

Documentation openLCA format converter V2

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Data Conversion from EcoSpold01 to ILCD

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1 Introduction

This documentation describes the conversion from the EcoSpold01 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:

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, 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, “@unit” 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 EcoSpold01 to ILCD 1.1. Other documents [Data Conversion from EcoSpold02 to ILCD, Data Conversion from ILCD to EcoSpold02] deal with further conversion “directions” and formats.

Starting from the fields in EcoSpold01, 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 EcoSpold01 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 EcoSpold01 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 (3 = no mapping possible, 2 = mapping is problematic, 1 = mapping works without problems).

The structure of the data format will be illustrated by help of images created from the EcoSpold01 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.

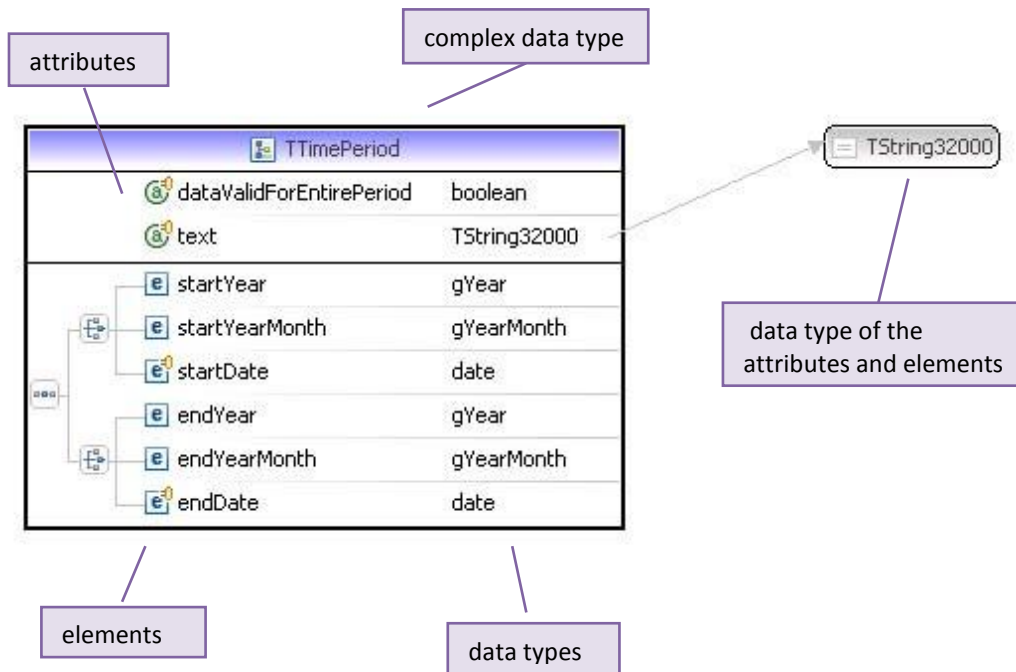


Figure 1: definition of the TActivity type in EcoSpold, example of an image of an XML schema type with explanations

2 Mapping description of EcoSpold01

The XML schema type of TEcoSpold contains two attributes and one complex element. This complex element is defined by the data type **TDataset**. TDataset contains information about one individual unit process (or terminated system). The Information is divided into metaInformation and flowData, which are also complex elements.

An EcoSpold file can contain more than one data set. Thus, the conversion of an EcoSpold process file can result in several ILCD files. The attributes above are related to all data sets in the respective file.

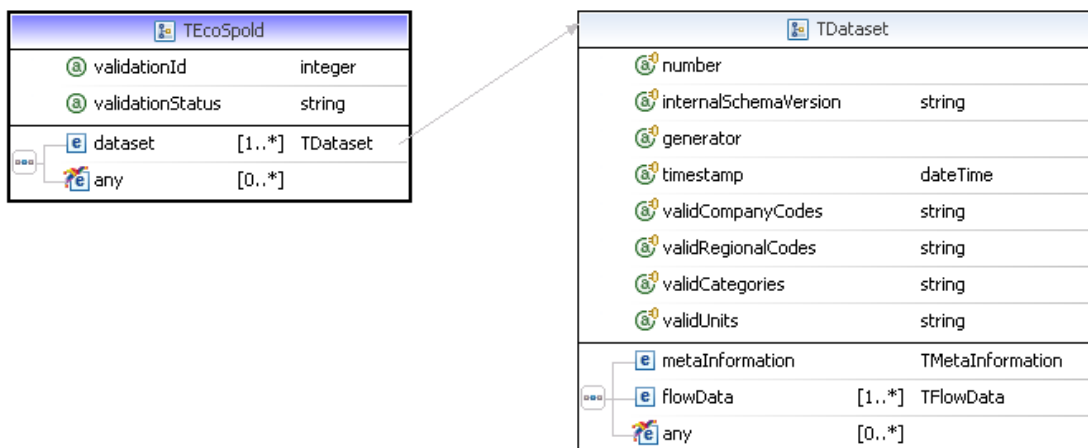


Figure 2: definition of the EcoSpold01 TEcoSpold type

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
@validationId		no corresponding field	no	3
@validationStatus		no corresponding field	no	3

2.1 Type: ecoSpold/dataset

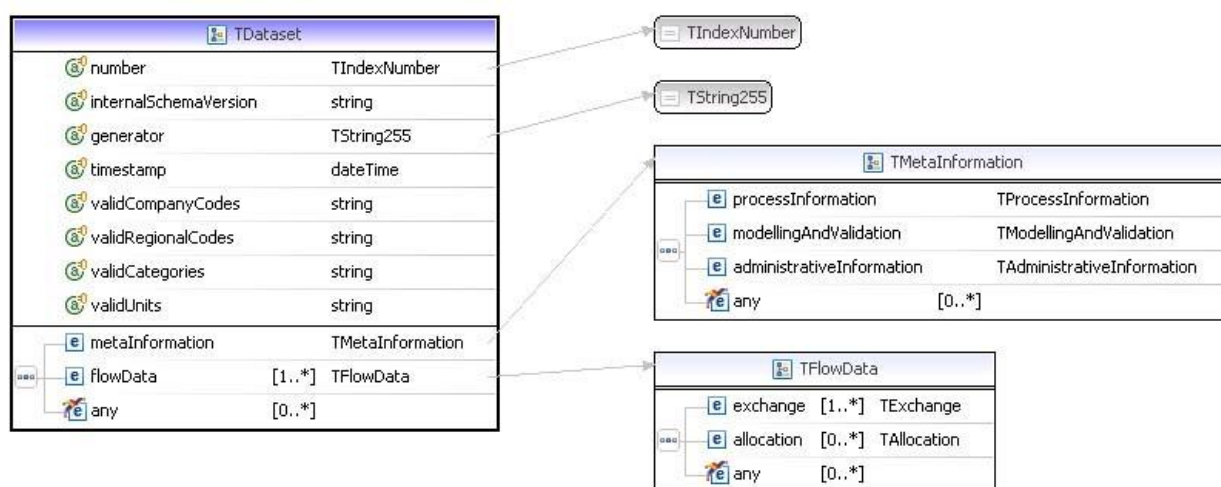


Figure 3: definition of the EcoSpold01 TDataSet type

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
@number	publicationAndOwnership /registrationNumber	field transformation different data types: ES1: TIndexNumber ILCD: String	no	2
@generator		no corresponding field	no	3
@timestamp	processDataSet/administrativeInformation/dataEntryBy/timeStamp	o.k.	no	1
@validCompanyCodes		no corresponding field	no	3
@validRegionalCodes		master data look up	no	2
@validCategories		master data creation inclusion of the ecoinvent categories	no	2
@validUnits		master data creation inclusion of the ecoinvent	no	2

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
		units in the ILCD unit group data sets		

2.1.1 TMetaInformation

The XML schema definition of TMetaInformation comprises three complex elements with the following data types (see also figure 4)

- **TProcessInformation:** contains content-related metainformation for the process
- **TModellingAndValidation:** contains metaInformation about how unit processes are modelled and about the review/validation of the dataset
- **TAdministrativeInformation:** contains information about the person and the quality network the person belongs to

