

ENVIRONMENTAL PRODUCT DECLARATION



THE INTERNATIONAL EPD® SYSTEM



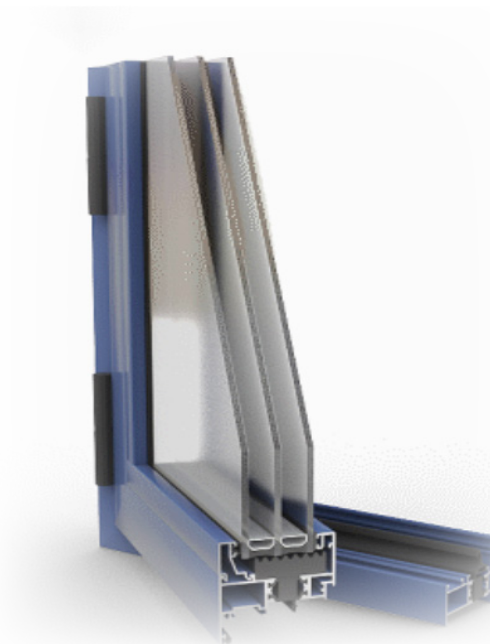
In accordance with EN 15804-2012+A2:2019 and ISO 14025 for

• **Window Systems**

- ITESAL 45
- ITESAL 54
- ITESAL 54 SLIM
- ITESAL 61
- ITESAL 65
- ITESAL 71
- ITESAL 72 HO
- ITESAL 75
- ITESAL 61 EVO

• **Door Systems**

- ITESAL 128 ELV



EPD Program
Programme operator
CPC Code
Based on
Declaration number
Publication date
Valid until
Market coverage

The International EPD® System. www.environdec.com

EPD International AB

42120 Doors, windows and their frames and thresholds for doors, of iron, steel or aluminium

PCR 2019:14 Construction Products v1.0 and C-PCR-007 (to PCR 2019:14) Windows and Doors (EN 17213:2020) version:2020-04-09

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Worldwide



ITESAL

ITESAL, is a leading business company at national level, and increasingly international, which offers Aluminum Solutions, standing out for Quality, Service, Sustainability and generation of well-being in people.

Since 1992, we have been designing, manufacturing and marketing Aluminum Solutions for Architecture, and also for the industrial sector, generating an economic, important and lasting advantage for our Stakeholders

Our business strategy is based on sustainability, finding a balance between economic growth, social welfare and respect for the environment:

- Establishing initiatives to implement prevention and integrate it into all our activities and decisions
- Seeking the systematic reduction of the impacts that our activities can generate
- Making a responsible consumption of resources
- Setting ambitious goals and targets

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PRODUCT

Product description

The products included in this EPD are aluminium windows and doors assembled from extruded mill finished/ anodised aluminium profiles with thermal break manufactured by ITESAL. The window and door systems declared are specific to the different series designed by ITESAL, which include hinged and sliding windows and sliding doors with different glazing.

The windows and doors are used as enclosures for openings in building facades, although they can also be installed indoors.

Composition

The windows and doors consist of a frame assembled from mill finished/coated aluminium profiles with thermal break. The thermal break is made by means of a reinforced polyamide strip sandwiched between two aluminium profiles. The leaf that houses the insulating glass unit (IGU) is also assembled from aluminium profiles.

Sash and frame are assembled using alignment brackets, joint brackets, fasteners, and other components known as fittings. Among these are also the systems that allow the opening of the leaf (handle, hinges, tilt-and-turn mechanism, etc.). To guarantee the air and water tightness of the windows and doors gaskets made of EPDM and other plastic materials are installed.

The results of this EPD are representative for the following products: hinged windows, series ITESAL 45, ITESAL 54, ITESAL 54 SLIM, ITESAL 61, ITESAL 65, ITESAL 71, ITESAL 72 HO, ITESAL 75; sliding windows, serie ITESAL 61 EVO; and sliding doors, serie ITESAL 128 ELV. In all cases, the products assessed have 2 sashes.

The technical data of the declared products as well as their composition are shown in the following tables. None of the declared window systems contain substances included in the list of Substances of Very High Concern with a concentration of more than 0.1% by weight.

	Itesimal45	Itesimal54	Itesimal54SLIM	Itesimal61	Itesimal65	Itesimal71	Itesimal72HO	Itesimal75	Itesimal61EVO	Itesimal128ELV
Frame thickness (mm)	45	54	54	61	65	71	72	75	61	128
IGU	4/16/4	4/16/4	4/16/4	4/16/4	4/16/4	4/16/4	4/16/4	4/16/4	4/16/4	4/16/4
Thermal insulation, frame-sash (W/m ² K) UNE-EN 10077-2	3.21	2.54	2.4	2.66	2.68	1.55	1.54	1.56	3.06	3.94
Thermal insulation (W/m ² K) UNE-EN 10077-2	3.19	2.95	2.97	2.99	3	2.59	2.72	2.6	3.12	3.13
Air tightness UNE-EN 12207	4	4	4	4	4	4	4	4	4	4
Water tightness UNE-EN 12208	9A	E1350	E1350	E750	9A	E1650	E1650	E1650	7A	7A
Wind load resistance UNE-EN 12210	C4	C5	C5	C5	C5	C5	C5	C5	C4	C3

Packaging

Windows and doors are generally transported directly to the building site from carpentry in trucks or vans. These vehicles usually have an inverted “V” pallet, so that the windows and doors are placed vertically during the journey. Windows and doors are separated from each other by cardboard sheets or corners. Windows and doors can be protected with plastic film and secured with straps or other elements. These packaging materials are included in the scope of this EPD.

Reference service life and use phase

According to the recently approved standard EN 17213 a reference service life of 30 years is assumed without IGU replacement.

Recycling and disposal

Aluminium products are highly recyclable. During aluminium profile production, all post-industrial scrap (extrusion drop-offs from cutting, unfit material and discards, etc.) is fed back into the billet production process. Proceed in the same way with the aluminum cutouts generated during the assembly of windows and doors.

When an aluminium building product reaches the end of its life, it is systematically and selectively collected and sent to recycling facilities for secondary billet production. A collection rate for aluminium products next to 95% is well documented in construction sector and included as default value in EN 17213. Finally, recycling rate depends on smelting yield that includes metal losses during scrap preparation and melting.

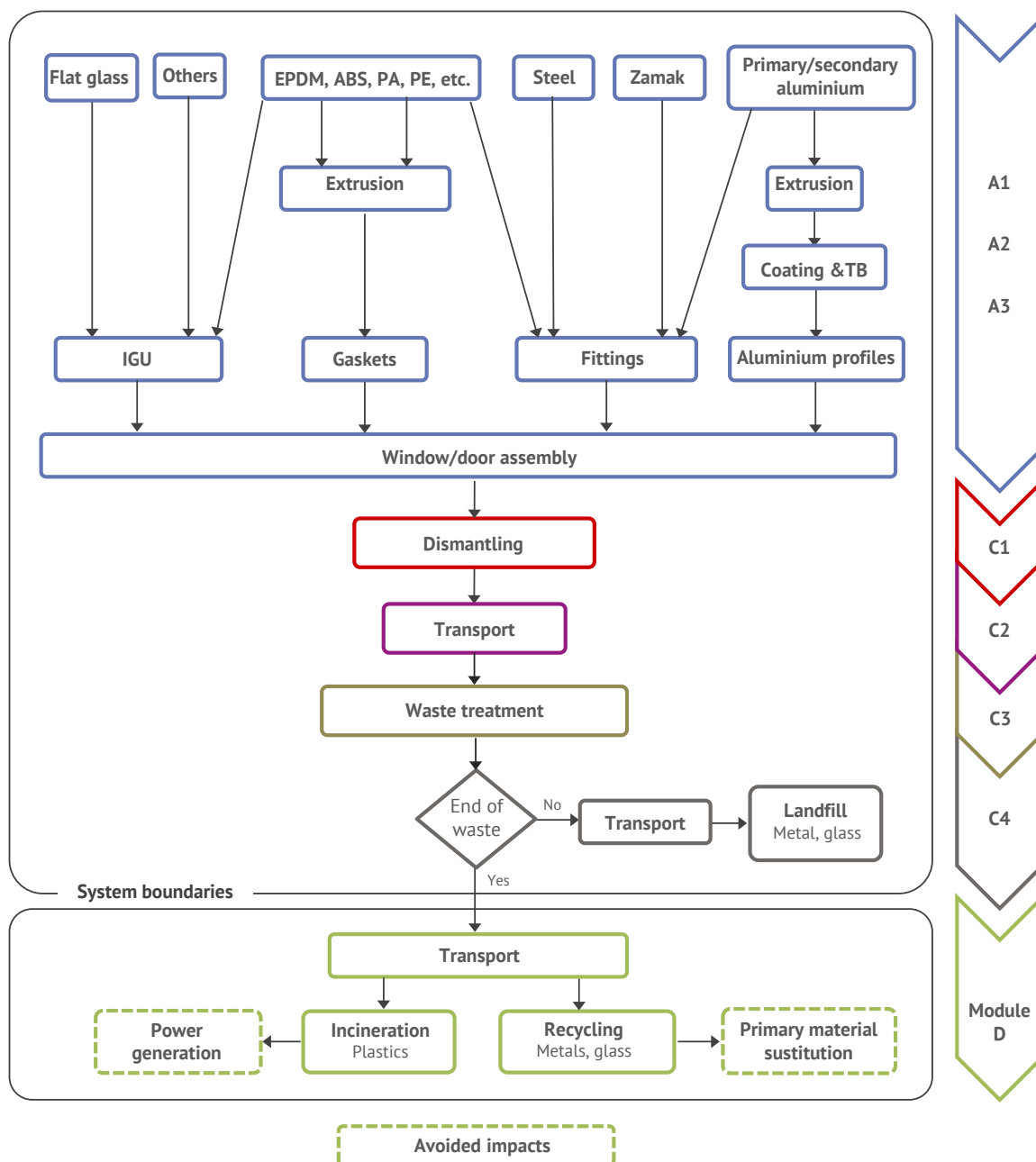
	Itesal45	Itesal54	Itesal54SLIM	Itesal61	Itesal65	Itesal71	Itesal72HO	Itesal75	Itesal61EVO	Itesal128ELV
Aluminium profile	23.99 kg	25.43 kg	21.57 kg	27.23 kg	30.98 kg	29.19 kg	24.81 kg	31.53 kg	21.60 kg	78.43 kg
Aluminium	21.77	22.03	19.01	23.92	27.42	24.80	20.21	26.75	19.22	73.11
Polyamide + fiber glass	1.33	2.52	1.87	2.37	2.62	3.42	3.88	3.83	1.66	3.30
Coating powder	0.89	0.89	0.70	0.94	0.95	0.98	0.72	0.96	0.73	2.01
IGU	24.60 kg	28.43 kg	24.60 kg	24.60 kg	24.60 kg	24.75 kg	27.42 kg	24.68 kg	26.06 kg	103.17 kg
Flat glass	22.54	26.27	22.54	22.54	22.54	22.68	25.26	22.61	23.99	99.26
Aluminium	0.45	0.47	0.45	0.45	0.45	0.45	0.47	0.45	0.46	0.84
Polybutadiene	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.05
Zeolite	0.99	1.03	0.99	0.99	0.99	0.99	1.03	0.99	0.99	1.82
Argon	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.13
Polysulfide	0.58	0.61	0.58	0.58	0.58	0.58	0.61	0.58	0.58	1.07
Gasket and fittings	4.99 kg	5.14 kg	5.99 kg	5.22 kg	4.86 kg	5.58 kg	6.77 kg	5.56 kg	4.31 kg	15.83 kg
Aluminium	1.54	1.63	1.61	1.70	1.35	1.99	1.43	1.50	0.24	1.25
EPDM	1.06	1.08	0.18	1.08	1.08	1.08	0.16	0.04	0.42	1.75
Zamak	0.78	0.78	0.25	0.78	0.78	0.78	0.78	0.78	1.05	5.88
PE	0.68	0.68	2.45	0.68	0.68	0.81	2.66	2.32	0.01	0.08
Steel	0.42	0.42	0.32	0.42	0.42	0.42	0.42	0.42	0.04	1.40
Stainless steel	0.18	0.18	0.32	0.18	0.18	0.18	0.18	0.18	0.58	0.00
PVC	0.16	0.16	0.00	0.16	0.16	0.16	0.00	0.16	1.28	4.98
PP	0.13	0.13	0.18	0.13	0.13	0.13	0.20	0.13	0.35	0.07
PA	0.04	0.01	0.64	0.01	0.01	0.01	0.92	0.01	0.33	0.41
ABS	0	0.02	0	0.03	0.03	0.03	0.03	0.03	0	0
POM	0	0.04	0.04	0.04	0.04	0	0	0.00	0.01	0
Total	53.59 kg	55.17 kg	55.99 kg	57.05 kg	60.44 kg	59.52 kg	59.00 kg	61.77 kg	51.98 kg	197.43 kg
Secondary material	14.96 kg	15.13 kg	13.06 kg	16.43 kg	18.84 kg	17.04 kg	13.89 kg	18.38 kg	13.20 kg	50.23 kg
Renewable material	-	-	-	-	-	-	-	-	-	-
Packaging					0.37 kg					0.91 kg
Cardboard					0.16					0.16
Plastic film					0.21					0.75
Biogenic carbon					0.06 kg					0.06

Hence, aluminium supply at the beginning of the product system has a content of recycled material from post-industrial and post-consumer scrap with the consequent reduction of environmental burdens. In module D are reported only the net benefits of recycling, i.e. the burden savings at the end of life minus the benefits already considered in the module A1 due to secondary aluminium content. In this EPD, the scrap not collected at the end of life (5%) is sent to landfill.

