

# Documentation openLCA format converter V2

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## Data Conversion from EcoSpold02 to ILCD

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# 1 Introduction

This documentation describes the conversion from the EcoSpold02 format to the ILCD format, as implemented in the openLCA format converter V2 [1-2], by “mapping” (i.e. assigning) fields from one format to the other.

The following versions of the formats are considered:

EcoSpold V2, beta 4, [with updates to beta 5 by Andreas Ciroth, January 28, made according to the changelog of the beta 5 version.](#)

ILCD, 1.1

The mapping is facing several challenges, which cannot always be overcome. Both formats use different approaches, for example regarding process / activity scale, linking between different data sets, uncertainty, etc.

However, the practical consequences will keep within limits, because many fields are not in use and many problems can be got around.

The converter uses the following main approaches, also in combination:

- **field transformation:** Entering content into the target format based on content of one or several corresponding fields in the source format, modifying the original content.
- **master data creation:** Sometimes entering a content into a field of the target format is not possible without creation of one or several master data fields that the to-be-filled field refers to.

For example, “@unitName” in EcoSpold fits well to “unitGroupDataSet/units/unit/name” in ILCD; however, if the unit in ILCD does not exist in a unit group data set, a new unit (and a new unit group data set) has to be generated.

- **n:1 mapping/field concatenation:** different occurrence of elements, only one can be transferred or the fields are lumped together into the target field
- **reasonable default entries:** mandatory fields that cannot be mapped are filled with reasonable default entries where possible.

All the assignments / mappings, and the implemented workarounds, are described in the following. This text focuses on converting EcoSpold02 to ILCD 1.1. Other documents [##] deal with further conversion “directions” and formats.

Starting from the fields in EcoSpold02, suitable ILCD 1.1 fields are listed, and the mapping is commented and motivated. Note that in order to generate a valid ILCD data set, several fields with specific contents are mandatory in ILCD. To not overlook these requirements when dealing with the direction “from EcoSpold02 to ILCD”, as this text does primarily, a special section for each element in ILCD considers the mandatory other fields, including where and if these are available.

The explanations will be given in tables. In the first column of the “explanation tables”, the EcoSpold02 fields are listed, in the second column the corresponding fields in ILCD. The comment field explains any conversion challenges and illustrates them based on a colour system (red means = no mapping possible, yellow = mapping is problematic, green = mapping works without problems).

The structure of the data format will be illustrated by help of images created from the EcoSpold02 schema. The images show the definition of the respective data types in the XML schema with existing elements and attributes. Figure 1 gives an example, together with an explanation of the elements shown in any of these figures.

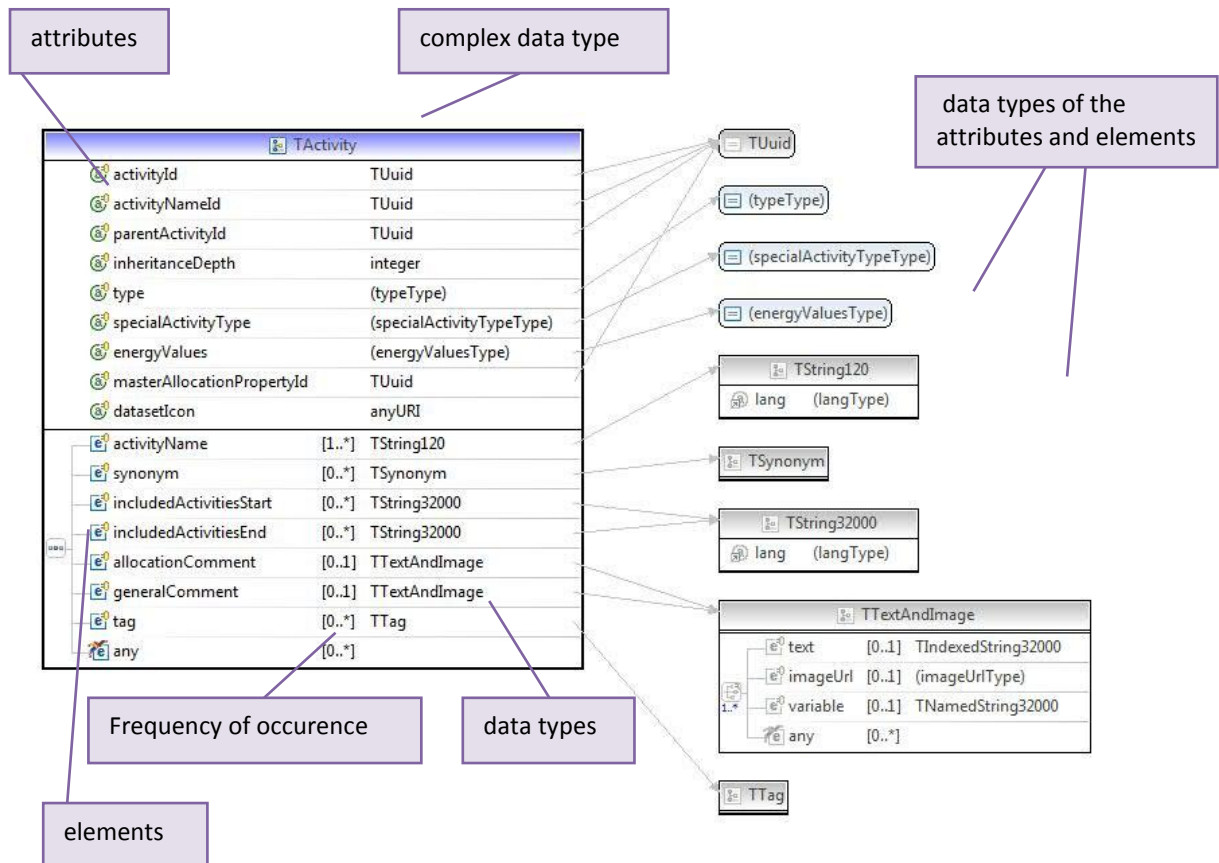


Figure 1: definition of the TActivity type in EcoSpold, example of an image of an XML schema type with explanations

## 2 Mapping description

### 2.1 Activity dataset

The XML schema type of the activity dataset contains four complex elements, which are defined by the following schema types (see also figure 2):

- **ActivityDescription**: comprises content-related meta information for the activity
- **TFlowData**: contains information about inputs and outputs of the given activity (exchanges with environment (elementary exchanges) as well as intermediate exchanges (product and waste flows)), their properties, allocations, transfer coefficients, uncertainties and parameters
- **TModellingAndValidation**: covers meta information about the modelling of the processes and about the validation of the dataset
- **TAdministrativeInformation**: contains information about the persons that generated and entered the dataset in the database and about kind of publication and accessibility

An activity equates to a process in ILCD. Each activity dataset has references to several lists, which contain information about valid activities, exchanges, parameters, persons, sources, units and so

forth – the so called master data. Unknown activities, exchanges, parameters, etc. have to be entered in the corresponding list before they can be transferred to the activity dataset.

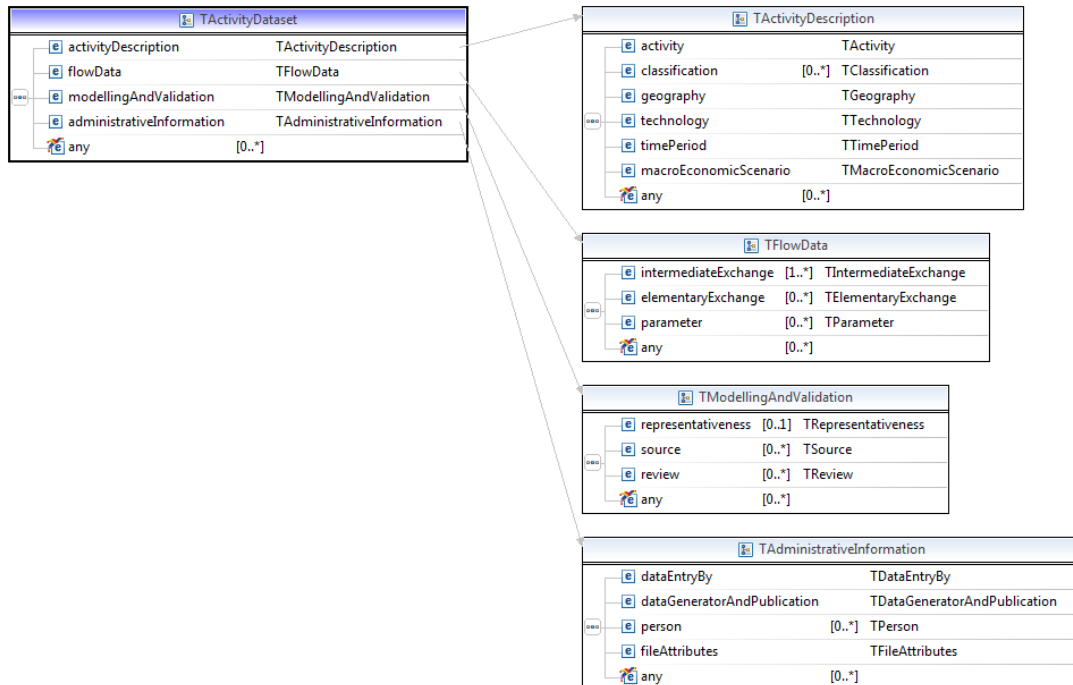


Figure 2: definition of the EcoSpold02 TActivityDataset type

### 2.1.1 Activity description

The XML schema type of the activity description contains different complex elements. The various elements are defined by following types (see also figure 3):

- **Activity**: contains the identifying information of an activity dataset including name and classification
- **TClassification**: comprises classification information to specify the activity
- **TGeography**: contains information about the geographic validity of the process
- **TTechnology**: covers a description of used technology
- **TTimePeriod**: describes the time period for which the dataset is valid
- **TMacroEconomicScenario**: contains information about the macro-economic scenario used in this dataset

