

Forma 5

EPD Environmental Product Declaration



Program **PLURAL**
REF: **SPL11**
Dimensions: **84X62X57,5 cm**

Versatility was always the inspiration behind the whole Plural range. Josep Lluscà's design had to include this versatility given that many positions in a company need to receive visitors and should have an appropriate seating when required. In addition, Plural is able to evoke lightness, cheerfulness and care with its simple lines that, at the same time, strengthen its competitive side.

RAW MATERIALS USED (PACKAGING INCLUDED)

	Kg of raw materials included in the product	% of raw materials included in the product
STEEL	6,671	64,35
POLYPROPYLENE	1,149	11,08
POLYAMIDE	1,540	14,85
POLYESTER	0,161	1,56
POLYURETHANE FOAM	0,639	6,16
POLYSTYRENE	0,059	0,57
NYLON	0,048	0,46
EPOXI (PODWER)	0,1	0,96
Total	10,367	100%

% Recycled Materials: 61,10%
% Recyclable Materials: 87,55%

This Environmental Product Declaration have been calculated and drafted in accordance with ISO14025 Type III standard, and based on "PCR 2012-19, Furniture, except seats and mattresses" version 2.01.

PLURAL life cycle information

FUNCIONAL UNIT

The functional unit consists of the one chair, Plural model, with weight 10,367kg, operating for a 15-year useful life.

SYSTEM LIMITS

The limits of the system include raw material, production (includes processes and facility maintenance), transportation, packaging, distribution, use, and end-of-life of both packaging and product.

SYSTEM SCOPE

The scope of the system includes the whole life cycle of the product, from obtaining the raw material, manufacturing, use and end of life. The system has been divided into three phases:

UPSTREAM: including raw materials production

CORE: including raw material transport to Forma5 (Spain, Seville), product manufacturing process and waste treatment.

DOWNSTREAM: Distribution to the customer, maintenance, use of the product and both the end of life of the product and the packaging has been included.

CERTIFICATES

- ISO 9001:2015
- ISO 14001:2015
- ISO 14006:2011
- ISO 45001:2018
- TECNALIA QUALITY BRAND

Grupo Forma 5., S.L.u.
Made in Spain, UE.

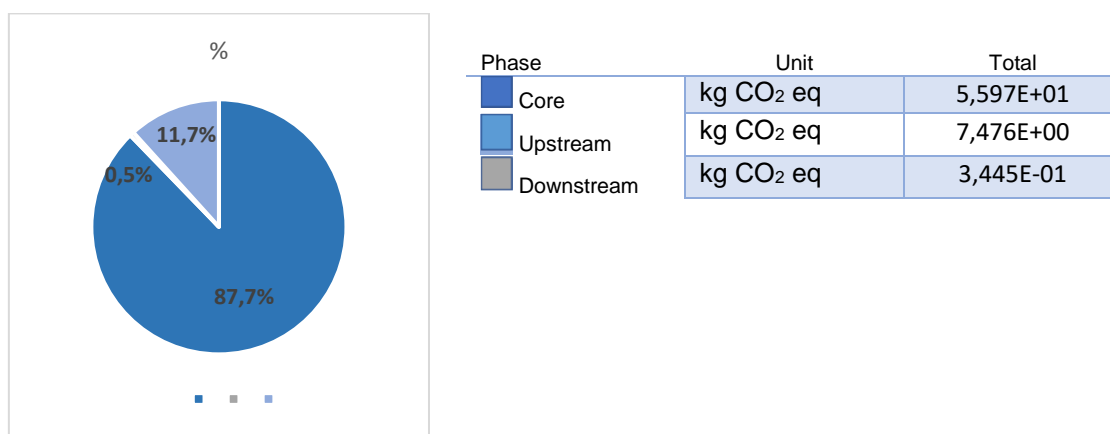
Report drafted by: Luis Carlos González Valencia.
Industrial technical engineer by University of Sevilla
Official College of Technical Engineers of Sevilla (COGITISE).
Membership number: 9129.

