</sup>

## is realization of<sup>op</sup>

<b>IRI</b>	<a href="http://w3id.org/CE0N/ontology/resource0DP/isRealizationOf">http://w3id.org/CE0N/ontology/resource0DP/isRealizationOf</a>
<b>Range</b>	<a href="#">Information</a> <sup>c</sup>

## Datatype Properties

batch size<sup>dp</sup>

<b>IRI</b>	<a href="http://w3id.org/CE0N/ontology/resource0DP/batchSize">http://w3id.org/CE0N/ontology/resource0DP/batchSize</a>
<b>Description</b>	batchSize intends to represent how many physical objects belong to a batch of objects.
<b>Domain</b>	<a href="#">Batch of objects</a> <sup>c</sup>
<b>Range</b>	<a href="#">xsd:nonNegativeInteger</a>

as GML<sup>dp</sup>

<b>IRI</b>	<a href="http://www.opengis.net/ont/geosparql#asGML">http://www.opengis.net/ont/geosparql#asGML</a>
<b>Is Defined By</b>	<a href="http://www.opengis.net/spec/geosparql/1.0/req/geometry-extension/geometry-as-wkt-literal">http://www.opengis.net/spec/geosparql/1.0/req/geometry-extension/geometry-as-wkt-literal</a>
<b>Description</b>	The GML serialization of a Geometry.
<b>Domain</b>	<a href="#">Geometry</a> <sup>c</sup>
<b>Range</b>	<a href="#">geo:gmlLiteral</a>

as GeoJSON<sup>dp</sup>

<b>IRI</b>	<a href="http://www.opengis.net/ont/geosparql#asGeoJSON">http://www.opengis.net/ont/geosparql#asGeoJSON</a>
<b>Is Defined By</b>	<a href="http://www.opengis.net/spec/geosparql/1.0/req/geometry-extension/geometry-as-wkt-literal">http://www.opengis.net/spec/geosparql/1.0/req/geometry-extension/geometry-as-wkt-literal</a>
<b>Description</b>	The GeoJSON serialization of a Geometry.
<b>Domain</b>	<a href="#">Geometry</a> <sup>c</sup>
<b>Range</b>	<a href="#">geo:geoJSONLiteral</a>

as WKT<sup>dp</sup>

<b>IRI</b>	<a href="http://www.opengis.net/ont/geosparql#asWKT">http://www.opengis.net/ont/geosparql#asWKT</a>
<b>Is Defined By</b>	<a href="http://www.opengis.net/spec/geosparql/1.0/req/geometry-extension/geometry-as-wkt-literal">http://www.opengis.net/spec/geosparql/1.0/req/geometry-extension/geometry-as-wkt-literal</a>
<b>Description</b>	The WKT serialization of a Geometry.
<b>Domain</b>	<a href="#">Geometry</a> <sup>c</sup>
<b>Range</b>	<a href="#">geo:wktLiteral</a>

## Annotation Properties

description<sup>ap</sup>

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

contributor<sup>ap</sup>

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

created<sup>ap</sup>

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

creator<sup>ap</sup>

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

description<sup>ap</sup>

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

license<sup>ap</sup>

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

title<sup>ap</sup>

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

preferred namespace prefix<sup>ap</sup>

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

preferred namespace uri<sup>ap</sup>

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

covers requirements<sup>ap</sup>

IRI <http://www.ontologydesignpatterns.org/schemas/cpannotation/schema.owl#coversRequirements>

definition<sup>ap</sup>

IRI <http://www.w3.org/2004/02/skos/core#definition>

pref label<sup>ap</sup>

IRI <http://www.w3.org/2004/02/skos/core#prefLabel>

## Namespaces

:	<a href="http://w3id.org/CEON/ontology/resourceODP/">http://w3id.org/CEON/ontology/resourceODP/</a>
dc	<a href="http://purl.org/dc/elements/1.1/">http://purl.org/dc/elements/1.1/</a>
dcterms	<a href="http://purl.org/dc/terms/">http://purl.org/dc/terms/</a>
geo	<a href="http://www.opengis.net/ont/geosparql#">http://www.opengis.net/ont/geosparql#</a>
odp	<a href="http://www.ontologydesignpatterns.org/schemas/cpannotationschema.owl#">http://www.ontologydesignpatterns.org/schemas/cpannotationschema.owl#</a>
owl	<a href="http://www.w3.org/2002/07/owl#">http://www.w3.org/2002/07/owl#</a>
prov	<a href="http://www.w3.org/ns/prov#">http://www.w3.org/ns/prov#</a>
rdf	<a href="http://www.w3.org/1999/02/22-rdf-syntax-ns#">http://www.w3.org/1999/02/22-rdf-syntax-ns#</a>
rdfs	<a href="http://www.w3.org/2000/01/rdf-schema#">http://www.w3.org/2000/01/rdf-schema#</a>
skos	<a href="http://www.w3.org/2004/02/skos/core#">http://www.w3.org/2004/02/skos/core#</a>
vann	<a href="http://purl.org/vocab/vann/">http://purl.org/vocab/vann/</a>
xsd	<a href="http://www.w3.org/2001/XMLSchema#">http://www.w3.org/2001/XMLSchema#</a>

## Legend

c	Classes
op	Object Properties
dp	Datatype Properties
ap	Annotation Properties