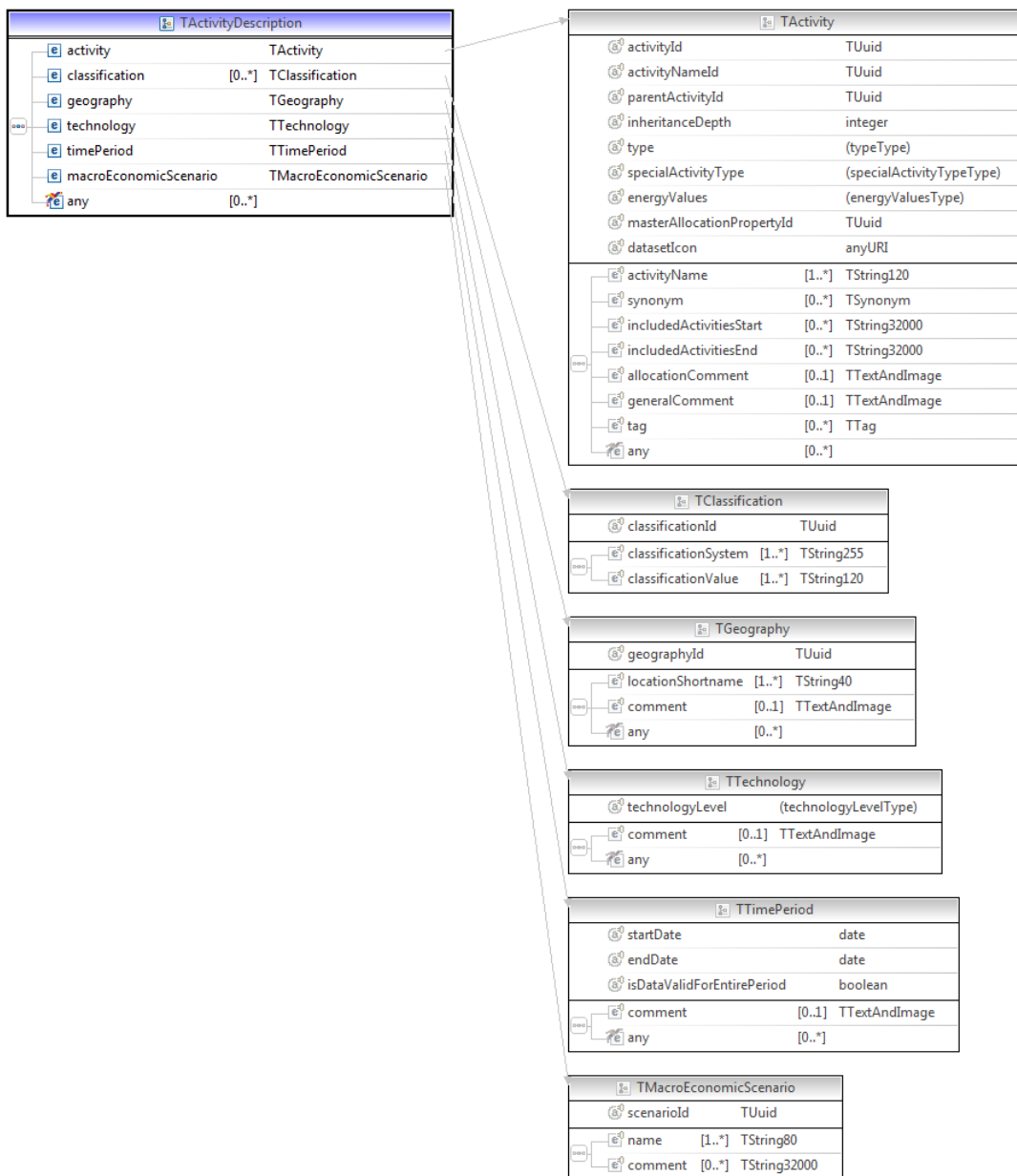


Figure 3: definition of the EcoSpold02 TActivityDescription type

### 2.1.1.1 Type: activityDescription/activity

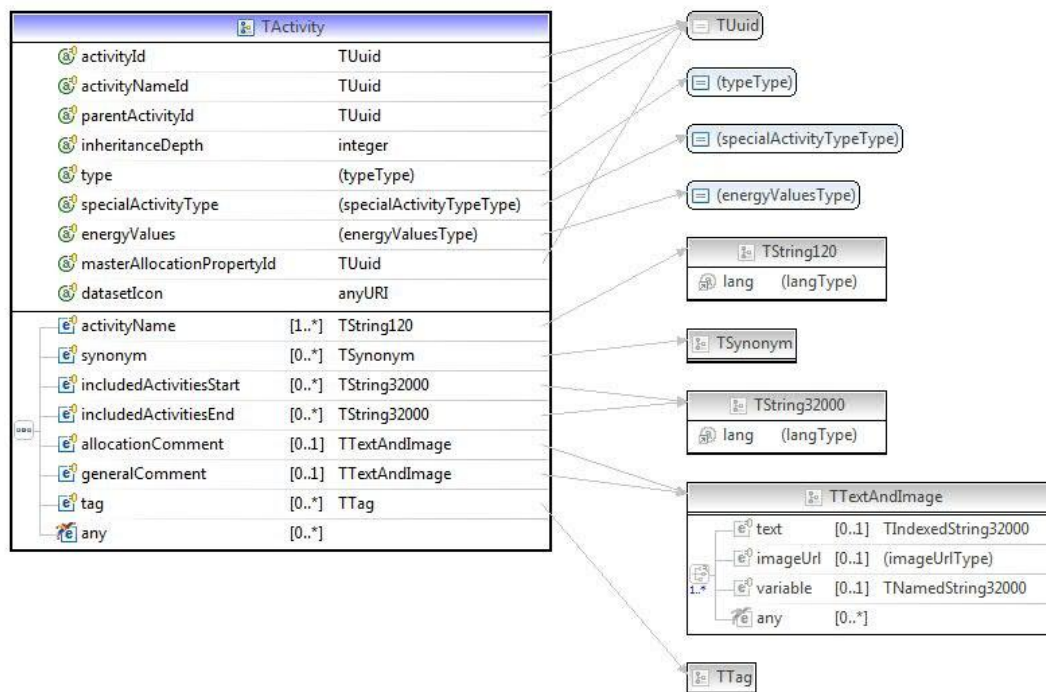


Figure 4: definition of the EcoSpold02 TActivity type

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
@activityId		<p><b>no corresponding field</b></p> <p>There are to activity ID fields defined in EcoSpold 2: this field and the activityNameId in the next row. As the activityNameId is used to identify the master data entry for an activity, which seems to be more important than this field, we map the name ID to the corresponding ILCD UUID field.</p> <p>Note, that it is not clear why there are two ID fields necessary for the activity. Why can the activity ID not be used for the master data entry, too?</p>	no	
@activityNameId	dataSetInformation/UUID	<b>o.k.</b>	no	
@parentActivityId		<b>no corresponding field</b>	no	

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
@inheritanceDepth		<b>no corresponding field</b>	no	
@type	processDataSet/modelling AndValidation/LCIMethod AndAllocation/typeOfDataSet	<b>enumeration mapping</b> different enumerations <ul style="list-style-type: none"> <li>1 (= Unit process) =&gt; If the activity delivers more than one product this field is mapped to "Unit process, black box" otherwise to "Unit process, single operation"</li> <li>2 (= System terminated) =&gt; "LCI result"</li> </ul>	yes	
@specialActivityType		<b>no corresponding field:</b> ES2: Valid codes are: 0 = ordinary activity (default), 1 = market activity, 2 = residual activity, 3 = import activity	no	
@energyValues		<b>no corresponding field</b>	no	
@masterAllocationPropertyId		<b>no corresponding field:</b> (brut can be used to calculate the respective allocation factors in the ILCD data set)	no	
@datasetIcon		<b>no corresponding field</b>	no	
activityName	name/baseName	<b>o.k.*</b> *Note that in the ILCD format extra fields for name elements like 'at plant' or 'grid mix' are foreseen (see the fields name/mixAndLocationTypes etc.). In EcoSpold 01 such name qualifiers are included in the name field. EcoSpold 02 provides other concepts like the field 'specialActivityType' for example.	no	
synonym	dataSetInformation/synonyms	<b>field transformation</b> ES2: <i>List of synonyms for the name. Contrary to normal multi language strings, synonyms may contain more than one element with the same xml:lang attribute value.</i> ILCD: <i>Synonyms / alternative names / brands of the good, service, or process. Separated by semicolon.</i>	no	
includedActivitiesStart	technology/technologyDescriptionAnd	<b>n:1 mapping (text concatenation)</b>	no	

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
	IncludedProcesses			
includedActivitiesEnd	technology/ technologyDescriptionAnd IncludedProcesses	<b>n:1 mapping (text concatenation)</b>	no	
allocationComment	ProcessdataSet/modelling AndValidation/LCIMethod AndAllocation/deviationsF romLCIMethodApproaches	<b>field transformation</b>  no image support for this field in ILCD  Note that there is a field 'LCIMethodApproaches' in ILCD with an enumeration as allowed type which includes different allocation methods. The field 'deviationsFromLCIMethodApproac hes' not only contains the deviations but also further explanations (see the ILCD documentation).	no	
generalComment	technology/technologicalA pplicability and  pictures in  technology/referenceToTe chnologyFlowDiagrammOr Picture	<b>field transformation</b>  different data types; 1:n mapping: the textAndImageType must be split to text and images whereas for each image URI from EcoSpold an ILCD source data set has to be created (see the ILCD image reference concept).  <b>Note:</b> There is a general comment field in ILCD, but the content of this field in the ecoinvent data sets fits more to the ILCD field technologicalApplicability.	no	
tag		<b>no corresponding field</b>	no	

### 2.1.1.2 Type: activityDescription/classification

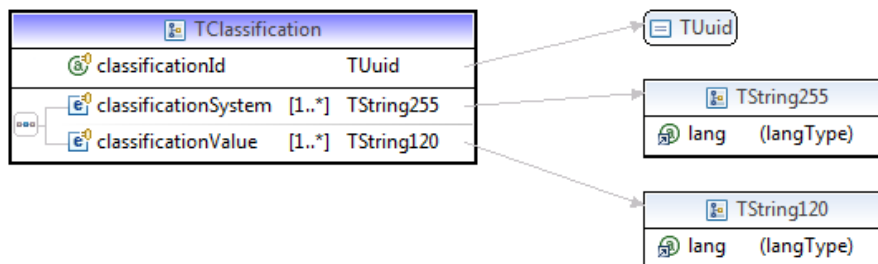


Figure 5: definition of the EcoSpold02 TClassification type



EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
@classificationId		<b>no corresponding field</b>	no	
classificationSystem	processDataSet/dataSetInformation/classification/@name	<b>n:1 mapping</b>	no	
classificationValue	processDataSet/dataSetInformation/class/[@level]	<p><b>field transformation</b></p> <p>Note that the current EcoSpold01 to EcoSpold02 converter generates a single string from the former top- and sub-category divided by a '/'. This string is split into two ILCD class entries with level = 0 and 1.</p> <p>For example the entry</p> <pre>&lt;classificationValue xml:lang="en"&gt;oil/heating systems&lt;/classificationValue&gt;</pre> <p>is converted to</p> <pre>&lt;common:class level="0"&gt;oil&lt;/common:class&gt; &lt;common:class level="1"&gt; heating systems &lt;/common:class&gt;</pre>	no	