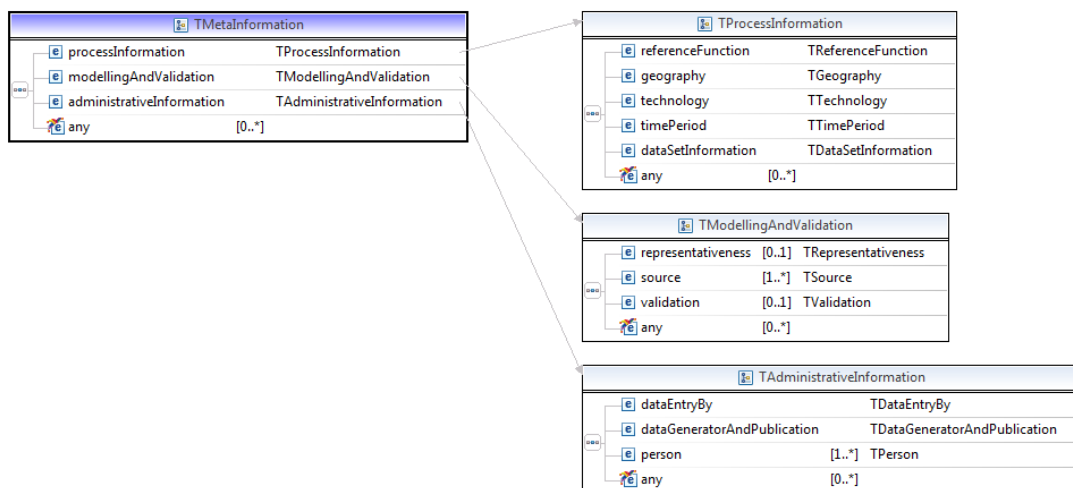


Figure 4: definition of the EcoSpold01 TMetaInformation type

2.1.1.1 ProcessInformation

The XML schema type of ProcessInformation contains five complex elements with following data types (see also figure 5):

- **TReferenceFunction:** contains the identifying information of a dataset as name, unit, classification, etc.
- **TGeography:** contains information about the geographic validity of the process
- **Technology:** describes the technology for which the flow data have been collected

- **TTimePeriod**: describes the start and end date of the time period for which the dataset is valid
- **TDataSetInformation**: contains the administrative information about the dataset

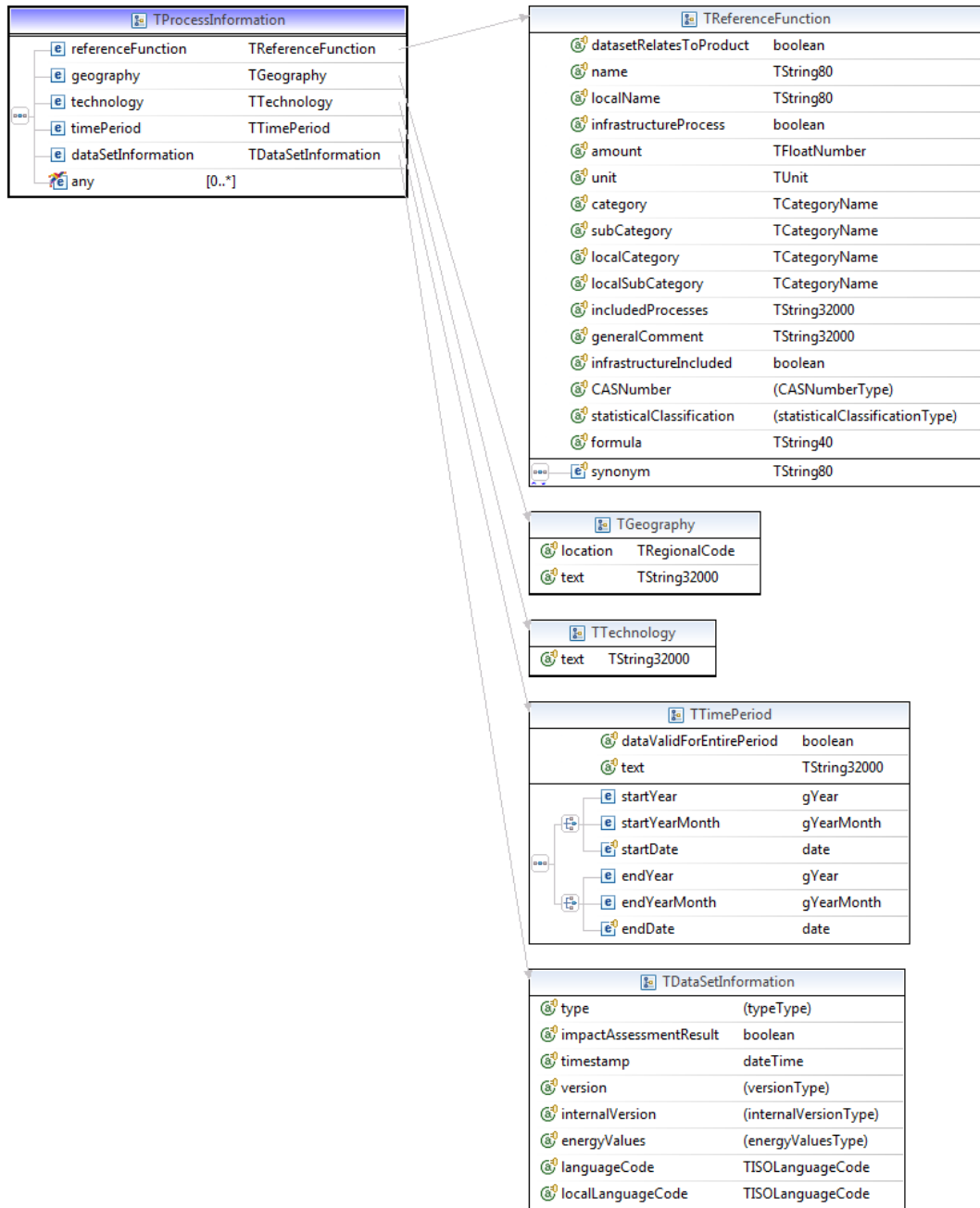


Figure 5: definition of the EcoSpold01 TProcessInformation type

a) Type: processInformation/referenceFunction

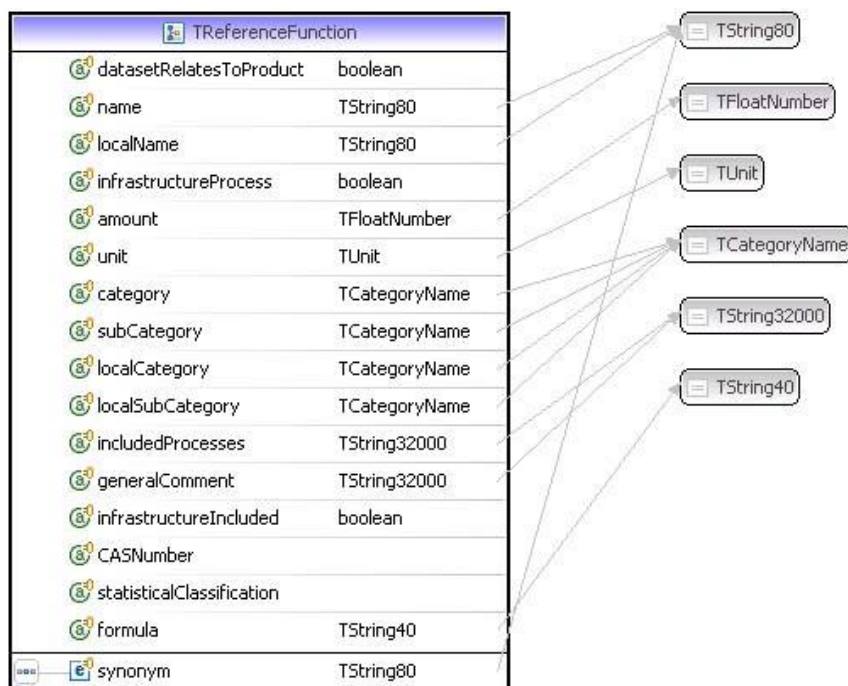


Figure 6: definition of the EcoSpold01 TReferenceFunction type

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
@datasetRelatesToProduct		no corresponding field default value (always true for processes, false for elementary flows and IA categories)	no	3
@name	processDataSet/dataSetInformation/name/baseName[1]	o.k.	no	1
@localName	processDataSet/dataSetInformation/name/baseName[2]	o.k. Note: the field 'baseName' in ILCD is a multi language field	no	1
@infrastructureProcess		no corresponding field	no	3
@amount	processDataSet/exchanges/resultingAmount	o.k.	no	1
@unit	unitGroupDataSet/units/unit/name *	master data look up 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	no	2

