



# ENVIRONMENTAL PRODUCT DECLARATION

*In accordance with ISO 14025:2006  
and EN 15804:2012+A2:2019/AC:2021 for:*

**ULTRAPLAN EASY**



\*An EPD should provide current information and may be updated if conditions change. The stated validity is, therefore, subject to the continued registration and publication at [www.environdec.com](http://www.environdec.com).

Programme:  
**The International  
EPD® System;**  
[www.environdec.com](http://www.environdec.com)

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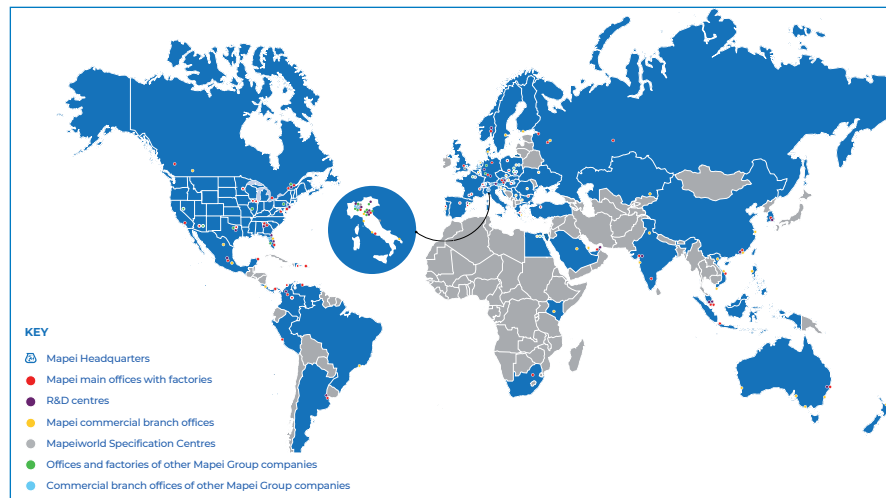


## 1. COMPANY DESCRIPTION / GOAL & SCOPE

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

There are currently 100 subsidiaries in the Mapei Group, with a total of 86 production facilities located around the world in 35 different countries and in 5 different continents. Mapei also has 32 central laboratories. Most locations are ISO 9001 and ISO 14001 or EMAS-certified.

Mapei invests 12% in its company's total workforce 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 major green rating systems for eco-sustainable buildings such as LEED and BREEAM.



**LEED V4.1** is the latest version of Leadership in Environmental and Energy Design, an American protocol that enables buildings to be certified as eco-sustainable according to parameters and credits described in the most widely adopted green building criteria in the world. Issued by the GBC US, it is mandatory for all LEED projects registered after October 2016.

Numerous changes have been made to the previous version: Mapei products play a part in obtaining important credits thanks to their EPD's (type III environmental declarations) and their products with very low emission of VOC.

Launched in the UK in 1990, **BREEAM** (BRE Environmental Assessment Method) is a protocol for sustainable building practices adopted mainly in the United Kingdom and in Scandinavian countries with the version BREEAM NOR.

By adopting this protocol, thanks to their EPD's and very low emission of VOC, Mapei products help towards obtaining relative credits.

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 Environdec (version 1.11, 2021-02-05) under EN 15804:2012+A2:2019/AC:2021 and to have more comprehension about the environmental impacts related to **Ultraplano Easy** manufactured in Mapei Corp. located in San Bernardino (CA), Dalton (GA), West Chicago (IL), Garland (TX), Fredericksburg (VA) and Ft. Lauderdale (FL) and in

Mapei Inc. located in Brampton (CA-ON) and Delta (BC), including packaging of the finished products.

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

## 2. PRODUCT DESCRIPTION

**Ultraplan Easy** is a quick-setting, self-leveling underlayment that requires only a clean, soundly bonded, properly prepared, and primed substrate before application.

The products are available in 22,7 kg (50lbs) bags.

For more information about the product see the TDS (Technical Data Sheet) on Mapei website.