### 2.1.1.3 Type: activityDescription/geography

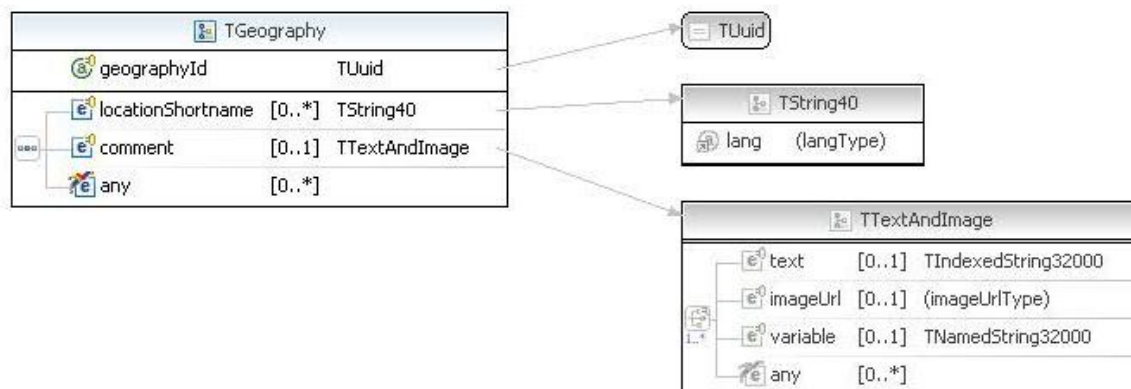


Figure 6: definition of the EcoSpold02 TGeography type

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
@geographyId		<b>no corresponding field</b>	no	
locationShortname	processDataSet/geography/locationOfOperationSupplyOrProduction/@location	<b>n:1 mapping</b> only the first is taken	no	
comment	processDataSet/geography/locationOfOperationSupplyOrProduction/descriptionOfRestrictions	<b>field transformation</b> no image support for this field in ILCD	no	

#### 2.1.1.4 Type: activityDescription/technology

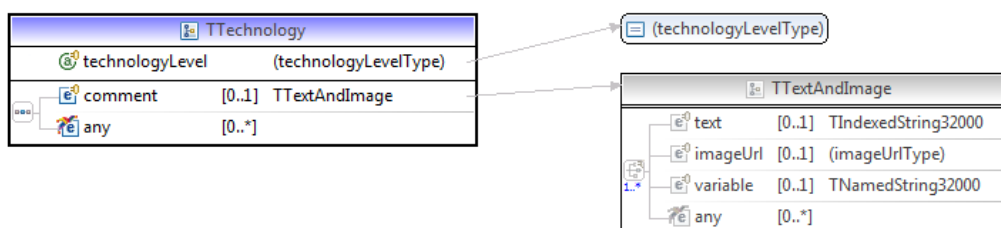


Figure 7: definition of the EcoSpold02 TTechnology type

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
@technologyLevel		<b>no corresponding field</b>	no	
comment	technology/technologicalApplicability	<b>field transformation, n:1 mapping</b> (see assignments in activity description above) <ul style="list-style-type: none"><li>no image support for this field in ILCD</li></ul>	no	

### 2.1.1.5 Type: activityDescription/timePeriod

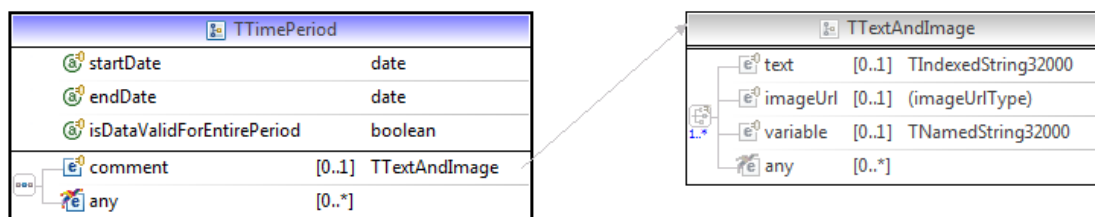


Figure 8: definition of the EcoSpold02 TTimePeriod type

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
@startDate	processDataSet/time/referenceYear	<p><b>field transformation, different field meaning</b></p> <ul style="list-style-type: none"> <li>different data types (EcoSpold: year-month-day; ILCD: year)</li> <li>different meaning of the field names, but the documentation is similar:</li> </ul> <p><b>EcoSpold:</b> "Start date of the time period for which the dataset is valid, presented as a complete date (year-month-day)."</p> <p><b>ILCD:</b> "Start year of the time period for which the data set is valid (until year of "Data set valid until:"). For data sets that combine data from different years, the most representative year is given regarding the overall environmental impact. In that case, the reference year is derived by expert judgement."</p>	no	
@endDate	processDataSet/time/dataSetValidUntil	<p><b>field transformation, different field meaning</b></p> <p>different data types</p>	no	
@isDataValidForEntirePeriod	processDataSet/time/timeRepresentativenessDescription	<p><b>field transformation</b></p> <ul style="list-style-type: none"> <li>n:1 mapping</li> <li>different data types (ES2: boolean, ILCD: FTMultiLang)</li> </ul>	no	

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
		<ul style="list-style-type: none"> <li>if "true" =&gt; "Data is valid for entire time period."</li> <li>if "false" =&gt; "Data is not valid for entire period"</li> </ul>		
comment	processDataSet/time/time RepresentativenessDescription	<b>field transformation</b> <ul style="list-style-type: none"> <li>n:1 mapping</li> <li>different data types (ES2: TTextAndImage, ILCD: FTMultiLang)</li> <li>no image support for this field in ILCD</li> </ul>	no	

### 2.1.1.6 Type: activityDescription/macro-economicScenario

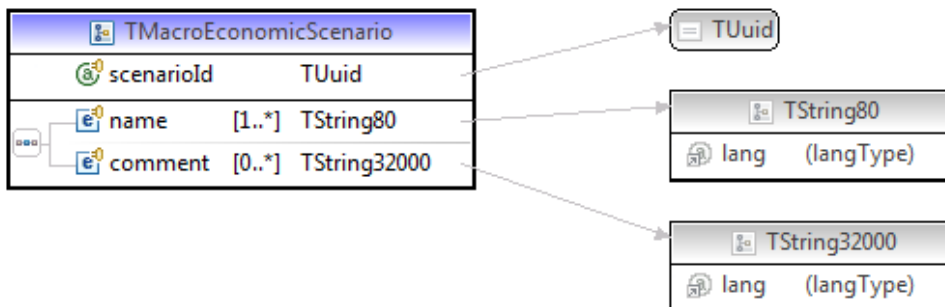


Figure 9: definition of the EcoSpold02 TMacroEconomicScenario type

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
@scenarioId		no corresponding field	no	
name		no corresponding field	no	
comment		no corresponding field	no	

## 2.1.2 Flow data

The XML schema type of flow data covers three complex elements that are defined by following types (see also figure 10):

- **TIntermediateExchange**: comprises fields (additional to the exchanges section (TCustomExchange)) which are only valid for intermediate exchanges
- **TElementaryExchange**: comprises fields (additional to the exchanges section (TCustomExchange)) which are only valid for elementary exchanges
- **TParameter**: contains a format to specify dataset parameters used in formulas

