

ECO PLATFORM

Digital Data Requirements

Technical Requirements for digital (machine readable)
ECO EPDs

Version 1.1 (December 2024)

Table 1: Version of this document

Version Number	Date	Summary of changes
V1.0	20.06.2024	Summary of existing requirements in first version of ECO Platform Digital Data Requirements document
V1.1	20.12.2024	Minor changes incl. addition of details regarding declared unit "weight per piece" and update of external weblinks

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1 INTRODUCTION

The ECO Platform is committed to keeping its quality promise by ensuring compliance with the applicable ECO Platform rules and requirements defined in the "ECO Platform Standards". The enforcement of these rules and requirements is crucial to protect ECO Platform's reputation as well as the credibility of the ECO EPDs. The ECO Platform audit is one core element to ensure compliance of the ECO EPD POs with above-mentioned rules and requirements.

The ECO Portal is a data hub for free access to reliable digital EPD data. All ECO EPD POs are obliged to publish their ECO EPD digitally via the ECO Portal. The digital data must be compliant with the Digital Data Requirements as specified in this document.

The description and requirements for the data transfer to the ECO Portal as well as the required conformity checks (validation of connection to ECO Portal, data format and data quality) are subject of a separate document: "Specification of Connection to ECO Portal".

2 DATA FORMAT COMPLIANCE

Digital datasets must comply with a format specified by ECO Platform. Momentarily the following LCA data formats are specified by ECO Platform:

- ILCD+EPD data format. (The specification and documentation for the ILCD+EPD data format is available for download via the link below)

https://www.oekobaudat.de/fileadmin/downloads/Technische_Dokumentation/Developer_Documentation_ILCD_EPD_1.2_MR7_2023_12_19.zip

3 MANDATORY INFORMATION IN DIGITAL DATASETS

The following is a list of mandatory information items that must be present in a digital EPD dataset. They refer to the corresponding field or section in the ILCD+EPD format specification where the data type etc. is precisely defined. This document provides merely a list of the items that are required for ECO Platform with a brief field description for context and convenience. The authoritative and precise definition of each field is given in the ILCD+EPD format specification. The mandatory information items that need to be present in a dataset are:

Field name	Field description
UUID	Automatically generated universally unique identifier of this data set. Together with the "Data set version", the UUID uniquely identifies each data set.
name	General descriptive and specifying name of the product/system.
publication date of EPD (non-generic data)	Exact date of publication of the EPD
reference year	First year of the time period for which the data set is valid.
data set valid until	End year of the time period for which the data set is still valid. This date also determines when a data set revision / remodelling is required or recommended due to expected relevant changes in environmentally or technically relevant inventory values, including in the background system.
location	Region, for which the data set is representative / relevant.
technology description	Description of the technological characteristics including operating conditions of the product system or process. If relevant for the technological representativeness this comprises the technological characteristics of the relevant upstream and downstream processes ("background system") included in the data set.
technical purpose	Brief description of the intended use / possible applications of the good, service, or process, e.g. for which type of products the material, represented by this data set, is used. For construction products the feasible applications in the building shall be given.
dataset type (subtype)	Indicates the type of data set regarding its representativeness (specific, average, representative, template, generic)

reference to original EPD (except generic or representative data)	link to the original EPD document
background database	background data (like GaBi or ecoinvent) that has been used including the specific database version (e.g. ecoinvent 3.9.1)
LCA methodology report	reference to the applicable PCR(s)
reference to dataset format	indicates the version of the ILCD format and EPD extension
reviewer name and institution	the name of the verifier
dataset version	Version number of data set; is automatically generated. Together with the data set's UUID, the "Data set version" uniquely identifies each data set.
date of last revision	Date when the data set was revised for the last time; typically manually set
owner of dataset	the person or entity who owns this data set (usually the declaration owner and thus the manufacturer)
data set generator/modeller	the person(s), working group(s), organisation(s) or database network, that generated the data set, i.e. being responsible for its correctness regarding methods, inventory, and documentative information.
publisher of the data set	Organisation which publishes the EPD data sets.
issuer of the data set (registration authority)	authority that has registered this data set (e.g. Program Operator)
registration number (except generic or representative data)	ID number of EPD or project.
copyright	Indicates whether or not a copyright on the data set exists. Decided upon by the "Owner of data set"; usually "yes".
licence type	Type of licence that applies to the access and use of this data set, usually <i>Free of charge for all users and uses</i>
access and use restrictions	Access restrictions / use conditions for this data set as free text or referring to e.g. licence conditions. In case of no restrictions "None" is entered.
reference flow (section quantitative reference)	Link to reference flow of data set; the reference flow is the output that represents the product. Therefore, for each EPD (process) data set, at least one reference flow data set has to be given that represents the product. The amount of the exchange with the reference product, together with the reference flow property of the reference product, indicates the declared unit (or functional unit) as stated in the EPD.
biogenic carbon content	Biogenic carbon content in product and biogenic carbon content in accompanying packaging as per EN15804+A2
material properties	Declaration of relevant non-scaling physical product properties such as