## 3. CONTENT DECLARATION

The main components and ancillary materials of the products included in this EPD are the following:

*Table 1: Composition referred to 1 kg of finished product with packaging*

| Materials                      | Percentage (%) by mass |
|--------------------------------|------------------------|
| Inorganic Binders              | <30%                   |
| Organic Binders                | <3%                    |
| Fillers                        | <76%                   |
| Additives                      | <1%                    |
| Packaging                      | Percentage (%) by mass |
| LDPE (bag + wrapping material) | <1%                    |
| Wood (pallet)                  | <2%                    |

The products do not contain a concentration higher than 0,1% (by unit weight) of either carcinogenic substances or substances of very high concern (SVHC) on the REACH Candidate List published by the European Chemicals Agency.

## 4. DECLARED UNIT AND REFERENCE SERVICE LIFE

**The declared unit is 1 kg of finished product with packaging**

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

## 5. SYSTEM BOUNDARIES AND ADDITIONAL TECHNICAL INFORMATION

The approach is “cradle to gate” (A1–A3) with modules C1–C4 and module D and optional modules (A1–A3 + A4 – A5 + C + D):

- A1, A2, A3 (Product stage): extraction and processing of raw materials and packaging (A1), transportation up to the factory gate (A2), manufacturing of the finished product (A3).
- A4 – A5 (Construction process stage): transport of the finished product to final customers and installation into the building.
- C1, C2, C3, C4 (End of Life stage): With a collection rate of 100% as C&D waste, the transports are carried out by lorry over 100 km (C2).
- D (Resource recovery stage): The product can be collected and recycled for use in substitution of virgin raw aggregates.

Table 2: System boundaries

|                      | Product stage       |           |               | Construction process stage |                           | Use stage |             |        |             |               |                        |                       | End of life stage          |           |                  |          | Resource recovery stage            |
|----------------------|---------------------|-----------|---------------|----------------------------|---------------------------|-----------|-------------|--------|-------------|---------------|------------------------|-----------------------|----------------------------|-----------|------------------|----------|------------------------------------|
|                      | Raw material supply | Transport | Manufacturing | Transport                  | Construction installation | Use       | Maintenance | Repair | Replacement | Refurbishment | Operational energy use | Operational water use | De-construction demolition | Transport | Waste processing | Disposal | Reuse-Recovery-Recycling-potential |
| Module               | A1                  | A2        | A3            | A4                         | A5                        | B1        | B2          | B3     | B4          | B5            | B6                     | B7                    | C1                         | C2        | C3               | C4       | D                                  |
| Modules declared     | X                   | X         | X             | X                          | X                         | MND       | MND         | MND    | MND         | MND           | MND                    | MND                   | X                          | X         | X                | X        | X                                  |
| Geography            | US, CAN             | US, CAN   | US, CAN       | US, CAN                    | US, CAN                   | -         | -           | -      | -           | -             | -                      | -                     | US, CAN                    | US, CAN   | US, CAN          | US, CAN  | US, CAN                            |
| Specific data        | > 90%               |           |               |                            |                           | -         | -           | -      | -           | -             | -                      | -                     | -                          | -         | -                | -        | -                                  |
| Variation – products | Not-declared        |           |               |                            |                           | -         | -           | -      | -           | -             | -                      | -                     | -                          | -         | -                | -        | -                                  |
| Variation – sites    | < 10%               |           |               |                            |                           | -         | -           | -      | -           | -             | -                      | -                     | -                          | -         | -                | -        | -                                  |

MND: Module Not Declare

A brief description of production process is the following:

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, big bags or tanks, are stored in the warehouse and added automatically or manually in the mixer. The production is a discontinuous process, in which all the components are mechanically mixed in batches. The semi-finished product is then packaged, put on wooden pallets and stored in the finished products warehouse. The quality of final products is controlled before the sale.