For the rest of the components of windows and doors, i.e. IGU, fittings and gaskets, EoL scenarios have been setup according to default values specified in EN 17213.

System boundaries

The scope of the study is set to be “Cradle-to-gate with options”. Processes included in the assessment are presented on the diagram below.



LCA INFORMATION

Declared unit

The declared unit is 1 m² of enclosure for façade openings (windows and doors) with the technical characteristics shown on page 2.

In accordance with EN 17213, the indicators declared in this EPD have been calculated on the basis of a standard window size of 1.23 m x 1.48 m and a standard door size of 3.00 m x 2.18 m To obtain the environmental impacts and other parameters referring to 1 m² of product, these indicators were divided by the area of the window (1.84 m²) and by the area of the door (6.54m²) respectively. Similarly, a conversion factor to kg/m² can be obtained by dividing the total weight of the product (page 3) by these values.

Goal and scope

This EPD evaluates the environmental impacts and parameters of 1 m² of window/door from cradle to gate with options (end of life and recycling). Hence, this is a cradle to gate EPD with C1-C2-C3-C4-D modules.

This EPD is the basis for B2B communication for customers and relevant stakeholders within the building sector.

System boundaries

This EPD provides information on the production stage of the aluminium profiles (raw material supply, transport to plants and manufacturing), IGU, fittings and gaskets and their end-of-life. Recycling potential of aluminium and others materials with burdens saving due to use in a second product systems is also reported. The information is presented in a modular way separated in the following stages.

A1-3 - Cradle to gate

The aggregation of the modules A1, A2 and A3 is allowed by EN 15804. This rule is applied in this EPD and denoted by A1-3. This module represents the manufacture and packaging of aluminium profiles (including extraction and processing of raw materials and the transport to production sites), the production of the rest of the components of the windows and doors (IGU, fittings and gaskets), the transport of these components and the products assembly. Packaging of windows and doors is also included in this module.

C1 - De-construction

No information was found in the life cycle databases consulted for the dismantling operations of windows/doors,

Stage	Production			Construction		Use							End-of-life				Resource recovery
	Raw materials supply	Transport	Manufacturing	Transport	Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction	Transport	Waste processing	Disposal	Reuse, recovery or recycling potentials
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Declared module	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	EU	EU	ES	-	-	-	-	-	-	-	-	-	ES	ES	ES	ES	EU
Specific data	97%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

ND - Not declared

nor was there a bibliography regarding the inputs or residues generated during these operations. Then there is no contribution on impact categories of this module. In order to make the results tables lighter, this module is not shown.

C2 - Transport to waste processing

A distance of 200 km has been assumed for the transport to scrap dealers. Transport is calculated on the basis of a scenario with the parameters described in the attached table.

C3 - Waste processing for reuse, recovery and/or recycling

It has been assumed that during the scrapping operations the same electricity is consumed as during the assembly of windows.

C4 - Final disposal

End of life scenarios, routes for final disposal, recovery rates and efficiencies in recycling for all components are modelled based on default figures provided by EN 17213 (see attached table).

D - Allocation by reuse, recovery or recycling

For aluminium profiles, module D report the environmental burden of recycled scrap generated at the end of life minus that used at the production stage. Scrap inputs to the production stage are subtracted from scrap to be recycled at end of life in order to obtain the net scrap output from the product system. This remaining net scrap is then sent to recycling. Loads and benefits

are assessed at the point of functional equivalence, i.e. where the substitution of primary aluminium takes place.

This criteria is also applied in the case of other metals and glass that are sent to recycling.

For clarity in the results tables, only modules with a non-zero contribution to the impact categories and parameters stated in this EPD are shown.

Time representativeness

All primary information used for the development of this EPD is based on production data for aluminium profiles manufactured in 2018, 2019 and 2020 by ITESAL at its facilities. Data for IGU, hardware, seals and other environmental aspects generated during window assembly are based on information updated to 2021.

Database(s) and LCA software used

For all processes included in the LCA study, the Ecoinvent 3.8 database has been used.

The LCA study was carried out using a model based on excel templates. For the life cycle impact assessment (LCIA) of the above mentioned processes, the characterisation factors of the EC-JRC EF 2.0 method available at <http://eplca.jrc.ec.europa.eu/LCDN/developerEF.xhtml>.

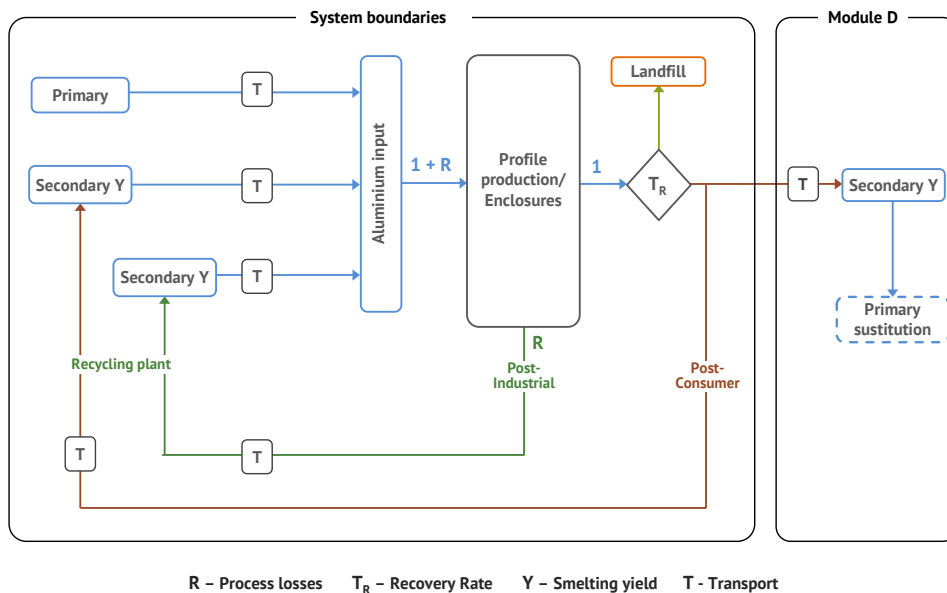
Parameters, C2 module	
Transport by road ⁽¹⁾	Lorry, 17.3 t max payload
Diesel consumption (l/km)	0.221
Distance (km)	200
Volume capacity utilization	100%
Mass capacity utilisation	67%

(1) Technology mix, Euro 0, 1, 2, 3, 4

Parameters, C3 module	
Energy carrier	Electricity, low voltage {ES}
Consumption (kWh) ⁽¹⁾	1.27

(1) For declared unit

Parameters, C4 and D modules	
Recovery rate for metals (recycling)	95%
Recovery rate for glass (recycling)	30%
Recovery rate for plastics (energy valorization)	95%
Metals and plastics to landfill	5%
Glass to landfill	70%
Efficiency for materials recycling	90%
Efficiency for energy valorization	60%



Data Quality

All the activity data pertaining to the core processes were collected through surveys and meetings held with the technical managers of ITESAL. Data were collected on production, consumption of raw materials and energy and the generation of waste, effluents and emissions. These inventories represent the average production of the aluminium profiles manufactured by ITESAL and the window and door systems analysed. For those processes that are not under the control of the organisation, first-hand data from the aluminium sector were used to achieve the required accuracy, consistency and representativeness.

Specific regional databases have been used to include electricity, natural gas or diesel consumption in the life cycle inventory. For transport, raw material production or end-of-life processes, databases were chosen according to their technological and geographical representativeness of the actual process. Technological and geographical representativeness is ensured for all concerns included in the LCA, including those of greatest relevance to the final result. For example, for climate change, the technological representativeness of the processes that contribute 99% of the total value has been qualified as very good or good according to Annex E of the UNE EN 15804 standard. The environmental databases used are less than 3 years old.

Estimates and Assumptions

During the preparation of the inventories, it was possible to distinguish the energy consumption assigned to the main stages of production of aluminium profiles: extrusion and coating. The electricity consumed in the incorporation of the TBB, in packaging, as well as in other common plant services, has been assigned to the total number of tonnes extruded. This assumption does not entail a significant loss of precision, as its impact on the final result has been found to be very low.

The surface treatments chosen to complete the coating processes are the most complete and those that require the use of the greatest amount of chemical products per square metre of surface treated, thus meeting a conservative criterion.

Information has been collected from ITESAL's aluminium billet suppliers. In all cases, the geographical area of the manufacturer and the recycling content of all of them was taken into account. This recycling content amounts to 67%, which reduces the environmental impact of the incoming aluminium. This value also allows the balance of aluminium leaving the limits of the system to calculate the avoided impacts of module D.

All the aluminium scrap produced during the manufacturing of profiles together with the offcuts generated during the assembly of the windows/doors (post-industrial scrap) is sent for recycling. Although this recycling process is in most cases carried out at a different location from where the scrap is generated, it has been modelled in all cases as an effective closed cycle as there is no loss of inherent properties of the aluminium during the process. In addition, the scrap is used in the production of the same products that generate it. Due to this circumstance, no load allocation has been carried out and it has been considered that the windows and doors are the only product generated in module A1-3, with no other co-product. In this way, all post-industrial aluminium scrap is free of charge when it enters the system again. In any case, it does include the transport to recycling of the scrap generated by ITESAL and in the carpentries.

The materials and weight of the fittings and seals were obtained from the breakdown of the ITESAL window systems. Not only the materials they are made of but also the manufacturing process such as extrusion or injection moulding in the case of plastic components or forging or machining in the case of metal components have been taken into account. In the case of UVA, the weight of some components such as glass, aluminium, zeolite, argon and sealants have been modelled from geometric calculations based on specifications together with density values obtained from material databases. Environmental aspects such as water and electricity consumed, or glass offcuts generated during the manufacturing of IGU, have been obtained from theecoinvent database.

The assembly of the windows is not carried out by ITESAL, but by carpentry companies, which have a production scale ranging from a few tens of windows per month to hundreds of windows per month. The aluminium profiles, fittings and seals are first transported to distribution centres and then, on request, to the carpentry shops. The assembly of the window requires the cutting and milling of the aluminium profiles. These operations are carried out dry, so no lubricants are used, while the shavings and offcuts are sent for recycling. The electricity consumed in these operations and the end of life of the aluminium profile packaging as well as the manufacture of the final window packaging materials have been included in the analysis. IGU is only installed once the window has been installed in the building and therefore follows a different route to the rest of the components, being sent directly to the building site from the glaziers.

In order to obtain the net aluminium output of the system at the end of the profiles' useful life, the scrap input at the production stage is subtracted from the scrap sent for recycling at the end of its useful life. In Module D, the environmental burdens and benefits of recycling the net scrap leaving the system are allocated. These environmental aspects have been assessed up to the point of functional equivalence (the point at which the replacement of primary aluminium takes place), i.e. the production of secondary aluminium billet. In this recycling process, the performance of the melting furnaces for each of the scrap fractions (coated and with TBB) has been taken into account.

RESULTS

ITESAL 45

MILL FINISHED

COATED

			MILL FINISHED					COATED				
			A1-3	C2	C3	C4	D	A1-3	C2	C3	C4	D
BASIC ENVIRONMENTAL IMPACTS	CC-2013	kg CO ₂ eq	90.7	1.37	0.376	0.223	-26.19	96.6	1.38	0.376	0.226	-26.87
	CC-total	kg CO ₂ eq	93.3	1.38	0.385	0.229	-27.2	99.4	1.40	0.385	0.232	-27.9
	CC-fossil	kg CO ₂ eq	92.2	1.38	0.380	0.228	-26.3	98.2	1.40	0.380	0.231	-27.0
	CC-biogenic	kg CO ₂ eq	0.203	1.26E-03	2.20E-03	4.51E-04	-0.210	0.309	1.27E-03	2.20E-03	4.53E-04	-0.213
	CC-luluc	kg CO ₂ eq	0.897	5.46E-04	2.63E-03	2.91E-04	-0.625	0.934	5.52E-04	2.63E-03	2.92E-04	-0.644
	OD	kg CFC-11 eq	9.24E-06	3.20E-07	3.15E-08	5.48E-08	-2.69E-06	1.02E-05	3.24E-07	3.15E-08	5.49E-08	-2.77E-06
	A	mol H ⁺ eq	0.67	3.92E-03	3.16E-03	1.13E-03	-0.192	0.71	3.97E-03	3.16E-03	1.13E-03	-0.196
	EAF	kg PO ₄ eq	0.118	2.78E-04	4.45E-04	6.74E-05	-4.43E-02	0.123	2.81E-04	4.45E-04	6.76E-05	-4.54E-02
	EAF	kg P eq	0.038	9.05E-05	1.45E-04	2.20E-05	-1.44E-02	0.040	9.15E-05	1.45E-04	2.20E-05	-1.48E-02
	EAM	kg N eq	0.103	7.97E-04	5.64E-04	5.30E-04	-2.82E-02	0.107	8.06E-04	5.64E-04	5.82E-04	-2.88E-02
	ET	mol N eq	1.026	8.68E-03	5.87E-03	3.60E-03	-0.288	1.070	8.78E-03	5.87E-03	3.61E-03	-0.293
	POF	kg NMVOC eq	0.318	3.34E-03	1.60E-03	1.12E-03	-9.56E-02	0.335	3.38E-03	1.60E-03	1.12E-03	-9.77E-02
	AD-non fossil	kg Sb eq	2.94E-03	4.89E-06	1.22E-06	6.77E-07	6.17E-05	2.99E-03	4.95E-06	1.22E-06	6.78E-07	8.20E-05
AD-fossil	MJ	1299	21	8.68E+00	3.889	-428	1426	21	8.68E+00	3.899	-439	
WU	m ³ eq	86.1	9.57E-02	1.44E-01	0.084	-46.2	90.1	9.68E-02	1.44E-01	0.085	-47.6	
ADDITIONAL ENVIRONMENTAL IMPACTS	PM	Disease incidence	6.47E-06	8.76E-08	1.28E-08	2.13E-08	-1.99E-06	6.75E-06	8.86E-08	1.28E-08	2.14E-08	-2.04E-06
	IR	kBq U235 eq	13.2	0.108	2.43E-01	1.92E-02	-9.11	13.9	0.109	2.43E-01	1.92E-02	-9.33
	EF	CTUe	3150	15.8	5.64	373	-409	3318	16.0	5.64	373	-415
	HT-c	CTUh	1.85E-07	5.26E-10	1.56E-10	1.10E-10	-8.30E-08	1.89E-07	5.32E-10	1.56E-10	1.10E-10	-8.53E-08
	HT-nc	CTUh	1.06E-05	1.67E-08	4.33E-09	3.12E-09	-9.10E-07	1.70E-05	1.68E-08	4.33E-09	3.13E-09	-9.32E-07
	LU	Dimensionless	307	13.2	2.01	3.75	-43.6	325	13.3	2.01	3.76	-44.3

