

# Circular Economy Ontology Network (CEON) - Product Module

## Metadata

### IRI

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

### Title

Circular Economy Ontology Network (CEON) - Product Module

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### License

<https://creativecommons.org/licenses/by/4.0/>

### Version Iri

<http://w3id.org/CEON/ontology/product/0.3/>

### Version Info

0.3

### Preferred Namespace Prefix

product

### Preferred Namespace Uri

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

### Description

The Product 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, C11-2, C12-1, C13-3, E2-1, T8-3.

## Classes

### Actor<sup>c</sup>

#### IRI

<http://w3id.org/CEON/ontology/actorODP/Actor>

### Resource Relation<sup>c</sup>

#### IRI

<http://w3id.org/CEON/ontology/actorODP/ResourceRelation>

#### Super Class Of

[resourceODP:Composition](#)

### Process<sup>c</sup>

#### IRI

<http://w3id.org/CEON/ontology/processODP/Process>

## Compliance<sup>c</sup>

|                            |   |
|----------------------------|---|
| <b>IRI</b>                 | <a href="http://w3id.org/CEON/ontology/product/Compliance">http://w3id.org/CEON/ontology/product/Compliance</a> |
| <b><u>In Domain Of</u></b> | <a href="#">complianceWith</a> <sup>op</sup><br><a href="#">hasCertificate</a> <sup>dp</sup>                    |
| <b><u>In Range Of</u></b>  | <a href="#">hasCompliance</a> <sup>op</sup>   |

## Matter composition<sup>c</sup>

|                            |  |
|----------------------------|--|
| <b>IRI</b>                 | <a href="http://w3id.org/CEON/ontology/product/MatterComposition">http://w3id.org/CEON/ontology/product/MatterComposition</a>                |
| <b><u>Description</u></b>  | A product composition is the composed information of a product in terms of a specific component, in which such a component is also a matter. |
| <b><u>Sub Class Of</u></b> | <a href="#">resourceODP:Composition</a>  |
| <b><u>In Domain Of</u></b> | <a href="#">associated with matter</a> <sup>op</sup>   |
| <b><u>Restriction</u></b>  | <a href="#">associated with matter</a> <sup>op</sup> <i>exactly</i> 1 <a href="#">Matter composition</a> <sup>c</sup>                        |

## Product model<sup>c</sup>

|                            |  |
|----------------------------|--|
| <b>IRI</b>                 | <a href="http://w3id.org/CEON/ontology/product/Product">http://w3id.org/CEON/ontology/product/Product</a>  |
| <b><u>Description</u></b>  | Represents the common sense notion of a product, i.e. the abstract notion of a product type or product model, which is a model that is used for manufacturing products.  |
| <b><u>In Domain Of</u></b> | <a href="#">has product component</a> <sup>op</sup>  |
| <b><u>In Range Of</u></b>  | <a href="#">associated with product model</a> <sup>op</sup><br><a href="#">batch of products</a> <sup>op</sup><br><a href="#">has product component</a> <sup>op</sup><br><a href="#">modelled by</a> <sup>op</sup> |
| <b><u>Restriction</u></b>  | <a href="#">hasComposition</a> <sup>op</sup> some <a href="#">Product model</a> <sup>c</sup><br><a href="#">hasComposition</a> <sup>op</sup> some <a href="#">Product model</a> <sup>c</sup>                       |

## Product composition<sup>c</sup>

|                            |   |
|----------------------------|---|
| <b>IRI</b>                 | <a href="http://w3id.org/CEON/ontology/product/ProductComposition">http://w3id.org/CEON/ontology/product/ProductComposition</a>               |
| <b><u>Description</u></b>  | A product composition is the composed information of a product in terms of a specific component, in which such a component is also a product. |
| <b><u>Sub Class Of</u></b> | <a href="#">resourceODP:Composition</a>   |
| <b><u>In Domain Of</u></b> | <a href="#">associated with product model</a> <sup>op</sup>   |
| <b><u>Restriction</u></b>  | <a href="#">associated with product model</a> <sup>op</sup> <i>exactly</i> 1 <a href="#">Product composition</a> <sup>c</sup>                 |

