

Circ4Life Traceability Module – Open API Specification

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These open API specifications document the Traceability Module of CIRC4Life.

A standard (Swagger) UI for testing the endpoints is available for all [capturing](#) and [accessing](#) endpoints. The machine readable version of this specification can be found in JSON format at [json](#).

Overview

This is the open API specification for the Endpoints of Webservices developed and provided by the EECC within CIRC4Life. This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 776503-CIRC4Life-H2020-IND-CE-2016-2017/CIRC-2017/TwoStage.

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URI scheme

Host : circ4life.eecc.info

BasePath : /

Paths

Bin Disposal Event Receiving Endpoint

POST /api/capture/bin-disposal-event

Description

Data from the intelligent bins control unit is send to this endpoint whenever an item is put into the bin.

Parameters

| Type | Name | Description | Schema |
|------|------------------------------------|-----------------|---------------------------------|
| Body | binDisposalData <i>required</i> | binDisposalData | BinDisposalData |

Responses

| HTTP Code | Description | Schema |
|-----------|--|-----------------------------|
| 200 | Disposal event was successfully created and stored. | ApiResponse |
| 400 | The request is invalid. Likely there is a problem with the data/format. See message for details. | ApiResponse |
| 500 | Internal error: processing or storing the data failed. See message for details. | ApiResponse |

Consumes

- [application/json](#)

Produces

- [application/json; charset=UTF-8](#)

Tags

- recycling-capture-controller

Bin Barcode Item Status Endpoint

```
GET /status/binbarcode/{binbarcode}
```

Description

The latest known location and disposition of an item can be queried here via its bin barcode.

Parameters

| Type | Name | Description | Schema |
|------|--------------------------------------|-------------|--------|
| Path | binbarcode <i>required</i> | binbarcode | string |

Responses

| HTTP Code | Description | Schema |
|-----------|---|-----------------------------|
| 200 | Success | Status |
| 400 | Bad request. (No ID or mal formatted ID given.) | ApiResponse |
| 404 | Item not found. | ApiResponse |

Produces

- [application/json; charset=UTF-8](#)

Tags

- status-controller

Generic Impacts Capturing Endpoint (POST EPC)

```
POST /api/capture/impact
```

Description

This endpoint is the same as giving the EPC in the path, but might be more convenient due to

the limitations of characters allowed in path.

Parameters

| Type | Name | Description | Schema |
|------|---|-------------------|-----------------------------------|
| Body | impactAndMetaData <i>required</i> | impactAndMetaData | ImpactAndMetaData |

Responses

| HTTP Code | Description | Schema |
|-----------|--|-----------------------------|
| 200 | Impacts recorded successfully. | ApiResponse |
| 400 | The request is invalid. Likely there is a problem with the data/format. See message for details. | ApiResponse |
| 500 | Internal error: processing or storing the data failed. See message for details. | ApiResponse |

Consumes

- [application/json; charset=UTF-8](#)

Produces

- [application/json; charset=UTF-8](#)

Tags

- impact-only-capture-controller

Generic Impacts Capturing Endpoint (POST EPC)

POST /api/capture/impact

Description

This endpoint is the same as giving the EPC in the path, but might be more convenient due to the limitations of characters allowed in path.

Parameters

| Type | Name | Description | Schema |
|------|-------------------------------------|------------------|----------------------------------|
| Body | epcAndImpactData <i>required</i> | epcAndImpactData | EpcAndImpactData |

Responses

| HTTP Code | Description | Schema |
|-----------|--|-----------------------------|
| 200 | Impacts recorded successfully. | ApiResponse |
| 400 | The request is invalid. Likely there is a problem with the data/format. See message for details. | ApiResponse |
| 500 | Internal error: processing or storing the data failed. See message for details. | ApiResponse |

Consumes

- [application/json; charset=UTF-8](#)

Produces

- [application/json; charset=UTF-8](#)

Tags

- impact-only-capture-controller

Generic Impacts Capturing Endpoint (path EPC)

```
POST /api/capture/impact/{epc}/{location}
```

Description

This endpoint can be used to record impacts associated with a particular EPC without tracking the actual event where the impact occurred. Tracking impacts together with the corresponding event is preferable.