ENVIRONMENTAL IMPACTS. **CC-2013:** Climatic Change according to EN 15804:2012+A1:2013; **CC-total:** Climatic Change - total; **CC-fossil:** Climatic Change - fossil; **CC-biogenic:** Climate change - biogenic; **CC-luluc:** Climate change - land use and land use change; **OD:** Ozone depletion; **A:** Acidification ; **EAF:** Eutrophication aquatic freshwater; **EAM:** Eutrophication aquatic marine; **ET:** Eutrophication terrestrial; **POF:** Photochemical ozone formation; **AD- non fossil:** Abiotic resource depletion - minerals and metals (1); **AD-fossil:** Abiotic resource depletion - fossils (1); **WU:** Water use (1); **PM:** Particulate matter emissions (1); **IR:** Ionising radiation (2); **EF:** Ecotoxicity - freshwater (1); **HT-c:** Human toxicity, cancer effects (1); **HT-nc:** Human toxicity, non-cancer effects (1); **LU:** Land use (1).

(1) The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

(2) This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

ITESAL 45

MILL FINISHED

COATED

		MILL FINISHED					COATED					
		A1-3	C2	C3	C4	D	A1-3	C2	C3	C4	D	
RESOURCE USE	PERE	MJ	284	0.299	1.788	6.77E-02	-170	301	0.303	1.788	6.79E-02	-175
	PERM	MJ	0	0	0	0	0	0	0	0	0	0
	PERT	MJ	284	0.299	1.788	6.77E-02	-170	301	0.303	1.788	6.79E-02	-175
	PENRE	MJ	1387	22.2	9.02	4.13	-451	1526	22.5	9.02	4.14	-463
	PENRM	MJ	0	0	0	0	0	0	0	0	0	0
	PENRT	MJ	1387	22.2	9.02	4.13	-451	1526	22.5	9.02	4.14	-463
	SM	kg	8.22	0	0	0	0	8.22	0	0	0	0
	RSF	MJ	0	0	0	0	0	0	0	0	0	0
	NRSF	MJ	0	0	0	0	0	0	0	0	0	0
	FW	m ³ eq	86.6	9.57E-02	1.44E-01	0.095	-46.2	90.7	9.68E-02	1.44E-01	0.095	-47.6
WASTE	HWD	kg	93.3	5.46E-05	4.50E-06	8.08E-06	2.84E-02	99.4	5.53E-05	4.50E-06	8.09E-06	2.94E-02
	NHWD	kg	92.2	1.10	2.20	10.0	-7.98	98.2	1.11	2.20	10.1	-8.20
	RWD	kg	2.03E-01	1.41E-04	6.58E-05	2.48E-05	-3.01E-03	3.09E-01	1.43E-04	6.58E-05	2.49E-05	-3.08E-03
OUTPUT FLOWS	CRU	kg	0	0	0	0	0	0	0	0	0	0
	MFR	kg	4.93	0	17.3	0	0	5.04	0	17.8	0	0
	MER	kg	0	0	1.09	0	0	0	0	1.09	0	0
	EE-e	MJ	0	0	27.3	0	0	0	0	27.3	0	0
	EE-t	MJ	0	0	0	0	0	0	0	0	0	0

RESOURCE USE. **PERE:** Renewable primary energy as energy carrier; **PERM:** Renewable primary energy resource as material utilization; **PERT:** Total use of renewable primary energy resources; **PENRE:** Non-renewable primary energy as energy carrier; **PENRM:** Non-renewable primary energy as material utilization; **PENRT:** Total use of non-renewable primary energy resources; **SM:** Use of secondary materials; **RSF:** Use of renewable secondary fuels; **NRSF:** Use of non-renewable secondary fuels; **FW:** Use of net fresh water.

WASTE CATEGORIES. **HWD:** Hazardous waste disposed; **NHWD:** Non-hazardous waste disposed; **RWD:** Radioactive waste disposed.

OUTPUT FLOWS. **CRU:** Components for re-use; **MFR:** Materials for recycling; **MER:** Materials for energy recovery; **EE-e:** Exported energy (electricity); **EE-t:** Exported energy (thermal)

ITESAL 54

MILL FINISHED

COATED

			MILL FINISHED					COATED				
			A1-3	C2	C3	C4	D	A1-3	C2	C3	C4	D
BASIC ENVIRONMENTAL IMPACTS	CC-2013	kg CO ₂ eq	97.3	1.42	0.376	0.228	-27.60	103.2	1.44	0.376	0.230	-28.29
	CC-total	kg CO ₂ eq	100.1	1.44	0.385	0.234	-28.6	106.3	1.45	0.385	0.237	-29.4
	CC-fossil	kg CO ₂ eq	99.0	1.44	0.380	0.234	-27.8	105.1	1.45	0.380	0.237	-28.5
	CC-biogenic	kg CO ₂ eq	0.186	1.31E-03	2.20E-03	4.57E-04	-0.217	0.293	1.32E-03	2.20E-03	4.59E-04	-0.221
	CC-luluc	kg CO ₂ eq	0.909	5.68E-04	2.63E-03	2.93E-04	-0.663	0.946	5.74E-04	2.63E-03	2.93E-04	-0.681
	OD	kg CFC-11 eq	9.38E-06	3.33E-07	3.15E-08	5.52E-08	-2.85E-06	1.03E-05	3.36E-07	3.15E-08	5.53E-08	-2.92E-06
	A	mol H ⁺ eq	0.70	4.08E-03	3.16E-03	1.13E-03	-0.201	0.74	4.13E-03	3.16E-03	1.14E-03	-0.204
	EAF	kg PO ₄ eq	0.121	2.89E-04	4.45E-04	6.81E-05	-4.65E-02	0.125	2.92E-04	4.45E-04	6.83E-05	-4.77E-02
	EAF	kg P eq	0.039	9.41E-05	1.45E-04	2.22E-05	-1.52E-02	0.041	9.52E-05	1.45E-04	2.22E-05	-1.55E-02
	EAM	kg N eq	0.111	8.29E-04	5.64E-04	6.04E-04	-2.94E-02	0.116	8.38E-04	5.64E-04	6.56E-04	-3.00E-02
	ET	mol N eq	1.076	9.03E-03	5.87E-03	3.63E-03	-0.299	1.120	9.13E-03	5.87E-03	3.64E-03	-0.304
	POF	kg NMVOC eq	0.335	3.47E-03	1.60E-03	1.12E-03	-9.99E-02	0.352	3.51E-03	1.60E-03	1.13E-03	-1.02E-01
	AD-non fossil	kg Sb eq	2.97E-03	5.09E-06	1.22E-06	6.83E-07	1.02E-04	3.02E-03	5.15E-06	1.22E-06	6.85E-07	1.23E-04
	AD-fossil	MJ	1393	22	8.68E+00	3.921	-451	1522	22	8.68E+00	3.930	-462
WU	m ³ eq	92.9	9.95E-02	1.44E-01	0.085	-48.9	96.9	1.01E-01	1.44E-01	0.085	-50.2	
ADDITIONAL ENVIRONMENTAL IMPACTS	PM	Disease incidence	6.83E-06	9.11E-08	1.28E-08	2.15E-08	-2.08E-06	7.12E-06	9.21E-08	1.28E-08	2.16E-08	-2.13E-06
	IR	kBq U235 eq	13.4	0.112	2.43E-01	1.93E-02	-9.59	14.1	0.113	2.43E-01	1.94E-02	-9.80
	EF	CTUe	3200	16.5	5.64	378	-421	3368	16.6	5.64	378	-427
	HT-c	CTUh	1.88E-07	5.47E-10	1.56E-10	1.11E-10	-8.76E-08	1.92E-07	5.54E-10	1.56E-10	1.11E-10	-8.99E-08
	HT-nc	CTUh	1.08E-05	1.73E-08	4.33E-09	3.15E-09	-9.53E-07	1.72E-05	1.75E-08	4.33E-09	3.16E-09	-9.75E-07
	LU	Dimensionless	318	13.7	2.01	3.77	-45.1	335	13.8	2.01	3.78	-45.9

ENVIRONMENTAL IMPACTS. **CC-2013:** Climatic Change according to EN 15804:2012+A1:2013; **CC-total:** Climatic Change - total; **CC-fossil:** Climatic Change - fossil; **CC-biogenic:** Climate change - biogenic; **CC-luluc:** Climate change - land use and land use change; **OD:** Ozone depletion; **A:** Acidification ; **EAF:** Eutrophication aquatic freshwater; **EAM:** Eutrophication aquatic marine; **ET:** Eutrophication terrestrial; **POF:** Photochemical ozone formation; **AD- non fossil:** Abiotic resource depletion - minerals and metals (1); **AD-fossil:** Abiotic resource depletion - fossils (1); **WU:** Water use (1); **PM:** Particulate matter emissions (1); **IR:** Ionising radiation (2); **EF:** Ecotoxicity - freshwater (1); **HT-c:** Human toxicity, cancer effects (1); **HT-nc:** Human toxicity, non-cancer effects (1); **LU:** Land use (1).

(1) The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

(2) This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

ITESAL 54

MILL FINISHED

COATED

		MILL FINISHED					COATED					
		A1-3	C2	C3	C4	D	A1-3	C2	C3	C4	D	
RESOURCE USE	PERE	MJ	290	0.311	1.788	6.84E-02	-180	307	0.315	1.788	6.86E-02	-185
	PERM	MJ	0	0	0	0	0	0	0	0	0	0
	PERT	MJ	290	0.311	1.788	6.84E-02	-180	307	0.315	1.788	6.86E-02	-185
	PENRE	MJ	1489	23.1	9.02	4.17	-476	1628	23.4	9.02	4.18	-488
	PENRM	MJ	0	0	0	0	0	0	0	0	0	0
	PENRT	MJ	1489	23.1	9.02	4.17	-476	1628	23.4	9.02	4.18	-488
	SM	kg	8.31	0	0	0	0	8.31	0	0	0	0
	RSF	MJ	0	0	0	0	0	0	0	0	0	0
	NRSF	MJ	0	0	0	0	0	0	0	0	0	0
	FW	m ³ eq	93.4	9.95E-02	1.44E-01	0.096	-48.9	97.6	1.01E-01	1.44E-01	0.096	-50.2
WASTE	HWD	kg	100.1	5.68E-05	4.50E-06	8.14E-06	3.03E-02	106.3	5.75E-05	4.50E-06	8.16E-06	3.13E-02
	NHWD	kg	99.0	1.14	2.20	10.1	-8.43	105.1	1.15	2.20	10.1	-8.65
	RWD	kg	1.86E-01	1.47E-04	6.58E-05	2.50E-05	-3.17E-03	2.93E-01	1.49E-04	6.58E-05	2.51E-05	-3.24E-03
OUTPUT FLOWS	CRU	kg	0	0	0	0	0	0	0	0	0	0
	MFR	kg	5.05	0	18.1	0	0	5.16	0	18.6	0	0
	MER	kg	0	0	1.11	0	0	0	0	1.11	0	0
	EE-e	MJ	0	0	28.0	0	0	0	0	28.0	0	0
	EE-t	MJ	0	0	0	0	0	0	0	0	0	0

RESOURCE USE. **PERE:** Renewable primary energy as energy carrier; **PERM:** Renewable primary energy resource as material utilization; **PERT:** Total use of renewable primary energy resources; **PENRE:** Non-renewable primary energy as energy carrier; **PENRM:** Non-renewable primary energy as material utilization; **PENRT:** Total use of non-renewable primary energy resources; **SM:** Use of secondary materials; **RSF:** Use of renewable secondary fuels; **NRSF:** Use of non-renewable secondary fuels; **FW:** Use of net fresh water.

