EPD®

THE INTERNATIONAL EPD® SYSTEM

ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025 for

Nonset 400
Nonset 400 FF
Nonset 400 SR

Programme:	Programme operator:	EPD registration number:	Approval date:	Valid until:	Geographical scope:
The International EPD© System; www.environdec.com	**EPD International AB**	**S-P-01009**	**2017-08-03**	**2022-08-02**	**International**

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MAPEI®
ADHESIVES · SEALANTS · CHEMICAL PRODUCTS FOR BUILDING

1. COMPANY DESCRIPTION / GOAL & SCOPE

Founded in 1937 in Milan, Italy, Mapei produces adhesives and complementary products for laying all types of floor, wall and coating materials, and is also specialized in other chemical products used in the building industry, such as waterproofing products, special mortars, admixtures for concrete, products for underground constructions and for the restoration of concrete and historical buildings.

There are currently 81 subsidiaries in Mapei Group, with a total of 73 production facilities located around the world in 33 different countries and in 5 different continents. Mapei has also 18 central laboratories. Most locations are ISO 9001 and ISO 14001 or EMAS-certified.

Mapei's strategy of internationalization is based on two main objectives: being closer to local needs and the lowest transport costs possible. With the declared objective of being close to buyers and clients, the strength of Mapei in the five continents is to comply the requirements of each single country, and to use only locally-based managers and qualified personnel, without changing the approach of the Company.

Mapei invests 12% of its company's total work-force and 5% of its turnover in Research & Development; in particular, 70% of its R&D efforts are directed to develop eco-sustainable and environmentally friendly products which give important contribution to all main green rating for eco-sustainable buildings such as LEED and BREEAM.

Furthermore, Mapei has developed a sales and technical service network with offices all over the world and offers an efficient Technical Assistance Service that is valued by architects, engineers, contractors and owners.

The goal of the study is to provide necessary data and documentation to produce an EPD according to the requirements of PCR according to EN 15804:2014 and PCR Environdec, version 2.2, date 2017-05-30 and to have more comprehension about the environmental impacts related to **Nonset 400**, **Nonset 400 FF** and **Nonset 400 SR** manufactured in Mapei AS located in Sagstua (Norway), in year 2016, including packaging of the finished products.

Target audiences of the study are customers and other parties with an interest in the environmental impacts of **Nonset 400**, **Nonset 400 FF** and **Nonset 400 SR**. This analysis shall not support comparative assertions intended to be disclosed to the public.

2. PRODUCT DESCRIPTION

Nonset 400, **Nonset 400 FF** and **Nonset 400 SR** are cement-based dry mortars, which expand 1 – 3 % before setting. The mortars are composed of cement, well-graded sand, expanding, stabilising and plasticizing substances. Nonset 400 FF contains also additives which ensure that the cement sets and will not crack even at surface and air temperatures down to -10°C. Nonset, Nonset 400 FF and Nonset 400 SR are used for all types of foundations and concrete repairs in thicknesses up to 150 mm.

The three products are compliant with EN 13813 ("Screed material and floor screeds. Screed material. Properties and requirements"), and supplied in 25 kg multiply bags or in big-bags with 1000 kg of finished product.

3. CONTENT DECLARATION

The main components and ancillary materials of **Nonset 400**, **Nonset 400 FF** and **Nonset 400 SR**, are the following:

Table 1: Composition

Materials	Percentage (%)
binders	20 – 40
fillers	50 – 70
Other (additives & packaging)	< 3

These products contain no substances of very high concern (SVHC) on the REACH Candidate List published by the European Chemicals Agency in a concentration more than 0,1 % (by unit weight).

4. DECLARED UNIT AND REFERENCE SERVICE LIFE

The declared unit is 1 kg of powder (included packaging).
Packaging materials include:

- Wooden pallet
- Multiply bags (paper/PE/paper)
- PP (bigbags)
- LDPE used as wrapping material