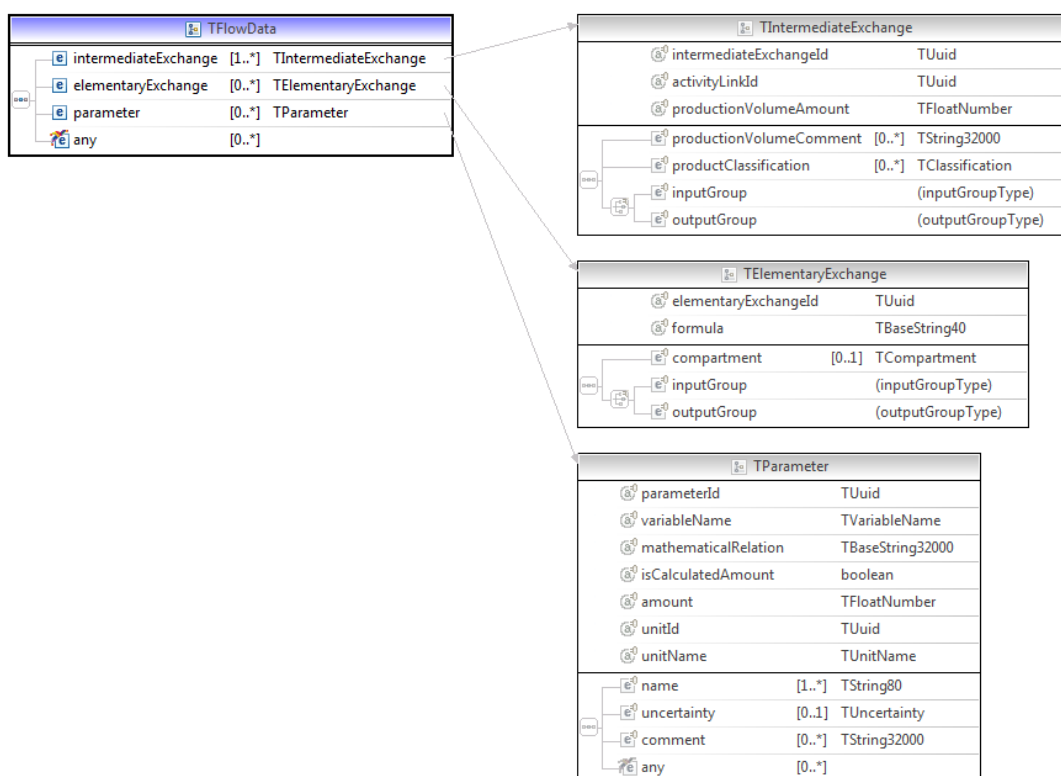


Figure 10: definition of the EcoSpold02 TFlowData type

### 2.1.2.1 Type: flowData/intermediateExchange

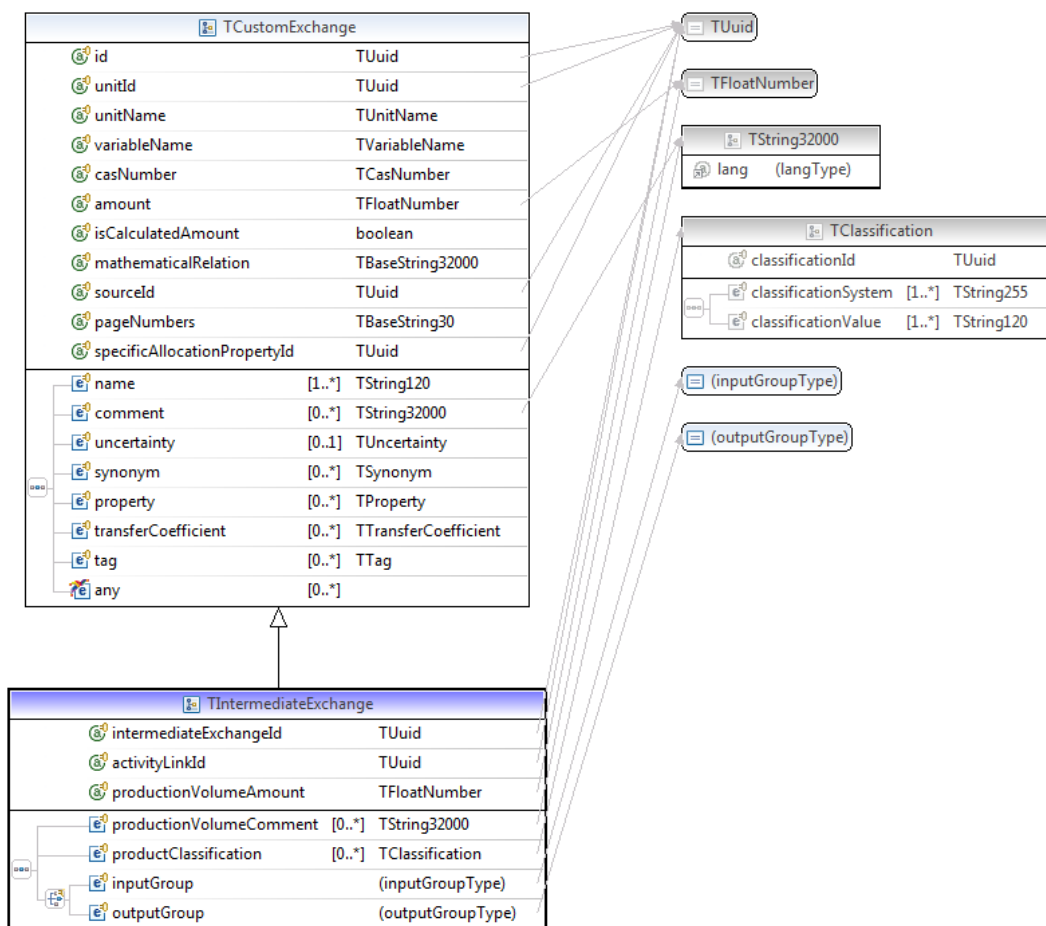


Figure 11: definition of the EcoSpold02 TCustomExchange type and TIntermediateExchange type

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
@id		no corresponding field	no	
@unitId		no corresponding field	no	
@unitName	unitGroupDataSet/units/unit/name	<b>master data look up:</b> If the unit does not exist in ILCD in a unit group data set, a new unit (and a new unit group data set) has to be generated.	no	
@variableName	processDataSet/exchanges/referenceToVariable	<b>o.k.</b>	no	

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
@casNumber	flowDataSet/dataSetInformation/CASNumber	<b>o.k.</b>	no	
@amount	processDataSet/exchanges/exchange/resultingAmount	<b>o.k.</b>	no	
@isCalculatedAmount		<b>no corresponding field</b>	no	
@mathematicalRelation		<b>no corresponding field</b>	no	
@sourceId	processDataSet/exchange/referenceToDataSource	<b>o.k.</b>	no	
@pageNumbers		<b>no corresponding field</b>	no	
@specificAllocationPropertyId		<b>no corresponding field</b>	no	
name	flowDataSet/dataSetInformation/baseName	<b>o.k.*</b> *Note that in the ILCD format extra fields for several name elements are foreseen (see the fields name/mixAndLocationTypes etc.). In EcoSpold 01 such name qualifiers are included in the name field. EcoSpold 02 provides other concepts.	no	
comment	processDataSet/exchange/generalComment	<b>o.k.</b>	no	
uncertainty	processDataSet/exchanges/uncertainty	<b>field transformation</b> <ul style="list-style-type: none"> <li>different data types (ES2: TUncertainty, ILCD: Uncertainty DistributionTypeValue)</li> <li>different uncertainty distribution types: no support for beta, gamma, and erlang distribution in ILCD</li> </ul>	no	
synonym	flowDataSet/dataSetInformation/synonyms	<b>o.k.</b>	no	
property	flowDataSet/dataSetInformation/flowProperties	<b>field transformation</b> different approaches regarding flow properties:  There are exchange-specific flow properties and fixed flow properties for every flow in EcoSpold. The ILCD format provides only fixed flow	no	

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
		properties for flows, which are always valid. The consequence is, that you have to generate a new flow data set for each exchange-specific flow property (for example: water content 20%, water content 40%, etc.)		
transferCoefficient		<b>no corresponding field</b>	no	
tag		<b>no corresponding field</b>	no	
@intermediateExchangeId	processDataSet/exchanges/referenceToFlowDataSet	<b>master data look up</b> If the intermediate exchange exists in ILCD as flow data set, the ID is taken. If not, a new flow data set with a new ID has to be generated.	no	
@activityLinkId		<b>no corresponding field</b>	no	
@productionVolumeAmount	processDataSet/modellingAndValidation/dataSourcesTreatmentAndRepresentation/annualSupplyOrProductionVolume	<b>field transformation</b> n:1 mapping, different data types (ES2: TFloatNumber, ILCD: StringMultiLang): default entry in comment field in ILCD: "The amount of the production volume amounts ##@productionVolumeAmount ##." If there is more than one production volume amount specified only one can be mapped (In this case the production volume amount of the reference flow has priority.)	no	
productionVolumeComment	processDataSet/modellingAndValidation/dataSourcesTreatmentAndRepresentation/annualSupplyOrProductionVolume	<b>field transformation</b> n:1 mapping	no	
productClassification		<b>no corresponding field</b>	no	
inputGroup		<b>no corresponding field</b> But this field gives information about the exchange direction of the flow and the flow type.	no	
outputGroup		<b>no corresponding field</b> But this field gives information about the exchange direction of the flow and reveals the reference flow.	no	



## 2.1.2.2 Type: flowData/elementaryExchange

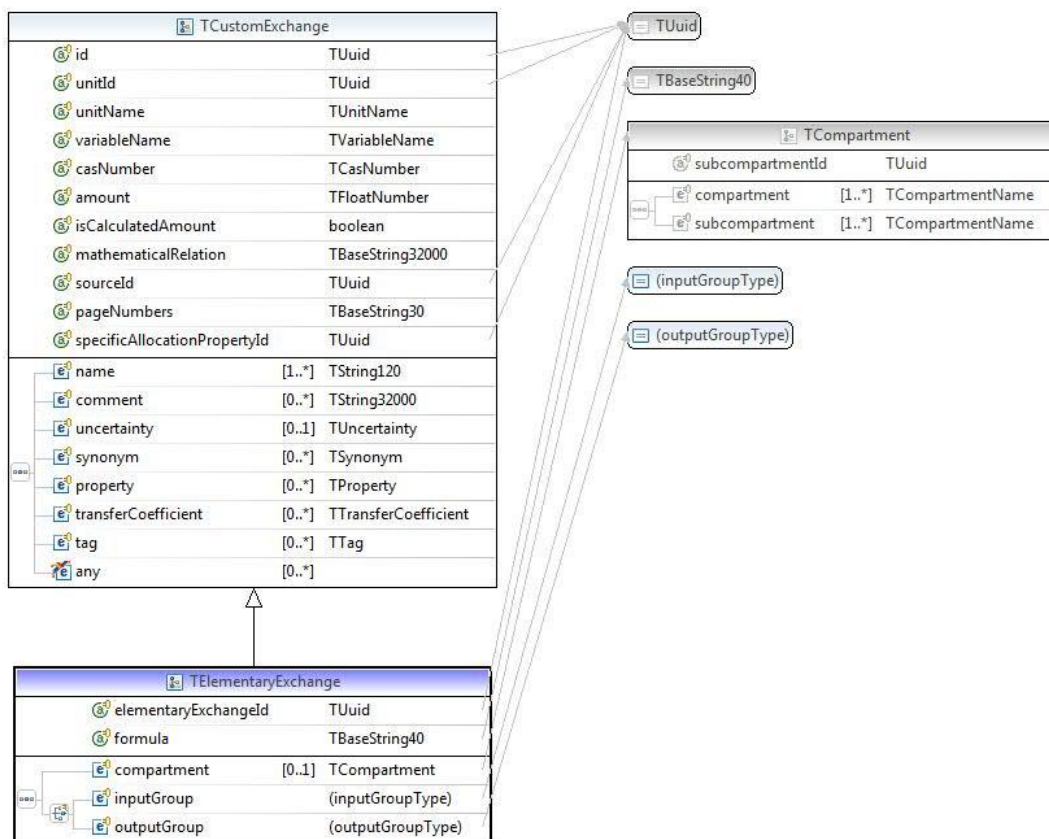


Figure 12: definition of the EcoSpold02 TCustomExchange type and TElementaryExchange type

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
@id		no corresponding field	no	
@unitId		no corresponding field	no	
@unitName	unitGroupDataSet/units/unit/name	o.k.	no	
@variableName	processDataSet/exchange/referenceToVariable	o.k.	no	
@casNumber	flowDataSet/dataSetInformation/CASNumber	o.k.	no	
@amount	processDataSet/exchanges/resultingAmount	field transformation: different data types ES2: TFloatNumber	no	