WASTE CATEGORIES. **HWD:** Hazardous waste disposed; **NHWD:** Non-hazardous waste disposed; **RWD:** Radioactive waste disposed.

OUTPUT FLOWS. **CRU:** Components for re-use; **MFR:** Materials for recycling; **MER:** Materials for energy recovery; **EE-e:** Exported energy (electricity); **EE-t:** Exported energy (thermal)

ITESAL 54 SLIM

MILL FINISHED

COATED

			MILL FINISHED					COATED				
			A1-3	C2	C3	C4	D	A1-3	C2	C3	C4	D
BASIC ENVIRONMENTAL IMPACTS	CC-2013	kg CO ₂ eq	96.6	1.39	0.386	0.272	-25.60	101.4	1.40	0.386	0.274	-26.14
	CC-total	kg CO ₂ eq	99.5	1.40	0.395	0.280	-26.5	104.6	1.42	0.395	0.282	-27.1
	CC-fossil	kg CO ₂ eq	98.5	1.40	0.390	0.279	-25.7	103.5	1.41	0.390	0.281	-26.3
	CC-biogenic	kg CO ₂ eq	0.168	1.28E-03	2.33E-03	4.82E-04	-0.185	0.257	1.29E-03	2.33E-03	4.83E-04	-0.188
	CC-luluc	kg CO ₂ eq	0.823	5.54E-04	2.65E-03	3.38E-04	-0.595	0.854	5.59E-04	2.65E-03	3.39E-04	-0.610
	OD	kg CFC-11 eq	8.74E-06	3.25E-07	3.35E-08	6.68E-08	-2.62E-06	9.52E-06	3.28E-07	3.35E-08	6.69E-08	-2.67E-06
	A	mol H ⁺ eq	0.69	3.98E-03	3.23E-03	1.31E-03	-0.196	0.72	4.02E-03	3.23E-03	1.31E-03	-0.199
	EAF	kg PO ₄ eq	0.111	2.82E-04	4.58E-04	7.58E-05	-4.13E-02	0.115	2.84E-04	4.58E-04	7.59E-05	-4.22E-02
	EAF	kg P eq	0.036	9.18E-05	1.49E-04	2.47E-05	-1.35E-02	0.037	9.27E-05	1.49E-04	2.47E-05	-1.38E-02
	EAM	kg N eq	0.110	8.09E-04	5.85E-04	6.95E-04	-2.71E-02	0.113	8.16E-04	5.85E-04	7.36E-04	-2.75E-02
	ET	mol N eq	1.083	8.82E-03	6.10E-03	4.17E-03	-0.292	1.119	8.89E-03	6.10E-03	4.18E-03	-0.296
	POF	kg NMVOC eq	0.335	3.39E-03	1.67E-03	1.30E-03	-9.55E-02	0.348	3.42E-03	1.67E-03	1.31E-03	-9.71E-02
	AD-non fossil	kg Sb eq	2.36E-03	4.97E-06	1.27E-06	8.32E-07	3.88E-04	2.40E-03	5.01E-06	1.27E-06	8.33E-07	4.04E-04
	AD-fossil	MJ	1385	21	8.88E+00	4.678	-435	1490	21	8.88E+00	4.685	-444
WU	m ³ eq	84.5	9.71E-02	1.50E-01	0.096	-43.1	87.7	9.80E-02	1.50E-01	0.097	-44.1	
ADDITIONAL ENVIRONMENTAL IMPACTS	PM	Disease incidence	6.75E-06	8.89E-08	1.38E-08	2.52E-08	-1.93E-06	6.98E-06	8.97E-08	1.38E-08	2.53E-08	-1.97E-06
	IR	kBq U235 eq	12.2	0.109	2.46E-01	2.30E-02	-9.67	12.8	0.110	2.46E-01	2.31E-02	-9.84
	EF	CTUe	3046	16.1	5.78	327	-346	3183	16.2	5.78	327	-351
	HT-c	CTUh	1.80E-07	5.34E-10	1.63E-10	1.26E-10	-7.48E-08	1.83E-07	5.39E-10	1.63E-10	1.26E-10	-7.66E-08
	HT-nc	CTUh	9.67E-06	1.69E-08	4.46E-09	3.64E-09	-7.72E-07	1.49E-05	1.71E-08	4.46E-09	3.65E-09	-7.89E-07
	LU	Dimensionless	311	13.4	2.19	4.45	-48.7	325	13.5	2.19	4.46	-49.3

ENVIRONMENTAL IMPACTS. **CC-2013:** Climatic Change according to EN 15804:2012+A1:2013; **CC-total:** Climatic Change - total; **CC-fossil:** Climatic Change - fossil; **CC-biogenic:** Climate change - biogenic; **CC-luluc:** Climate change - land use and land use change; **OD:** Ozone depletion; **A:** Acidification ; **EAF:** Eutrophication aquatic freshwater; **EAM:** Eutrophication aquatic marine; **ET:** Eutrophication terrestrial; **POF:** Photochemical ozone formation; **AD- non fossil:** Abiotic resource depletion - minerals and metals (1); **AD-fossil:** Abiotic resource depletion - fossils (1); **WU:** Water use (1); **PM:** Particulate matter emissions (1); **IR:** Ionising radiation (2); **EF:** Ecotoxicity - freshwater (1); **HT-c:** Human toxicity, cancer effects (1); **HT-nc:** Human toxicity, non-cancer effects (1); **LU:** Land use (1).

(1) The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

(2) This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

ITESAL 54 SLIM

MILL FINISHED

COATED

		MILL FINISHED					COATED					
		A1-3	C2	C3	C4	D	A1-3	C2	C3	C4	D	
RESOURCE USE	PERE	MJ	265	0.304	1.803	7.62E-02	-167	279	0.306	1.803	7.63E-02	-171
	PERM	MJ	0	0	0	0	0	0	0	0	0	0
	PERT	MJ	265	0.304	1.803	7.62E-02	-167	279	0.306	1.803	7.63E-02	-171
	PENRE	MJ	1481	22.6	9.23	4.97	-458	1594	22.8	9.23	4.98	-467
	PENRM	MJ	0	0	0	0	0	0	0	0	0	0
	PENRT	MJ	1481	22.6	9.23	4.97	-458	1594	22.8	9.23	4.98	-467
	SM	kg	0	0	0	0	0	0	0	0	0	0
	RSF	MJ	0	0	0	0	0	0	0	0	0	0
	NRSF	MJ	0	0	0	0	0	0	0	0	0	0
	FW	m ³ eq	84.9	9.71E-02	1.50E-01	0.106	-43.1	88.3	9.80E-02	1.50E-01	0.106	-44.1
WASTE	HWD	kg	99.5	5.55E-05	4.80E-06	9.96E-06	2.84E-02	104.6	5.60E-05	4.80E-06	9.97E-06	2.92E-02
	NHWD	kg	98.5	1.11	2.56	11.5	-7.56	103.5	1.12	2.56	11.5	-7.74
	RWD	kg	0.2	1.44E-04	6.71E-05	3.02E-05	-3.11E-03	0.3	1.45E-04	6.71E-05	3.03E-05	-3.17E-03
OUTPUT FLOWS	CRU	kg	0	0	0	0	0	0	0	0	0	0
	MFR	kg	5.23	0	16.5	0	0	5.32	0	16.9	0	0
	MER	kg	0	0	1.82	0	0	0	0	1.82	0	0
	EE-e	MJ	0	0	45.7	0	0	0	0	45.7	0	0
	EE-t	MJ	0	0	0	0	0	0	0	0	0	0

RESOURCE USE. **PERE:** Renewable primary energy as energy carrier; **PERM:** Renewable primary energy resource as material utilization; **PERT:** Total use of renewable primary energy resources; **PENRE:** Non-renewable primary energy as energy carrier; **PENRM:** Non-renewable primary energy as material utilization; **PENRT:** Total use of non-renewable primary energy resources; **SM:** Use of secondary materials; **RSF:** Use of renewable secondary fuels; **NRSF:** Use of non-renewable secondary fuels; **FW:** Use of net fresh water.

WASTE CATEGORIES. **HWD:** Hazardous waste disposed; **NHWD:** Non-hazardous waste disposed; **RWD:** Radioactive waste disposed.

OUTPUT FLOWS. **CRU:** Components for re-use; **MFR:** Materials for recycling; **MER:** Materials for energy recovery; **EE-e:** Exported energy (electricity); **EE-t:** Exported energy (thermal)

ITESAL 61

MILL FINISHED

COATED

			MILL FINISHED					COATED				
			A1-3	C2	C3	C4	D	A1-3	C2	C3	C4	D
BASIC ENVIRONMENTAL IMPACTS	CC-2013	kg CO ₂ eq	101.1	1.49	0.376	0.230	-29.16	107.4	1.51	0.376	0.233	-29.89
	CC-total	kg CO ₂ eq	104.1	1.50	0.385	0.236	-30.3	110.6	1.52	0.385	0.240	-31.0
	CC-fossil	kg CO ₂ eq	102.9	1.50	0.380	0.236	-29.3	109.3	1.52	0.380	0.239	-30.1
	CC-biogenic	kg CO ₂ eq	0.198	1.37E-03	2.20E-03	4.77E-04	-0.226	0.311	1.38E-03	2.20E-03	4.79E-04	-0.230
	CC-luluc	kg CO ₂ eq	0.981	5.94E-04	2.63E-03	2.95E-04	-0.705	1.021	6.01E-04	2.63E-03	2.95E-04	-0.724
	OD	kg CFC-11 eq	9.86E-06	3.48E-07	3.15E-08	5.56E-08	-3.02E-06	1.09E-05	3.52E-07	3.15E-08	5.57E-08	-3.10E-06
	A	mol H ⁺ eq	0.73	4.27E-03	3.16E-03	1.15E-03	-0.210	0.77	4.32E-03	3.16E-03	1.15E-03	-0.214
	EAF	kg PO ₄ eq	0.128	3.02E-04	4.45E-04	7.00E-05	-4.91E-02	0.133	3.06E-04	4.45E-04	7.02E-05	-5.03E-02
	EAF	kg P eq	0.042	9.84E-05	1.45E-04	2.28E-05	-1.60E-02	0.043	9.95E-05	1.45E-04	2.29E-05	-1.64E-02
	EAM	kg N eq	0.115	8.67E-04	5.64E-04	5.99E-04	-3.07E-02	0.120	8.76E-04	5.64E-04	6.55E-04	-3.14E-02
	ET	mol N eq	1.114	9.45E-03	5.87E-03	3.66E-03	-0.310	1.161	9.55E-03	5.87E-03	3.67E-03	-0.316
	POF	kg NMVOC eq	0.348	3.63E-03	1.60E-03	1.14E-03	-1.04E-01	0.366	3.67E-03	1.60E-03	1.14E-03	-1.07E-01
	AD-non fossil	kg Sb eq	3.14E-03	5.32E-06	1.22E-06	6.89E-07	1.48E-04	3.19E-03	5.38E-06	1.22E-06	6.91E-07	1.70E-04
	AD-fossil	MJ	1450	23	8.68E+00	3.958	-477	1586	23	8.68E+00	3.967	-488
WU	m ³ eq	98.0	1.04E-01	1.44E-01	0.086	-51.9	102.3	1.05E-01	1.44E-01	0.086	-53.3	
ADDITIONAL ENVIRONMENTAL IMPACTS	PM	Disease incidence	7.10E-06	9.53E-08	1.28E-08	2.17E-08	-2.19E-06	7.40E-06	9.64E-08	1.28E-08	2.18E-08	-2.24E-06
	IR	kBq U235 eq	14.3	0.117	2.43E-01	1.95E-02	-10.08	15.0	0.119	2.43E-01	1.96E-02	-10.31
	EF	CTUe	3330	17.2	5.64	410	-434	3508	17.4	5.64	410	-440
	HT-c	CTUh	2.00E-07	5.73E-10	1.56E-10	1.13E-10	-9.28E-08	2.04E-07	5.79E-10	1.56E-10	1.14E-10	-9.52E-08
	HT-nc	CTUh	1.16E-05	1.81E-08	4.33E-09	3.22E-09	-1.00E-06	1.84E-05	1.83E-08	4.33E-09	3.22E-09	-1.02E-06
	LU	Dimensionless	332	14.3	2.01	3.80	-46.8	351	14.5	2.01	3.80	-47.5

ENVIRONMENTAL IMPACTS. **CC-2013:** Climatic Change according to EN 15804:2012+A1:2013; **CC-total:** Climatic Change - total; **CC-fossil:** Climatic Change - fossil; **CC-biogenic:** Climate change - biogenic; **CC-luluc:** Climate change - land use and land use change; **OD:** Ozone depletion; **A:** Acidification ; **EAF:** Eutrophication aquatic freshwater; **EAM:** Eutrophication aquatic marine; **ET:** Eutrophication terrestrial; **POF:** Photochemical ozone formation; **AD- non fossil:** Abiotic resource depletion - minerals and metals (1); **AD-fossil:** Abiotic resource depletion - fossils (1); **WU:** Water use (1); **PM:** Particulate matter emissions (1); **IR:** Ionising radiation (2); **EF:** Ecotoxicity - freshwater (1); **HT-c:** Human toxicity, cancer effects (1); **HT-nc:** Human toxicity, non-cancer effects (1); **LU:** Land use (1).