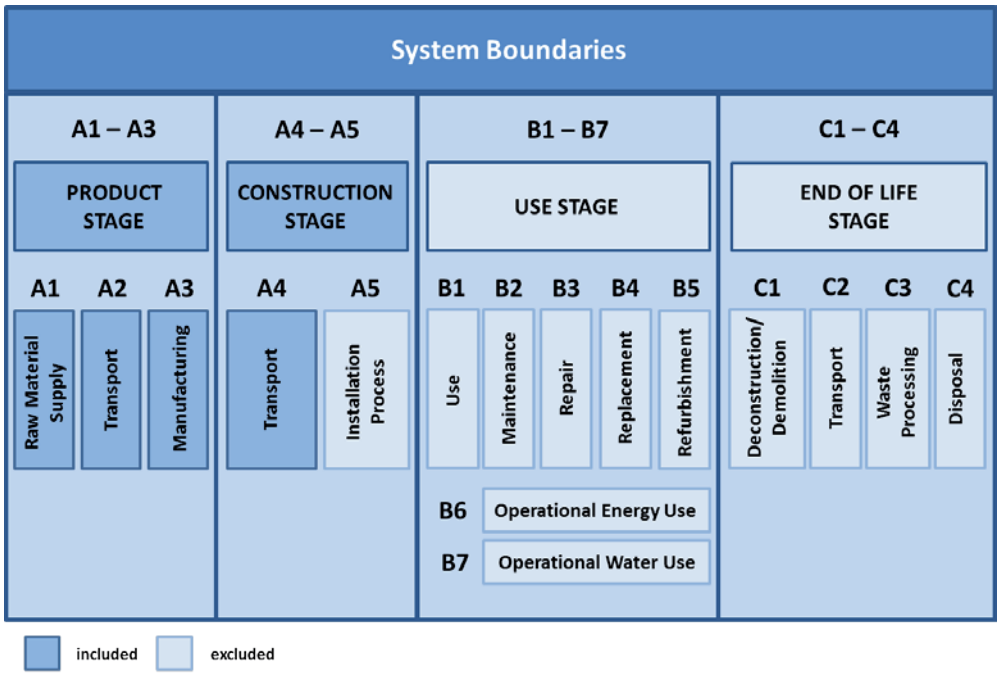
Due to the selected system boundary, the reference service life of the products is not specified.

5. SYSTEM BOUNDARIES & ADDITIONAL TECHNICAL INFORMATION

The approach is a “cradle to gate” with options. The following modules have been considered:

- A1-A3 (Product stage): extraction and transport of raw materials, packaging included, production process;
- A4 (Construction Process stage): transport of the finished product to final customers.

Table 2: System boundaries



A brief description of the production process, is the following:

Figure 1: Production process detail - © Photo Halvor Gudim

The production process starts from raw materials, that are purchased from external and intercompany suppliers and stored in the plant. Bulk raw materials are stored in specific silos and added automatically in the production mixer, according to the formula of the product. Other raw materials, supplied in bags or big bags, are stored in their warehouse and added automatically or manually in the mixer. The production is a discontinuous process, in which all components are mechanically mixed in batches. The semi-finished product is then packaged in bags, put on wooden pallets, covered by stretched hoods and stored in the Finished Products' warehouse. The quality of final products is controlled before the sale.

Figure 2: Sagstua Plant

Table 3: Transport to the building site (A4)

Name	Value	Unit
Means of transport: truck euro 3 with 27 tons of payload		
Litres of fuel (truck)	~ 2E-03	l/DU*100km
Transport distance (weighted average)	300	km
Capacity utilisation (including empty runs)	85	%
Capacity utilisation volume factor	100	%
DU: declared unit		

6. CUT-OFF RULES & ALLOCATION

Criteria for the exclusion of inputs and outputs (cut-off rules) in the LCA, information modules and any additional information are intended to support an efficient calculation procedure. They are not applied in order to hide data.
The following procedure is followed for the exclusion of inputs and outputs:

- All inputs and outputs to a unit process, for which data are available, are included in the calculation.
- Less than 1% of the total mass inputs/outputs of the unit process A3 are cut-off (see Table 4).

Input flows are covered for the whole formula.

Table 4: Cut-off criteria

Process excluded from study	Cut-off criteria	Quantified contribution from process
A3: production (auxiliary materials)	less than 10^{-5} kg / kg of finished product	Sensitivity study demonstrates a relative contribution lower than 0,1%
A3: waste	less than 10^{-5} kg / kg of finished product	Sensitivity study demonstrates a relative contribution lower than 0,1%

For the allocation procedure and principles, consider the following table (Table 5):

Table 5: Allocation procedure and principles

Module	Allocation Principle
A1; A2	All data are referred to 1 kg of powder product • A1: electricity is allocated to the mortars plant
A3	All data are referred to 1 kg of powder packaged product: • A3-wastes: all data are allocated to the mortars plant
A4	All data are referred to 1 kg of powder packaged product: • A4: a weighted average scenario has been used referred to the mortars plant)

7. ENVIRONMENTAL PERFORMANCE & INTERPRETATION

Following tables show environmental impacts for the products considered according to CML methodology (2010 - Jan 2016).