Parameters

| Type | Name | Description | Schema |
|------|--------------------------------------|-------------|----------------------------|
| Path | epc <i>required</i> | epc | string |
| Path | location <i>required</i> | location | string |
| Body | impactData <i>required</i> | impactData | ImpactData |

Responses

| HTTP Code | Description | Schema |
|-----------|--|-----------------------------|
| 200 | Impacts recorded successfully. | ApiResponse |
| 400 | The request is invalid. Likely there is a problem with the data/format. See message for details. | ApiResponse |
| 500 | Internal error: processing or storing the data failed. See message for details. | ApiResponse |

Consumes

- [application/json](#)

Produces

- [application/json; charset=UTF-8](#)

Tags

- impact-only-capture-controller

Object Event Capturing Endpoint

POST /api/capture/objectEvent

Description

This endpoint is capable of capturing any CIRC4Life Object event, but all parameters have to be specified explicitly.

Parameters

| Type | Name | Description | Schema |
|------|--|---------------------------------|---------------------------------------|
| Body | <code>c4lObjectEventData</code> <i>required</i> | <code>c4lObjectEventData</code> | C4lObjectEPCEventData |

Responses

| HTTP Code | Description | Schema |
|-----------|--|-----------------------------|
| 200 | Event successfully captures. | No Content |
| 400 | Bad request, likely due to mal formatted input data. See message for details.. | ApiResponse |
| 500 | Internal error in transforming/loading the event. See message for details. | ApiResponse |

Consumes

- [application/json](#)

Produces

- [application/json; charset=UTF-8](#)

Tags

- `event-capture-controller`

getDynamicLabelData

POST /api/dynamicLabel

Parameters

| Type | Name | Description | Schema |
|-------|-------------------------------------|------------------|--------|
| Query | <code>epc</code> <i>required</i> | <code>epc</code> | string |

Responses

| HTTP Code | Description | Schema |
|-----------|-------------|------------|
| 200 | OK | No Content |

Consumes

- [application/json](#)

Produces

- [*/*](#)

Tags

- [dynamic-label-controller](#)

User Item Status List Endpoint

```
GET /status/user/{userid}
```

Description

Returns a list of all known item status data for the given user id.

Parameters

| Type | Name | Description | Schema |
|------|----------------------------------|-------------|--------|
| Path | userid <i>required</i> | userid | string |

Responses

| HTTP Code | Description | Schema |
|-----------|---|-----------------------------|
| 200 | Success | Status |
| 400 | Bad request. (No ID or mal formatted ID given.) | ApiResponse |
| 404 | Item not found. | ApiResponse |

Produces

- `application/json; charset=UTF-8`

Tags

- `status-controller`

EPC Item Status Endpoint

```
GET /status/epc/{epc}
```

Description

The latest known location and disposition of an item identified via its EPC.

Parameters

| Type | Name | Description | Schema |
|------|-------------------------------------|-------------|--------|
| Path | <code>epc</code> <i>required</i> | epc | string |

Responses

| HTTP Code | Description | Schema |
|-----------|---|-----------------------------|
| 200 | Success | Status |
| 400 | Bad request. (No ID or mal formatted ID given.) | ApiResponse |
| 404 | Item not found. | ApiResponse |

Produces

- `application/json; charset=UTF-8`

Tags

- `status-controller`

getKosData

```
GET /api/kos
```

Parameters

| Type | Name | Description | Schema |
|-------|-------------------------|-------------|--------|
| Query | <i>epc required</i> | epc | string |

Responses

| HTTP Code | Description | Schema |
|-----------|-------------|------------|
| 200 | OK | No Content |

Produces

• */*

Tags

• kos-controller

Get Masterdata for user

```
GET /api/masterdata
```

Description

This endpoint gives access to a minimal master data repository with exemplary data needed for the capturing UIs.