(1) The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

(2) This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

ITESAL 61

MILL FINISHED

COATED

		MILL FINISHED					COATED					
		A1-3	C2	C3	C4	D	A1-3	C2	C3	C4	D	
RESOURCE USE	PERE	MJ	311	0.325	1.788	7.04E-02	-191	329	0.329	1.788	7.06E-02	-196
	PERM	MJ	0	0	0	0	0	0	0	0	0	0
	PERT	MJ	311	0.325	1.788	7.04E-02	-191	329	0.329	1.788	7.06E-02	-196
	PENRE	MJ	1549	24.2	9.02	4.21	-503	1696	24.4	9.02	4.22	-515
	PENRM	MJ	0	0	0	0	0	0	0	0	0	0
	PENRT	MJ	1549	24.2	9.02	4.21	-503	1696	24.4	9.02	4.22	-515
	SM	kg	9.03	0	0	0	0	9.03	0	0	0	0
	RSF	MJ	0	0	0	0	0	0	0	0	0	0
	NRSF	MJ	0	0	0	0	0	0	0	0	0	0
	FW	m ³ eq	98.6	1.04E-01	1.44E-01	0.097	-51.9	102.9	1.05E-01	1.44E-01	0.098	-53.3
WASTE	HWD	kg	104.1	5.94E-05	4.50E-06	8.19E-06	3.25E-02	110.6	6.01E-05	4.50E-06	8.21E-06	3.36E-02
	NHWD	kg	102.9	1.19	2.20	10.1	-8.93	109.3	1.21	2.20	10.1	-9.17
	RWD	kg	0.2	1.54E-04	6.58E-05	2.52E-05	-3.33E-03	0.3	1.56E-04	6.58E-05	2.53E-05	-3.41E-03
OUTPUT FLOWS	CRU	kg	0	0	0	0	0	0	0	0	0	0
	MFR	kg	5.39	0	19.0	0	0	5.51	0	19.5	0	0
	MER	kg	0	0	1.12	0	0	0	0	1.12	0	0
	EE-e	MJ	0	0	28.1	0	0	0	0	28.1	0	0
	EE-t	MJ	0	0	0	0	0	0	0	0	0	0

RESOURCE USE. **PERE:** Renewable primary energy as energy carrier; **PERM:** Renewable primary energy resource as material utilization; **PERT:** Total use of renewable primary energy resources; **PENRE:** Non-renewable primary energy as energy carrier; **PENRM:** Non-renewable primary energy as material utilization; **PENRT:** Total use of non-renewable primary energy resources; **SM:** Use of secondary materials; **RSF:** Use of renewable secondary fuels; **NRSF:** Use of non-renewable secondary fuels; **FW:** Use of net fresh water.

WASTE CATEGORIES. **HWD:** Hazardous waste disposed; **NHWD:** Non-hazardous waste disposed; **RWD:** Radioactive waste disposed.

OUTPUT FLOWS. **CRU:** Components for re-use; **MFR:** Materials for recycling; **MER:** Materials for energy recovery; **EE-e:** Exported energy (electricity); **EE-t:** Exported energy (thermal)

ITESAL 65

MILL FINISHED

COATED

			MILL FINISHED					COATED				
			A1-3	C2	C3	C4	D	A1-3	C2	C3	C4	D
BASIC ENVIRONMENTAL IMPACTS	CC-2013	kg CO ₂ eq	106.8	1.62	0.376	0.235	-31.02	113.1	1.64	0.376	0.237	-31.76
	CC-total	kg CO ₂ eq	109.9	1.64	0.385	0.242	-32.2	116.5	1.65	0.385	0.245	-33.0
	CC-fossil	kg CO ₂ eq	108.5	1.63	0.380	0.241	-31.2	115.0	1.65	0.380	0.244	-32.0
	CC-biogenic	kg CO ₂ eq	0.219	1.49E-03	2.20E-03	5.15E-04	-0.236	0.337	1.50E-03	2.20E-03	5.18E-04	-0.240
	CC-luluc	kg CO ₂ eq	1.104	6.46E-04	2.63E-03	2.99E-04	-0.755	1.144	6.53E-04	2.63E-03	3.00E-04	-0.775
	OD	kg CFC-11 eq	1.06E-05	3.79E-07	3.15E-08	5.61E-08	-3.22E-06	1.16E-05	3.82E-07	3.15E-08	5.63E-08	-3.31E-06
	A	mol H ⁺ eq	0.77	4.64E-03	3.16E-03	1.18E-03	-0.220	0.81	4.69E-03	3.16E-03	1.18E-03	-0.224
	EAF	kg PO ₄ eq	0.139	3.29E-04	4.45E-04	7.36E-05	-5.21E-02	0.144	3.32E-04	4.45E-04	7.38E-05	-5.33E-02
	EAF	kg P eq	0.045	1.07E-04	1.45E-04	2.40E-05	-1.70E-02	0.047	1.08E-04	1.45E-04	2.40E-05	-1.74E-02
	EAM	kg N eq	0.120	9.43E-04	5.64E-04	6.20E-04	-3.23E-02	0.125	9.52E-04	5.64E-04	6.76E-04	-3.30E-02
	ET	mol N eq	1.157	1.03E-02	5.87E-03	3.73E-03	-0.324	1.204	1.04E-02	5.87E-03	3.75E-03	-0.330
	POF	kg NMVOC eq	0.365	3.95E-03	1.60E-03	1.16E-03	-1.10E-01	0.383	3.99E-03	1.60E-03	1.16E-03	-1.12E-01
	AD-non fossil	kg Sb eq	3.44E-03	5.79E-06	1.22E-06	7.00E-07	2.04E-04	3.49E-03	5.85E-06	1.22E-06	7.02E-07	2.26E-04
	AD-fossil	MJ	1552	25	8.68E+00	4.022	-506	1689	25	8.68E+00	4.032	-518
WU	m ³ eq	109.0	1.13E-01	1.44E-01	0.088	-55.6	113.3	1.14E-01	1.44E-01	0.088	-57.0	
ADDITIONAL ENVIRONMENTAL IMPACTS	PM	Disease incidence	7.42E-06	1.04E-07	1.28E-08	2.21E-08	-2.32E-06	7.72E-06	1.05E-07	1.28E-08	2.22E-08	-2.38E-06
	IR	kBq U235 eq	15.8	0.128	2.43E-01	1.99E-02	-10.66	16.6	0.129	2.43E-01	1.99E-02	-10.89
	EF	CTUe	3479	18.7	5.64	469	-450	3660	18.9	5.64	469	-456
	HT-c	CTUh	2.16E-07	6.23E-10	1.56E-10	1.16E-10	-9.90E-08	2.21E-07	6.29E-10	1.56E-10	1.17E-10	-1.01E-07
	HT-nc	CTUh	1.31E-05	1.97E-08	4.33E-09	3.33E-09	-1.06E-06	2.00E-05	1.99E-08	4.33E-09	3.34E-09	-1.08E-06
	LU	Dimensionless	357	15.6	2.01	3.84	-48.7	376	15.7	2.01	3.85	-49.4

ENVIRONMENTAL IMPACTS. **CC-2013:** Climatic Change according to EN 15804:2012+A1:2013; **CC-total:** Climatic Change - total; **CC-fossil:** Climatic Change - fossil; **CC-biogenic:** Climate change - biogenic; **CC-luluc:** Climate change - land use and land use change; **OD:** Ozone depletion; **A:** Acidification ; **EAF:** Eutrophication aquatic freshwater; **EAM:** Eutrophication aquatic marine; **ET:** Eutrophication terrestrial; **POF:** Photochemical ozone formation; **AD- non fossil:** Abiotic resource depletion - minerals and metals (1); **AD-fossil:** Abiotic resource depletion - fossils (1); **WU:** Water use (1); **PM:** Particulate matter emissions (1); **IR:** Ionising radiation (2); **EF:** Ecotoxicity - freshwater (1); **HT-c:** Human toxicity, cancer effects (1); **HT-nc:** Human toxicity, non-cancer effects (1); **LU:** Land use (1).

(1) The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

(2) This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

ITESAL 65

MILL FINISHED

COATED

		MILL FINISHED					COATED					
		A1-3	C2	C3	C4	D	A1-3	C2	C3	C4	D	
RESOURCE USE	PERE	MJ	347	0.354	1.788	7.40E-02	-203	366	0.358	1.788	7.42E-02	-208
	PERM	MJ	0	0	0	0	0	0	0	0	0	0
	PERT	MJ	347	0.354	1.788	7.40E-02	-203	366	0.358	1.788	7.42E-02	-208
	PENRE	MJ	1658	26.3	9.02	4.27	-534	1807	26.6	9.02	4.28	-547
	PENRM	MJ	0	0	0	0	0	0	0	0	0	0
	PENRT	MJ	1658	26.3	9.02	4.27	-534	1807	26.6	9.02	4.28	-547
	SM	kg	10.3	0	0	0	0	10.3	0	0	0	0
	RSF	MJ	0	0	0	0	0	0	0	0	0	0
	NRSF	MJ	0	0	0	0	0	0	0	0	0	0
	FW	m ³ eq	109.6	1.13E-01	1.44E-01	0.098	-55.6	114.1	1.14E-01	1.44E-01	0.098	-57.0
WASTE	HWD	kg	109.9	6.46E-05	4.50E-06	8.27E-06	3.52E-02	116.5	6.53E-05	4.50E-06	8.29E-06	3.62E-02
	NHWD	kg	108.5	1.30	2.20	10.2	-9.54	115.0	1.31	2.20	10.2	-9.78
	RWD	kg	0.2	1.67E-04	6.58E-05	2.55E-05	-3.53E-03	0.3	1.69E-04	6.58E-05	2.56E-05	-3.61E-03
OUTPUT FLOWS	CRU	kg	0	0	0	0	0	0	0	0	0	0
	MFR	kg	6.04	0	20.8	0	0	6.18	0	21.3	0	0
	MER	kg	0	0	1.12	0	0	0	0	1.12	0	0
	EE-e	MJ	0	0	28.0	0	0	0	0	28.0	0	0
	EE-t	MJ	0	0	0	0	0	0	0	0	0	0

RESOURCE USE. **PERE:** Renewable primary energy as energy carrier; **PERM:** Renewable primary energy resource as material utilization; **PERT:** Total use of renewable primary energy resources; **PENRE:** Non-renewable primary energy as energy carrier; **PENRM:** Non-renewable primary energy as material utilization; **PENRT:** Total use of non-renewable primary energy resources; **SM:** Use of secondary materials; **RSF:** Use of renewable secondary fuels; **NRSF:** Use of non-renewable secondary fuels; **FW:** Use of net fresh water.

WASTE CATEGORIES. **HWD:** Hazardous waste disposed; **NHWD:** Non-hazardous waste disposed; **RWD:** Radioactive waste disposed.

OUTPUT FLOWS. **CRU:** Components for re-use; **MFR:** Materials for recycling; **MER:** Materials for energy recovery; **EE-e:** Exported energy (electricity); **EE-t:** Exported energy (thermal)

ITESAL 71

MILL FINISHED

COATED

			MILL FINISHED					COATED				
			A1-3	C2	C3	C4	D	A1-3	C2	C3	C4	D
BASIC ENVIRONMENTAL IMPACTS	CC-2013	kg CO ₂ eq	110.0	1.57	0.377	0.237	-31.54	116.5	1.59	0.377	0.240	-32.30
	CC-total	kg CO ₂ eq	113.3	1.58	0.385	0.244	-32.7	120.1	1.60	0.385	0.247	-33.5
	CC-fossil	kg CO ₂ eq	112.1	1.58	0.380	0.243	-31.7	118.7	1.60	0.380	0.247	-32.5
	CC-biogenic	kg CO ₂ eq	0.182	1.44E-03	2.20E-03	4.90E-04	-0.239	0.300	1.46E-03	2.20E-03	4.92E-04	-0.243
	CC-luluc	kg CO ₂ eq	1.022	6.26E-04	2.63E-03	2.99E-04	-0.768	1.063	6.33E-04	2.63E-03	2.99E-04	-0.788
	OD	kg CFC-11 eq	1.02E-05	3.67E-07	3.16E-08	5.65E-08	-3.28E-06	1.13E-05	3.71E-07	3.16E-08	5.66E-08	-3.36E-06
	A	mol H ⁺ eq	0.78	4.49E-03	3.16E-03	1.17E-03	-0.224	0.82	4.54E-03	3.16E-03	1.17E-03	-0.228
	EAF	kg PO ₄ eq	0.135	3.18E-04	4.45E-04	7.17E-05	-5.30E-02	0.140	3.22E-04	4.45E-04	7.19E-05	-5.42E-02
	EAF	kg P eq	0.044	1.04E-04	1.45E-04	2.33E-05	-1.72E-02	0.046	1.05E-04	1.45E-04	2.34E-05	-1.76E-02
	EAM	kg N eq	0.126	9.13E-04	5.65E-04	6.70E-04	-3.28E-02	0.131	9.23E-04	5.65E-04	7.28E-04	-3.35E-02
	ET	mol N eq	1.192	9.95E-03	5.88E-03	3.72E-03	-0.329	1.240	1.01E-02	5.88E-03	3.73E-03	-0.335
	POF	kg NMVOC eq	0.374	3.83E-03	1.60E-03	1.16E-03	-1.12E-01	0.392	3.87E-03	1.60E-03	1.16E-03	-1.14E-01
	AD-non fossil	kg Sb eq	3.23E-03	5.61E-06	1.22E-06	7.02E-07	2.17E-04	3.29E-03	5.67E-06	1.22E-06	7.04E-07	2.39E-04
	AD-fossil	MJ	1573	24	8.69E+00	4.026	-516	1714	24	8.69E+00	4.036	-528
WU	m ³ eq	106.5	1.10E-01	1.44E-01	0.087	-56.5	110.8	1.11E-01	1.44E-01	0.088	-57.9	
ADDITIONAL ENVIRONMENTAL IMPACTS	PM	Disease incidence	7.64E-06	1.00E-07	1.28E-08	2.21E-08	-2.36E-06	7.96E-06	1.02E-07	1.28E-08	2.21E-08	-2.41E-06
	IR	kBq U235 eq	14.8	0.124	2.43E-01	1.99E-02	-10.87	15.6	0.125	2.43E-01	1.99E-02	-11.11
	EF	CTUe	3460	18.1	5.65	425	-455	3645	18.3	5.65	425	-462
	HT-c	CTUh	2.08E-07	6.03E-10	1.57E-10	1.16E-10	-1.00E-07	2.13E-07	6.10E-10	1.57E-10	1.16E-10	-1.03E-07
	HT-nc	CTUh	1.21E-05	1.91E-08	4.33E-09	3.28E-09	-1.07E-06	1.91E-05	1.93E-08	4.33E-09	3.29E-09	-1.10E-06
	LU	Dimensionless	350	15.1	2.02	3.85	-49.5	369	15.3	2.02	3.86	-50.3