IMPACTOS POR CATEGORÍAS

EPD 2018 ¹ Categories indicators	Unit	CORE Impact result	UPSTREAM Impact result	DOWNSTREAM Impact result	TOTAL
Abiotic depletion, elements	kg Sb eq	2,796E-09	5,612E-06	4,043E-12	5,614E-06
Acidification (fate not incl.)	kg SO ₂ eq	4,648E-02	2,653E-01	2,061E-03	3,138E-01
Photochemical oxidation	kg NMVOC	1,767E-02	1,232E-01	2,483E-03	1,433E-01
Eutrophication	kg PO ₄ --- eq	2,928E-03	2,847E-02	3,293E-04	3,173E-02
Global warming (GWP100a)	kg CO ₂ eq	7,476E+00	5,597E+01	3,445E-01	6,379E+01
Abiotic depletion, fossil fuels	MJ	7,919E+02	4,149E+02	1,077E+02	1,314E+03
Ozone layer depletion (ODP) (optional)	kg CFC-11 eq	4,285E-07	3,164E-06	4,456E-09	3,597E-06
Water scarcity	m ³ eq	1,806E+00	4,338E+00	4,511E-03	6,148E+00

Table 1. Impacts per Categories in PLRAL chair family.

GLOBAL WARNING (CLIMATE CHANGE)

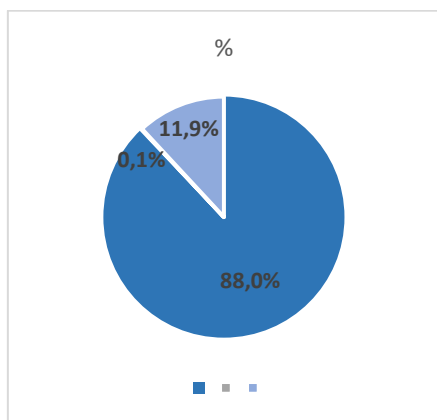


This method is the successor of EPD (2013) and is intended for the creation of Environmental Product Declarations (EPDs), as published on the website of the Swedish Environmental Management Council (SEMC). For more information see also General programmer instructions for the international EPD System 3.0 of 11 December 2017. The latest update to the recommendations included in this method is from 2018-06-08 (adding Water Scarcity Footprint). Contact info: <http://www.environdec.com/>.

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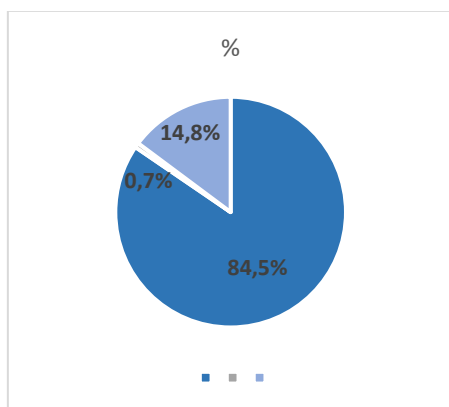
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OZONE LAYER DEPLETION



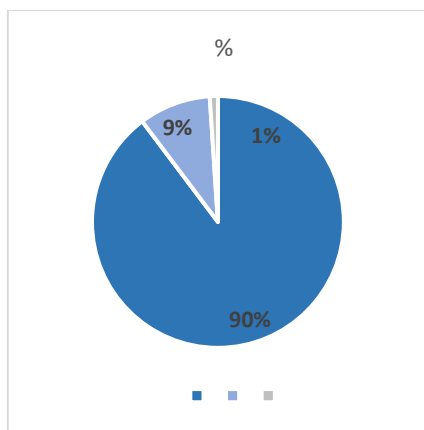
Phase	Unit	Total
Core	kg CFC-11 eq	3,164E-06
Upstream	kg CFC-11 eq	4,285E-07
Downstream	kg CFC-11 eq	4,456E-09

ACIDIFICATION



Phase	Unit	Total
Core	kg SO2 eq	2,653E-01
Upstream	kg SO2 eq	4,648E-02
Downstream	kg SO2 eq	2,061E-03

EUTROPHICATION

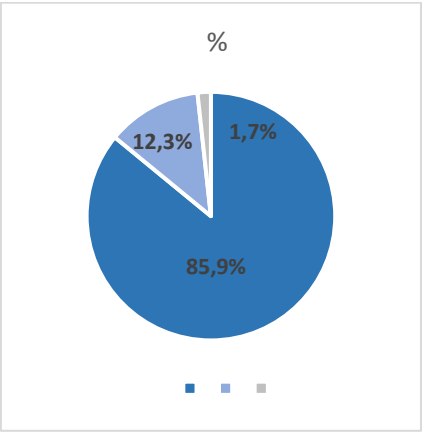


Phase	Unit	Total
Core	kg PO4--- eq	2,847E-02
Upstream	kg PO4--- eq	2,928E-03
Downstream	kg PO4--- eq	3,293E-04