Figure 1: production process

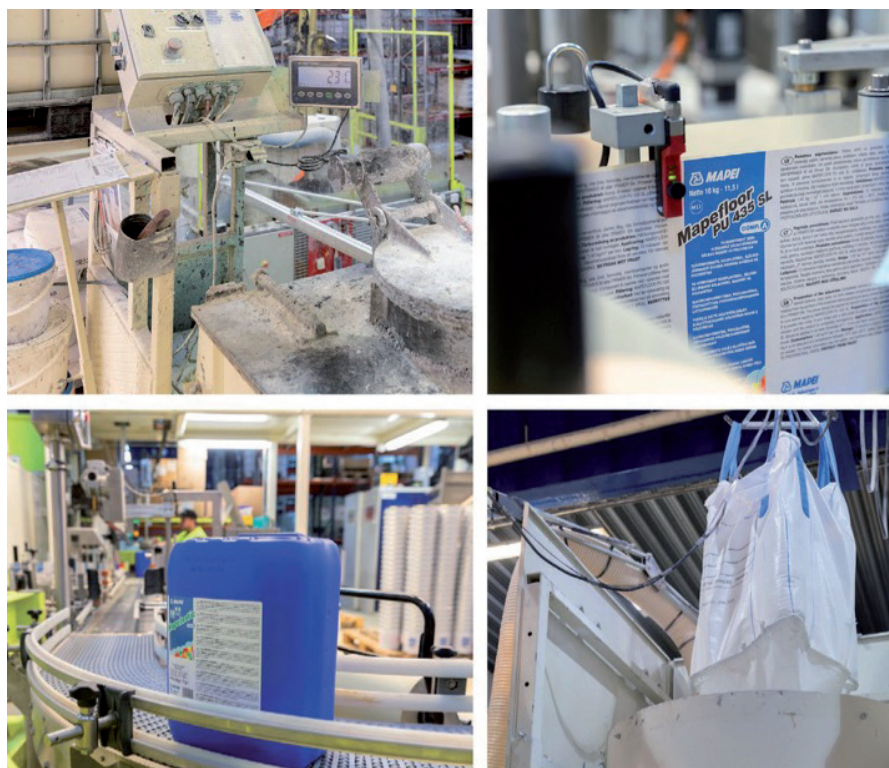


Table 3: Transport to the building site (A4)

| Scenario information  | Value  | Unit              |
|---|--------|-------------------|
| Means of transport: truck-trailer euro 5, gross weight 34-40 t, payload capacity 27 t |        |                   |
| Diesel consumption  | 0,002  | l/100km           |
| Transport distance  | 1000   | km                |
| Capacity utilisation (including empty runs)   | 85     | %                 |
| Gross density of products transported   | ~ 1400 | kg/m <sup>3</sup> |
| Capacity utilisation volume factor  | 1      | -                 |

Table 4: Installation into the building (A5)

| Scenario information  | Value  | Unit           |
|---|--|----------------|
| Ancillary materials for installation  | 0  | kg             |
| Water use   | 0,00025  | m <sup>3</sup> |
| Other resources use   | 0  | kg             |
| Electricity (US grid mix)   | 0,00063  | MJ             |
| Waste materials on building site before waste processing, generated by the product's installation (specified by type)   | 1,5E-02 (wood)<br>2,9E-03 (plastics)             | kg             |
| Output materials (specified by type) as result of waste processing at the building site e.g., of collection for recycling, for energy recovery, disposal (specified by route) | 1,5E-02 (energy recovery)<br>1,34E-02 (disposal) | kg             |
| Direct emission to ambient air, soil and water  | 0  | kg             |

Table 5: End of Life (C1-C4)

| Scenario information                    | Value | Unit |
|---|-------|------|
| Collected separately                    | 0     | kg   |
| Collected with mixed construction waste | 1     | kg   |
| Reuse                                   | 0     | kg   |
| Recycling                               | 0,31  | kg   |
| Energy recovery                         | 0     | kg   |
| Landfill                                | 0,69  | kg   |
| Transport to recycling                  | 100   | km   |
| Transport to landfill                   | 100   | km   |

## 6. CUT-OFF RULES AND 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. Cut-off criteria, where applied, are described in Table 6.