Nonset 400

*Table 6: **Nonset 400** (packaged with multiply bags): Environmental categories*

System boundary			Upstream + core	Downstream
	Modules	Unit	A1-A3	A4
	**ADP_e (element)**	kg Sb eq.	1,68E-07	1,30E-09
	**ADP_f (fossil)**	MJ	1,45E+00	2,21E-01
	**AP**	kg SO_2 eq.	2,11E-04	9,55E-05
	**EP**	kg $(PO_4)^{3-}$ eq.	1,15E-04	2,42E-05
	**GWP_{100}**	kg CO_2 eq.	2,36E-01	1,61E-02
	**ODP**	(Kg R-11 eq.)	9,92E-10	5,37E-15
	**POCP**	kg ethylene eq.	1,70E-05	-4,21E-05

GWP100: Global Warming Potential; **ADPe**: Abiotic Depletion Potential (elements); **EP**: Eutrophication Potential; **AP**: Acidification Potential; **POCP**: Photochemical Ozone Creation Potential; **ODP**: Ozone Depletion Potential; **ADPf**: Abiotic Depletion Potential (fossil)

*Table 7: **Nonset 400** (packaged with multiply bags): other environmental indicators*

System boundary		Upstream + core	Downstream
Parameter	**Unit**	**A1-A3**	**A4**
RPEE	MJ	7,96E-01	1,11E-02
RPEM	MJ	-	-
TPE	MJ	7,96E-01	1,11E-02
NRPE	MJ	1,49E+00	2,22E-01
NRPM	MJ	-	-
TRPE	MJ	1,49E+00	2,22E-01
SM	kg	-	-
RSF	MJ	-	-
NRSF	MJ	-	-
W	m^3	7,20E-04	2,53E-04

RPEE Renewable primary energy as energy carrier; **RPEM** Renewable primary energy as material utilisation; **TPE** Total use of renewable primary energy sources; **NRPE** Non-renewable primary energy as energy carrier; **NRPM** Non-renewable primary energy as material utilization; **TRPE** Total use of non-renewable primary energy sources; **SM** Use of secondary materials; **RSF** Renewable secondary fuels; **NRSF** Non-renewable secondary fuels; **W** Net use of fresh water [total freshwater consumption]

*Table 8: **Nonset 400** (packaged with multiply bags): waste production & other output flows*

System boundary		Upstream + core	Downstream
Parameter	**Unit**	**A1-A3**	**A4**
NHW	kg	2,22E-02	-
HW	kg	2,74E-06	-
RW	kg	0,00E+00	-
Components for re-use	kg	-	-
Materials for recycling	kg	-	-
Materials for energy recovery	kg	-	-
Exported energy	MJ	-	-

HW Hazardous waste disposed; **NHW** Non Hazardous waste disposed; **RW** Radioactive waste disposed

Nonset 400

*Table 9: **Nonset 400** (packaged with bigbags): Environmental categories*

System boundary			Upstream + core	Downstream
	Modules	Unit	A1-A3	A4
	**ADP_e (element)**	kg Sb eq.	1,67E-07	1,30E-09
	**ADP_f (fossil)**	MJ	1,64E+00	2,21E-01
	**AP**	kg SO_2 eq.	2,63E-04	9,54E-05
	**EP**	kg $(PO_4)^{3-}$ eq.	1,18E-04	2,42E-05
	**GWP_{100}**	kg CO_2 eq.	2,44E-01	1,61E-02
	**ODP**	(Kg R-11 eq.)	9,92E-10	5,36E-15
	**POCP**	kg ethylene eq.	2,14E-05	-4,21E-05

GWP100: Global Warming Potential; **ADPe**: Abiotic Depletion Potential (elements); **EP**: Eutrophication Potential; **AP**: Acidification Potential; **POCP**: Photochemical Ozone Creation Potential; **ODP**: Ozone Depletion Potential; **ADPf**: Abiotic Depletion Potential (fossil)

*Table 10: **Nonset 400** (packaged with bigbags): other environmental indicators*