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
		be generated.		
@category	processDataSet/dataSetInformation/classificationInformation/class[@level = 0]/@name	o.k. (inclusion of the ecoinvent category system)	no	1
@subCategory	processDataSet/dataSetInformation/classificationInformation/class[@level = 0]/@name	o.k. (inclusion of the ecoinvent category system)	no	1
@localCategory	processDataSet/dataSetInformation/classificationInformation/lass[@level = 0]/@name	o.k. (inclusion of the local ecoinvent category system)	no	1
@localSubCategory	processDataSet/dataSetInformation/classificationInformation/class[@level = 0]/@name	o.k. (inclusion of the local ecoinvent category system)	no	1
@includedProcesses	processDataSet/dataSetInformation/technology/technologyDescriptionAndIncludedProcesses	o.k.	no	1
@generalComment	processDataSet/dataSetInformation/technology/technologicalApplicability	o.k. Note: there is a general comment field in the ILCD process definition but the contents of this field in the Ecoinvent data sets fit more to the ILCD field technologicalApplicability	no	1
@infrastructureIncluded	processDataSet/modellingAndValidation/dataSourcesTreatmentAndRepresentativeness/dataCutOffAndCompletenessPrinciples	field transformation different data types (ES1: boolean, ILCD: FTMultiLang): If true, default entry: "Infrastructure is included." If false, default entry: "Infrastructure is not included."	no	2
@CASNumber	flowDataSet/dataSetInformation/CASNumber*	o.k.	no	1
@statisticalClassification	processDataSet/dataSetInformation/classification/class	field transformation possible, but field is not used in ES1	no	3
@formula	flowDataSet/dataSetInformation/sumFormula*	o.k.	no	1
synonym	processDataSet/processInformation/synonyms	field transformation ES1: <i>List of synonyms for the</i>	no	2

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
		<i>name</i> ILCD: Synonyms / alternative names / brands of the good, service, or process. Separated by semicolon.		

* If there is no exchange with “outputGroup=0” (= reference product) in the EcoSpold data set, an exchange with the respective flow is created from the reference function attributes.

b) Type: processInformation/geography

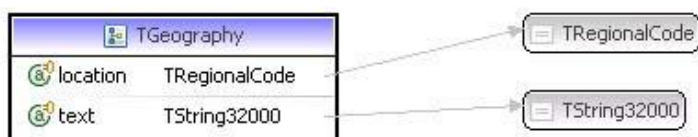


Figure 7: definition of the EcoSpold01 TGeography type

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
@location	processDataSet/dataSetInformation/geography/locationOfOperationSupplyOrProduction/@location	o.k.	no	1
@text	locationOfOperationSupplyOrProduction/descriptionOfRestrictions	o.k.	no	1

c) Type: processInformation/technology

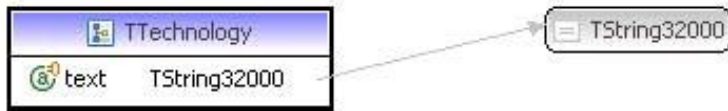


Figure 8: definition of the EcoSpold01 TTechnology type

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
@text	technology/technological Applicability	o.k. see also referenceFunction/@generalComment	no	1

d) Type: processInformation/timePeriod

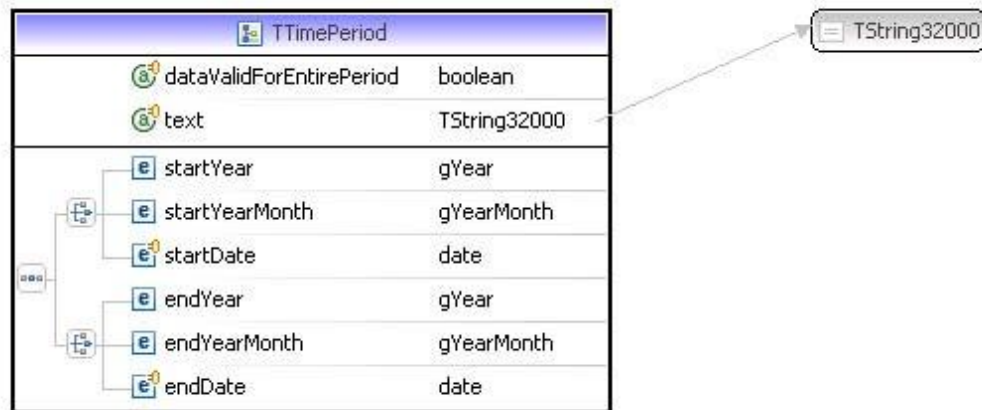


Figure 9: definition of the EcoSpold01 TTimePeriod type

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
@dataValidForEntirePeriod	processDataSet/processInformation/time/timeRepresentativenessDescription	field transformation different data types (ES1: boolean, ILCD: FTMultiLang): If true, default entry: "Data is valid for entire period."	no	2

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
		If false, default entry: "Data is not valid for entire period."		
@text	processDataSet/processInformation/time/timeRepresentativenessDescription	o.k.	no	1
startYear startYearMonth startDate	processDataSet/processInformation/time/referenceYear	<p>n:1 mapping different data types: only the year can be transferred</p> <p>Note: the meanings of the field names are different but the documentation of the fields is very similar: ES1: <i>Start date of the time period for which the dataset is valid...</i> ILCD: <i>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.</i></p>	no	2
endYear endYearMonth endDate	processDataSet/processInformation/time/dataSetValidUntil	<p>n:1 mapping different data types: only the year can be transferred</p> <p>Note: the meanings of the field names are different but the documentation of the fields is very similar: ES1: <i>End date of the time period for which the dataset is valid,...</i> ILCD: <i>End year of the time period for which the data set is still valid / sufficiently representative. This date also determines when a data set revision / remodelling is required or</i></p>	no	2

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
		<i>recommended due to expected relevant changes in environmentally or technically relevant inventory values, including in the background system.</i>		

e) Type: processInformation/dataSetInformation

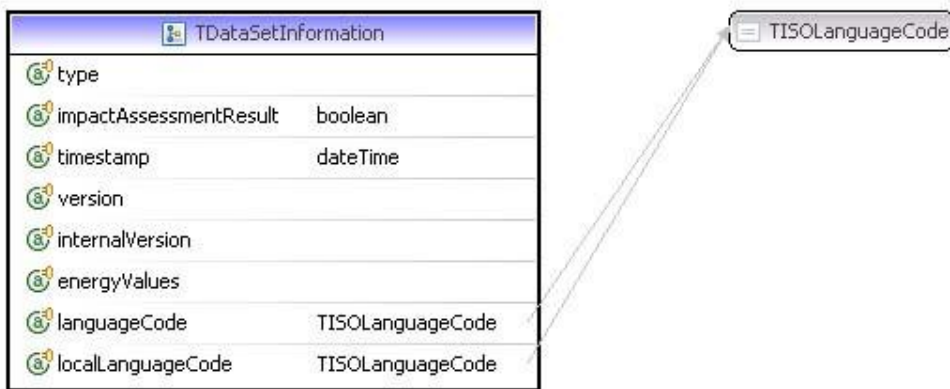


Figure 10: definition of the EcoSpold01 TDataSetInformation type

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
@type	processDataSet/modelling AndValidation/LCIMethod AndAllocation/typeOfDataSet	<p>enumeration mapping different enumerations</p> <ul style="list-style-type: none"> 1 (= Unit process) => If the activity delivers more than one product this field is mapped to "Unit process, black box" otherwise to "Unit process, single operation" 2 (= System terminated) => "LCI result" 3 (= Elementary flow) => an elementary flow is generated in ILCD 	yes	2

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
		<ul style="list-style-type: none"> 4 (= Impact category) => no mapping 5 (= Multioutput process) => identifies multioutput processes 		
@impactAssessmentResult		no corresponding field But this field gives information about the dataset type (if true => LCIA results in ILCD)	no	2
@timestamp	processDataSet/administrativeInformation/publicationAndOwnership/dateOfLastRevision	o.k.	no	1
@version	processDataSet/administrativeInformation/publicationAndOwnership/datasetVersion	field transformation different data formats: ES1: Number (Decimal) (example: 1.0) ILCD: Version (example: 02.00.000) transformation: 1.0 => 01.00.000	no	2
@internalVersion		no corresponding field	no	3
@energyValues		no corresponding field	no	3
@languageCode	language codes in multi-language fields	o.k.	no	1
@localLanguageCode	language codes in multi-language fields	o.k.	no	1