Table 6: 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 0,5% |
| A3: particle emission                | Less than $10^{-4}$ kg/kg of finished product | Sensitivity study demonstrates a relative contribution lower than 0,5% |

For the allocation procedure and principles consider the following table (7):

Table 7: Allocation procedure and principles

| Module | Allocation Principle   |
|--------|--|
| A1     | All data are referred to 1 kg of product<br>A1: electricity is allocated to the specific production line             |
| A3     | All data are referred to 1 kg of packaged product<br>A3-wastes: all data are allocated to the whole production plant |



## 7. ENVIRONMENTAL PERFORMANCE AND INTERPRETATION



**GWP**

### Climate change

GWPTotal - Global Warming Potential refers to the emission/presence of GHGs (greenhouse gases) in the atmosphere (mainly CO<sub>2</sub>, N<sub>2</sub>O, CH<sub>4</sub>) which contribute to the increase in the temperature of the planet.

GWP-total considers:

- GWP-fossil
- GWP-biogenic
- GWP-luluc (land use and land use change)



**ODP**

### Ozone Depletion

Ozone Depletion Potential refers to the degradation of the stratospheric layer of the ozone involved in blocking the UV component of sunrays. Depletion is due to particularly reactive components that originate from chlorofluorocarbon (CFC) or chlorofluoromethane (CFM).



**AP**

### Acidification

Acidification Potential refers to the emission of specific acidifying substances (i.e. NO<sub>x</sub>, SO<sub>x</sub>) in the air. These substances decrease the pH of the rainfall with predictable damages to the ecosystem.



**EP**

### Eutrophication

Eutrophication Potential refers to the nutrient enrichment, which determines unbalance in ecosystems and causes the death of the fauna and decreased biodiversity in flora.

It considers:

- EP-freshwater: aquatic freshwater
- EP-marine: aquatic marine
- EP-terrestrial



**POCP**

### Photochemical ozone formation

The Photochemical Ozone Creation Potential is the ozone formation in low atmosphere. This is quite common in the cities where a great amount of pollutants (like VOC and NO<sub>x</sub>) are emitted every day (industrial emissions and vehicles). It is mainly diffused during the summertime.



**ADP  
minerals&metals**

### Depletion of abiotic resources – minerals and metals

Abiotic Depletion Potential elements refers to the depletion of the mineral resources.



**ADP - fossil**

### Depletion of abiotic resources – fossil fuel

Abiotic Depletion Potential fossil fuel refers to the depletion of the fossil fuel resources.



**WDP**

### Water use

It expresses the potential deprivation of water, that consists in not having the water needs satisfied.

The following tables show the environmental impacts for the products considered according to the requirements of EN15804:2012+A2:2019/AC:2021. The results are referred to the declared unit (see § 4) and are representative of the weighted average of the data of the plants covered by the following EPD. The additional environmental indicators are not declared.

## ULTRAPLAN EASY

(1 kg of product with packaging)

Table 8: Ultraplan Easy: Potential environmental impact – mandatory indicators according to EN 15804 referred to 1 kg of product with packaging