## Product object<sup>C</sup>

|                     |  |
|---------------------|--|
| <b>IRI</b>          | <a href="http://w3id.org/CE0N/ontology/product/ProductObject">http://w3id.org/CE0N/ontology/product/ProductObject</a>  |
| <b>Description</b>  | A product object is a physical object put into a market for sale, i.e. corresponding to the notion of an item, which conforms to the abstract idea of a product model. The product can be a thing that grows naturally or produced through some chemical or manufacturing processes. |
| <b>Sub Class Of</b> | <a href="#">resourceODP:PhysicalObject</a>   |
| <b>In Domain Of</b> | <a href="#">hasProductObjectComponent</a> <sup>op</sup><br><a href="#">modelled by</a> <sup>op</sup>   |
| <b>In Range Of</b>  | <a href="#">associatedWithProductObject</a> <sup>op</sup><br><a href="#">hasProductObjectComponent</a> <sup>op</sup>   |
| <b>Restriction</b>  | <a href="#">modelled by</a> <sup>op</sup> <i>exactly</i> 1 <a href="#">Product object</a> <sup>C</sup>   |

## Product Object Composition<sup>C</sup>

|                     |   |
|---------------------|---|
| <b>IRI</b>          | <a href="http://w3id.org/CE0N/ontology/product/ProductObjectComposition">http://w3id.org/CE0N/ontology/product/ProductObjectComposition</a> |
| <b>Sub Class Of</b> | <a href="#">resourceODP:Composition</a>   |
| <b>In Domain Of</b> | <a href="#">associatedWithProductObject</a> <sup>op</sup>   |
| <b>Restriction</b>  | <a href="#">associatedWithProductObject</a> <sup>op</sup> <i>exactly</i> 1 <a href="#">ProductObjectComposition</a> <sup>C</sup>            |

## Object Properties

### associated with matter<sup>op</sup>

|                    |   |
|--------------------|---|
| <b>IRI</b>         | <a href="http://w3id.org/CE0N/ontology/product/associatedWithMatter">http://w3id.org/CE0N/ontology/product/associatedWithMatter</a> |
| <b>Description</b> | associatedWithMatter intends to represent the matter to which a matter composition information regards to.                          |
| <b>Domain</b>      | <a href="#">Matter composition</a> <sup>C</sup>   |
| <b>Range</b>       | <a href="#">resourceODP:Matter</a>  |

### associated with product model<sup>op</sup>

|                    |   |
|--------------------|---|
| <b>IRI</b>         | <a href="http://w3id.org/CE0N/ontology/product/associatedWithProductModel">http://w3id.org/CE0N/ontology/product/associatedWithProductModel</a> |
| <b>Description</b> | associatedWithProductModel intends to represent the product model to which a product composition information regards to.                        |
| <b>Domain</b>      | <a href="#">Product composition</a> <sup>C</sup>  |
| <b>Range</b>       | <a href="#">Product model</a> <sup>C</sup>  |

associated with product object<sup>op</sup>

|                        |   |
|------------------------|---|
| <b>IRI</b>             | <a href="http://w3id.org/CEON/ontology/product/associatedWithProductObject">http://w3id.org/CEON/ontology/product/associatedWithProductObject</a> |
| <b>Sub Property Of</b> | <a href="#">topObjectProperty</a> <sup>op</sup>   |
| <b>Domain</b>          | <a href="#">ProductObjectComposition</a> <sup>c</sup>   |
| <b>Range</b>           | <a href="#">Product object</a> <sup>c</sup>   |

batch of products<sup>op</sup>

|                    |   |
|--------------------|---|
| <b>IRI</b>         | <a href="http://w3id.org/CEON/ontology/product/batchOfProduct">http://w3id.org/CEON/ontology/product/batchOfProduct</a> |
| <b>Description</b> | batchOfProduct intends to represent what is the model product of a batch of objects.                                    |
| <b>Domain</b>      | <a href="#">resourceODP:BatchOfObjects</a>  |
| <b>Range</b>       | <a href="#">Product model</a> <sup>c</sup>  |

compliance with<sup>op</sup>

|               |   |
|---------------|---|
| <b>IRI</b>    | <a href="http://w3id.org/CEON/ontology/product/complianceWith">http://w3id.org/CEON/ontology/product/complianceWith</a> |
| <b>Domain</b> | <a href="#">Compliance</a> <sup>c</sup>   |