	density etc. that are necessary for conversion of the amount the material is declared into other dimensions
all mandatory indicators according to EN15804+A2 must be present for all relevant life cycle modules	
compliance to 15804+A2 compliance system must be declared	

3.1 Mass Value

The mass always needs to be specified regardless of the declared unit. In case the declared property of the product is **not** specified in a unit of mass (e.g. if a unit of volume, area, length, number of pieces etc. is given), the mass of one unit (according to the declared unit) of the product is to be given. This rule does not apply for nonmaterial systems (e.g. services).

Example: A wooden board has a declared unit of 1 m². 1 m² of this board weighs 10.21 kg. Then the value of that mass has to be specified in the machine-readable dataset in addition to the declared unit.

See Annex A for implementation details.

3.2 Material Properties

Material properties are mandatory, depending on the declared unit. Material properties are used to express additional quantitative information that allows an application to convert the given declared unit of the product into a dimension it might require for modelling. For example, an EPD for a mineral wool product with a declared unit of 1 kg is only useful when the weight per unit area is known in addition.

The following material properties are mandatory to declare:

- if the declared unit is given in units of area: require material properties "grammage" (a.k.a. weight per unit area) and "layer thickness"
- if the declared unit is given in units of volume: require material property "gross density"
- if the declared unit is given in units of length: require material property "linear density"
- if the declared unit is given in units of items: require material property "weight per piece"
- if the declared unit is given in units of something else: require material property "gross density"

See Annex A for implementation details.

4 ADDITIONAL REQUIREMENTS

Additional Requirements

One digital dataset per one product variant. If an EPD covers multiple distinct products or product variants, where separate LCIA results are given for each individual product, one digital dataset has to be generated per individual product or product variant.

5 ANNEXES

1.1 Annex A: Implementation details and examples in ILCD+EPD data format

Mass value

In ILCD+EPD format, physical properties of the flow are expressed via flow properties which can be mass, volume, area, length, number of pieces etc. (which are defined as part of the master data). The reference flow property indicates the declared unit. In case the declared unit (and thus the reference flow property) is not mass, an additional declaration of the flow property for mass has to be given with the amount being the weight in kilograms.

Example:

Material properties

The following table lists the supported identifiers for material properties in the ILCD+EPD data format:

property identifier	unit	Description
<i>bulk density</i>	kg/m ³	kilograms per cubic metre
<i>grammage</i>	kg/m ²	kilograms per square metre
<i>gross density</i>	kg/m ³	kilograms per cubic metre
<i>layer thickness</i>	m	metres
<i>productiveness</i>	m ²	square metres
<i>linear density</i>	kg/m	kilograms per metre
<i>weight per piece</i>	kg	kilograms
<i>conversion factor to 1 kg</i>		

- if reference flow property is "Area": require material properties "grammage" and "layer thickness" (error)
- if reference flow property is "Volume": require material property "gross density" (error)
- if reference flow property is "Length": require material property "linear density" (error)
- if reference flow property is "Number of items": require material property "weight per piece" (error)
- if reference flow property is something else: require material property "gross density" (warning)

Example markup

The following examples show how to express the individual properties. (*Material*) can be any text and (*Value*) the decimal value with a dot (.) as decimal separator (e.g. 42.1).