System boundary		Upstream + core	Downstream
Parameter	Unit	A1-A3	A4
RPEE	MJ	6,81E-01	1,11E-02
RPEM	MJ	-	-
TPE	MJ	6,81E-01	1,11E-02
NRPE	MJ	1,69E+00	2,22E-01
NRPM	MJ	-	-
TRPE	MJ	1,69E+00	2,22E-01
SM	kg	-	-
RSF	MJ	-	-
NRSF	MJ	-	-
W	m^3	7,58E-04	2,53E-04

RPEE Renewable primary energy as energy carrier; **RPEM** Renewable primary energy as material utilisation; **TPE** Total use of renewable primary energy sources; **NRPE** Non-renewable primary energy as energy carrier; **NRPM** Non-renewable primary energy as material utilization; **TRPE** Total use of non-renewable primary energy sources; **SM** Use of secondary materials; **RSF** Renewable secondary fuels; **NRSF** Non-renewable secondary fuels; **W** Net use of fresh water [total freshwater consumption]

*Table 11: **Nonset 400** packaged with bigbags): waste production & other output flows*

System boundary		Upstream + core	Downstream
Parameter	Unit	A1-A3	A4
NHW	kg	2,22E-02	-
HW	kg	2,74E-06	-
RW	kg	0,00E+00	-
Components for re-use	kg	-	-
Materials for recycling	kg	-	-
Materials for energy recovery	kg	-	-
Exported energy	MJ	-	-

HW Hazardous waste disposed; **NHW** Non Hazardous waste disposed; **RW** Radioactive waste disposed

Nonset 400 FF

Table 12: ***Nonset 400 FF*** *(packaged with multiply bags): Environmental categories*

System boundary			Upstream + core	Downstream
	Modules	Unit	A1-A3	A4
	ADP_e (element)	kg Sb eq.	3,82E-07	1,30E-09
	ADP_f (fossil)	MJ	2,00E+00	2,21E-01
	AP	kg SO_2 eq.	3,52E-04	9,55E-05
	EP	kg $(PO_4)^{3-}$ eq.	2,13E-04	2,42E-05
	GWP_{100}	kg CO_2 eq.	3,30E-01	1,61E-02
	ODP	(Kg R-11 eq.)	3,13E-09	5,37E-15
	POCP	kg ethylene eq.	3,35E-05	-4,21E-05

GWP100: Global Warming Potential; **ADPe**: Abiotic Depletion Potential (elements); **EP**: Eutrophication Potential; **AP**: Acidification Potential; **POCP**: Photochemical Ozone Creation Potential; **ODP**: Ozone Depletion Potential; **ADPf**: Abiotic Depletion Potential (fossil)

*Table 13: **Nonset 400 FF** (packaged with multiply bags): other environmental indicators*

System boundary		Upstream + core	Downstream
Parameter	Unit	A1-A3	A4
RPEE	MJ	8,96E-01	1,11E-02
RPEM	MJ	-	-
TPE	MJ	8,96E-01	1,11E-02
NRPE	MJ	2,16E+00	2,22E-01
NRPM	MJ	-	-
TRPE	MJ	2,16E+00	2,22E-01
SM	kg	-	-
RSF	MJ	-	-
NRSF	MJ	-	-
W	m^3	1,33E-01	2,53E-04

RPEE Renewable primary energy as energy carrier; **RPEM** Renewable primary energy as material utilisation; **TPE** Total use of renewable primary energy sources; **NRPE** Non-renewable primary energy as energy carrier; **NRPM** Non-renewable primary energy as material utilization; **TRPE** Total use of non-renewable primary energy sources; **SM** Use of secondary materials; **RSF** Renewable secondary fuels; **NRSF** Non-renewable secondary fuels; **W** Net use of fresh water [total freshwater consumption]

*Table 14: **Nonset 400 FF** (packaged with multiply bags): waste production & other output flows*

System boundary		Upstream + core	Downstream
Parameter	Unit	A1-A3	A4
NHW	kg	2,97E-02	-
HW	kg	2,85E-06	-
RW	kg	0,00E+00	-
Components for re-use	kg	-	-
Materials for recycling	kg	-	-
Materials for energy recovery	kg	-	-
Exported energy	MJ	-	-

HW Hazardous waste disposed; **NHW** Non Hazardous waste disposed; **RW** Radioactive waste disposed