Parameters

| Type | Name | Description | Schema |
|-------|--------------------------|-------------|--------|
| Query | <i>user required</i> | user | string |

Responses

| HTTP Code | Description | Schema |
|-----------|-------------|------------|
| 200 | OK | No Content |

Produces

- [application/json; charset=UTF-8](#)

Tags

- masterdata-controller

Bin Barcode Total Impact Endpoint

```
GET /impacts/binbarcode/{binbarcode}
```

Description

Returns the aggregated impacts for the given item identified by its bin barcode.

Parameters

| Type | Name | Description | Schema |
|------|--------------------------------------|-------------|--------|
| Path | binbarcode <i>required</i> | binbarcode | string |

Responses

| HTTP Code | Description | Schema |
|-----------|--|-----------------------------|
| 200 | All known impacts associated with the given item are returned. | ImpactData |
| 400 | Bad request. (Most likely problem: No ID or mal formatted ID given.) | ApiResponse |
| 404 | No impacts are known for this item. | ApiResponse |
| 500 | Internal Server Error. Check the error message for details. | ApiResponse |

Produces

- [application/json; charset=UTF-8](#)

Tags

- impact-aggregation-controller

Item Total Impact Endpoint (POST EPC)

POST /impacts/epc

Description

Returns the aggregated impacts for the given item identified by its EPC. Posting a String is less restricted than path encoding it.

Parameters

| Type | Name | Description | Schema |
|------|------------------------------|-------------|---------------------|
| Body | epcString <i>required</i> | epcString | EPC |

Responses

| HTTP Code | Description | Schema |
|-----------|--|-----------------------------|
| 200 | All known impacts associated with the given item are returned. | ImpactData |
| 400 | Bad request. (Most likely problem: No ID or mal formatted ID given.) | ApiResponse |
| 404 | No impacts are known for this item. | ApiResponse |
| 500 | Internal Server Error. Check the error message for details. | ApiResponse |

Consumes

- [application/json; charset=UTF-8](#)

Produces

- [application/json; charset=UTF-8](#)

Tags

- impact-aggregation-controller

EPC Item Total Impact Endpoint

GET /impacts/epc/{epc}

Description

Returns the aggregated impacts for the given item identified by its EPC.

Parameters

| Type | Name | Description | Schema |
|------|-------------------------------------|-------------|--------|
| Path | <code>epc</code> <i>required</i> | epc | string |

Responses

| HTTP Code | Description | Schema |
|-----------|--|-----------------------------|
| 200 | All known impacts associated with the given item are returned. | ImpactData |
| 400 | Bad request. (Most likely problem: No ID or mal formatted ID given.) | ApiResponse |
| 404 | No impacts are known for this item. | ApiResponse |
| 500 | Internal Server Error. Check the error message for details. | ApiResponse |

Produces

- `application/json; charset=UTF-8`

Tags

- `impact-aggregation-controller`

SGTIN Total Impact Endpoint

```
GET /impacts/sgtin/{gtin}/{serial}
```

Description

Returns the aggregated impacts for the given item identified by its SGTIN.

Parameters

| Type | Name | Description | Schema |
|------|----------------------------------|-------------|--------|
| Path | gtin <i>required</i> | gtin | string |
| Path | serial <i>required</i> | serial | string |

Responses

| HTTP Code | Description | Schema |
|-----------|--|-----------------------------|
| 200 | All known impacts associated with the given item are returned. | ImpactData |
| 400 | Bad request. (Most likely problem: No ID or mal formatted ID given.) | ApiResponse |
| 404 | No impacts are known for this item. | ApiResponse |
| 500 | Internal Server Error. Check the error message for details. | ApiResponse |

Produces

- [application/json; charset=UTF-8](#)

Tags

- impact-aggregation-controller

Internal Inspection Event Endpoint

POST /api/capture/inspection-event

Description

Used to receive data from the recycling inspection web user interface.