grammage

```
<mat:MatML_Doc xmlns:mat="http://www.matml.org/">
  <mat:Material>
    <mat:BulkDetails>
      <mat:Name> (Material) </mat:Name>
      <mat:PropertyData property="pr2">
        <mat>Data format="float"> (Value) </mat>Data>
      </mat:PropertyData>
    </mat:BulkDetails>
  </mat:Material>
</mat:MatML_Doc>
```



```

    </mat:BulkDetails>
  </mat:Material>
  <mat:Metadata>
    <mat:PropertyDetails id="pr2">
      <mat:Name>grammage</mat:Name>
      <mat:Units description="kilograms per square metre"
name="kg/m^2">
        <mat:Unit>
          <mat:Name>kg</mat:Name>
        </mat:Unit>
        <mat:Unit power="-2">
          <mat:Name>m</mat:Name>
        </mat:Unit>
      </mat:Units>
    </mat:PropertyDetails>
  </mat:Metadata>
</mat:MatML_Doc>

```

gross density

```

<mat:MatML_Doc xmlns:mat="http://www.matml.org/">
  <mat:Material>
    <mat:BulkDetails>
      <mat:Name> (Material) </mat:Name>
      <mat:PropertyData property="pr1">
        <mat:Data format="float"> (Value) </mat:Data>
      </mat:PropertyData>
    </mat:BulkDetails>
  </mat:Material>
  <mat:Metadata>
    <mat:PropertyDetails id="pr1">
      <mat:Name>gross density</mat:Name>
      <mat:Units name="kg/m^3" description="kilograms per cubic
metre">
        <mat:Unit>
          <mat:Name>kg</mat:Name>
        </mat:Unit>
        <mat:Unit power="-3">
          <mat:Name>m</mat:Name>
        </mat:Unit>
      </mat:Units>
    </mat:PropertyDetails>
  </mat:Metadata>
</mat:MatML_Doc>

```

bulk density

```

<mat:MatML_Doc xmlns:mat="http://www.matml.org/">
  <mat:Material>
    <mat:BulkDetails>
      <mat:Name> (Material) </mat:Name>
      <mat:PropertyData property="pr3">
        <mat:Data format="float"> (Value) </mat:Data>
      </mat:PropertyData>
    </mat:BulkDetails>
  </mat:Material>
  <mat:Metadata>
    <mat:PropertyDetails id="pr3">
      <mat:Name>bulk density</mat:Name>
    </mat:PropertyDetails>
  </mat:Metadata>
</mat:MatML_Doc>

```

```

    <mat:Units name="kg/m^3" description="kilograms per cubic
metre">
      <mat:Unit>
        <mat:Name>kg</mat:Name>
      </mat:Unit>
      <mat:Unit power="-3">
        <mat:Name>m</mat:Name>
      </mat:Unit>
    </mat:Units>
  </mat:PropertyDetails>
</mat:Metadata>
</mat:MatML_Doc>

```

layer thickness

```

<mat:MatML_Doc xmlns:mat="http://www.matml.org/">
  <mat:Material>
    <mat:BulkDetails>
      <mat:Name> (Material) </mat:Name>
      <mat:PropertyData property="pr4">
        <mat:Data format="float"> (Value) </mat:Data>
      </mat:PropertyData>
    </mat:BulkDetails>
  </mat:Material>
  <mat:Metadata>
    <mat:PropertyDetails id="pr4">
      <mat:Name>layer thickness</mat:Name>
      <mat:Units name="m" description="metres">
        <mat:Unit>
          <mat:Name>m</mat:Name>
        </mat:Unit>
      </mat:Units>
    </mat:PropertyDetails>
  </mat:Metadata>
</mat:MatML_Doc>

```

productiveness

```

<mat:MatML_Doc xmlns:mat="http://www.matml.org/">
  <mat:Material>
    <mat:BulkDetails>
      <mat:Name> (Material) </mat:Name>
      <mat:PropertyData property="pr5">
        <mat:Data format="float"> (Value) </mat:Data>
      </mat:PropertyData>
    </mat:BulkDetails>
  </mat:Material>
  <mat:Metadata>
    <mat:PropertyDetails id="pr5">
      <mat:Name>productiveness</mat:Name>
      <mat:Units name="m^2" description="square metres">
        <mat:Unit power="2">
          <mat:Name>m</mat:Name>
        </mat:Unit>
      </mat:Units>
    </mat:PropertyDetails>
  </mat:Metadata>
</mat:MatML_Doc>