ENVIRONMENTAL IMPACTS. **CC-2013:** Climatic Change according to EN 15804:2012+A1:2013; **CC-total:** Climatic Change - total; **CC-fossil:** Climatic Change - fossil; **CC-biogenic:** Climate change - biogenic; **CC-luluc:** Climate change - land use and land use change; **OD:** Ozone depletion; **A:** Acidification ; **EAF:** Eutrophication aquatic freshwater; **EAM:** Eutrophication aquatic marine; **ET:** Eutrophication terrestrial; **POF:** Photochemical ozone formation; **AD- non fossil:** Abiotic resource depletion - minerals and metals (1); **AD-fossil:** Abiotic resource depletion - fossils (1); **WU:** Water use (1); **PM:** Particulate matter emissions (1); **IR:** Ionising radiation (2); **EF:** Ecotoxicity - freshwater (1); **HT-c:** Human toxicity, cancer effects (1); **HT-nc:** Human toxicity, non-cancer effects (1); **LU:** Land use (1).

(1) The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

(2) This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

ITESAL 71

MILL FINISHED

COATED

		MILL FINISHED					COATED					
		A1-3	C2	C3	C4	D	A1-3	C2	C3	C4	D	
RESOURCE USE	PERE	MJ	325	0.343	1.788	7.21E-02	-207	344	0.347	1.788	7.22E-02	-212
	PERM	MJ	0	0	0	0	0	0	0	0	0	0
	PERT	MJ	325	0.343	1.788	7.21E-02	-207	344	0.347	1.788	7.22E-02	-212
	PENRE	MJ	1681	25.5	9.02	4.28	-544	1833	25.7	9.02	4.29	-557
	PENRM	MJ	0	0	0	0	0	0	0	0	0	0
	PENRT	MJ	1681	25.5	9.02	4.28	-544	1833	25.7	9.02	4.29	-557
	SM	kg	9.36	0	0	0	0	9.36	0	0	0	0
	RSF	MJ	0	0	0	0	0	0	0	0	0	0
	NRSF	MJ	0	0	0	0	0	0	0	0	0	0
	FW	m ³ eq	107.0	1.10E-01	1.44E-01	0.100	-56.5	111.5	1.11E-01	1.44E-01	0.100	-57.9
WASTE	HWD	kg	113.3	6.26E-05	4.51E-06	8.33E-06	3.58E-02	120.1	6.33E-05	4.51E-06	8.35E-06	3.69E-02
	NHWD	kg	112.1	1.26	2.22	10.2	-9.69	118.7	1.27	2.22	10.3	-9.94
	RWD	kg	0.2	1.62E-04	6.58E-05	2.56E-05	-3.60E-03	0.3	1.64E-04	6.58E-05	2.57E-05	-3.68E-03
OUTPUT FLOWS	CRU	kg	0	0	0	0	0	0	0	0	0	0
	MFR	kg	5.62	0	20.2	0	0	5.74	0	20.7	0	0
	MER	kg	0	0	1.16	0	0	0	0	1.16	0	0
	EE-e	MJ	0	0	29.1	0	0	0	0	29.1	0	0
	EE-t	MJ	0	0	0	0	0	0	0	0	0	0

RESOURCE USE. **PERE:** Renewable primary energy as energy carrier; **PERM:** Renewable primary energy resource as material utilization; **PERT:** Total use of renewable primary energy resources; **PENRE:** Non-renewable primary energy as energy carrier; **PENRM:** Non-renewable primary energy as material utilization; **PENRT:** Total use of non-renewable primary energy resources; **SM:** Use of secondary materials; **RSF:** Use of renewable secondary fuels; **NRSF:** Use of non-renewable secondary fuels; **FW:** Use of net fresh water.

WASTE CATEGORIES. **HWD:** Hazardous waste disposed; **NHWD:** Non-hazardous waste disposed; **RWD:** Radioactive waste disposed.

OUTPUT FLOWS. **CRU:** Components for re-use; **MFR:** Materials for recycling; **MER:** Materials for energy recovery; **EE-e:** Exported energy (electricity); **EE-t:** Exported energy (thermal)

ITESAL 72 HO

MILL FINISHED

COATED

			A1-3	C2	C3	C4	D	A1-3	C2	C3	C4	D
BASIC ENVIRONMENTAL IMPACTS	CC-2013	kg CO ₂ eq	107.0	1.49	0.383	0.283	-28.37	111.8	1.50	0.383	0.285	-28.92
	CC-total	kg CO ₂ eq	110.4	1.50	0.392	0.292	-29.4	115.4	1.52	0.392	0.294	-30.0
	CC-fossil	kg CO ₂ eq	109.4	1.50	0.387	0.291	-28.5	114.3	1.51	0.387	0.293	-29.1
	CC-biogenic	kg CO ₂ eq	0.165	1.37E-03	2.29E-03	4.98E-04	-0.226	0.254	1.38E-03	2.29E-03	4.99E-04	-0.229
	CC-luluc	kg CO ₂ eq	0.842	5.94E-04	2.64E-03	3.33E-04	-0.655	0.872	5.99E-04	2.64E-03	3.34E-04	-0.670
	OD	kg CFC-11 eq	8.87E-06	3.48E-07	3.30E-08	6.75E-08	-2.88E-06	9.66E-06	3.51E-07	3.30E-08	6.76E-08	-2.94E-06
	A	mol H ⁺ eq	0.73	4.26E-03	3.21E-03	1.32E-03	-0.217	0.76	4.30E-03	3.21E-03	1.32E-03	-0.220
	EAF	kg PO ₄ eq	0.115	3.02E-04	4.55E-04	7.75E-05	-4.76E-02	0.119	3.05E-04	4.55E-04	7.77E-05	-4.85E-02
	EAF	kg P eq	0.038	9.84E-05	1.48E-04	2.53E-05	-1.55E-02	0.039	9.92E-05	1.48E-04	2.53E-05	-1.58E-02
	EAM	kg N eq	0.124	8.66E-04	5.80E-04	8.37E-04	-3.03E-02	0.128	8.73E-04	5.80E-04	8.79E-04	-3.08E-02
	ET	mol N eq	1.161	9.44E-03	6.04E-03	4.15E-03	-0.328	1.197	9.52E-03	6.04E-03	4.16E-03	-0.332
	POF	kg NMVOC eq	0.362	3.63E-03	1.65E-03	1.30E-03	-1.06E-01	0.375	3.66E-03	1.65E-03	1.31E-03	-1.08E-01
	AD-non fossil	kg Sb eq	2.85E-03	5.32E-06	1.26E-06	8.49E-07	6.56E-05	2.89E-03	5.37E-06	1.26E-06	8.50E-07	8.22E-05
	AD-fossil	MJ	1547	23	8.83E+00	4.729	-486	1651	23	8.83E+00	4.736	-495
WU	m ³ eq	96.8	1.04E-01	1.49E-01	0.095	-47.9	100.0	1.05E-01	1.49E-01	0.096	-49.0	
ADDITIONAL ENVIRONMENTAL IMPACTS	PM	Disease incidence	7.19E-06	9.52E-08	1.35E-08	2.54E-08	-2.08E-06	7.42E-06	9.61E-08	1.35E-08	2.54E-08	-2.12E-06
	IR	kBq U235 eq	12.6	0.117	2.45E-01	2.33E-02	-10.83	13.2	0.118	2.45E-01	2.34E-02	-11.00
	EF	CTUe	3148	17.2	5.74	347	-450	3286	17.3	5.74	347	-455
	HT-c	CTUh	1.79E-07	5.72E-10	1.61E-10	1.29E-10	-8.50E-08	1.82E-07	5.77E-10	1.61E-10	1.29E-10	-8.68E-08
	HT-nc	CTUh	1.00E-05	1.81E-08	4.42E-09	3.72E-09	-9.47E-07	1.52E-05	1.83E-08	4.42E-09	3.73E-09	-9.65E-07
	LU	Dimensionless	323	14.3	2.14	4.44	-51.6	338	14.4	2.14	4.45	-52.2

ENVIRONMENTAL IMPACTS. **CC-2013:** Climatic Change according to EN 15804:2012+A1:2013; **CC-total:** Climatic Change - total; **CC-fossil:** Climatic Change - fossil; **CC-biogenic:** Climate change - biogenic; **CC-luluc:** Climate change - land use and land use change; **OD:** Ozone depletion; **A:** Acidification ; **EAF:** Eutrophication aquatic freshwater; **EAM:** Eutrophication aquatic marine; **ET:** Eutrophication terrestrial; **POF:** Photochemical ozone formation; **AD- non fossil:** Abiotic resource depletion - minerals and metals (1); **AD-fossil:** Abiotic resource depletion - fossils (1); **WU:** Water use (1); **PM:** Particulate matter emissions (1); **IR:** Ionising radiation (2); **EF:** Ecotoxicity - freshwater (1); **HT-c:** Human toxicity, cancer effects (1); **HT-nc:** Human toxicity, non-cancer effects (1); **LU:** Land use (1).

(1) The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

(2) This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

ITESAL 72 HO

MILL FINISHED

COATED

		MILL FINISHED					COATED					
		A1-3	C2	C3	C4	D	A1-3	C2	C3	C4	D	
RESOURCE USE	PERE	MJ	274	0.325	1.799	7.81E-02	-185	288	0.328	1.799	7.83E-02	-189
	PERM	MJ	0	0	0	0	0	0	0	0	0	0
	PERT	MJ	274	0.325	1.799	7.81E-02	-185	288	0.328	1.799	7.83E-02	-189
	PENRE	MJ	1655	24.2	9.17	5.02	-511	1768	24.4	9.17	5.03	-521
	PENRM	MJ	0	0	0	0	0	0	0	0	0	0
	PENRT	MJ	1655	24.2	9.17	5.02	-511	1768	24.4	9.17	5.03	-521
	SM	kg	7.63	0	0	0	0	7.63	0	0	0	0
	RSF	MJ	0	0	0	0	0	0	0	0	0	0
	NRSF	MJ	0	0	0	0	0	0	0	0	0	0
	FW	m ³ eq	97.2	1.04E-01	1.49E-01	0.106	-47.9	100.6	1.05E-01	1.49E-01	0.106	-49.0
WASTE	HWD	kg	110.4	5.94E-05	4.72E-06	1.01E-05	2.90E-02	115.4	5.99E-05	4.72E-06	1.01E-05	2.98E-02
	NHWD	kg	109.4	1.19	2.47	11.2	-8.34	114.3	1.20	2.47	11.2	-8.52
	RWD	kg	0.2	1.54E-04	6.67E-05	3.05E-05	-3.46E-03	0.3	1.55E-04	6.67E-05	3.06E-05	-3.52E-03
OUTPUT FLOWS	CRU	kg	0	0	0	0	0	0	0	0	0	0
	MFR	kg	4.97	0	18.2	0	0	5.07	0	18.6	0	0
	MER	kg	0	0	2.07	0	0	0	0	2.07	0	0
	EE-e	MJ	0	0	52.0	0	0	0	0	52.0	0	0
	EE-t	MJ	0	0	0	0	0	0	0	0	0	0

RESOURCE USE. **PERE:** Renewable primary energy as energy carrier; **PERM:** Renewable primary energy resource as material utilization; **PERT:** Total use of renewable primary energy resources; **PENRE:** Non-renewable primary energy as energy carrier; **PENRM:** Non-renewable primary energy as material utilization; **PENRT:** Total use of non-renewable primary energy resources; **SM:** Use of secondary materials; **RSF:** Use of renewable secondary fuels; **NRSF:** Use of non-renewable secondary fuels; **FW:** Use of net fresh water.