composition of<sup>op</sup>

|               |  |
|---------------|--|
| <b>IRI</b>    | <a href="http://w3id.org/CEON/ontology/product/compositionOf">http://w3id.org/CEON/ontology/product/compositionOf</a>                        |
| <b>Domain</b> | <a href="#">resourceODP:Composition</a>  |
| <b>Range</b>  | <a href="#">Product object</a> <sup>c</sup> or <a href="#">Product model</a> <sup>c</sup> or <a href="#">resourceODP:Matter</a> <sup>c</sup> |

has compliance<sup>op</sup>

|               |  |
|---------------|--|
| <b>IRI</b>    | <a href="http://w3id.org/CEON/ontology/product/hasCompliance">http://w3id.org/CEON/ontology/product/hasCompliance</a>  |
| <b>Domain</b> | <a href="#">actorODP:Actor</a> <sup>c</sup> or <a href="http://w3id.org/CEON/ontology/processODP/Process">http://w3id.org/CEON/ontology/processODP/Process</a> <sup>c</sup> or <a href="#">Product model</a> <sup>c</sup> or <a href="#">Product object</a> <sup>c</sup> |
| <b>Range</b>  | <a href="#">Compliance</a> <sup>c</sup>  |

## has composition<sup>op</sup>

|                    |   |
|--------------------|---|
| <b>IRI</b>         | <a href="http://w3id.org/CE0N/ontology/product/hasComposition">http://w3id.org/CE0N/ontology/product/hasComposition</a> |
| <b>Description</b> | hasComposition intends to represent that a product model or physical object can have composition information.           |
| <b>Domain</b>      | <a href="#">resourceODP:PhysicalObject</a> <sup>C</sup> or <a href="#">Product model</a> <sup>C</sup>                   |
| <b>Range</b>       | <a href="#">resourceODP:Composition</a>   |

## has product component<sup>op</sup>

|                    |   |
|--------------------|---|
| <b>IRI</b>         | <a href="http://w3id.org/CE0N/ontology/product/hasProductComponent">http://w3id.org/CE0N/ontology/product/hasProductComponent</a> |
| <b>Description</b> | hasProductComponent intends to represent that a product can have other product components.  |
| <b>Domain</b>      | <a href="#">Product model</a> <sup>C</sup>  |
| <b>Range</b>       | <a href="#">Product model</a> <sup>C</sup>  |

## has product object component<sup>op</sup>

|               |   |
|---------------|---|
| <b>IRI</b>    | <a href="http://w3id.org/CE0N/ontology/product/hasProductObjectComponent">http://w3id.org/CE0N/ontology/product/hasProductObjectComponent</a> |
| <b>Domain</b> | <a href="#">Product object</a> <sup>C</sup>   |
| <b>Range</b>  | <a href="#">Product object</a> <sup>C</sup>   |

## modelled by<sup>op</sup>

|                    |   |
|--------------------|---|
| <b>IRI</b>         | <a href="http://w3id.org/CE0N/ontology/product/modelledBy">http://w3id.org/CE0N/ontology/product/modelledBy</a> |
| <b>Description</b> | modelledBy intends to represent that product objects follow particular product models.                          |
| <b>Domain</b>      | <a href="#">Product object</a> <sup>C</sup>   |
| <b>Range</b>       | <a href="#">Product model</a> <sup>C</sup>  |

## Datatype Properties

### Composition quantity<sup>dp</sup>

|                      |   |
|----------------------|---|
| <b>IRI</b>           | <a href="http://w3id.org/CE0N/ontology/product/compositionQuantity">http://w3id.org/CE0N/ontology/product/compositionQuantity</a> |
| <b><u>Domain</u></b> | <a href="#">resourceODP:Composition</a>   |
| <b><u>Range</u></b>  | <a href="#">xsd:double</a>  |

### country of assembly<sup>dp</sup>

|                               |   |
|-------------------------------|---|
| <b>IRI</b>                    | <a href="http://w3id.org/CE0N/ontology/product/countryOfAssembly">http://w3id.org/CE0N/ontology/product/countryOfAssembly</a> |
| <b><u>Sub Property Of</u></b> | <a href="#">locationOfAssembly</a> <sup>dp</sup>  |