```

linear density

```

<mat:MatML_Doc xmlns:mat="http://www.matml.org/">
  <mat:Material>
    <mat:BulkDetails>
      <mat:Name> (Material) </mat:Name>
      <mat:PropertyData property="pr6">
        <mat:Data format="float"> (Value) </mat:Data>
      </mat:PropertyData>
    </mat:BulkDetails>
  </mat:Material>
  <mat:Metadata>
    <mat:PropertyDetails id="pr6">
      <mat:Name>linear density</mat:Name>
      <mat:Units name="kg/m" description="kilograms per metre">
        <mat:Unit>
          <mat:Name>kg</mat:Name>
        </mat:Unit>
        <mat:Unit power="-1">
          <mat:Name>m</mat:Name>
        </mat:Unit>
      </mat:Units>
    </mat:PropertyDetails>
  </mat:Metadata>
</mat:MatML_Doc>

```

weight per piece

```

<mat:MatML_Doc xmlns:mat="http://www.matml.org/">
  <mat:Material>
    <mat:BulkDetails>
      <mat:Name> (Material) </mat:Name>
      <mat:PropertyData property="pr7">
        <mat:Data format="float"> (Value) </mat:Data>
      </mat:PropertyData>
    </mat:BulkDetails>
  </mat:Material>
  <mat:Metadata>
    <mat:PropertyDetails id="pr7">
      <mat:Name>weight per piece</mat:Name>
      <mat:Units name="kg" description="kilograms">
        <mat:Unit>
          <mat:Name>kg</mat:Name>
        </mat:Unit>
      </mat:Units>
    </mat:PropertyDetails>
  </mat:Metadata>
</mat:MatML_Doc>

```

conversion factor to 1 kg

```

<mat:MatML_Doc xmlns:mat="http://www.matml.org/">
  <mat:Material>
    <mat:BulkDetails>
      <mat:Name> (Material) </mat:Name>

```

```

    <mat:PropertyData property="pr7">
      <mat:Data format="float"> (Value) </mat:Data>
    </mat:PropertyData>
  </mat:BulkDetails>
</mat:Material>
<mat:Metadata>
  <mat:PropertyDetails id="pr7">
    <mat:Name>conversion factor to 1 kg</mat:Name>
    <mat:Units name="-" description="none">
      <mat:Unit>
        <mat:Name>--</mat:Name>
      </mat:Unit>
    </mat:Units>
  </mat:PropertyDetails>
</mat:Metadata>
</mat:MatML_Doc>

```

1.2 Annex B: Technical validation of data in ILCD+EPD format

The specification and documentation for the ILCD+EPD data format is available for download at <https://www.indata.network/resources> under the "Technical Documents" section.

Data in ILCD+EPD format can be validated using the ILCD Validation Tool, a free and Open Source desktop software application that can be downloaded here:

<https://bitbucket.org/okusche/ilcdvalidationtool/>

A guide on how to use the application is included there as well.

The validation rules are bundled into validation profiles. The profile for data compliant with ILCD+EPD v1.2 and EN15804+A2 does not ship with the application by default and can be installed after downloading it from Maven Central, a repository for software artifacts where the validation profiles are hosted publicly. The latest validation profile for EN15804+A2 compliant datasets can always be found in the folder with the highest version number and latest time stamp here:

<https://repo1.maven.org/maven2/com/okworx/ilcd/validation/profiles/EPD-1.2-Generic-EN15804/> For example, at the time of this writing, version 1.1.1 is the latest and the URL for downloading the profile is:

<https://repo1.maven.org/maven2/com/okworx/ilcd/validation/profiles/EPD-1.2-Generic-EN15804/2.1.0/EPD-1.2-Generic-EN15804-2.1.0.jar> The validation tool supports a "Batch Mode" which will write the validation results to a spreadsheet for easy post-processing and sharing.

EPD data in ILCD+EPD data format can be demonstrated to be in compliance with the technical specification of the data format if a validation using the latest available validation profile does not result in any validation errors.