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
		ILCD: Real		
@isCalculatedAmount		<b>no corresponding field</b>	no	
@mathematicalRelation		<b>no corresponding field</b>	no	
@sourceId	processDataSet/exchanges/referenceToDataSource	<b>master data look up:</b> If the source exists in ILCD as source data set, the ID is taken. If not, a new source data set with a new ID has to be generated.	no	
@pageNumbers		<b>no corresponding field</b>	no	
@specificAllocationPropertyId		<b>no corresponding field</b>	no	
name	flowDataSet/dataSetInformation/baseName	<b>field transformation</b> The field 'name' in ES2 cannot be splitted up to the different ILCD elements 'baseName', 'treatmentStandardRoutes', and 'mixAndLocationType'	no	
comment	flowDataSet/dataSetInformation/generalComment	<b>o.k.</b>	no	
uncertainty	processDataSet/exchanges/Uncertainty...	<b>field transformation:</b> <ul style="list-style-type: none"> <li>different data types (ES2: TUncertainty, ILCD: UncertaintyDistributionTypeValue)</li> <li>different uncertainty distribution types: no support for beta, gamma, and erlang distribution in ILCD</li> </ul>	no	
synonym	flowDataSet/dataSetInformation/synonyms	<b>o.k.</b>	no	
property	flowDataSet/dataSetInformation/flowProperties	<b>o.k.</b>	no	
transferCoefficient		<b>no corresponding field</b>	no	
tag		<b>no corresponding field</b>	no	
@elementaryExchangeId	processDataSet/exchanges/referenceToFlowDataSet	<b>master data look up:</b> If the elementary exchange exists in ILCD as flow data set, the ID is taken. If not, a new flow data set with a new ID has to be generated.	no	

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
@formula	flowDataSet/dataSetInformation/sumFormula	o.k.	no	
Compartment	flowDataSet/dataSetInformation/elementaryFlowCategorization/category/@level	<p><b>field transformation:</b> mapping of different classification systems with different compartments:</p> <ul style="list-style-type: none"> <li>• air/high population density =&gt; Emissions/Emissions to air/Emissions to urban air close to ground</li> <li>• air/low population density =&gt; Emissions/Emissions to air/Emissions to non-urban air or from high stacks</li> <li>• air/low population density, long-term =&gt; new compartment</li> <li>• air/lower stratosphere + upper troposphere =&gt; Emissions/Emissions to air/Emissions to lower stratosphere and upper troposphere</li> <li>• air/unspecified =&gt; Emissions/Emissions to air/Emissions to air, unspecified</li> <li>• resource/biotic =&gt; new compartment</li> <li>• resource/in air =&gt; new compartment</li> <li>• resource/in ground =&gt; new compartment</li> <li>• resource/in water =&gt; new compartment</li> <li>• resource/land =&gt; new compartment</li> <li>• soil/agricultural =&gt; Emissions/Emissions to soil/Emissions to agricultural soil</li> <li>• soil/forestry =&gt; new compartment</li> <li>• soil/industrial =&gt; new</li> </ul>	no	

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
		compartment <ul style="list-style-type: none"> <li>• soil/unspecified =&gt; Emissions/Emissions to soil/Emissions to soil, unspecified</li> <li>• water/fossil- =&gt; new compartment</li> <li>• water/ground- =&gt; new compartment</li> <li>• water/ground-, long-term =&gt; new compartment</li> <li>• water/lake =&gt; new compartment</li> <li>• water/ocean =&gt; Emissions/Emissions to water/ Emissions to sea water</li> <li>• water/river =&gt; new compartment</li> <li>• water/river, long-term =&gt; new compartment</li> <li>• water/unspecified =&gt; Emissions/Emissions to water/Emissions to water, unspecified</li> </ul>		
inputGroup		<b>no corresponding field</b> But this field gives information about the exchange direction of the flow and the classification ("4" (= from environment) => resource).	no	
outputGroup		<b>no corresponding field</b> But this field gives information about the exchange direction of the flow and the classification ("4" (= to environment) => emission).	no	

### 2.1.2.3 Type: flowData/parameter

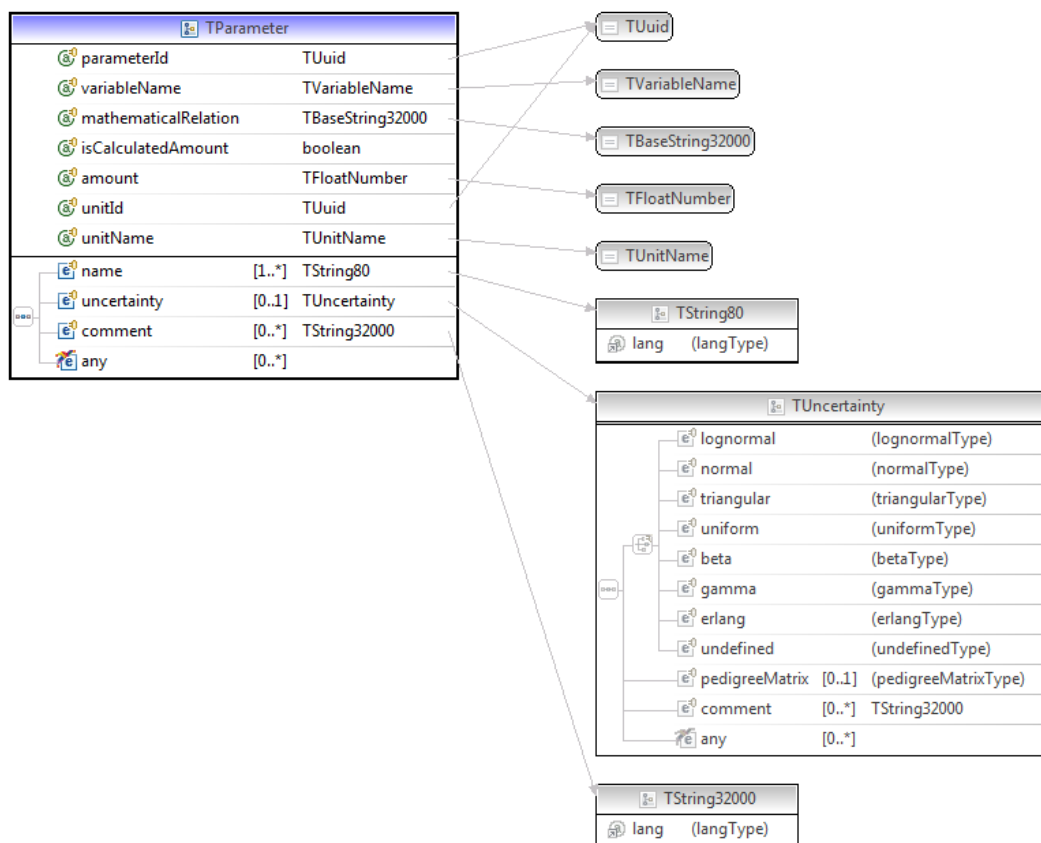


Figure 13: definition of the EcoSpold02 TParameter type

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
@parameterId		<b>no corresponding field</b>	no	
@variableName	processDataSet/mathematical Relations/variableParameter/@name	<b>o.k.</b>	no	
@mathematicalRelation	processDataSet/mathematical Relations/formula	<b>o.k.</b>	no	
@isCalculatedAmount		<b>no corresponding field</b>	no	
@unitID		<b>no corresponding field</b>	no	
@unitName	processDataSet/mathematical Relations/variableParameter/comment	<b>field transformation:</b> 3:1 mapping	no	

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
name	processDataSet/mathematical Relations/variableParameter/comment	<b>field transformation:</b> 3:1 mapping	no	
uncertainty	processDataSet/mathematical Relations/uncertaintyDistributionType	<b>field transformation:</b> <ul style="list-style-type: none"> <li>different data types (ES2: TUncertainty, ILCD: UncertaintyDistributionTypeValue)</li> <li>different uncertainty distribution types: no support for beta, gamma, and erlang distribution in ILCD</li> </ul>	no	
comment	processDataSet/mathematical Relations/variableParameter/comment	<b>field transformation:</b> 3:1 mapping	no	

### 2.1.3 Modelling and validation

The XML schema type of modeling and validation involves also three complex elements. The elements are explicate by following types (see also figure ...):

- **TRepresentativeness: comprises** information about the fraction of the relevant market supplied by the product/service described in the dataset as market share, production volume and information about how data have been sampled
- **TSource: contains** information about authors, title, kind of publication, place of publication, name of editors (if any), etc
- **TReview:** contains information about who carried out the critical review and about the main results and conclusions of the review and the recommendations made