Nonset 400 FF

Table 15: ***Nonset 400 FF*** *(packaged with bigbags): Environmental categories*

System boundary			Upstream + core	Downstream
	Modules	Unit	A1-A3	A4
	**ADP_e (element)**	kg Sb eq.	3,81E-07	1,30E-09
	**ADP_f (fossil)**	MJ	2,19E+00	2,21E-01
	**AP**	kg SO_2 eq.	4,04E-04	9,54E-05
	**EP**	kg $(PO_4)^{3-}$ eq.	2,16E-04	2,42E-05
	**GWP_{100}**	kg CO_2 eq.	3,38E-01	1,61E-02
	**ODP**	(Kg R-11 eq.)	3,12E-09	5,36E-15
	**POCP**	kg ethylene eq.	3,79E-05	-4,21E-05

GWP100: Global Warming Potential; **ADPe**: Abiotic Depletion Potential (elements); **EP**: Eutrophication Potential; **AP**: Acidification Potential; **POCP**: Photochemical Ozone Creation Potential; **ODP**: Ozone Depletion Potential; **ADPf**: Abiotic Depletion Potential (fossil)

*Table 16: **Nonset 400 FF** (packaged with bigbags): other environmental indicators*

System boundary		Upstream + core	Downstream
Parameter	Unit	A1-A3	A4
RPEE	MJ	7,81E-01	1,11E-02
RPEM	MJ	-	-
TPE	MJ	7,81E-01	1,11E-02
NRPE	MJ	2,36E+00	2,22E-01
NRPM	MJ	-	-
TRPE	MJ	2,36E+00	2,22E-01
SM	kg	-	-
RSF	MJ	-	-
NRSF	MJ	-	-
W	m^3	1,34E-01	2,53E-04

RPEE Renewable primary energy as energy carrier; **RPEM** Renewable primary energy as material utilisation; **TPE** Total use of renewable primary energy sources; **NRPE** Non-renewable primary energy as energy carrier; **NRPM** Non-renewable primary energy as material utilization; **TRPE** Total use of non-renewable primary energy sources; **SM** Use of secondary materials; **RSF** Renewable secondary fuels; **NRSF** Non-renewable secondary fuels; **W** Net use of fresh water [total freshwater consumption]

*Table 17: **Nonset 400 FF** packaged with bigbags): waste production & other output flows*

System boundary		Upstream + core	Downstream
Parameter	Unit	A1-A3	A4
NHW	kg	2,97E-02	-
HW	kg	2,85E-06	-
RW	kg	0,00E+00	-
Components for re-use	kg	-	-
Materials for recycling	kg	-	-
Materials for energy recovery	kg	-	-
Exported energy	MJ	-	-

HW Hazardous waste disposed; **NHW** Non Hazardous waste disposed; **RW** Radioactive waste disposed

Nonset 400 SR

Table 18: ***Nonset 400 SR*** *(packaged with multiply bags): Environmental categories*

System boundary			Upstream + core	Downstream
	Modules	Unit	A1-A3	A4
	**ADP_e (element)**	kg Sb eq.	2,72E-07	1,30E-09
	**ADP_f (fossil)**	MJ	1,67E+00	2,21E-01
	**AP**	kg SO_2 eq.	2,42E-04	9,55E-05
	**EP**	kg $(PO_4)^{3-}$ eq.	1,44E-04	2,42E-05
	**GWP_{100}**	kg CO_2 eq.	2,91E-01	1,61E-02
	**ODP**	(Kg R-11 eq.)	1,59E-09	5,37E-15
	**POCP**	kg ethylene eq.	2,83E-05	-4,21E-05

GWP100: Global Warming Potential; **ADPe**: Abiotic Depletion Potential (elements); **EP**: Eutrophication Potential; **AP**: Acidification Potential; **POCP**: Photochemical Ozone Creation Potential; **ODP**: Ozone Depletion Potential; **ADPf**: Abiotic Depletion Potential (fossil)

*Table 19: **Nonset 400 SR** (packaged with multiply bags): other environmental indicators*

System boundary		Upstream + core	Downstream
Parameter	Unit	A1-A3	A4
RPEE	MJ	8,53E-01	1,11E-02
RPEM	MJ	-	-
TPE	MJ	8,53E-01	1,11E-02
NRPE	MJ	1,71E+00	2,22E-01
NRPM	MJ	-	-
TRPE	MJ	1,71E+00	2,22E-01
SM	kg	-	-
RSF	MJ	-	-
NRSF	MJ	-	-
W	m^3	6,86E-04	2,53E-04