| Indicator                                 | Unit                       | A1 – A3   | A4       | A5       | C1       | C2       | C3       | C4       | D         |
|---|----------------------------|-----------|----------|----------|----------|----------|----------|----------|-----------|
| <b>GWP<sub>TOTAL</sub></b>                | (kg CO <sub>2</sub> eq.)   | 3,15E-01  | 6,15E-02 | 4,90E-02 | 3,16E-03 | 8,34E-03 | 2,99E-03 | 1,07E-02 | -4,71E-03 |
| <b>GWP<sub>FOSSIL</sub></b>               | (kg CO <sub>2</sub> eq.)   | 3,29E-01  | 6,14E-02 | 2,31E-02 | 3,16E-03 | 8,33E-03 | 2,69E-03 | 1,06E-02 | -4,69E-03 |
| <b>GWP<sub>BIOGENIC</sub></b>             | (kg CO <sub>2</sub> eq.)   | -1,40E-02 | 2,90E-05 | 2,58E-02 | 2,45E-06 | 3,93E-06 | 2,75E-04 | 3,97E-05 | -1,51E-05 |
| <b>GWP<sub>LULUC</sub></b>                | (kg CO <sub>2</sub> eq.)   | 3,79E-04  | 7,11E-05 | 1,27E-06 | 1,96E-07 | 9,63E-06 | 2,02E-05 | 3,29E-05 | -3,05E-06 |
| <b>ODP</b>                                | (kg CFC 11 eq.)            | 1,24E-08  | 6,57E-15 | 5,16E-15 | 1,53E-14 | 8,90E-16 | 4,50E-15 | 2,69E-14 | -6,74E-15 |
| <b>AP</b>                                 | (mol H <sup>+</sup> eq.)   | 1,87E-03  | 5,09E-05 | 1,34E-05 | 4,40E-06 | 7,16E-06 | 1,40E-05 | 7,50E-05 | -5,37E-06 |
| <b>EP<sub>FRESHWATER</sub></b>            | (kg P eq.)                 | 3,08E-05  | 3,07E-07 | 6,83E-09 | 1,87E-09 | 4,16E-08 | 9,16E-09 | 2,13E-08 | -3,14E-09 |
| <b>EP<sub>MARINE</sub></b>                | (kg N eq.)                 | 3,45E-04  | 2,11E-05 | 5,03E-06 | 9,81E-07 | 2,98E-06 | 6,44E-06 | 1,94E-05 | -2,33E-06 |
| <b>EP<sub>TERRESTRIAL</sub></b>           | (mol N eq.)                | 3,76E-03  | 2,38E-04 | 5,71E-05 | 1,06E-05 | 3,37E-05 | 7,12E-05 | 2,13E-04 | -2,57E-05 |
| <b>POCP</b>                               | (kg NMVOC eq.)             | 1,12E-03  | 4,95E-05 | 1,32E-05 | 2,80E-06 | 6,93E-06 | 1,75E-05 | 5,85E-05 | -5,84E-06 |
| <b>ADP<sub>MINERALS&amp;METALS</sub>*</b> | (kg Sb eq.)                | 1,12E-06  | 4,14E-09 | 6,67E-11 | 2,00E-10 | 5,61E-10 | 2,88E-09 | 4,88E-10 | -1,18E-10 |
| <b>ADP<sub>FOSSIL</sub>*</b>              | (MJ)                       | 4,77E+00  | 8,17E-01 | 1,84E-02 | 5,31E-02 | 1,11E-01 | 5,30E-02 | 1,41E-01 | -7,66E-02 |
| <b>WDP*</b>                               | (m <sup>3</sup> world eq.) | 9,95E-02  | 3,60E-03 | 1,36E-02 | 7,06E-04 | 4,88E-04 | 5,23E-04 | 1,16E-03 | -3,40E-05 |

**GWP<sub>TOTAL</sub>**: Global Warming Potential total; **GWP<sub>FOSSIL</sub>**: Global Warming Potential fossil fuels; **GWP<sub>BIOGENIC</sub>**: Global Warming Potential biogenic; **GWP<sub>LULUC</sub>**: Global Warming Potential land use and land use change; **ODP**: Depletion Potential of the stratospheric Ozone layer; **AP**: Acidification Potential; **EP<sub>FRESHWATER</sub>**: Eutrophication Potential, freshwater; **EP<sub>MARINE</sub>**: Eutrophication Potential, marine; **EP<sub>TERRESTRIAL</sub>**: Eutrophication Potential, terrestrial; **POCP**: Formation potential of tropospheric ozone; **ADP<sub>MINERALS&METALS</sub>**: Abiotic Depletion Potential for non-fossil resources; **ADP<sub>FOSSIL</sub>**: Abiotic Depletion Potential for fossil resources; **WDP**: Water Deprivation Potential.