2.1.1.2 ModellingAndValidation

The section modelling and validation with the TModellingAndValidation type contains three complex elements. These elements are defined by the following data types (see also figure 11):

- **TRepresentativeness:** contains information about the fraction of the relevant market supplied by the product/service described in the dataset
- **TSource:** contains information about author(s), title, kind of publication, place of publication, name of editors ,etc.
- **TValidation:** contains information about who carried out the critical review and about the results of the review and recommendations

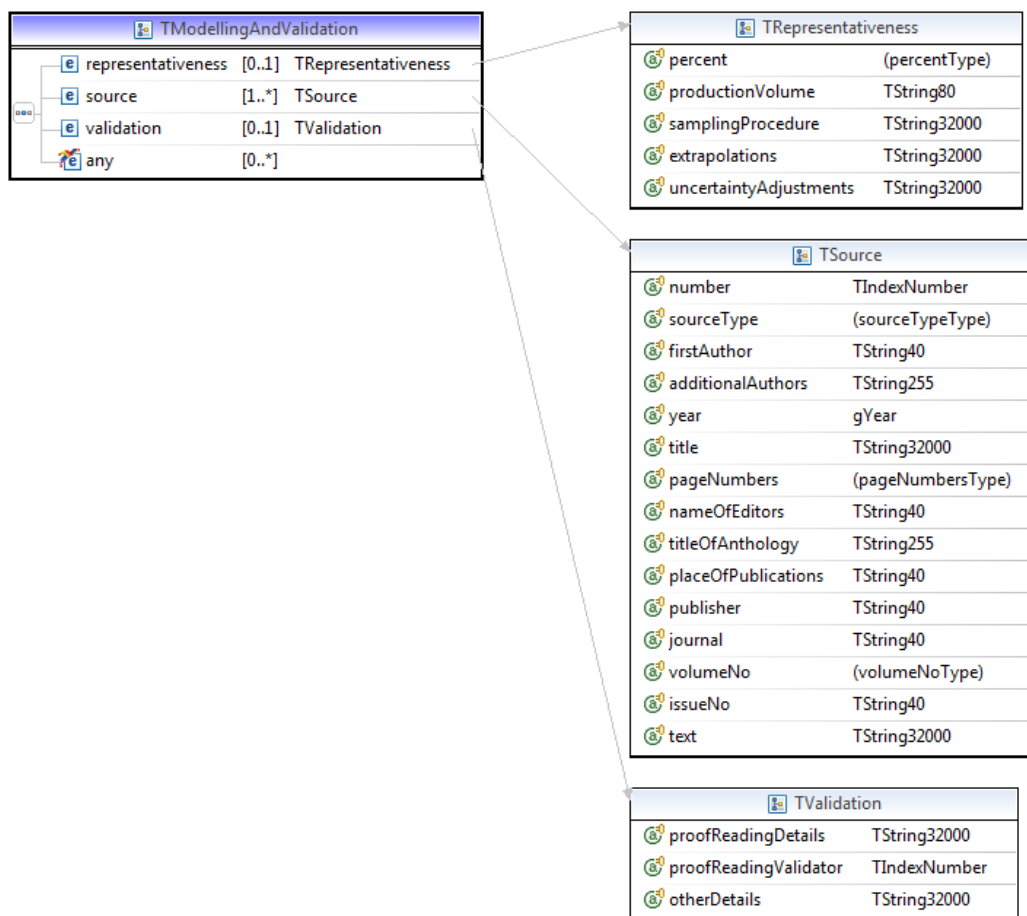


Figure 11: definition of the EcoSpold01 TModellingAndValidation type

f) Type: modellingAndValidation/representativeness

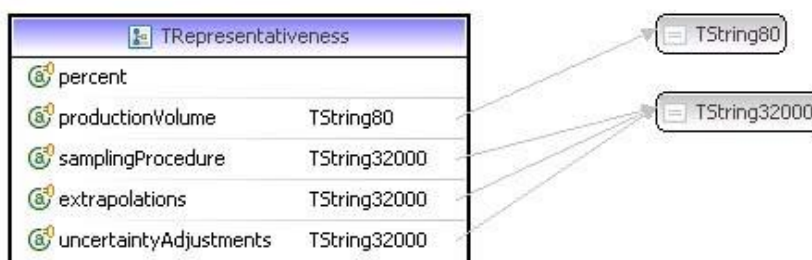


Figure 12: definition of the EcoSpold01 TRepresentativeness type

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
@percent	processDataSet/modelling AndValidation/dataSource	o.k.	no	1

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
	sTreatmentAndRepresentativeness/percentageSupplyOrProductionCovered			
@productionVolume	processDataSet/modellingAndValidation/dataSource sTreatmentAndRepresentativeness/annualSupplyOrProductionVolume	o.k.	no	1
@samplingProcedure	processDataSet/modellingAndValidation/dataSource sTreatmentAndRepresentativeness/samplingProcedure	o.k.	no	1
@extrapolations	processDataSet/modellingAndValidation/dataSource sTreatmentAndRepresentativeness/dataTreatmentAndExtrapolationsPrinciples	o.k.	no	1
@uncertaintyAdjustments	processDataSet/modellingAndValidation/dataSource sTreatmentAndRepresentativeness/uncertaintyAdjustments	o.k.	no	1

g) Type: modellingAndValidation/source

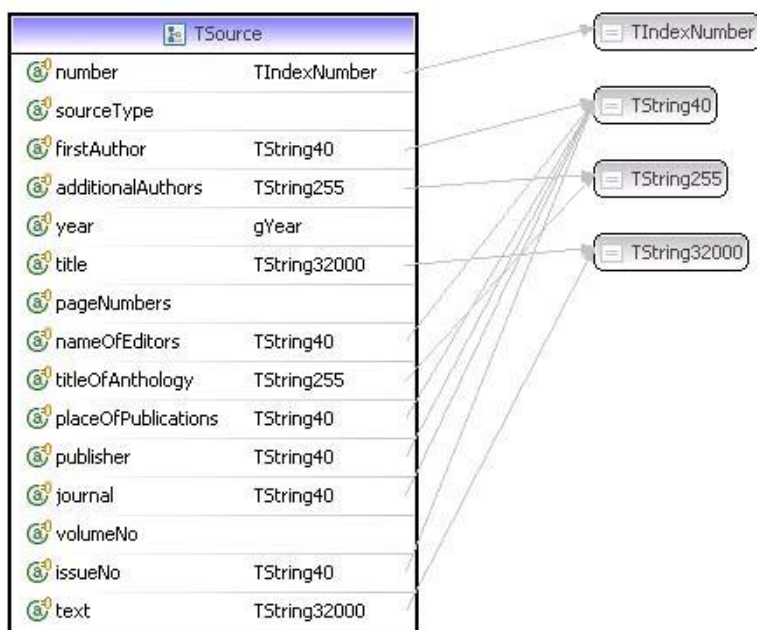


Figure 13: definition of the EcoSpold01 TSource type

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
@number	processDataSet/modellingAndValidation/dataSource sTreatmentAndRepresentativeness/referenceToDataSource	o.k. for each source element in the EcoSpold data set a source data set with the following mappings is created	no	1
@sourceType	sourceDataSet/dataSet/information/publicationType	enumeration mapping different data types (ES2: integer, ILCD: PublicationTypeValues), different enumerations: <ul style="list-style-type: none"> • 0 (=Undefined (default)) => "Undefined" • 1 (= Article) => "Article in periodical" • 2 (= Chapters in anthology) => "Chapter in anthology" • 3 (= Separate publication) => "Monograph" • 4 (= Measurement on site) => "Direct measurement" • 5 (= Oral communication) => "Oral communication" • 6 (= Personal written communication) => "Personal written communication" • 7 (= Questionnaires)=> "Questionnaire" 	yes	2
@firstAuthor	sourceDataSet/dataSetInformation/sourceCitation	field concatenation n:1 mapping The reference in ILCD is the concatenation of eleven EcoSpold fields in the following arrangement: ##@firstAuthor##, ##@additionalAuthors##: ##@title##, in:	no	2