RPEE Renewable primary energy as energy carrier; **RPEM** Renewable primary energy as material utilisation; **TPE** Total use of renewable primary energy sources; **NRPE** Non-renewable primary energy as energy carrier; **NRPM** Non-renewable primary energy as material utilization; **TRPE** Total use of non-renewable primary energy sources; **SM** Use of secondary materials; **RSF** Renewable secondary fuels; **NRSF** Non-renewable secondary fuels; **W** Net use of fresh water [total freshwater consumption]

*Table 20: **Nonset 400 SR** (packaged with multiply bags): waste production & other output flows*

System boundary		Upstream + core	Downstream
Parameter	Unit	A1-A3	A4
NHW	kg	2,77E-02	-
HW	kg	2,82E-06	-
RW	kg	0,00E+00	-
Components for re-use	kg	-	-
Materials for recycling	kg	-	-
Materials for energy recovery	kg	-	-
Exported energy	MJ	-	-

HW Hazardous waste disposed; **NHW** Non Hazardous waste disposed; **RW** Radioactive waste disposed

Nonset 400 SR

Table 21: ***Nonset 400 SR*** *(packaged with bigbags): Environmental categories*

System boundary			Upstream + core	Downstream
	Modules	Unit	A1-A3	A4
	**ADP_e (element)**	kg Sb eq.	2,71E-07	1,30E-09
	**ADP_f (fossil)**	MJ	1,86E+00	2,21E-01
	**AP**	kg SO_2 eq.	2,94E-04	9,54E-05
	**EP**	kg $(PO_4)^{3-}$ eq.	1,47E-04	2,42E-05
	**GWP_{100}**	kg CO_2 eq.	2,99E-01	1,61E-02
	**ODP**	(Kg R-11 eq.)	1,59E-09	5,36E-15
	**POCP**	kg ethylene eq.	3,27E-05	-4,21E-05

GWP100: Global Warming Potential; **ADPe**: Abiotic Depletion Potential (elements); **EP**: Eutrophication Potential; **AP**: Acidification Potential; **POCP**: Photochemical Ozone Creation Potential; **ODP**: Ozone Depletion Potential; **ADPf**: Abiotic Depletion Potential (fossil)

*Table 22: **Nonset 400 SR** (packaged with bigbags): other environmental indicators*

System boundary		Upstream + core	Downstream
Parameter	Unit	A1-A3	A4
RPEE	MJ	7,38E-01	1,11E-02
RPEM	MJ	-	-
TPE	MJ	7,38E-01	1,11E-02
NRPE	MJ	1,91E+00	2,22E-01
NRPM	MJ	-	-
TRPE	MJ	1,91E+00	2,22E-01
SM	kg	-	-
RSF	MJ	-	-
NRSF	MJ	-	-
W	m^3	7,25E-04	2,53E-04

RPEE Renewable primary energy as energy carrier; **RPEM** Renewable primary energy as material utilisation; **TPE** Total use of renewable primary energy sources; **NRPE** Non-renewable primary energy as energy carrier; **NRPM** Non-renewable primary energy as material utilization; **TRPE** Total use of non-renewable primary energy sources; **SM** Use of secondary materials; **RSF** Renewable secondary fuels; **NRSF** Non-renewable secondary fuels; **W** Net use of fresh water [total freshwater consumption]

*Table 23: **Nonset 400 SR** packaged with bigbags): waste production & other output flows*

System boundary		Upstream + core	Downstream
Parameter	Unit	A1-A3	A4
NHW	kg	2,77E-02	-
HW	kg	2,82E-06	-
RW	kg	0,00E+00	-
Components for re-use	kg	-	-
Materials for recycling	kg	-	-
Materials for energy recovery	kg	-	-
Exported energy	MJ	-	-

HW Hazardous waste disposed; **NHW** Non Hazardous waste disposed; **RW** Radioactive waste disposed

Tables from 6 to 23 show absolute results for all the environmental categories considered. Calculations point out that module A1 has the highest contribution for most environmental indicators (i.e. relative contribution in ODP is up to 99%). Raw materials extraction and processing show the most relevant environmental load considering the whole life cycle of the finished product. In particular, the hydraulic binder and the fillers have the strongest influence on the results.
Transportation modules (A2, A4) highlight a significant contribution for most environmental impact categories (ODP excluded). In particular, for POCP they show a negative contribution due to NO and NO_2 emission factors as reported in CML 2001 (Jan. 2016) methodology.
The following tables show the relative contributions of the modules A1 – A4, and a detail on GWP_{100} representative for the three products included in this EPD (Table 27).