\* the results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is a limited experience with the indicator

Table 9: Ultraplan Easy: Potential environmental impact – additional mandatory and voluntary indicators referred to 1 kg of product with packaging

| Indicator      | Unit                     | A1 – A3  | A4       | A5       | C1       | C2       | C3       | C4       | D         |
|----------------|--------------------------|----------|----------|----------|----------|----------|----------|----------|-----------|
| <b>GWP-GHG</b> | (kg CO <sub>2</sub> eq.) | 3,21E-01 | 6,06E-02 | 2,31E-02 | 3,10E-03 | 8,25E-03 | 2,65E-03 | 1,05E-02 | -4,66E-03 |

**GWP-GHG**: The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.



Table 10: Ultraplan Easy: Use of resources referred to 1 kg of product with packaging

| Indicator | Unit           | A1 – A3  | A4       | A5       | C1       | C2       | C3       | C4       | D         |
|-----------|----------------|----------|----------|----------|----------|----------|----------|----------|-----------|
| PERE      | MJ             | 3,98E-01 | 3,42E-02 | 3,42E-03 | 1,27E-02 | 4,63E-03 | 4,93E-03 | 2,30E-02 | -3,84E-03 |
| PERM      | MJ             | 2,85E-01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| PERT      | MJ             | 6,83E-01 | 3,42E-02 | 3,42E-03 | 1,27E-02 | 4,63E-03 | 4,93E-03 | 2,30E-02 | -3,84E-03 |
| PENRE     | MJ             | 4,81E+00 | 8,78E-01 | 1,86E-02 | 5,31E-02 | 1,19E-01 | 5,31E-02 | 1,41E-01 | -7,66E-02 |
| PENRM     | MJ             | 1,32E-01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| PENRT     | MJ             | 4,95E+00 | 8,78E-01 | 1,86E-02 | 5,31E-02 | 1,19E-01 | 5,31E-02 | 1,41E-01 | -7,66E-02 |
| SM*       | kg             | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| RSF       | MJ             | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| NRSF      | MJ             | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| FW        | m <sup>3</sup> | 2,40E-03 | 1,19E-04 | 3,19E-04 | 2,14E-05 | 1,61E-05 | 1,51E-05 | 3,56E-05 | -1,01E-05 |

**PERE:** Use of renewable primary energy excluding renewable primary energy resources used as raw materials; **PERM:** Use of renewable primary energy resources used as raw materials; **PERT:** Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials); **PENRE:** Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; **PENRM:** Use of non-renewable primary energy resources used as raw materials; **PENRT:** Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials); **SM:** Use of secondary material; **RSF:** Use of renewable secondary fuels; **NRSF:** Use of non-renewable secondary fuels; **FW:** Net use of fresh water.

\* Referred only to 1 kg of product without packaging

Table 11: Ultraplan Easy: Waste production and output flows referred to 1 kg of product with packaging

| Indicator                     | Unit | A1 – A3  | A4       | A5       | C1        | C2       | C3        | C4       | D         |
|-------------------------------|------|----------|----------|----------|-----------|----------|-----------|----------|-----------|
| HWD                           | kg   | 1,57E-04 | 2,62E-12 | 4,38E-13 | -7,04E-13 | 3,55E-13 | -1,37E-13 | 3,07E-12 | -1,49E-11 |
| NHWD                          | kg   | 1,60E-02 | 7,55E-05 | 1,38E-02 | 1,76E-05  | 1,02E-05 | 1,40E-05  | 7,05E-01 | -6,61E-03 |
| RWD                           | kg   | 3,36E-05 | 2,16E-06 | 6,72E-07 | 5,22E-06  | 2,92E-07 | 7,12E-07  | 1,61E-06 | -3,48E-07 |
| Components for re-use         | kg   | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  | 0,00E+00 | 0,00E+00  | 0,00E+00 | 0,00E+00  |
| Materials for recycling       | kg   | 1,89E-03 | 0,00E+00 | 0,00E+00 | 0,00E+00  | 0,00E+00 | 0,00E+00  | 0,00E+00 | 0,00E+00  |
| Materials for energy recovery | kg   | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  | 0,00E+00 | 0,00E+00  | 0,00E+00 | 0,00E+00  |
| Exported energy, electricity  | MJ   | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  | 0,00E+00 | 0,00E+00  | 0,00E+00 | 0,00E+00  |
| Exported energy, thermal      | MJ   | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  | 0,00E+00 | 0,00E+00  | 0,00E+00 | 0,00E+00  |