Parameters

| Type | Name | Description | Schema |
|------|---|-----------------------|---------------------------------------|
| Body | inspectionEventUiData <i>required</i> | inspectionEventUiData | InspectionEventUiData |

Responses

| HTTP Code | Description | Schema |
|-----------|--|-----------------------------|
| 200 | Inspection event was successfully created | ApiResponse |
| 400 | The request is invalid. Likely there is a problem with the data/format. See message for details. | ApiResponse |
| 500 | Internal error: processing or storing the data failed. See message for details. | ApiResponse |

Consumes

- [application/json](#)

Produces

- [application/json; charset=UTF-8](#)

Tags

- recycling-capture-controller

Captures bio waste assessment

POST /api/capture/biowaste

Parameters

| Type | Name | Description | Schema |
|------|---|---------------------|-------------------------------------|
| Body | biowasteEventUiData <i>required</i> | biowasteEventUiData | BiowasteEventUiData |

Responses

| HTTP Code | Description | Schema |
|-----------|--|-----------------------------|
| 200 | OK | ApiResponse |
| 400 | The request is invalid. Likely there is a problem with the data/format. See message for details. | ApiResponse |

| HTTP Code | Description | Schema |
|-----------|---|-----------------------------|
| 500 | Internal error: processing or storing the data failed. See message for details. | ApiResponse |

Consumes

- [application/json; charset=UTF-8](#)

Produces

- [application/json; charset=UTF-8](#)

Tags

- biowaste-capture-controller

Farming json capture endpoint

POST /api/capture/farming

Description

Creates a farming event within the received data.

Parameters

| Type | Name | Description | Schema |
|------|--|--------------------|------------------------------------|
| Body | farmingEventUiData <i>required</i> | farmingEventUiData | FarmingEventUiData |

Responses

| HTTP Code | Description | Schema |
|-----------|--|-----------------------------|
| 200 | OK | No Content |
| 400 | The request is invalid. Likely there is a problem with the data/format. See message for details. | ApiResponse |
| 500 | Internal error: processing or storing the data failed. See message for details. | ApiResponse |

Consumes

- `application/json; charset=UTF-8`

Produces

- `application/json; charset=UTF-8`

Tags

- `farming-capture-controller`

SGTIN Item Status Endpoint

```
GET /status/sgtin/{gtin}/{serial}
```

Description

The latest known location and disposition of an item can be queried here via its SGTIN.

Parameters

| Type | Name | Description | Schema |
|------|----------------------------------|--|--------|
| Path | gtin <i>required</i> | The GTIN is expected to include the trailing check digit but may or may not include the leading indicator digit '0'. | string |
| Path | serial <i>required</i> | The (url encoded) serial component. | string |

Responses

| HTTP Code | Description | Schema |
|-----------|---|-----------------------------|
| 200 | Success | Status |
| 400 | Bad request. (No ID or mal formatted ID given.) | ApiResponse |
| 404 | Item not found. | ApiResponse |

Produces

- `application/json; charset=UTF-8`

Tags

- status-controller

Definitions

ApiResponse

Generic response including a message for debugging errors.

| Name | Description | Schema |
|-------------------------------------|---|--------------------|
| message <i>optional</i> | Specific error message. Required if the status is not 2xx. Example : "Write-only-memory subsystem too slow for this machine." | string |
| path <i>required</i> | The requested path. Example : "/" | string |
| reason <i>optional</i> | Standard human readable reason for the HTTP status code. Example : "Ok" | string |
| status <i>optional</i> | Same code as returned in the HTTP header. Repeated here for logging/debugging purposes. Example : 200 | integer (int32) |
| timestamp <i>optional</i> | Timestamp of response generation. | string (date-time) |

BatchOrLotNumber

| Name | Schema |
|---|---------|
| applicationIdentifier <i>optional</i> | string |
| numeric <i>optional</i> | boolean |
| value <i>optional</i> | string |

BinDisposalData

This format is used to send data about disposal of an item from the intelligent bin to the Traceability Module.