WASTE CATEGORIES. **HWD:** Hazardous waste disposed; **NHWD:** Non-hazardous waste disposed; **RWD:** Radioactive waste disposed.

OUTPUT FLOWS. **CRU:** Components for re-use; **MFR:** Materials for recycling; **MER:** Materials for energy recovery; **EE-e:** Exported energy (electricity); **EE-t:** Exported energy (thermal)

ITESAL 75

MILL FINISHED

COATED

			A1-3	C2	C3	C4	D	A1-3	C2	C3	C4	D
BASIC ENVIRONMENTAL IMPACTS	CC-2013	kg CO ₂ eq	112.8	1.65	0.377	0.249	-32.36	119.1	1.67	0.377	0.252	-33.10
	CC-total	kg CO ₂ eq	116.1	1.67	0.385	0.257	-33.6	122.8	1.69	0.385	0.260	-34.3
	CC-fossil	kg CO ₂ eq	114.8	1.67	0.380	0.256	-32.6	121.4	1.68	0.380	0.259	-33.3
	CC-biogenic	kg CO ₂ eq	0.207	1.52E-03	2.20E-03	5.21E-04	-0.243	0.324	1.54E-03	2.20E-03	5.23E-04	-0.247
	CC-luluc	kg CO ₂ eq	1.083	6.60E-04	2.63E-03	3.04E-04	-0.783	1.123	6.66E-04	2.63E-03	3.04E-04	-0.803
	OD	kg CFC-11 eq	1.02E-05	3.86E-07	3.16E-08	5.86E-08	-3.36E-06	1.12E-05	3.90E-07	3.16E-08	5.87E-08	-3.44E-06
	A	mol H ⁺ eq	0.79	4.74E-03	3.16E-03	1.21E-03	-0.231	0.83	4.79E-03	3.16E-03	1.21E-03	-0.235
	EAF	kg PO ₄ eq	0.138	3.35E-04	4.45E-04	7.53E-05	-5.42E-02	0.144	3.39E-04	4.45E-04	7.55E-05	-5.54E-02
	EAF	kg P eq	0.045	1.09E-04	1.45E-04	2.45E-05	-1.77E-02	0.047	1.10E-04	1.45E-04	2.46E-05	-1.81E-02
	EAM	kg N eq	0.128	9.62E-04	5.64E-04	7.29E-04	-3.34E-02	0.133	9.72E-04	5.64E-04	7.85E-04	-3.41E-02
	ET	mol N eq	1.201	1.05E-02	5.88E-03	3.81E-03	-0.340	1.248	1.06E-02	5.88E-03	3.82E-03	-0.345
	POF	kg NMVOC eq	0.379	4.03E-03	1.60E-03	1.19E-03	-1.15E-01	0.396	4.07E-03	1.60E-03	1.19E-03	-1.17E-01
	AD-non fossil	kg Sb eq	3.37E-03	5.91E-06	1.22E-06	7.36E-07	2.28E-04	3.43E-03	5.97E-06	1.22E-06	7.38E-07	2.50E-04
	AD-fossil	MJ	1646	25	8.69E+00	4.180	-535	1784	26	8.69E+00	4.190	-547
WU	m ³ eq	113.2	1.16E-01	1.44E-01	0.089	-57.4	117.5	1.17E-01	1.44E-01	0.089	-58.9	
ADDITIONAL ENVIRONMENTAL IMPACTS	PM	Disease incidence	7.67E-06	1.06E-07	1.28E-08	2.28E-08	-2.39E-06	7.98E-06	1.07E-07	1.28E-08	2.29E-08	-2.44E-06
	IR	kBq U235 eq	15.5	0.130	2.43E-01	2.07E-02	-11.39	16.3	0.132	2.43E-01	2.07E-02	-11.62
	EF	CTUe	3476	19.1	5.64	458	-466	3657	19.3	5.64	458	-472
	HT-c	CTUh	2.15E-07	6.36E-10	1.56E-10	1.20E-10	-1.02E-07	2.19E-07	6.42E-10	1.56E-10	1.21E-10	-1.04E-07
	HT-nc	CTUh	1.28E-05	2.01E-08	4.33E-09	3.45E-09	-1.09E-06	1.98E-05	2.03E-08	4.33E-09	3.45E-09	-1.12E-06
	LU	Dimensionless	358	15.9	2.01	3.95	-51.3	377	16.1	2.01	3.96	-52.1

ENVIRONMENTAL IMPACTS. **CC-2013:** Climatic Change according to EN 15804:2012+A1:2013; **CC-total:** Climatic Change - total; **CC-fossil:** Climatic Change - fossil; **CC-biogenic:** Climate change - biogenic; **CC-luluc:** Climate change - land use and land use change; **OD:** Ozone depletion; **A:** Acidification ; **EAF:** Eutrophication aquatic freshwater; **EAM:** Eutrophication aquatic marine; **ET:** Eutrophication terrestrial; **POF:** Photochemical ozone formation; **AD- non fossil:** Abiotic resource depletion - minerals and metals (1); **AD-fossil:** Abiotic resource depletion - fossils (1); **WU:** Water use (1); **PM:** Particulate matter emissions (1); **IR:** Ionising radiation (2); **EF:** Ecotoxicity - freshwater (1); **HT-c:** Human toxicity, cancer effects (1); **HT-nc:** Human toxicity, non-cancer effects (1); **LU:** Land use (1).

(1) The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

(2) This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

ITESAL 75

MILL FINISHED

COATED

		MILL FINISHED					COATED					
		A1-3	C2	C3	C4	D	A1-3	C2	C3	C4	D	
RESOURCE USE	PERE	MJ	343	0.361	1.788	7.58E-02	-213	362	0.365	1.788	7.60E-02	-218
	PERM	MJ	0	0	0	0	0	0	0	0	0	0
	PERT	MJ	343	0.361	1.788	7.58E-02	-213	362	0.365	1.788	7.60E-02	-218
	PENRE	MJ	1760	26.8	9.02	4.44	-565	1910	27.1	9.02	4.45	-577
	PENRM	MJ	0	0	0	0	0	0	0	0	0	0
	PENRT	MJ	1760	26.8	9.02	4.44	-565	1910	27.1	9.02	4.45	-577
	SM	kg	10.1	0	0	0	0	10.1	0	0	0	0
	RSF	MJ	0	0	0	0	0	0	0	0	0	0
	NRSF	MJ	0	0	0	0	0	0	0	0	0	0
	FW	m ³ eq	113.8	1.16E-01	1.44E-01	0.099	-57.4	118.3	1.17E-01	1.44E-01	0.100	-58.9
WASTE	HWD	kg	116.1	6.60E-05	4.51E-06	8.68E-06	3.64E-02	122.8	6.67E-05	4.51E-06	8.70E-06	3.75E-02
	NHWD	kg	114.8	1.32	2.21	10.3	-9.88	121.4	1.34	2.21	10.3	-10.12
	RWD	kg	0.2	1.71E-04	6.58E-05	2.66E-05	-3.74E-03	0.3	1.73E-04	6.58E-05	2.66E-05	-3.82E-03
OUTPUT FLOWS	CRU	kg	0	0	0	0	0	0	0	0	0	0
	MFR	kg	6.00	0	21.2	0	0	6.13	0	21.7	0	0
	MER	kg	0	0	1.40	0	0	0	0	1.40	0	0
	EE-e	MJ	0	0	35.3	0	0	0	0	35.3	0	0
	EE-t	MJ	0	0	0	0	0	0	0	0	0	0

RESOURCE USE. **PERE:** Renewable primary energy as energy carrier; **PERM:** Renewable primary energy resource as material utilization; **PERT:** Total use of renewable primary energy resources; **PENRE:** Non-renewable primary energy as energy carrier; **PENRM:** Non-renewable primary energy as material utilization; **PENRT:** Total use of non-renewable primary energy resources; **SM:** Use of secondary materials; **RSF:** Use of renewable secondary fuels; **NRSF:** Use of non-renewable secondary fuels; **FW:** Use of net fresh water.

WASTE CATEGORIES. **HWD:** Hazardous waste disposed; **NHWD:** Non-hazardous waste disposed; **RWD:** Radioactive waste disposed.

OUTPUT FLOWS. **CRU:** Components for re-use; **MFR:** Materials for recycling; **MER:** Materials for energy recovery; **EE-e:** Exported energy (electricity); **EE-t:** Exported energy (thermal)

ITESAL 61 EVO

MILL FINISHED

COATED

			MILL FINISHED					COATED				
			A1-3	C2	C3	C4	D	A1-3	C2	C3	C4	D
BASIC ENVIRONMENTAL IMPACTS	CC-2013	kg CO ₂ eq	79.6	1.29	0.380	0.236	-21.33	84.3	1.31	0.380	0.238	-21.89
	CC-total	kg CO ₂ eq	81.9	1.31	0.389	0.242	-22.1	86.9	1.32	0.389	0.244	-22.7
	CC-fossil	kg CO ₂ eq	80.9	1.30	0.384	0.241	-21.4	85.7	1.32	0.384	0.244	-22.0
	CC-biogenic	kg CO ₂ eq	0.273	1.19E-03	2.25E-03	4.47E-04	-0.199	0.359	1.20E-03	2.25E-03	4.49E-04	-0.202
	CC-luluc	kg CO ₂ eq	0.758	5.16E-04	2.64E-03	3.06E-04	-0.483	0.788	5.21E-04	2.64E-03	3.06E-04	-0.498
	OD	kg CFC-11 eq	8.79E-06	3.02E-07	3.23E-08	5.83E-08	-2.12E-06	9.56E-06	3.05E-07	3.23E-08	5.84E-08	-2.19E-06
	A	mol H ⁺ eq	0.58	3.71E-03	3.18E-03	1.17E-03	-0.169	0.61	3.74E-03	3.18E-03	1.18E-03	-0.173
	EAF	kg PO ₄ eq	0.099	2.62E-04	4.50E-04	6.84E-05	-3.72E-02	0.103	2.65E-04	4.50E-04	6.85E-05	-3.81E-02
	EAF	kg P eq	0.032	8.55E-05	1.47E-04	2.23E-05	-1.21E-02	0.034	8.63E-05	1.47E-04	2.23E-05	-1.24E-02
	EAM	kg N eq	0.092	7.53E-04	5.72E-04	5.82E-04	-2.48E-02	0.096	7.60E-04	5.72E-04	6.24E-04	-2.53E-02
	ET	mol N eq	0.915	8.20E-03	5.96E-03	3.76E-03	-0.264	0.950	8.29E-03	5.96E-03	3.77E-03	-0.268
	POF	kg NMVOC eq	0.280	3.15E-03	1.63E-03	1.17E-03	-8.40E-02	0.293	3.19E-03	1.63E-03	1.17E-03	-8.56E-02
	AD-non fossil	kg Sb eq	2.90E-03	4.62E-06	1.24E-06	7.18E-07	-3.00E-04	2.94E-03	4.67E-06	1.24E-06	7.19E-07	-2.83E-04
	AD-fossil	MJ	1156	20	8.76E+00	4.102	-352	1259	20	8.76E+00	4.110	-361
WU	m ³ eq	77.6	9.04E-02	1.47E-01	0.088	-36.3	80.8	9.13E-02	1.47E-01	0.088	-37.4	
ADDITIONAL ENVIRONMENTAL IMPACTS	PM	Disease incidence	5.54E-06	8.28E-08	1.32E-08	2.24E-08	-1.65E-06	5.77E-06	8.36E-08	1.32E-08	2.25E-08	-1.68E-06
	IR	kBq U235 eq	11.7	0.102	2.44E-01	2.02E-02	-7.76	12.2	0.103	2.44E-01	2.02E-02	-7.94
	EF	CTUe	2800	14.9	5.69	330	-415	2936	15.1	5.69	330	-420
	HT-c	CTUh	1.79E-07	4.97E-10	1.59E-10	1.11E-10	-6.70E-08	1.83E-07	5.02E-10	1.59E-10	1.12E-10	-6.89E-08
	HT-nc	CTUh	9.14E-06	1.57E-08	4.38E-09	3.22E-09	-8.03E-07	1.43E-05	1.59E-08	4.38E-09	3.23E-09	-8.20E-07
	LU	Dimensionless	276	12.4	2.08	3.96	-39.9	290	12.6	2.08	3.97	-40.5

ENVIRONMENTAL IMPACTS. **CC-2013:** Climatic Change according to EN 15804:2012+A1:2013; **CC-total:** Climatic Change - total; **CC-fossil:** Climatic Change - fossil; **CC-biogenic:** Climate change - biogenic; **CC-luluc:** Climate change - land use and land use change; **OD:** Ozone depletion; **A:** Acidification ; **EAF:** Eutrophication aquatic freshwater; **EAM:** Eutrophication aquatic marine; **ET:** Eutrophication terrestrial; **POF:** Photochemical ozone formation; **AD- non fossil:** Abiotic resource depletion - minerals and metals (1); **AD-fossil:** Abiotic resource depletion - fossils (1); **WU:** Water use (1); **PM:** Particulate matter emissions (1); **IR:** Ionising radiation (2); **EF:** Ecotoxicity - freshwater (1); **HT-c:** Human toxicity, cancer effects (1); **HT-nc:** Human toxicity, non-cancer effects (1); **LU:** Land use (1).