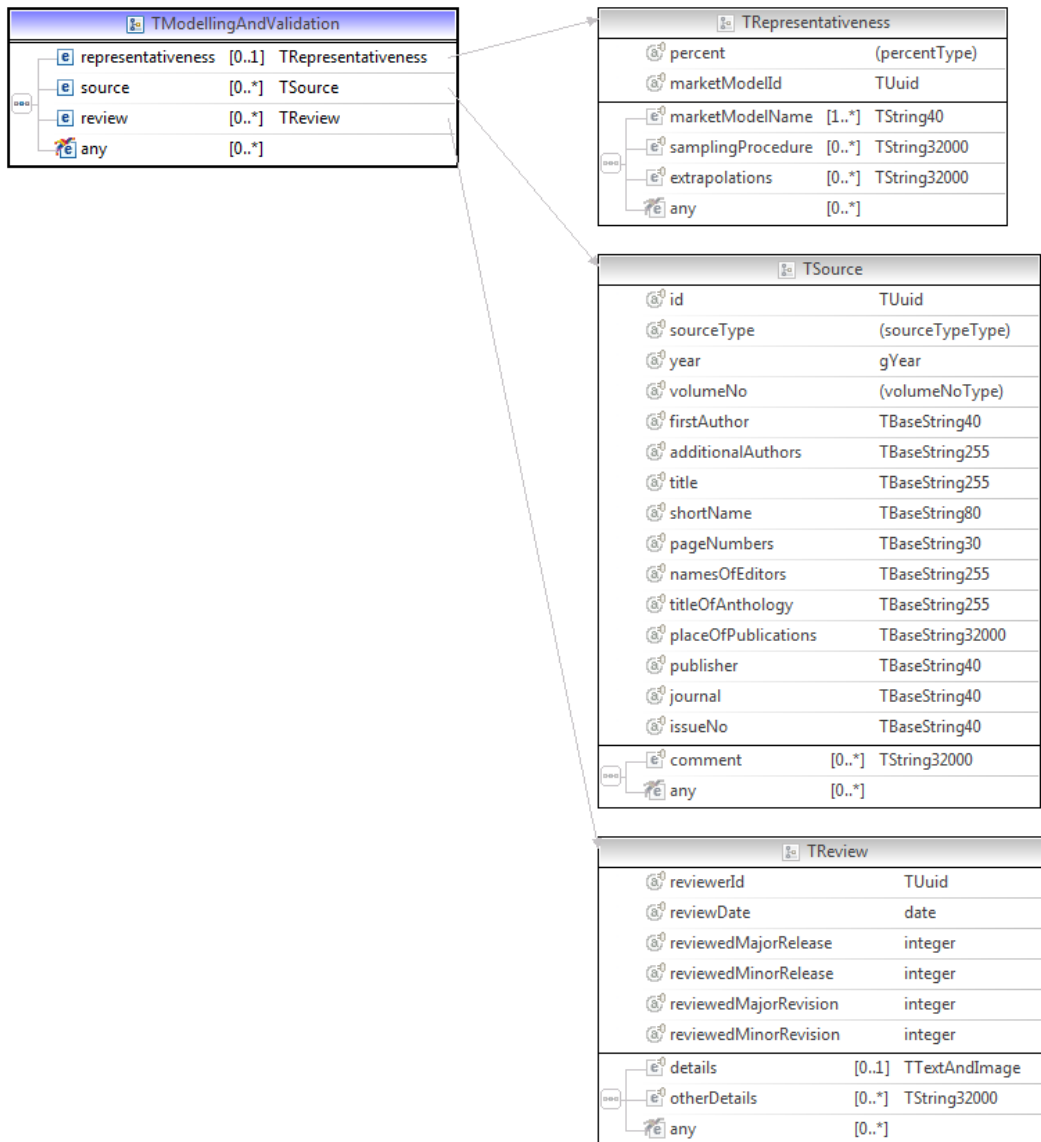


Figure 14: definition of the EcoSpold02 TmodellingAndValidation type

### 2.1.3.1 Type: modellingAndValidation/representativeness

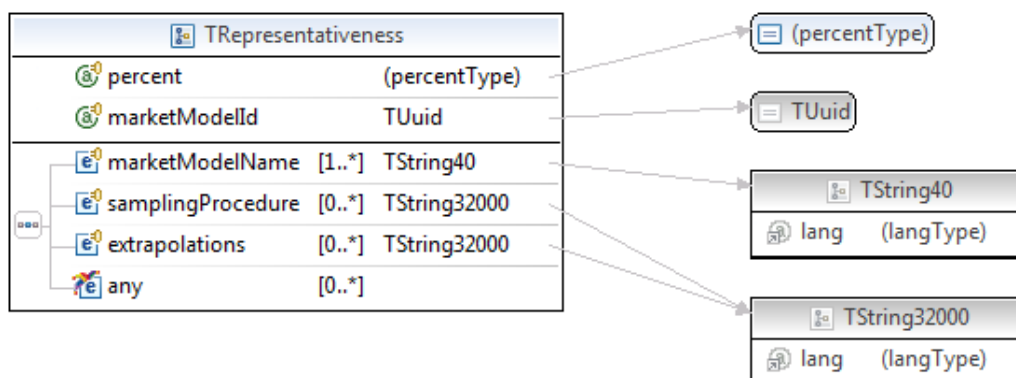


Figure 15: definition of the EcoSpold02 TRepresentativeness type

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
@percent	processDataSet/modellingAndValidation/dataSourcesTreatmentAndRepresentation/percentageSupplyOrProductionCovered	<b>o.k.</b>	no	
@marketModelId		<b>no corresponding field</b>	no	
marketModelName		<b>no corresponding field</b>	no	
samplingProcedure	ModellingAndValidation/dataSourcesTreatmentAndRepresentation/samplingProcedure	<b>o.k.</b>	no	
extrapolations	ModellingAndValidation/dataSourcesTreatmentAndRepresentation/samplingProcedure/dataTreatmentAndExtrapolationsPrinciples	<b>o.k.</b>	no	



### 2.1.3.2 Type: modellingAndValidation/source

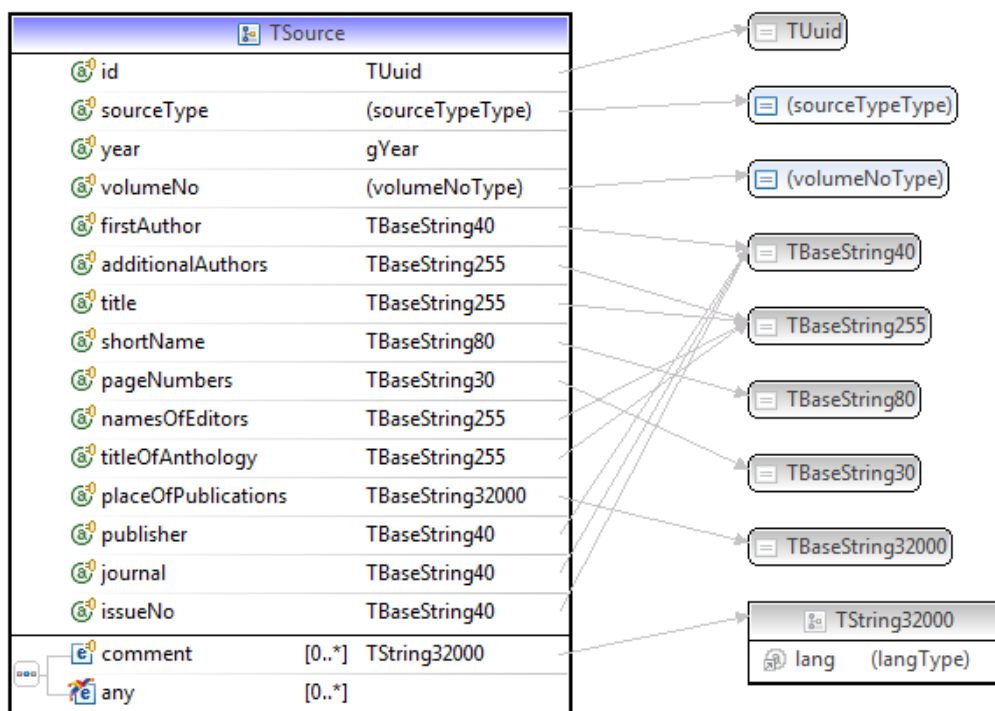


Figure 16: definition of the EcoSpold02 TSource type

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
@id	processInformation/dataSetInformation/referenceToExternalDocumentation	<b>master data look up</b> If the source exists in ILCD as source data set, the ID is taken. If not, a new source data set has to be generated.	no	
@sourceType	sourceDataSet/dataSet/information/publicationType	<b>enumeration mapping</b> different data types (ES2: integer, ILCD: PublicationTypeValues), different enumerations: <ul style="list-style-type: none"> <li>0 (=Undefined (default)) =&gt; "Undefined"</li> <li>1 (= Article) =&gt; "Article in periodical"</li> <li>2 (= Chapters in anthology) =&gt; "Chapter in anthology"</li> </ul>	yes	

		<ul style="list-style-type: none"> <li>• 3 (= Separate publication) =&gt; "Monograph"</li> <li>• 4 (= Measurement on site) =&gt; "Direct measurement"</li> <li>• 5 (= Oral communication) =&gt; "Oral communication"</li> <li>• 6 (= Personal written communication) =&gt; "Personal written communication"</li> <li>• 7 (= Questionnaires)=&gt; "Questionnaire"</li> </ul>		
@year	sourceDataSet/dataSetInformation/sourceCitation	<b>field concatenation</b> n:1 mapping The reference in ILCD is the concatenation of eleven EcoSpold fields in the following arrangement: ##@firstAuthor##, ##@additionalAuthors##: ##@title##, in: ##@nameOfEditors##: ##@titleOfAnthology##, ##@journal##, ##@volumeNo##, ##@pageNumbers##, ##@placeOfPublications##, ##@publisher##, ##@year##	no	
@volumeNo	sourceDataSet/dataSetInformation/sourceCitation	<b>field concatenation</b> n:1 mapping The reference in ILCD is the concatenation of eleven EcoSpold fields in the following arrangement: ##@firstAuthor##, ##@additionalAuthors##: ##@title##, in: ##@nameOfEditors##: ##@titleOfAnthology##, ##@journal##, ##@volumeNo##, ##@pageNumbers##, ##@placeOfPublications##, ##@publisher##, ##@year##	no	
@firstAuthor	sourceDataSet/dataSetInformation/sourceCitation	<b>field concatenation</b> n:1 mapping The reference in ILCD is the concatenation of eleven EcoSpold fields in the following arrangement: ##@firstAuthor##, ##@additionalAuthors##: ##@title##, in: ##@nameOfEditors##:	no	

		<p>##@titleOfAnthology##, ##@journal##, ##@volumeNo##, ##@pageNumbers##, ##@placeOfPublications##, ##@publisher##, ##@year##</p>		
@additionalAuthors	sourceDataSet/dataSetInformation/sourceCitation	<p><b>field concatenation</b></p> <p>n:1 mapping</p> <p>The reference in ILCD is the concatenation of eleven EcoSpold fields in the following arrangement:</p> <p>##@firstAuthor##, ##@additionalAuthors##: ##@title##, in: ##@nameOfEditors##: ##@titleOfAnthology##, ##@journal##, ##@volumeNo##, ##@pageNumbers##, ##@placeOfPublications##, ##@publisher##, ##@year##</p>	no	
@title	sourceDataSet/dataSetInformation/sourceCitation	<p><b>field concatenation</b></p> <p>n:1 mapping</p> <p>The reference in ILCD is the concatenation of eleven EcoSpold fields in the following arrangement:</p> <p>##@firstAuthor##, ##@additionalAuthors##: ##@title##, in: ##@nameOfEditors##: ##@titleOfAnthology##, ##@journal##, ##@volumeNo##, ##@pageNumbers##, ##@placeOfPublications##, ##@publisher##, ##@year##</p>	no	
@shortName	sourceDataSet/dataSetInformation/shortName	<b>o.k.</b>	no	
@pageNumbers	sourceDataSet/dataSetInformation/sourceCitation	<p><b>field concatenation</b></p> <p>n:1 mapping</p> <p>The reference in ILCD is the concatenation of eleven EcoSpold fields in the following arrangement:</p> <p>##@firstAuthor##, ##@additionalAuthors##: ##@title##, in: ##@nameOfEditors##: ##@titleOfAnthology##, ##@journal##, ##@volumeNo##, ##@pageNumbers##, ##@placeOfPublications##, ##@publisher##, ##@year##</p>	no	