| Name | Description | Schema |
|--|---|--------------------|
| binBarcode <i>required</i> | The same number as encoded into the printed bar code label. Contains the RecycleBinUserID as the first 11 digits. Example : "1600400000118112200011" | string |
| eventTime <i>optional</i> | Time when the event happens Example : "2019-05-16T13:40:00+02:00" | string (date-time) |
| fillingLevel <i>optional</i> | Filling level of the bin at the time of disposal in % Example : 42.23 | number (double) |

BiowasteEventUiData

| Name | Description | Schema |
|---------------------------------------|---|---------|
| binBarcode <i>required</i> | Barcode from bag label. Must be at least 22 digits long Example : "1600400000118112200011" | string |
| compostable <i>required</i> | Usable for compost? Example : true | boolean |
| weightInKgm <i>optional</i> | Weight in kg Example : 5.0 | number |

BusinessTransaction

According to the EPCIS standard.

| Name | Description | Schema |
|--|---|--------|
| bizTransaction <i>required</i> | Standard BusinessTransactionID Example : "http://transaction.acme.com/shipment/34ABC8" | string |
| type <i>optional</i> | Standard BusinessTransactionTypeID | string |

C4LObjectEPCEventData

This is a JSON representation of an EPCIS object event as used in CIRC4Life. The Eco Impact

Extension is explicitly included.

| Name | Description | Schema |
|---|---|---|
| action <i>required</i> | See EPCIS standard for details. Example : "ADD" | enum (ADD, OBSERVE, DELETE) |
| bizLocation <i>optional</i> | Standard epcis:BusinessLocationType | string |
| bizStep <i>optional</i> | Standard epcis:BusinessStepIDType | string |
| bizTransaction List <i>optional</i> | Standard epcis:BusinessTransactionListType | < BusinessTransaction > array |
| destinationList <i>optional</i> | Standard epcis:DestinationListType | < SourceDestType > array |
| disposition <i>optional</i> | Standard epcis:DispositionIDType | string |
| epcList <i>optional</i> | Standard epcglobal:EPC list (epcs are to be represented in URI format) Example : "urn:epc:id:sgtin:4047111.012345.012345678901"] | < string > array |
| eventTime <i>required</i> | When the event happened. (Contains offset) | string (date-time) |
| ilmd <i>optional</i> | epcis:ILMDType | < object > array |
| impactData <i>optional</i> | Data about the ecological or other impacts associated with the event | ImpactData |
| quantityList <i>optional</i> | Standard epcis:QuantityListType | < QuantityElement > array |
| readPoint <i>optional</i> | Standard epcis:ReadPointType | string |
| sourceList <i>optional</i> | Standard epcis:SourceListType | < SourceDestType > array |

Description

| Name | Schema |
|------------------------------|--------|
| en <i>optional</i> | string |
| es <i>optional</i> | string |

EPC

EPC URI.

| Name | Description | Schema |
|-------------------------------|---|----------|
| epc <i>required</i> | EPC URI Example "http://scillyorganics.com/epcis/obj/carrots.2019.3" | : string |

EpcAndImpactData

| Name | Schema |
|--------------------------------------|----------------------------|
| epc <i>optional</i> | string |
| impactData <i>optional</i> | ImpactData |

FarmingEventUiData

Data Received from the UI in order to create a farming event

| Name | Description | Schema |
|-------------------------------------|--|--|
| eventType <i>required</i> | Type of the farming event Example : " GROWING " | enum (GROWING, HARVESTING, PLANTING, RECYCLING, SOIL_PREPARATION) |

| Name | Description | Schema |
|-------------------------------------|--|--------------------------------|
| impacts <i>optional</i> | List of impacts Example : "Fuel, Water" | < FarmingEventUiImpact > array |
| lgtin <i>optional</i> | Input LGTIN for transformation events | Lgtin |
| location <i>required</i> | location of the farming event Example "http://www.scillyorganics.com/epcis/loc/east_field" | : string |
| products <i>optional</i> | EPC of processed products | < string > array |
| timestamp <i>required</i> | Timestamp of the farming Example : "2019-05-16T13:40:00+02:00" | string (date-time) |