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
		##@nameOfEditors##: ##@titleOfAnthology##, ##@journal##, ##@volumeNo##, ##@pageNumbers##, ##@placeOfPublications##, ##@publisher##, ##@year##		
@additionalAuthors	sourceDataSet/dataSetInformation/sourceCitation	field concatenation 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## mapped to dataSetInformation/ sourceCitation	no	2
@year	sourceDataSet/dataSetInformation/sourceCitation	field concatenation 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	2
@title	sourceDataSet/dataSetInformation/sourceCitation	field concatenation n:1 mapping The reference in ILCD is the	no	2

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
		concatenation of eleven EcoSpold fields in the following arrangement: ##@firstAuthor##, ##@additionalAuthors##: ##@title##, in: ##@nameOfEditors##: ##@titleOfAnthology##, ##@journal##, ##@volumeNo##, ##@pageNumbers##, ##@placeOfPublications##, ##@publisher##, ##@year##		
@pageNumbers	sourceDataSet/dataSetInformation/sourceCitation	field concatenation 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	2
@nameOfEditors	sourceDataSet/dataSetInformation/sourceCitation	field concatenation 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##,	no	2

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
		##@year##		
@titleOfAnthology	sourceDataSet/dataSetInformation/sourceCitation	field concatenation 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	2
@placeOfPublications	sourceDataSet/dataSetInformation/sourceCitation	field concatenation 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	2
@publisher	sourceDataSet/dataSetInformation/sourceCitation	field concatenation 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##,	no	2

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
		##@volumeNo##, ##@pageNumbers##, ##@placeOfPublications##, ##@publisher##, ##@year##		
@journal	sourceDataSet/dataSetInformation/sourceCitation	field concatenation 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	2
@volumeNo	sourceDataSet/dataSetInformation/sourceCitation	field concatenation 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	2
@issueNo	sourceDataSet/dataSetInformation/sourceCitation	field concatenation n:1 mapping The reference in ILCD is the concatenation of eleven EcoSpold fields in the following arrangement: ##@firstAuthor##, ##@additionalAuthors##:	no	2

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
		##@title##, in: ##@nameOfEditors##: ##@titleOfAnthology##, ##@journal##, ##@volumeNo##, ##@pageNumbers##, ##@placeOfPublications##, ##@publisher##, ##@year##		
@text	sourceDataSet/dataSetInformation/sourceDescriptionOrComment	o.k.	no	1

h) Type: modellingAndValidation/validation

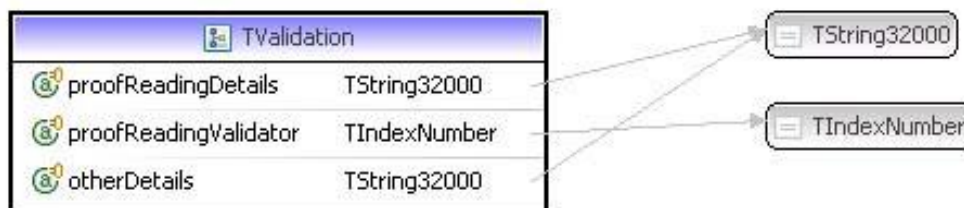


Figure 14: definition of the EcoSpold01 TValidation type

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
@proofReadingDetails	processDataSet/modellingAndValidation/Validation/reviewDetails	o.k.	no	1
@proofReadingValidator	processDataSet/modellingAndValidation/Validation/referenceToNameOfReviewerAndInstitute	master data look up If the reviewer exists in an ILCD contact data set, the ID is taken. If not, a new contact data set is generated.	no	2
@otherDetails	processDataSet/modellingAndValidation/Validation/otherReviewDetails	o.k.	no	1

2.1.1.3 Administrative Information

The XML schema type of administrative information comprises three complex elements with the following data types (see also figure 15):

- **TDataEntryBy**: contains information about the person that entered data in the database or transformed data into the format of ecoinvent (or any other) quality network
 - **TDataGeneratorAndPublication**: contains information about who compiled the dataset and about kind of publication underlying the dataset and the access restrictions
- TPerson**: used for the identification of members of the organisation / institute co-operating within a quality network

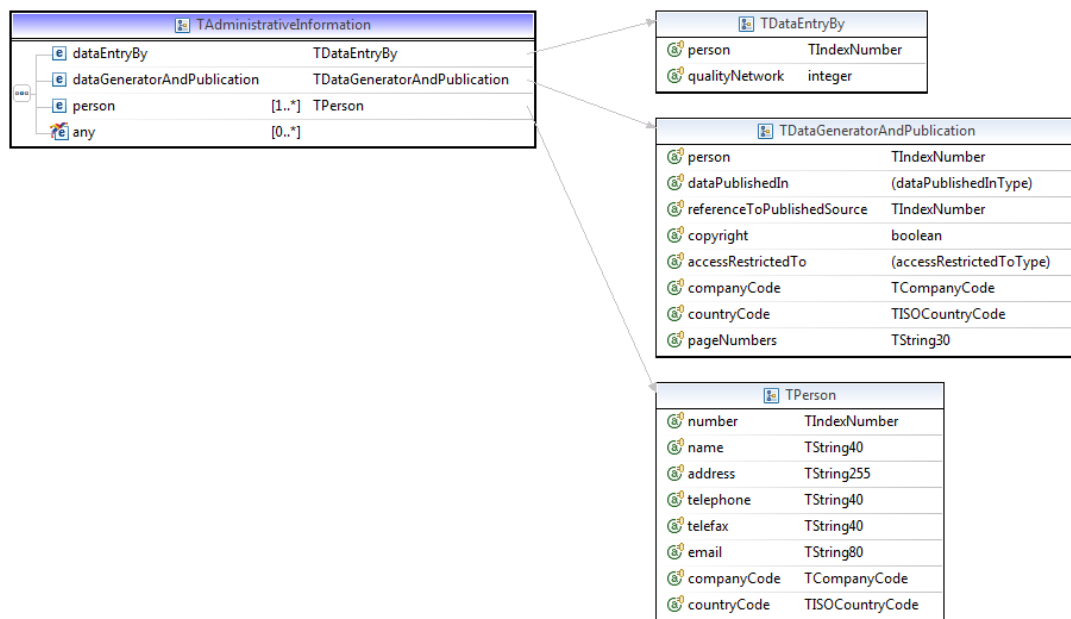


Figure 15: definition of the EcoSpold01 TAdministrativeInformation type

i) Type: administrativeInformation/dataEntryBy

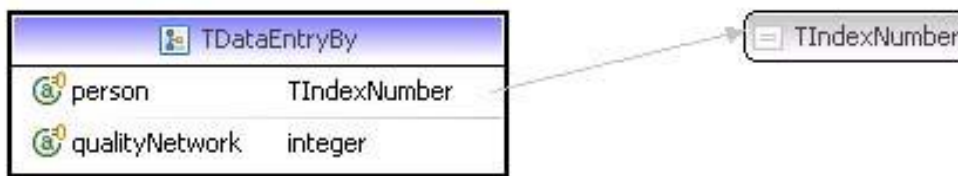


Figure 16: definition of the EcoSpold01 TDataEntryBy type

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
@person	processDataSet/administrativeInformation/dataEntryBy/refereceToPersonOrE	master data look up If the person exists in an ILCD contact data set, the ID	no	2

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
	ntityEnteringTheData	is taken. If not, a new contact data set is generated.		
@qualityNetwork		no corresponding field But the field gives information about the ownership of the data set: "1" (= ecoinvent) => processDataSet/dataEntryBy/publicationAndOwnership/referenceToOwnershipOfDataSet: ID of ecoinvent	no	2

j) Type: administrativeInformation/dataGeneratorAndPublication

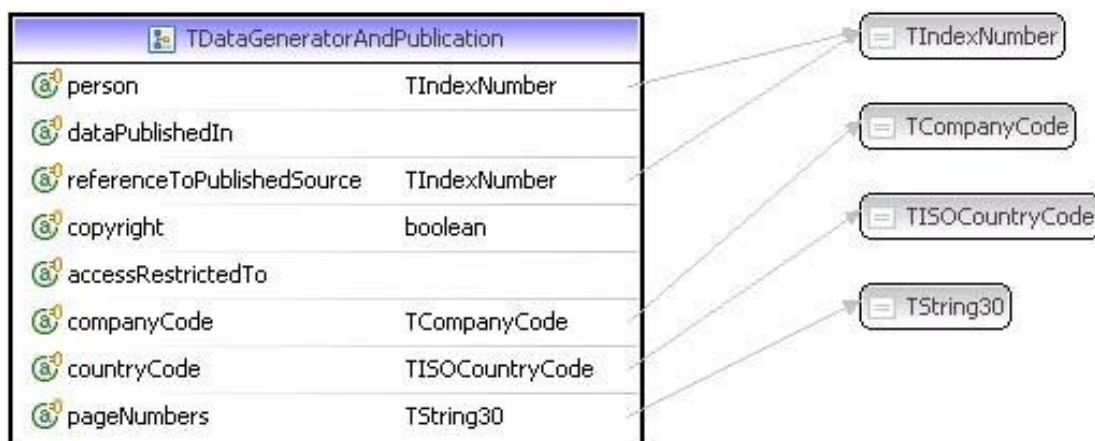


Figure 17: definition of the EcoSpold01 TDataGeneratorAndPublication type

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
@person	processDataSet/administrativeInformation/dataGenerator	master data look up 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	2
@dataPublishedIn	processDataSet/administrativeInformation/publicationAndOwnership/workflowAndPublicationStatus	enumeration mapping different enumerations: • 0 (= Data is not published) => "Data set finalised;	yes	2