@namesOfEditors	sourceDataSet/dataSetInformation/sourceCitation	<p><b>field concatenation</b></p> <p>n:1 mapping</p> <p>The reference in ILCD is the concatenation of eleven EcoSpold fields in the following arrangement:</p> <p>##@firstAuthor##, ##@additionalAuthors##: ##@title##, in: ##@nameOfEditors##: ##@titleOfAnthology##, ##@journal##, ##@volumeNo##, ##@pageNumbers##, ##@placeOfPublications##, ##@publisher##, ##@year##</p>	no	
@titleOfAnthology	sourceDataSet/dataSetInformation/sourceCitation	<p><b>field concatenation</b></p> <p>n:1 mapping</p> <p>The reference in ILCD is the concatenation of eleven EcoSpold fields in the following arrangement:</p> <p>##@firstAuthor##, ##@additionalAuthors##: ##@title##, in: ##@nameOfEditors##: ##@titleOfAnthology##, ##@journal##, ##@volumeNo##, ##@pageNumbers##, ##@placeOfPublications##, ##@publisher##, ##@year##</p>	no	
@placeOfPublications	sourceDataSet/dataSetInformation/sourceCitation	<p><b>field concatenation</b></p> <p>n:1 mapping</p> <p>The reference in ILCD is the concatenation of eleven EcoSpold fields in the following arrangement:</p> <p>##@firstAuthor##, ##@additionalAuthors##: ##@title##, in: ##@nameOfEditors##: ##@titleOfAnthology##, ##@journal##, ##@volumeNo##, ##@pageNumbers##, ##@placeOfPublications##, ##@publisher##, ##@year##</p>	no	
@publisher	sourceDataSet/dataSetInformation/sourceCitation	<p><b>field concatenation</b></p> <p>n:1 mapping</p> <p>The reference in ILCD is the concatenation of eleven EcoSpold fields in the following arrangement:</p> <p>##@firstAuthor##, ##@additionalAuthors##:</p>	no	

		<p>##@title##, in:  ##@nameOfEditors##:  ##@titleOfAnthology##,  ##@journal##, ##@volumeNo##,  ##@pageNumbers##,  ##@placeOfPublications##,  ##@publisher##, ##@year##</p>		
@journal	sourceDataSet/dataSetInformation/sourceCitation	<p><b>field concatenation</b></p> <p>n:1 mapping</p> <p>The reference in ILCD is the concatenation of eleven EcoSpold fields in the following arrangement:</p> <p>##@firstAuthor##,  ##@additionalAuthors##:  ##@title##, in:  ##@nameOfEditors##:  ##@titleOfAnthology##,  ##@journal##, ##@volumeNo##,  ##@pageNumbers##,  ##@placeOfPublications##,  ##@publisher##, ##@year##</p>	no	
@issueNo	sourceDataSet/dataSetInformation/sourceCitation	<p><b>field concatenation</b></p> <p>n:1 mapping</p> <p>The reference in ILCD is the concatenation of eleven EcoSpold fields in the following arrangement:</p> <p>##@firstAuthor##,  ##@additionalAuthors##:  ##@title##, in:  ##@nameOfEditors##:  ##@titleOfAnthology##,  ##@journal##, ##@volumeNo##,  ##@pageNumbers##,  ##@placeOfPublications##,  ##@publisher##, ##@year##</p>	no	
comment	sourceDataSet/dataSetInformation/sourceDescriptionOrComment	<b>o.k.</b>	no	

### 2.1.3.3 Type: modellingAndValidation/review

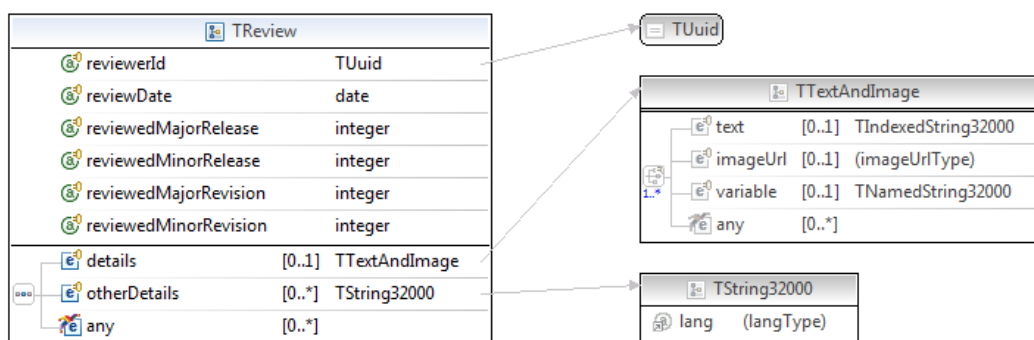


Figure 17: definition of the EcoSpold02 TReview type

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
@reviewerId	processDataSet/modellingAndValidation/Validation/referenceToNameOfReviewerAndInstitute	<b>master data look up</b> If the reviewer exists in an ILCD contact data set, the ID is taken. If not, a new contact data set is generated.	no	Yellow
@reviewDate		<b>no corresponding field</b>	no	Red
@reviewedMajorRelease		<b>no corresponding field</b>	no	Red
@reviewedMinorRelease		<b>no corresponding field</b>	no	Red
@reviewedMajorRevision		<b>no corresponding field</b>	no	Red
@reviewedMinorRevision		<b>no corresponding field</b>	no	Red
details	processDataSet/modellingAndValidation/Validation/reviewDetails	<b>o.k.</b>	no	Green
otherDetails	processDataSet/modellingAndValidation/Validation/otherReviewDetails	<b>o.k.</b>	no	Green

#### 2.1.4 Administrative information

The XML schema type of the administrative information comprises four complex elements with the following schema types:

- **TDataEntryBy:** contains information about the author of the dataset, i.e. the person that entered data into the database format and thereby is the person responsible for the data
- **TDataGeneratorAndPublication:** contains information about who collected, compiled or published the original data, contains also information about kind of publication and the accessibility of the dataset
- **TPerson:** is used for the identification of members of organizations or institutes that are named in the areas Validation, dataEntryBy and dataGeneratorAndPublication
- **TFileAttributes:** contains meta information regarding the file as a whole inclusive references to the file lists

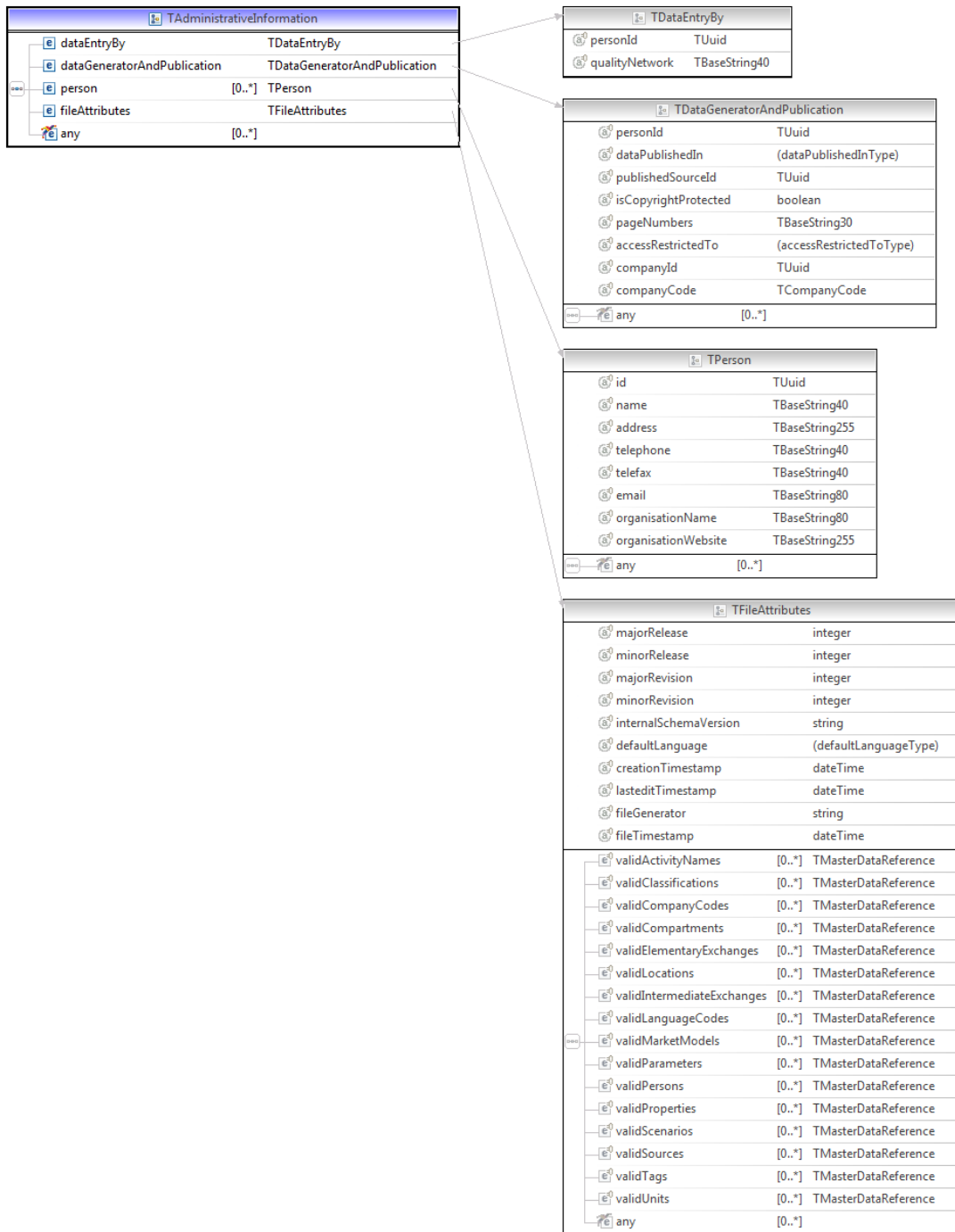


Figure 18: definition of the EcoSpold02 TAdministrativeInformation type



### 2.1.4.1 Type: administrativeInformation/dataEntryBy



Figure 19: definition of the EcoSpold02 TDataEntryBy type

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
@personId	processDataSet/administrativeInformation/dataEntryBy/referenceToPersonOrEntityEnteringTheData	<b>master data look up</b> If the person exists in an ILCD contact data set, the ID is taken. If not, a new contact data set is generated.	no	
@qualityNetwork		<b>no corresponding field</b> But the field gives information about the access to the data set: "1" (= ecoinvent) => processDataSet/dataEntryBy/publicationAndOwnership/referenceToOwnershipOfDataSet: ID of ecoinvent	no	