FarmingEventUiImpact

| Name | Schema |
|---------------------------------------|--------|
| amount <i>optional</i> | number |
| description <i>optional</i> | string |
| type <i>optional</i> | string |
| uom <i>optional</i> | string |

Impact

A concrete ecological (or other) impact. This is the JSON representation of <c4l:impactElementType>.

| Name | Description | Schema |
|--------------------------------------|---|--------|
| impactType <i>required</i> | This is a URI as specified in <c4l:impactType>. Example : "http://dbpedia.org/resource/Premises" | string |

| Name | Description | Schema |
|-----------------------------------|------------------------|-------------------------|
| measure <i>optional</i> | Quantifying the amount | Measure |

ImpactAndMetaData

| Name | Schema |
|--------------------------------------|----------------------------|
| epc <i>optional</i> | string |
| impactData <i>optional</i> | ImpactData |
| locationId <i>optional</i> | string |

ImpactData

Data about product specific ecological impacts. Contains any elements from the c4l epcis extension.

| Name | Description | Schema |
|--|--|--|
| impactList <i>optional</i> | JSON representation of <c4l:impactList>. It can be used to track social or ecological impacts that are not associated with material flows such as e.g. land usage. | < Impact > array |
| resourceList <i>optional</i> | This list represents the inflow of material into the process. It is the JSON representation of <c4l:resourceList>. | ResourceOrWasteList |
| transportationList <i>optional</i> | This is the JSON representation of <c4l:transportList>. If the environmental impact of transportation can not be broken down into resource consumption (fuel,...) and type (exhaust fumes,...) then a transportList can be used instead. | < Transportation > array |
| wasteList <i>optional</i> | This represents the outflow (typically not including the actual products) of a process. JSON representation of <c4l:wasteList>. | ResourceOrWasteList |

InspectionEventUiData

Data Received from the UI in order to create an inspection event

| Name | Description | Schema |
|--|---|--|
| age <i>optional</i> | Estimated lifetime in ISO duration format. Need to be set if state is REUSABLE, BROKEN or WORKING Example : "P10Y" | string |
| binBarcode <i>required</i> | Barcode from the bin label. Must be at least 22 digits long Example : "16004000001181122000011" | string |
| brand <i>optional</i> | Brand of the item. Need only to be filled out if GTIN is missing and product is a EEE item Example : "Apple" | string |
| gtin <i>optional</i> | GTIN of the item. Required if product is a EEE item. If GTIN is not available, please provide manufacturer & model Example : "4047111000006" | string |
| model <i>optional</i> | Model of the item. Need only to be filled out if GTIN is missing and product is a EEE item Example : "iPhone 7" | string |
| serialNumber <i>optional</i> | Serialnumber of the item. Required if product is a EEE item Example : "X01X23Y4XYXY" | string |
| state <i>required</i> | Condition of the electronic device Example : "WORKING" | enum (WORKING, REUSABLE, BROKEN, NO_EEE_ITEM) |
| timestamp <i>required</i> | Timestamp of the inspection Example : "2019-05-16T13:40:00+02:00" | string (date-time) |
| unuKey <i>optional</i> | UNUkey of the electronic device. Need to be set if state is REUSABLE, BROKEN or WORKING Example : "303" | enum (-1, 0, 303, 306, 401, 402, 406, 701, 702, 501, 504, 506) |

Lgtin

| Name | Schema |
|---------------------------------|----------------------------------|
| gtin <i>optional</i> | string |
| lot <i>optional</i> | BatchOrLotNumber |
| value <i>optional</i> | string |

MasterdataForUser

| Name | Schema |
|-------------------------------------|-----------------------------------|
| locations <i>optional</i> | < NamedId > array |
| objects <i>optional</i> | < NamedId > array |
| ownerId <i>optional</i> | string |
| ownerName <i>optional</i> | string |

Measure

Data about product specific ecological impacts

| Name | Description | Schema |
|------------------------------------|--|--------|
| quantity <i>required</i> | Amount, measured in UOM. Example : 1294.5 | number |
| uom <i>optional</i> | Unit of Measure. JSON representation of <c4l:measure>. May be omitted if there is a natural uom. Example : "MTK" | string |