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
		<p>unpublished”</p> <ul style="list-style-type: none"> 1 (= Data of some unit processes or subsystems are published) => “Data set finalised; subsystems published” 2 (= Data has been published entirely) => “Data set finalised; entirely published” 		
@referenceToPublishedSource	processDataSet/administrativeInformation/publicationAndOwnership/referenceToUnchangedReplication	<p>different field meaning</p> <p>In ES2 a documentation of the dataset is referenced, in ILCD the original data source is specified</p>	no	2
@copyright	processDataSet/administrativeInformation/publicationAndOwnership/copyright	o.k.	no	1
@accessRestrictedTo	processDataSet/administrativeInformation/publicationAndOwnership/accessRestrictions	<p>field transformation</p> <p>different data types (ES2: integer, ILCD: FTMultiLang)</p> <ul style="list-style-type: none"> 0 (= Public) => “no access restrictions” 1 (= ETH Domain) => “access restricted to ETH Domain” 2 (=ecoinvent 2000) => “access restricted to ecoinvent” 3 (= Institute) => “access restricted to institute” 	yes	2
@companyCode		no corresponding field	no	2
@countryCode		no corresponding field	no	3
@pageNumbers		no corresponding field	no	3

k) Type: administrativeInformation/person

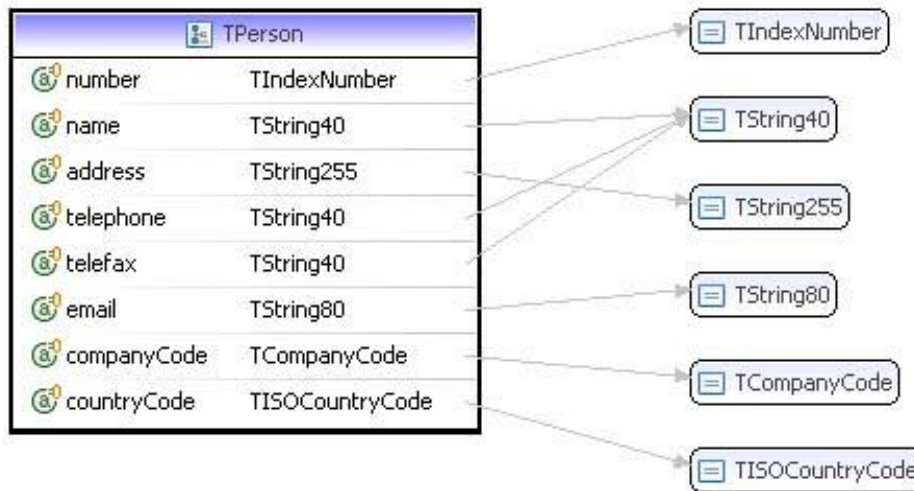


Figure 18: definition of the EcoSpold01 TPerson type

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
@number	contactDataSet/dataSetInformation/UUID	master data look up 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	2
@name	contactDataSet/dataSetInformation/name	o.k.	no	1
@address	contactDataSet/dataSetInformation/contactAddress	o.k.	no	1
@telephone	contactDataSet/dataSetInformation/telephone	o.k.	no	1
@telefax	contactDataSet/dataSetInformation/telefax	o.k.	no	1
@email	contactDataSet/dataSetInformation/email	o.k.	no	1
@companyCode		no corresponding field	no	3
@countryCode		no corresponding field	no	3

2.1.2 Flow data

The section flow data contains corresponding to the TFlowData XML schema type two complex elements with the following data types (see also figure 19):

- **TExchange**: comprises all inputs and outputs recorded in a unit process and its related information

- **TAllocation:** contains all information about allocation procedure, allocation parameters and allocation factors applied on a multi-output process