## 2.1.4.2 Type: administrativeInformation/dataGeneratorAndPublication

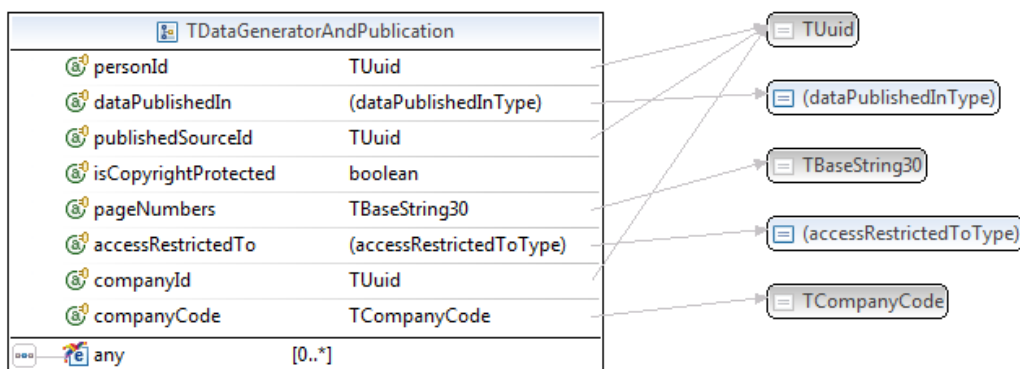


Figure 20: definition of the EcoSpold02 TDataGeneratorAndPublication type

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
@personId	processDataSet/administrativeInformation/dataGenerator	<b>master data look up</b> If the person exists in an ILCD contact data set, the ID is taken. If not, a new contact data set has to be generated.	no	Yellow
@dataPublishedIn		<b>no corresponding field</b>	no	Red
@publishedSourceId	processDataSet/administrativeInformation/publicationAndOwnership/referenceToUnchangedReplication	<b>different field meaning</b> In ES2 a documentation of the dataset is referenced, in ILCD the original data source is specified	no	Yellow
@isCopyrightProtected	processDataSet/administrativeInformation/publicationAndOwnership/copyright	<b>o.k.</b>	no	Green
@pageNumbers		<b>no corresponding field</b>	no	Red
@accessRestrictedTo	processDataSet/administrativeInformation/publicationAndOwnership/accessRestrictions	<b>field transformation:</b> different data types (ES2: integer, ILCD: FTMultiLang) <ul style="list-style-type: none"> <li>0 (= Public) =&gt; "no access restrictions"</li> <li>1 (= ETH Domain) =&gt; "access restricted to ETH Domain"</li> <li>2 (= ecoinvent) =&gt; "access restricted to ecoinvent"</li> </ul>	yes	Yellow

		<ul style="list-style-type: none"> <li>3 (= Institute) =&gt; "access restricted to institute"</li> </ul>		
@companyId	processDataSet/administrativeInformation/publicationAndOwnership/referenceToEntitiesWithExclusiveAccess	<b>master data look up</b> If the company exists in an ILCD contact data set, the ID is taken. If not, a new contact data set has to be generated.	no	
@companyId		<b>no corresponding field</b>	no	

### 2.1.4.3 Type: administrativeInformation/person

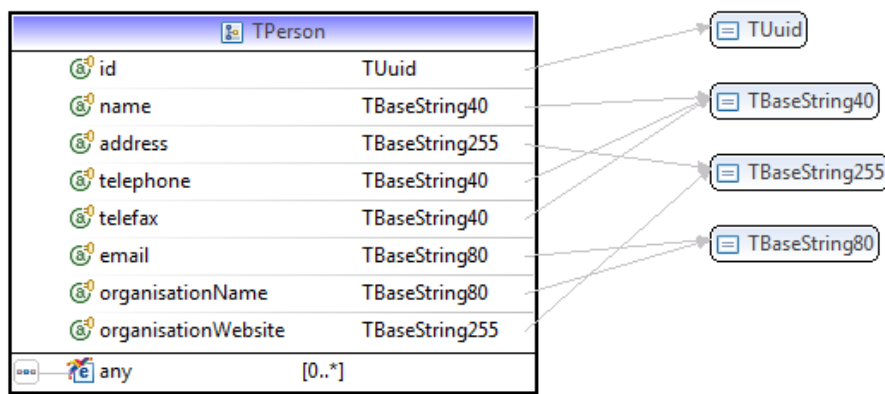


Figure 21: definition of the EcoSpold02 TPerson type

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
@id	contactDataSet/dataSetInformation/UUID	<b>master data look up</b> If the person exists in an ILCD contact data set, the ID is taken. If not, a new contact data set has to be generated.	no	
@name	contactDataSet/dataSetInformation/name	<b>field transformation</b> 2:1 mapping	no	
@address	contactDataSet/dataSetInformation/contactAddress	<b>o.k.</b>	no	
@telephone	contactDataSet/dataSetInformation/telephone	<b>o.k.</b>	no	
@telefax	contactDataSet/dataSetInformation/telefax	<b>o.k.</b>	no	
@email	contactDataSet/dataSetInformation/email	<b>o.k.</b>	no	

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
@organisationName	contactDataSet/dataSetInformation/name	field transformation 2:1 mapping	no	
@organisationWebsite	contactDataSet/dataSetInformation/WWWAddress	o.k.	no	

#### 2.1.4.4 Type: administrativeInformation/fileAttributes

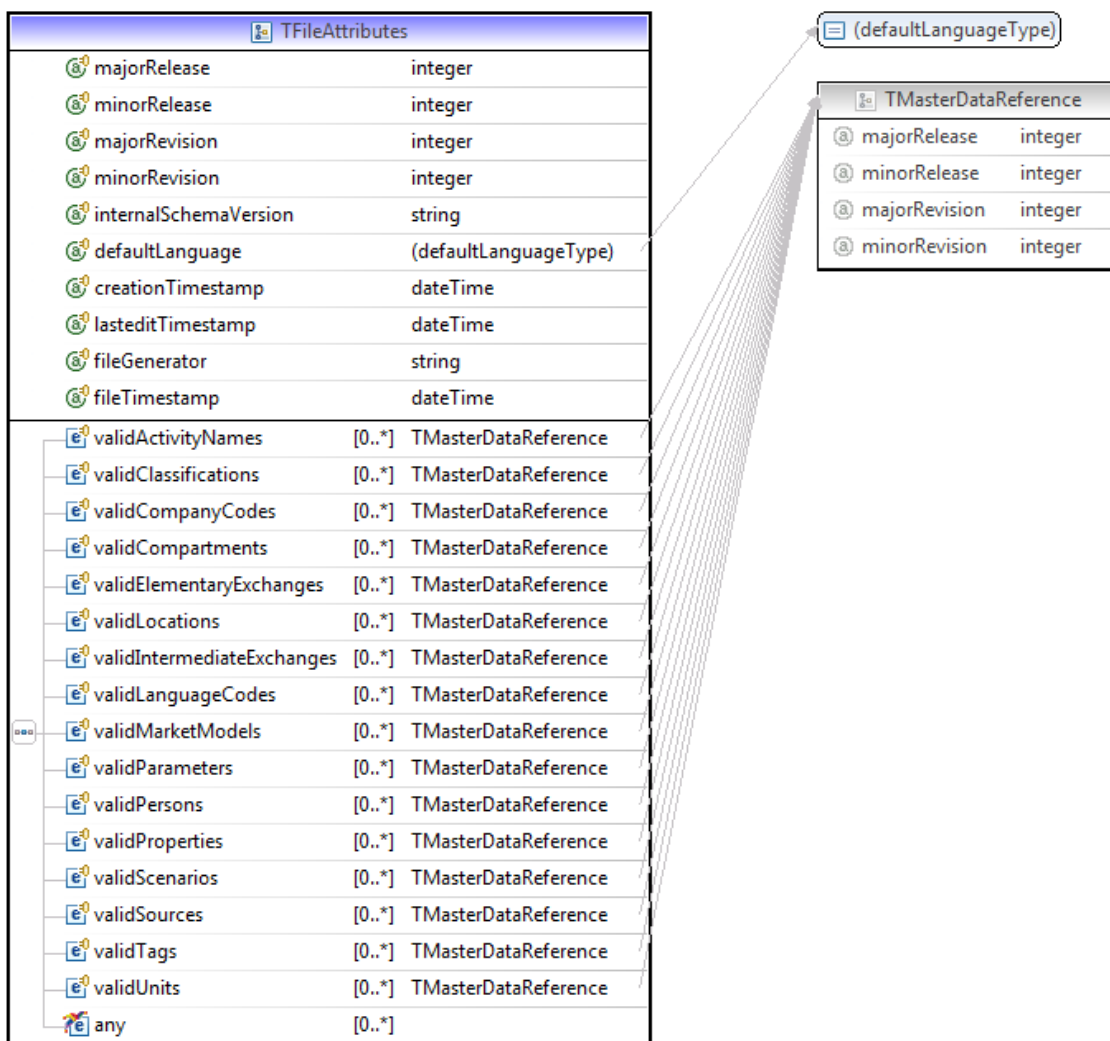


Figure 22: definition of the EcoSpold02 TFileAttributes type

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
@majorRelease		no corresponding field	no	
@minorRelease		no corresponding field	no	
@majorRevision		no corresponding field	no	
@minorRevision		no corresponding field	no	
@defaultLanguage		no corresponding field	no	
@creationTimestamp	processDataSet/administrativeInformation/dataEntryBy/timeStamp	o.k.	no	
@lasteditTimestamp	processDataSet/administrativeInformation/publicationAndOwnership/dateOfLastRevision	o.k.	no	
@internalSchemaVersion		no corresponding field	no	
@fileGenerator		no corresponding field	no	
@fileTimestamp		no corresponding field	no	
validActivityNames		no corresponding field	no	
validClassifications		no corresponding field	no	
validCompanyCodes		no corresponding field	no	
validCompartments		no corresponding field	no	
validElementaryExchanges		no corresponding field	no	
validLocations		no corresponding field	no	
validIntermediateExchanges		no corresponding field	no	
validLanguageCodes		no corresponding field	no	
validMarketModels		no corresponding field	no	
validParameters		no corresponding field	no	
validPersons		no corresponding field	no	
validProperties		no corresponding field	no	
validScenarios		no corresponding field	no	
validSources		no corresponding field	no	
validTags		no corresponding field	no	
validUnits		no corresponding field	no	

### 3 References

[1] <http://greendeltatc.com/openLCA-Format-Konverter.117.0.html>

[2] <http://openlca.org/Converter.8.0.html>

[3] EcoSpold02 beta 4 schema documentation, retrieved from  
<http://www.ecoinvent.org/database/ecospold-data-format/ecospold-v2/>, January 2010