NamedId

| Name | Schema |
|---------------------------------------|-----------------------------|
| description <i>optional</i> | Description |
| epc <i>optional</i> | string |

QuantityElement

JSON form of the EPCIS standard epcis:QuantityElementType

| Name | Description | Schema |
|------------------------------------|---|-------------------------|
| epcClass <i>required</i> | URI of the epc class, see standard. | string |
| measure <i>optional</i> | Contains uom and quantity as in the epcis standard, although not named measure there. | Measure |

ResourceOrWaste

Information about a specific type of waste produced or a resource consumed. Implements c4l:wasteElementType and c4l:resourceElementType.

| Name | Description | Schema |
|--|--|-------------------------|
| amount <i>required</i> | c4l:measure amount of waste produced/resource consumed | Measure |
| sourceOrSink <i>optional</i> | c4l:sinkType or c4l:sourceType: Semantic web URI for how the waste was deposited/from where the resource is taken. Example : "http://semanco02.hs-albsig.de/repository/ontology-releases/eu/semanco/ontology/SEMANCO/SEMANCO.owl#Not-Renewable_Energy_Source" | string |
| type <i>required</i> | c4l:wasteType or c4l:resourceType: URI for the type of produced waste/consumed resource. Preferably using a semantic web URI. Example : "http://w3id.org/saref#Electricity" | string |

ResourceOrWasteList

This type represents a material flow and can be used to implement c4l:resourceList and c4l:wasteList. Notice that, as opposed to the XML Version, this JSON/Java version has 3 Lists of

elements of one type instead of one list containing 3 different types.

| Name | Description | Schema |
|---|--|---|
| epcList <i>optional</i> | Standard epcglobal:EPC list (epcs are to be represented in URI format) Example : " urn:epc:id:sgtin:4047111.012345.012345678901 "] | < string > array |
| quantityList <i>optional</i> | Standard epcis:QuantityElementType list. | < QuantityElement > array |
| resourceOrWasteList <i>optional</i> | CIRC4Life specific type element format | < ResourceOrWaste > array |

SourceDestType

According to the EPCIS standard.

| Name | Description | Schema |
|--------------------------------------|---|--------|
| sourceDest <i>required</i> | Standard SourceDestID. An identifier that denotes a specific source or destination. | string |
| type <i>optional</i> | Standard SourceDestTypeID. An identifier that indicates what kind of source or destination this Source or Destination (respectively) denotes. | string |

Status

The latest known status of an item

| Name | Description | Schema |
|---------------------------------------|--|--------|
| disposition <i>required</i> | Last known disposition (status) of the item. The EPCIS standard core business vocabulary (cbv) is used. The meaning of typical values for Circ4Life is: 'urn:epcglobal:cbv:disp:returned': Item is returned into a smart recycling bin and awaiting collection 'urn:epcglobal:cbv:disp:sellable_not_accessible': Item is in working condition and will be reused 'urn:epcglobal:cbv:disp:damaged': Item is damaged and needs to be repaired before it can be reused 'urn:epcglobal:cbv:disp:disposed': Item is broken and will be recycled 'urn:epcglobal:cbv:disp:unknown': An item which was put into a smart bin was found to be not of a recyclable type Example : <code>"urn:epcglobal:cbv:disp:returned"</code> | string |
| epc <i>required</i> | The items identifier in EPC (URN) Format Example : <code>"http://circ4life.eecc.info/recycling/bin/obj/1600400000118112200001100001"</code> | string |
| location <i>required</i> | Last known location of the item Example : <code>"urn:epc:epc:sgln:4057847.0000018.0"</code> | string |

Transportation

JSON Format for c4l:transportElementType.

| Name | Description | Schema |
|------------------------------------|---|-------------------------|
| distance <i>optional</i> | Distance travelled. | Measure |
| vehicle <i>required</i> | c4l:vehicleType URI naming the vehicle type used for transportation Example : <code>"http://purl.org/vso/ns#Truck"</code> | string |