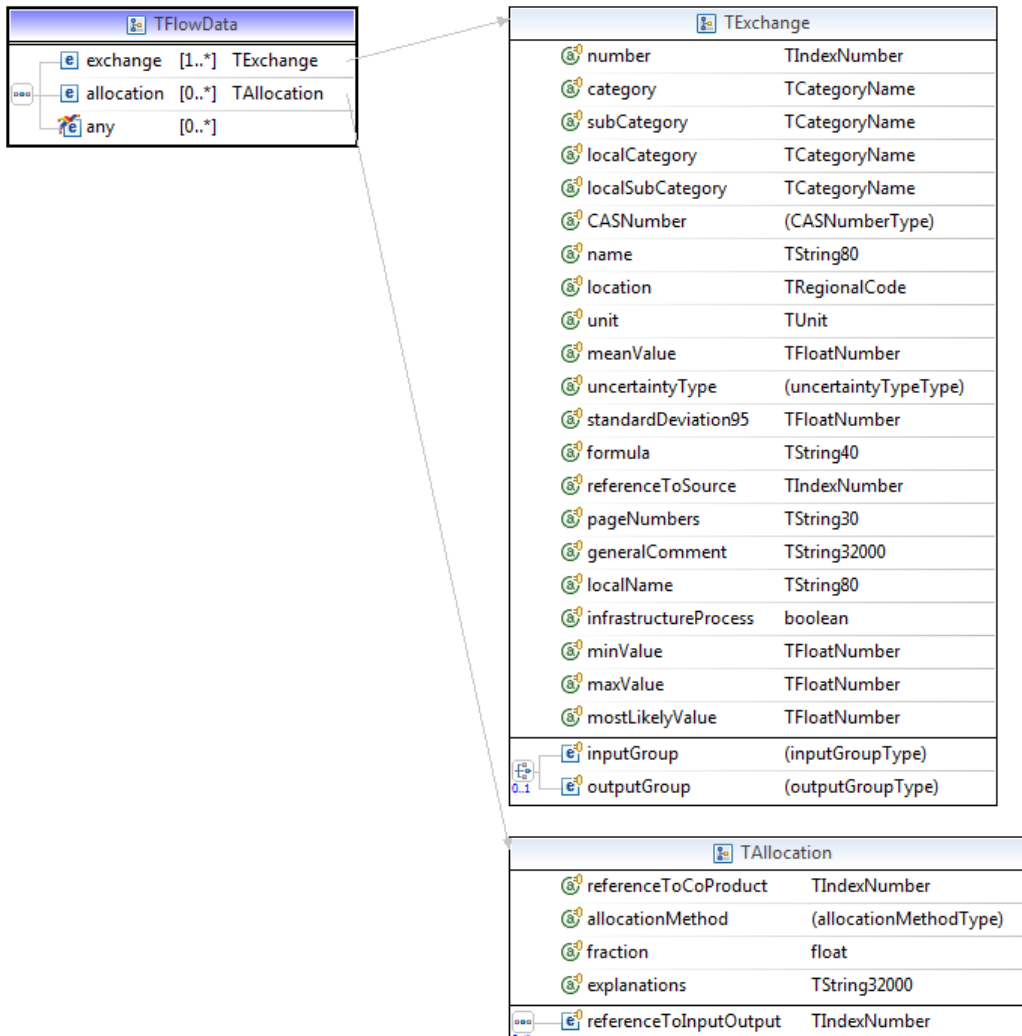


Figure 19: definition of the EcoSpold01 TFlowData type

l) Type: flowData/exchange

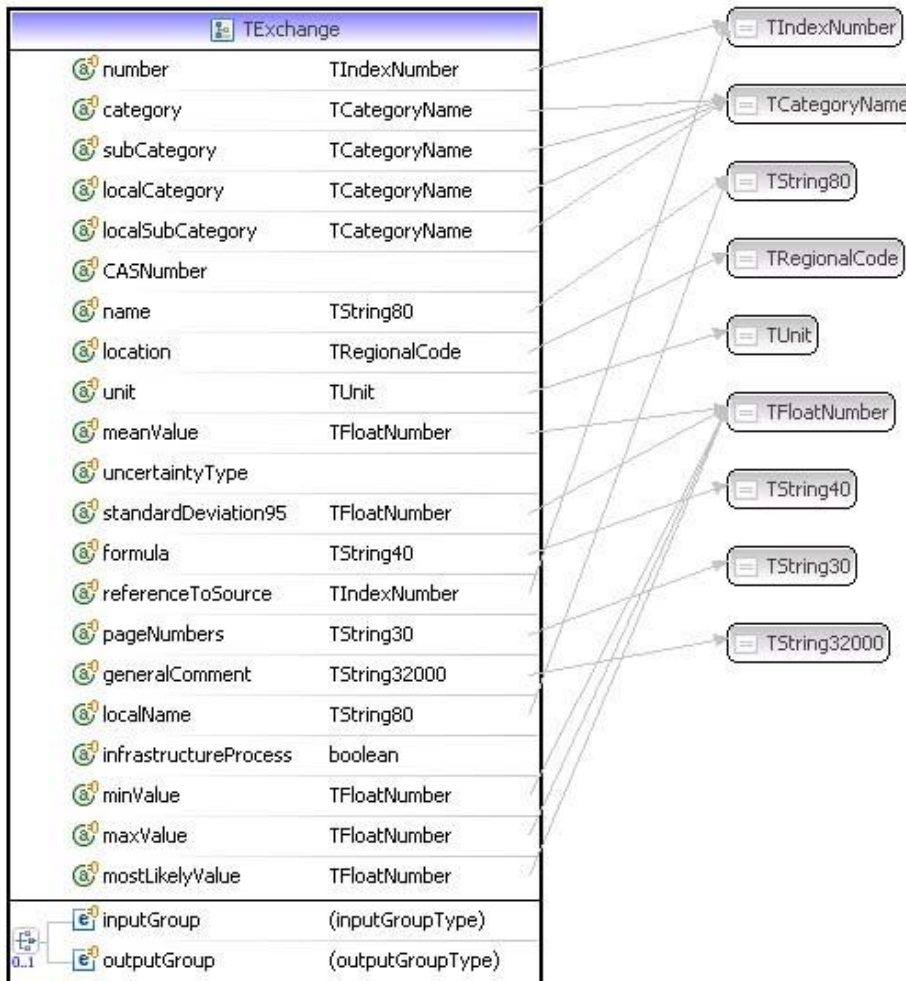


Figure 20: definition of the EcoSpold01 TExchange type

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
@number	processDataSet/Exchanges/referenceToFlowDataSet	o.k.	no	1
@category	flowDataSet/dataSetInformation/classificationInformation/class[@level = 0]/@name*	o.k.	no	1
@subCategory	flowDataSet/dataSetInformation/classificationInformation/class[@level = 0]/@name*	o.k.	no	1
@localCategory	flowDataSet/dataSetInformation/classificationInformation/class[@level = 0]/@name*	o.k.	no	1
@localSubCategory	flowDataSet/dataSetInformation/classificationInformation/	o.k.	no	1

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
	class[@level = 0]/@name*			
@CASNumber	flowDataSet/dataSetInformation/CASNumber	o.k.	no	1
@name	flowDataSet/dataSetInformation/baseName[1]	o.k.	no	1
@location	processDataSet/exchanges/location	field transformation different data types: ES1: TRegionalCode ILCD: String	no	2
@unit	unitGroupDataSet/units/unit/name	master data look up 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	2
@meanValue	processDataSet/exchanges/meanAmount	o.k.	no	1
@uncertaintyType	processDataSet/exchanges/uncertaintyDistributionType	enumeration mapping <ul style="list-style-type: none"> • 0 (= undefined) => "undefined" • 1 (= lognormal (default)) => "log-normal" • 2 (= normal) => "normal" • 3 (= triang) => "triangular" • 4 (= uniform) => "uniform" 	yes	1
@standardDeviation95	processDataSet/exchanges/relativeStandardDeviation95In	o.k.	no	1
@formula	flowDataSet/dataSetInformation/sumFormula	o.k.	no	1
@referenceToSource	processDataSet/exchange/referenceToDataSource	o.k.	no	1
@pageNumbers		no corresponding field	no	3
@generalComment	processDataSet/exchange/generalComment	o.k.	no	1
@localName	flowDataSet/dataSetInformation/baseName[2]	o.k. Note: the field 'baseName' in ILCD is a multi language field	no	1
@infrastructureProcesses		no corresponding field	no	3
@minValue	processDataSet/exchanges/minimumAmount	o.k.	no	1
@maxValue	processDataSet/exchanges/maximumAmount	o.k.	no	1

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
@mostLikelyValue		no corresponding field	no	3
inputGroup		no corresponding field But this field gives information about the exchange direction of the flow and the flow type.	no	2
outputGroup		no corresponding field But this field gives information about the exchange direction of the flow and reveals the reference flow.	no	2

* If it is an elementary flow (inputgroup = 4) the compartments are transferred, if it is a product flow the product classification is used.

m) Type: flowData/allocation

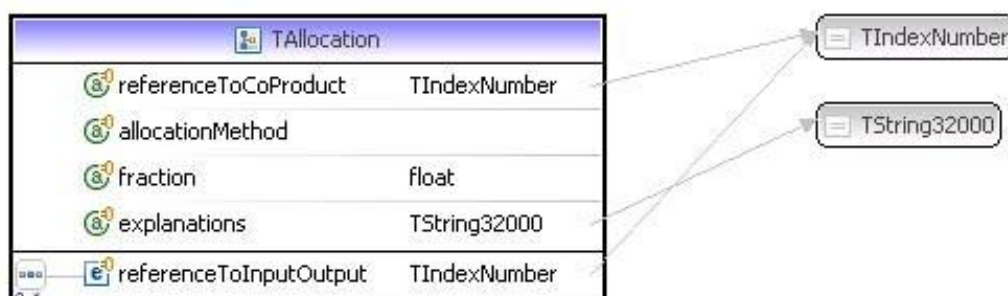


Figure 21: definition of the EcoSpold01 TAllocation type

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
@referenceToCoProduct	processDataSet/exchanges/exchange/@internalReferenceToCoProduct	o.k. different data types: ES1: TIndexNumber ILCD: Int6	no	3
@allocationMethod	processDataSet/modellingAndValidation/LCIMethodAndAllocation/LCIMethodApproaches Values	enumeration mapping <ul style="list-style-type: none"> different relation: the field in ES1 relates to an exchange, the ILCD field corresponds to the process => problematic for more than one allocation method 	yes	2

EcoSpold field	ILCD field	Comment	Nomenclature mapping?	Assessment
		<ul style="list-style-type: none"> different enumerations: <ul style="list-style-type: none"> -1 (= Undefined (default)) => "Other" 0 (= Physical causality) => "Allocation – physical causality" 1 (= Economic causality) => "Allocation – market value" 2 (=Other method) => „Other“ 		
@fraction	processDataSet/exchanges/exchange/@allocationFraction	o.k.	no	1
@explanations	processDataSet/modellingAndValidation/LCIMethodAndAllocation/deviationsFromLCIMethodApproaches	different relation The ES1 field relates to an exchange, the ILCD field corresponds to the process => problematic for more than one explanations field	no	2
referenceToInputOutput		no corresponding field but this field gives information about the referenced exchange	no	1