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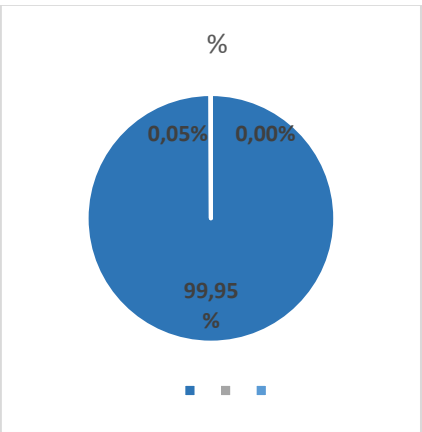
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PHOTOCHEMICAL OXIDATION



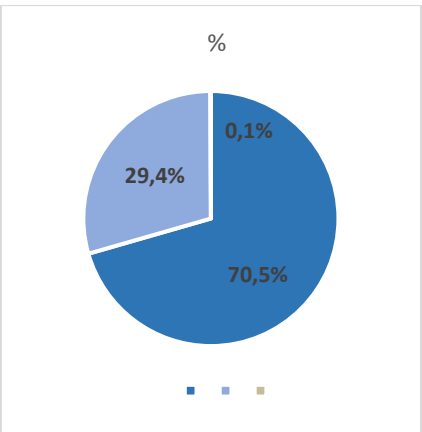
Phase	Unit	Total
Core	kg NMVOC	1,232E-01
Upstream	kg NMVOC	1,767E-02
Downstream	kg NMVOC	2,483E-03

ABIOTIC DEPLETION



Phase	Unit	Total
Core	kg Sb eq	5,612E-06
Upstream	kg Sb eq	2,796E-09
Downstream	kg Sb eq	4,043E-12

WATER SCARCITY

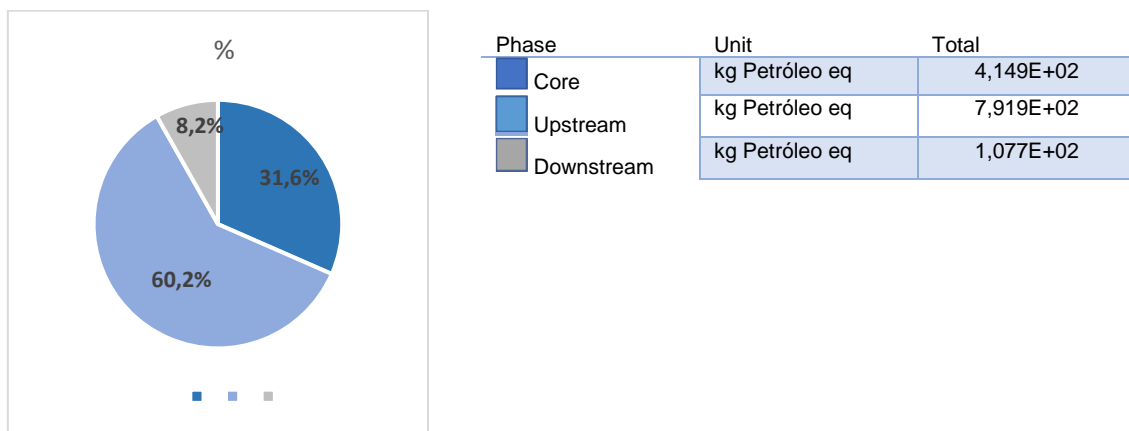


Phase	Unit	Total
Core	m3 eq	4,338E+00
Upstream	m3 eq	1,806E+00
Downstream	m3 eq	4,511E-03

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ABIOTIC DEPLETION FOSSIL FUELS



USE OF RESOURCES

RESOURCES	unit	CORE	UPSTREAM	DOWNSTREAM
Products				
Energy non renewable	MJ	1,45E+02	1,010E+03	7,00E-02
Energy renewable	MJ	5,68E+05	1,35E+01	0,00E+00
Secondary fuel	MJ	1,98E+05	4,55E-04	9,48E+05
Secondary fuel renewable	MJ	4,55E-04	0,00E+00	0,00E+00
Materials	kg	2,33E+01	6,310E+02	9,50E+00
Fresh water used	m ³	1,13E+01	3,10E+05	4,44E-02

CATEGORIES OF WASTE AND OUTPUT FLOWS

RECURSOS	unit	CORE	UPSTREAM	FIN DE VIDA
Productos				
Residuos peligrosos	kg	1,91E-03	8,65E-02	1,12E-01
Residuos no peligrosos	kg	2,80E-01	2,23E+00	2,31E-01
Residuos radiactivos	kg	9,27E-03	5,38E-01	4,51E-07