(1) The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

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ITESAL 61 EVO

MILL FINISHED

COATED

		MILL FINISHED					COATED					
		A1-3	C2	C3	C4	D	A1-3	C2	C3	C4	D	
RESOURCE USE	PERE	MJ	245	0.283	1.794	6.85E-02	-135	259	0.286	1.794	6.86E-02	-139
	PERM	MJ	0	0	0	0	0	0	0	0	0	0
	PERT	MJ	245	0.283	1.794	6.85E-02	-135	259	0.286	1.794	6.86E-02	-139
	PENRE	MJ	1236	21.0	9.10	4.36	-371	1348	21.2	9.10	4.37	-380
	PENRM	MJ	0	0	0	0	0	0	0	0	0	0
	PENRT	MJ	1236	21.0	9.10	4.36	-371	1348	21.2	9.10	4.37	-380
	SM	kg	7.25	0	0	0	0	7.25	0	0	0	0
	RSF	MJ	0	0	0	0	0	0	0	0	0	0
	NRSF	MJ	0	0	0	0	0	0	0	0	0	0
	FW	m ³ eq	78.0	9.04E-02	1.47E-01	0.095	-36.3	81.3	9.13E-02	1.47E-01	0.095	-37.4
WASTE	HWD	kg	81.9	5.16E-05	4.62E-06	8.61E-06	1.95E-02	86.9	5.21E-05	4.62E-06	8.63E-06	2.03E-02
	NHWD	kg	80.9	1.03	2.34	10.5	-6.30	85.7	1.05	2.34	10.6	-6.49
	RWD	kg	0.3	1.34E-04	6.63E-05	2.64E-05	-2.52E-03	0.4	1.35E-04	6.63E-05	2.64E-05	-2.58E-03
OUTPUT FLOWS	CRU	kg	0	0	0	0	0	0	0	0	0	0
	MFR	kg	4.23	0	15.8	0	0	4.33	0	16.2	0	0
	MER	kg	0	0	1.26	0	0	0	0	1.26	0	0
	EE-e	MJ	0	0	31.6	0	0	0	0	31.6	0	0
	EE-t	MJ	0	0	0	0	0	0	0	0	0	0

RESOURCE USE. **PERE:** Renewable primary energy as energy carrier; **PERM:** Renewable primary energy resource as material utilization; **PERT:** Total use of renewable primary energy resources; **PENRE:** Non-renewable primary energy as energy carrier; **PENRM:** Non-renewable primary energy as material utilization; **PENRT:** Total use of non-renewable primary energy resources; **SM:** Use of secondary materials; **RSF:** Use of renewable secondary fuels; **NRSF:** Use of non-renewable secondary fuels; **FW:** Use of net fresh water.

WASTE CATEGORIES. **HWD:** Hazardous waste disposed; **NHWD:** Non-hazardous waste disposed; **RWD:** Radioactive waste disposed.

OUTPUT FLOWS. **CRU:** Components for re-use; **MFR:** Materials for recycling; **MER:** Materials for energy recovery; **EE-e:** Exported energy (electricity); **EE-t:** Exported energy (thermal)

ITESAL 128 ELV

MILL FINISHED

COATED

			MILL FINISHED					COATED				
			A1-3	C2	C3	C4	D	A1-3	C2	C3	C4	D
BASIC ENVIRONMENTAL IMPACTS	CC-2013	kg CO ₂ eq	76.5	1.36	0.160	0.247	-22.24	80.3	1.37	0.160	0.249	-22.67
	CC-total	kg CO ₂ eq	78.7	1.38	0.164	0.253	-23.1	82.6	1.39	0.164	0.255	-23.5
	CC-fossil	kg CO ₂ eq	77.5	1.38	0.162	0.252	-22.3	81.4	1.39	0.162	0.254	-22.8
	CC-biogenic	kg CO ₂ eq	0.355	1.25E-03	1.36E-03	4.76E-04	-0.239	0.428	1.26E-03	1.36E-03	4.77E-04	-0.241
	CC-luluc	kg CO ₂ eq	0.808	5.44E-04	8.04E-04	3.42E-04	-0.499	0.833	5.48E-04	8.04E-04	3.42E-04	-0.510
	OD	kg CFC-11 eq	8.99E-06	3.19E-07	1.99E-08	6.22E-08	-2.19E-06	9.60E-06	3.21E-07	1.99E-08	6.23E-08	-2.24E-06
	A	mol H ⁺ eq	0.58	3.91E-03	1.28E-03	1.27E-03	-0.181	0.61	3.94E-03	1.28E-03	1.27E-03	-0.184
	EAF	kg PO ₄ eq	0.104	2.77E-04	2.02E-04	7.30E-05	-4.05E-02	0.107	2.79E-04	2.02E-04	7.31E-05	-4.12E-02
	EAF	kg P eq	0.034	9.02E-05	6.59E-05	2.38E-05	-1.32E-02	0.035	9.08E-05	6.59E-05	2.38E-05	-1.34E-02
	EAM	kg N eq	0.089	7.94E-04	2.80E-04	5.50E-04	-2.75E-02	0.092	8.00E-04	2.80E-04	5.83E-04	-2.78E-02
	ET	mol N eq	0.917	8.65E-03	2.94E-03	4.11E-03	-0.289	0.945	8.72E-03	2.94E-03	4.12E-03	-0.293
	POF	kg NMVOC eq	0.278	3.33E-03	8.19E-04	1.27E-03	-9.05E-02	0.288	3.35E-03	8.19E-04	1.27E-03	-9.17E-02
	AD-non fossil	kg Sb eq	3.46E-03	4.88E-06	6.34E-07	7.59E-07	-7.13E-04	3.49E-03	4.91E-06	6.34E-07	7.60E-07	-7.00E-04
	AD-fossil	MJ	1111	21	3.55E+00	4.389	-358	1192	21	3.55E+00	4.395	-365
WU	m ³ eq	78.0	9.53E-02	7.69E-02	0.096	-38.4	80.6	9.60E-02	7.69E-02	0.097	-39.2	
ADDITIONAL ENVIRONMENTAL IMPACTS	PM	Disease incidence	5.49E-06	8.73E-08	9.38E-09	2.42E-08	-1.76E-06	5.67E-06	8.79E-08	9.38E-09	2.42E-08	-1.79E-06
	IR	kBq U235 eq	12.0	0.107	8.15E-02	2.15E-02	-7.83	12.4	0.108	8.15E-02	2.16E-02	-7.97
	EF	CTUe	2525	15.8	2.36	349	-513	2632	15.9	2.36	349	-516
	HT-c	CTUh	1.54E-07	5.24E-10	8.10E-11	1.19E-10	-7.23E-08	1.57E-07	5.28E-10	8.10E-11	1.20E-10	-7.37E-08
	HT-nc	CTUh	9.83E-06	1.66E-08	1.93E-09	3.43E-09	-9.41E-07	1.39E-05	1.67E-08	1.93E-09	3.43E-09	-9.55E-07
	LU	Dimensionless	274	13.1	1.60	4.30	-41.1	285	13.2	1.60	4.30	-41.6

ENVIRONMENTAL IMPACTS. **CC-2013:** Climatic Change according to EN 15804:2012+A1:2013; **CC-total:** Climatic Change - total; **CC-fossil:** Climatic Change - fossil; **CC-biogenic:** Climate change - biogenic; **CC-luluc:** Climate change - land use and land use change; **OD:** Ozone depletion; **A:** Acidification ; **EAF:** Eutrophication aquatic freshwater; **EAM:** Eutrophication aquatic marine; **ET:** Eutrophication terrestrial; **POF:** Photochemical ozone formation; **AD- non fossil:** Abiotic resource depletion - minerals and metals (1); **AD-fossil:** Abiotic resource depletion - fossils (1); **WU:** Water use (1); **PM:** Particulate matter emissions (1); **IR:** Ionising radiation (2); **EF:** Ecotoxicity - freshwater (1); **HT-c:** Human toxicity, cancer effects (1); **HT-nc:** Human toxicity, non-cancer effects (1); **LU:** Land use (1).

(1) The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

(2) This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

ITESAL 128 ELV

MILL FINISHED

COATED

		MILL FINISHED					COATED					
		A1-3	C2	C3	C4	D	A1-3	C2	C3	C4	D	
RESOURCE USE	PERE	MJ	252	0.298	0.586	7.29E-02	-139	264	0.300	0.586	7.30E-02	-142
	PERM	MJ	0	0	0	0	0	0	0	0	0	0
	PERT	MJ	252	0.298	0.586	7.29E-02	-139	264	0.300	0.586	7.30E-02	-142
	PENRE	MJ	1188	22.1	3.71	4.66	-377	1276	22.3	3.71	4.67	-384
	PENRM	MJ	0	0	0	0	0	0	0	0	0	0
	PENRT	MJ	1188	22.1	3.71	4.66	-377	1276	22.3	3.71	4.67	-384
	SM	kg	7.68	0	0	0	0	7.68	0	0	0	0
	RSF	MJ	0	0	0	0	0	0	0	0	0	0
	NRSF	MJ	0	0	0	0	0	0	0	0	0	0
	FW	m ³ eq	78.5	9.53E-02	7.69E-02	0.105	-38.4	81.1	9.60E-02	7.69E-02	0.105	-39.2
WASTE	HWD	kg	78.7	5.45E-05	2.97E-06	9.15E-06	1.79E-02	82.6	5.48E-05	2.97E-06	9.16E-06	1.85E-02
	NHWD	kg	77.5	1.09	2.67	11.7	-6.57	81.4	1.10	2.67	11.7	-6.71
	RWD	kg	0.4	1.41E-04	2.57E-05	2.82E-05	-2.58E-03	0.4	1.42E-04	2.57E-05	2.83E-05	-2.63E-03
OUTPUT FLOWS	CRU	kg	0	0	0	0	0	0	0	0	0	0
	MFR	kg	4.83	0	16.9	0	0	4.92	0	17.2	0	0
	MER	kg	0	0	1.06	0	0	0	0	1.06	0	0
	EE-e	MJ	0	0	26.6	0	0	0	0	26.6	0	0
	EE-t	MJ	0	0	0	0	0	0	0	0	0	0

RESOURCE USE. **PERE:** Renewable primary energy as energy carrier; **PERM:** Renewable primary energy resource as material utilization; **PERT:** Total use of renewable primary energy resources; **PENRE:** Non-renewable primary energy as energy carrier; **PENRM:** Non-renewable primary energy as material utilization; **PENRT:** Total use of non-renewable primary energy resources; **SM:** Use of secondary materials; **RSF:** Use of renewable secondary fuels; **NRSF:** Use of non-renewable secondary fuels; **FW:** Use of net fresh water.

WASTE CATEGORIES. **HWD:** Hazardous waste disposed; **NHWD:** Non-hazardous waste disposed; **RWD:** Radioactive waste disposed.

OUTPUT FLOWS. **CRU:** Components for re-use; **MFR:** Materials for recycling; **MER:** Materials for energy recovery; **EE-e:** Exported energy (electricity); **EE-t:** Exported energy (thermal)

VERIFICATION

This EPD is in accordance with ISO 14025 and with the requirements set by the basic product category rules for construction products 15804:2012+A2:2019 and by the general rules of The International EPD® System programme. The specifications of the EN 17213 standard for environmental product declarations for windows and doors have also been met. The results shown in this EPD are based on the LCA report for ITESAL products EPD dated 5 November 2021 according to ISO 14044.

This EPD does not contain comparative claims and its results are not comparable with other EPDs where these do not comply with the requirements set out in EN 15804. On the other hand, EPD with the same product category, but from different programmes, may not be comparable. This EPD is representative of the products covered.

The holder of this Declaration is responsible for its contents and for keeping the supporting documentation on which the statements and data contained therein are based for the period of validity of this Declaration.

EPD Programme	The International EPD® System EPD International AB Box 210 60 SE-100 31 Stockholm Sweden www.environdec.com info@environdec.com
EPD registration number	S-P-05709
EPD owner	ITESAL Sistemas
Declared unit	1 m ² of window/door
System boundaries	Cradle to gate with options
Published	2022 - 06 - 08
Valid until	2027 - 06 - 08
Reference year for data	2018-2019-2020
Geographical scope	Worldwide
Product group classification	UN CPC Code: 42120 Doors, windows and their frames and thresholds for doors, of iron, steel or aluminium
Product Category Rules	PCR 2019:14 Construction Products v1.0 and C-PCR-007 (to PCR 2019:14) Windows and Doors (EN 17213:2020) version: 2020-04-09. PCR moderator: Martin Erlandsson, IVL Swedish Environmental Research Institute, martin.erlandsson@ivl.se
PCR review was conducted by	The Technical Committee of the International EPD® System. See www.environdec.com/TC for a list of members. Review panel: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat: www.environdec.com/contact
Independent verification of the declaration and data, according to ISO 14025:2006	<input checked="" type="checkbox"/> External <input type="checkbox"/> Internal <input type="checkbox"/> EPD®
Third-party verifier	Lorena Pereda Centro Tecnológico de Miranda de Ebro www.ctme.es
EPD prepared by	IDNÓVAM Innovación y desarrollo para el ambiente info@idnovam.com

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