3 ILCD conformity verification

3.1 Process documentation compliance

Concerned field	Is mapped?	Is mandatory in ES1?	Default entry	Assessment
//common:dataSetValidUntil	yes	yes		1
//process:classificationInformation/common:class[@level=0]	yes	yes		1
//process:classificationInformation/common:class[@level=1]	yes	yes		1
//process:locationOfOperationSupplyOrProduction/process:descriptionOfRestrictions	yes	no (o)	If it is an ecoinvent dataset, this field can be generated with contents from the ecoinvent method reports.	2
//process:technologyDescriptionAndIncludedProcesses	yes	no (o)	If it is an ecoinvent dataset, this field can be generated with contents from the ecoinvent method reports.	2
//process:technologicalApplicability	yes	yes		1
//process:referenceToTechnologyFlowDiagramOrPicture	yes	no (o)	If it is an ecoinvent dataset, this field can be	2

			generated with contents from the ecoinvent method reports.	
//process:deviationsFromLCIMethodPrinciple	no		Default entry for field 'deviationsFromLCIMethodPrinciple': "none"	2
//process:modellingConstants	no		If it is an ecoinvent dataset, this field can be generated with contents from the ecoinvent method reports.	2
//process:deviationsFromModellingConstants	no		Default entry for field 'deviationsFromModellingConstants': "none"	2
//process:dataCutOffAndCompletenessPrinciples	no		If it is an ecoinvent dataset, this field can be generated with contents from the ecoinvent method reports.	2
//process:deviationsFromdataCutOffAndCompletenessPrinciples	no		Default entry for field 'deviationsFromdataCutOffAndCompletenessPrinciples': "none"	2
//process:dataSelectionAndCombinationPrinciples	no		If it is an ecoinvent dataset, this field can be generated with contents from the ecoinvent method reports.	2
//process:deviationsFromDataSelectionAndCombinationPrinciples	no		Default entry for field 'deviationsFromDataSelectionAndCombinationPrinciples': "none"	2
//process:dataTreatmentAndExtrapolationsPrinciples	yes	no (o)	If it is an ecoinvent dataset, this field can be generated with contents from the ecoinvent method reports.	2
//process:deviationsFromDataTreatmentAndExtrapolationsPrinciples	no		Default entry for field 'deviationsFromDataTreatmentAndExtrapolationsPrinciples': "none"	2
//process:dataSourcesTreatmentAndRepresentativeness/process:referenceToDataSource	yes	yes		1
//process:useAdviceForDataSet	no		Default entry for field 'useAdviceForDataSet': "This data set was converted from EcoSpold01 by the openLCA converter v2."	1
//process:completenessProductModel	no		Default entry for field 'completenessProductModel': "No statement"	1
//common:referenceToCommissioner	no		If it is an ecoinvent dataset, the ecoinvent centre can be referenced.	2
//common:intendedApplications	no		Default entry for the field 'intendedApplications':	1

			"This data set can be used for any types of LCA studies."	
//common:referenceToDataSetUseApproval	no		If it is an ecoinvent dataset, this field can be generated with contents from the ecoinvent method reports.	2
//common:referenceToOwnershipOfDataSet	partly	yes	If it is an ecoinvent dataset, the ecoinvent centre can be referenced.	2
//process:dataSourceType	no		Default entry for field 'dataSourceType': "Mixed primary / secondary"	2
//common:dataSetVersion	yes	yes		1
//common:permanentDataSetURI	no		Default entry for field 'permanentDataSetURI': "http://openlca.org/converter/ilcd/sources/##id##_##dataSetVersion##.xml"	1
//common:accessRestrictions	no		Default entry for field 'accessRestrictions': "None"	3

3.2 Process review compliance

Concerned field	Is mapped?	Is mandatory in ES1?	Default entry	Assessment
//process:review[@type='Independent review panel']	no		If it is an ecoinvent dataset, this field can be generated with contents from the ecoinvent method reports.	2
//process:review[@type='Independent review panel']/common:scope	no		If it is an ecoinvent dataset, this field can be generated with contents from the ecoinvent method reports.	2
//process:review[@type='Independent review panel']/common:scope[@name='Unit process(es)']	no		If it is an ecoinvent dataset, this field can be generated with contents from the ecoinvent method reports.	2
//process:review[@type='Independent review panel']/common:scope[@name='Unit process(es)']/common:method[@name='Compliance with ISO 14040 to 14044']	no		If it is an ecoinvent dataset, this field can be generated with contents from the ecoinvent method reports.	2
//process:review[@type='Independent review panel']/common:scope[@name='Unit process(es)']/common:method[@name='Energy balance']	no		If it is an ecoinvent dataset, this field can be generated with contents from the ecoinvent	2

			method reports.	
//process:review[@type='Independent review panel']/common:scope[@name='Unit process(es)']/common:method[@name='Element balance']	no		If it is an ecoinvent dataset, this field can be generated with contents from the ecoinvent method reports.	2
//process:review[@type='Independent review panel']/common:scope[@name='Unit process(es)']/common:method[@name='Cross-check with other dataset' or @name='Compliance with legal limits' or @name='Cross-check with other source']	no		If it is an ecoinvent dataset, this field can be generated with contents from the ecoinvent method reports.	2
//process:review[@type='Independent review panel']/common:scope[@name='LCI method']/common:method[@name='Compliance with ISO 14040 to 14044']	no		If it is an ecoinvent dataset, this field can be generated with contents from the ecoinvent method reports.	2
panel']/common:scope[@name='Documentation']/common:method[@name='Expert judgement']	no		If it is an ecoinvent dataset, this field can be generated with contents from the ecoinvent method reports.	2
//process:review[@type='Independent review panel'] <ul style="list-style-type: none"> • process:reviewDetailsOnTechnicalContent • process:reviewDetailsOnImpactCoverage • process:reviewDetailsOnLCIAMethod • common:referenceToNameOfReviewerAndInstitution • common:referenceToNameOfReviewerAndInstitution/common:shortDescription • common:referenceToCompleteReviewReport 	partly	no (o)	If it is an ecoinvent dataset, this field can be generated with contents from the ecoinvent method reports.	2

3.3 Flow documentation compliance

Concerned field	Is mapped?	Is mandatory in ES1?	Default entry	Assessment
//flow:dataSetVersion	no		Default entry for field 'dataSetVersion': "1.0"	1
//common:permanentDataSetURI	no		Default entry for field 'permanentDataSetURI': "http://openlca.org/converter/ilcd/sources/##id##_##dataSetVersion##.xml"	1

3.4 Flow property documentation compliance

Concerned field	Is mapped?	Is mandatory in ES1?	Default entry	Assessment
//flowproperty:dataSetVersion	no		Default entry for field 'dataSetVersion': "1.0"	1
//common:permanentDataSetURI	no		Default entry for field 'permanentDataSetURI': "http://openlca.org/converter/ilcd/sources/##id##_#dataSetVersion##.xml"	1

3.5 Flow property nomenclature and hierarchy compliance

Concerned field	Is mapped?	Is mandatory in ES1?	Default entry	Assessment
//flowproperty:classificationInformation/common:class[@level=0]	missing flow properties were added to the ILCD data base with following classes: "Chemical composition of flows" or "Technical flow properties"			1

3.6 Unit group documentation compliance

Concerned field	Is mapped?	Is mandatory in ES1?	Default entry	Assessment
//unitgroup:dataSetVersion	no		Default entry for field 'dataSetVersion': "1.0"	1
//common:permanentDataSetURI	no		Default entry for field 'permanentDataSetURI': "http://openlca.org/converter/ilcd/sources/##id##_#dataSetVersion##.xml"	1

3.7 Source documentation compliance

Concerned field	Is mapped?	Is mandatory in ES1?	Default entry	Assessment
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//source:dataSetVersion	no		Default entry for field 'dataSetVersion': "1.0"	1
//common:permanentDataSetURI	no		Default entry for field 'permanentDataSetURI': "http://openlca.org/converter/ilcd/sources/##id##_#dataSetVersion##.xml"	1

3.8 Contact documentation compliance

Concerned field	Is mapped?	Is mandatory in ES1?	Default entry	Assessment
//contact:dataSetVersion	no		Default entry for field 'dataSetVersion': "1.0"	1
//common:permanentDataSetURI	no		Default entry for field 'permanentDataSetURI': "http://openlca.org/converter/ilcd/sources/##id##_#dataSetVersion##.xml"	1

4 References

- [1] <http://greendeltatc.com/openLCA-Format-Konverter.117.0.html>
- [2] <http://openlca.org/Converter.8.0.html>
- [3] EcoSpold01 schema documentation, retrieved from <http://www.ecoinvent.org/database/ecospold-data-format/ecospold-v2/>, January 2010
- [4] ILCD 1.1 schema documentation, retrieved from <http://lca.jrc.ec.europa.eu/lcainfohub/developerPage.vm>, December 2009
- [5] Data Conversion from EcoSpold02 to ILCD, January 2010, GreenDeltaTC GmbH Berlin
- [6] Data Conversion from EcoSpold01 to ILCD, January 2010, GreenDeltaTC GmbH Berlin