*Table 24: Environmental Impact as percentage – **Nonset 400** multiply bag*

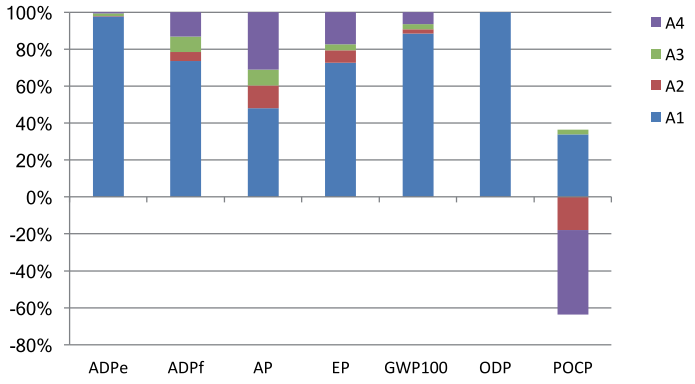


*Table 25: Environmental Impact as percentage – **Nonset 400 FF** multiply bag*

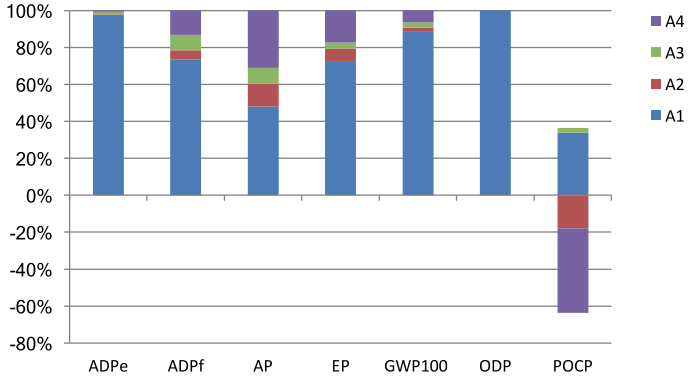


*Table 26: Environmental Impact as percentage – **Nonset 400 SR** multiply bag*

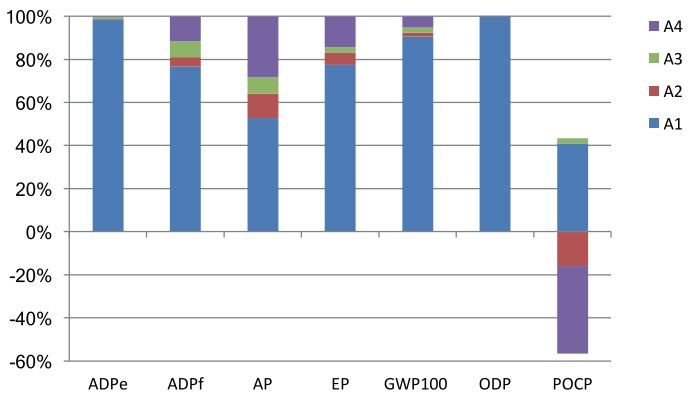
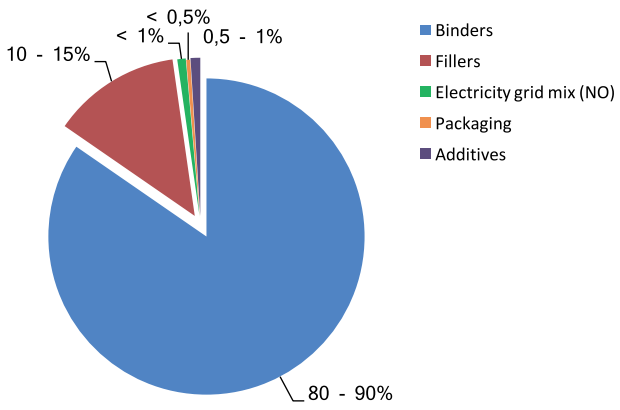


Table 27: Detail on GWP_{100}: raw materials contribution



More details about electrical mix used in this EPD (Norwegian grid mix – 2013), is shown below:

Data source	Amount	Unit
GaBi (v6) database	0,0356	kg CO_2-eqv/kWh

8. DATA QUALITY

Table 28: Data quality

Dataset & Geographical reference	Database (source)	Temporary reference
A1; A3		
PTL binder	EPD NORCEM n23N rev1	2013
Fillers (EU)	GaBi Database	2016
Electricity grid mix (NO)	GaBi Database	2013
Additives & others (Packaging components)	GaBi Database, Plastic Europe, EPD EFCA 20150091	2005 – 2016
A2; A4		
Truck transport (euro 3, 27ton payload – GLO)	GaBi Database	2016
Oceanic ship (27500 DWT - GLO)	GaBi Database	2016
Light Train (Gross Ton Weight 500 Tons - GLO)	GaBi Database	2016
Electricity mix (EU)	GaBi Database	2013
Diesel for transport (EU)	GaBi Database	2013
Heavy Fuel Oil (EU)	GaBi Database	2013

All data included in table above refer to a period between 2005 and 2016; the most relevant ones are European or specific from supplier, while the others (i.e. transport and minor contribution dataset), come from European, global and German databases.

All dataset are not more than 10 years old (according to EN 15804 § 6.3.7 "*Data quality requirements*"). Unique exception is due to one packaging component coming from PlasticEurope database.

Primary data are collected during 2016 and representative for the entire annual production.

9. VERIFICATION AND REGISTRATION

EPD of construction products may not be comparable if they do not comply with EN 15804. Environmental product declarations within the same product category from different programs may not be comparable.

CEN standard EN15804 served as the core PCR	
PCR:	PCR 2012:01 Construction products and Construction services, Version 2.2, 2017-05-30
PCR review was conducted by:	The Technical Committee of the International EPD® System. Chair: Massimo Marino Contact via **info@environdec.com**
Independent verification of the declaration and data, according to ISO 14025	☒ EPD Process Certification (Internal) ☐ EPD Verification (external)
Third party verifier:	Certiquality S.r.l. Number of accreditation: 003H rev14
Accredited or approved by:	Accredia

10. REFERENCES

- GENERAL PROGRAMME INSTRUCTIONS OF THE INTERNATIONAL EPD® SYSTEM. VERSION 2.5.
- PCR 2012:01; “PRODUCT GROUP CLASSIFICATION: MULTIPLE UN CPC CODES CONSTRUCTION PRODUCTS AND CONSTRUCTION SERVICES”; VERSION 2.2
- EN 13813 “SCREED MATERIAL AND FLOOR SCREEDS. SCREED MATERIAL. PROPERTIES AND REQUIREMENTS”

CONTACT INFORMATION

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THE INTERNATIONAL EPD SYSTEM

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The Norwegian EPD Foundation

ANNEX 1

ANNEX 1: Self declaration from EPD owner

Specific Norwegian requirements

1 Applied electricity data set used in the manufacturing phase

The electricity mix for the electricity used in manufacturing (A3) is the electricity grid mix

<0,0356 kg CO_2 eqv/kWh>

2 Content of dangerous substances

☒ The product contains no substances given by the REACH Candidate list or the Norwegian priority list.

☐ The product contains substances that are less than 0.1% by weight given by the REACH Candidate or the Norwegian priority list.

☐ The product contains dangerous substances more than 0.1% by weight given in the REACH candidate list or the Norwegian Priority List, concentrations is given in the EPD:

Dangerous substances from the REACH candidate list or the Norwegian Priority List	CAS No.	Quantity (concentration, wt%/FU(DU)).

3 Transport from the place of manufacture to a central warehouse

Transport distance, and CO_2-eqv./DU from transport of the product from factory gate to central warehouse in Oslo shall be given. The following table shall be included in the EPD:

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance km	Fuel/Energy use	Unit	Value (l/t)	Kg CO2-eqv./DU
Boat							
Truck	85	27 tonn, EURO 3	95	0,0182	l/tkm	4,56	1,37E-02
Railway							
Rail							
Air							
Total	85	27 tonn, EURO 3	95	0,0182	l/tkm	4,56	1,37E-02

4 Impact on the indoor environment

☐ Indoor air emission testing has been performed; specify test method and reference:
☐ No test has being performed
☒ Not relevant; specify : the product is a mortar for foundation and concrete repair. It does not affect the indoor air quality.