### country of manufacture<sup>dp</sup>

|                               |   |
|-------------------------------|---|
| <b>IRI</b>                    | <a href="http://w3id.org/CE0N/ontology/product/countryOfManufacture">http://w3id.org/CE0N/ontology/product/countryOfManufacture</a> |
| <b><u>Sub Property Of</u></b> | <a href="#">locationOfManufacture</a> <sup>dp</sup>   |

### country of origin<sup>dp</sup>

|                               |   |
|-------------------------------|---|
| <b>IRI</b>                    | <a href="http://w3id.org/CE0N/ontology/product/countryOfOrigin">http://w3id.org/CE0N/ontology/product/countryOfOrigin</a> |
| <b><u>Sub Property Of</u></b> | <a href="#">locationOfOrigin</a> <sup>dp</sup>  |

### has certificate<sup>dp</sup>

|                      |   |
|----------------------|---|
| <b>IRI</b>           | <a href="http://w3id.org/CE0N/ontology/product/hasCertificate">http://w3id.org/CE0N/ontology/product/hasCertificate</a> |
| <b><u>Domain</u></b> | <a href="#">Compliance</a> <sup>c</sup>   |

### location of assembly<sup>dp</sup>

|                                 |   |
|---------------------------------|---|
| <b>IRI</b>                      | <a href="http://w3id.org/CE0N/ontology/product/locationOfAssembly">http://w3id.org/CE0N/ontology/product/locationOfAssembly</a> |
| <b><u>Super Property Of</u></b> | <a href="#">countryOfAssembly</a> <sup>dp</sup>   |
| <b><u>Domain</u></b>            | <a href="#">Product model</a> <sup>c</sup> or <a href="#">Product object</a> <sup>c</sup>                                       |
| <b><u>Range</u></b>             | <a href="#">xsd:string</a>  |

location of manufacture<sup>dp</sup>

**IRI** <http://w3id.org/CE0N/ontology/product/locationOfManufacture>

**Super Property Of** [countryOfManufacture](#)<sup>dp</sup>

**Domain** [Product model](#)<sup>c</sup> or [Product object](#)<sup>c</sup>

**Range** [xsd:string](#)

location of origin<sup>dp</sup>

**IRI** <http://w3id.org/CE0N/ontology/product/locationOfOrigin>

**Super Property Of** [countryOfOrigin](#)<sup>dp</sup>

**Domain** [Product model](#)<sup>c</sup> or [Product object](#)<sup>c</sup>

**Range** [xsd:string](#)

## Annotation Properties

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                                      | <a href="http://purl.org/vocab/vann/preferredNamespacePrefix">http://purl.org/vocab/vann/preferredNamespacePrefix</a>   |
| preferred namespace uri <sup>ap</sup>    |   |
| IRI                                      | <a href="http://purl.org/vocab/vann/preferredNamespaceUri">http://purl.org/vocab/vann/preferredNamespaceUri</a>   |
| covers requirements <sup>ap</sup>        |   |
| IRI                                      | <a href="http://www.ontologydesignpatterns.org/schemas/cannotation-schema.owl#coversRequirements">http://www.ontologydesignpatterns.org/schemas/cannotation-schema.owl#coversRequirements</a> |

## Namespaces

|             |   |
|-------------|---|
| :           | <a href="http://w3id.org/CEON/ontology/product/">http://w3id.org/CEON/ontology/product/</a>   |
| actorODP    | <a href="http://w3id.org/CEON/ontology/actorODP/">http://w3id.org/CEON/ontology/actorODP/</a>   |
| dcterms     | <a href="http://purl.org/dc/terms/">http://purl.org/dc/terms/</a>   |
| odp         | <a href="http://www.ontologydesignpatterns.org/schemas/cannotationschema.owl#">http://www.ontologydesignpatterns.org/schemas/cannotationschema.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>   |
| resourceODP | <a href="http://w3id.org/CEON/ontology/resourceODP/">http://w3id.org/CEON/ontology/resourceODP/</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 |