**HWD:** Hazardous waste disposed; **NHWD:** Non-Hazardous waste disposed; **RWD:** Radioactive waste disposed

Table 12: Ultraplan Easy: Information on biogenic carbon content at the factory gate referred to 1 kg of product with packaging









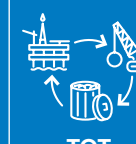




































| Biogenic Carbon Content              | Unit | Quantity |
|--------------------------------------|------|----------|
| Biogenic carbon content in product   | kg C | 0,00E+00 |
| Biogenic carbon content in packaging | kg C | 6,45E-03 |

Tables from 8 to 12 show absolute results for all the environmental categories considered.

The main contribution to the environmental impact categories in the product life cycle comes from **module A1** (extraction and processing of raw materials). Its relative contribution is over 50% in all the categories and in most of them it's higher than 90%. Referring to the biogenic carbon stored in product and packaging, the negative impacts on GWP<sub>BIOGENIC</sub> (in **modules A1** and **A3**) is compensated in the **modules A5** and **C3**, when the product and packaging reach their end of life. A minor contribution in GWP<sub>FOSSIL</sub> and ADP<sub>FOSSIL</sub> is due to the manufacturing process (**Module A3**). The transports (Module A4) contribute more than 50% to GWP<sub>LULUC</sub> category.

An overview about the average contribution to the different modules considered in the system boundaries are shown in Table 13.

Table 13: Some environmental impacts of Ultraplan Easy

| ENVIRONMENTAL IMPACT   |  A1-A3         |  A4            |  A5            |  C1            |  C2            |  C3            |  C4            |  D              |  TOT |
|--|---|---|--|---|---|---|---|--|---|
| <b>CLIMATE CHANGE (TOTAL)</b><br>                   | <br>3,15E-01   | <br>6,15E-02   | <br>4,90E-02   | <br>3,16E-03   | <br>8,34E-03   | <br>2,99E-03   | <br>1,07E-02   | <br>-4,71E-03   | <b>4,46E-01</b><br>kg CO <sub>2</sub> eq.   |
| <b>ACIDIFICATION</b><br>                            | <br>1,87E-03   | <br>5,09E-05   | <br>1,34E-05   | <br>4,40E-05   | <br>7,16E-06   | <br>1,40E-05   | <br>7,50E-05   | <br>-5,37E-06   | <b>2,03E-03</b><br>mol H <sup>+</sup> eq.   |
| <b>DEPLETION OF ABIOTIC RESOURCES (FOSSIL)</b><br> | <br>4,77E+00  | <br>8,17E-01  | <br>1,84E-02  | <br>5,31E-02  | <br>1,11E-01  | <br>5,30E-02  | <br>1,41E-01  | <br>-7,66E-02  | <b>5,89E+00</b><br>MJ   |
| <b>WATER USE</b><br>                              | <br>9,95E-02 | <br>3,60E-03 | <br>1,36E-02 | <br>7,06E-04 | <br>4,88E-04 | <br>5,23E-04 | <br>1,16E-03 | <br>-3,40E-05 | <b>1,20E-01</b><br>m <sup>3</sup> world eq.   |

More details about electrical mix used in this EPD is shown below:

|  | Data source | GWP-GHG | Unit                        |
|--|-------------|---------|-----------------------------|
| Residual electricity grid mix (US) – 2020  | IEA         | 0,622*  | kg CO <sub>2</sub> -eqv/kWh |
| Residual electricity grid mix (CAN) – 2020 | IEA         | 0,544*  | kg CO <sub>2</sub> -eqv/kWh |

\*CML2001 – Aug. 2016

## 8. DATA QUALITY

Table 14: Data quality

| Dataset & Geographical reference                          | Database (source)                  | Temporary reference |
|---|------------------------------------|---------------------|
| <b>A1; A3</b>   |                                    |                     |
| Inorganic Binders (EU/US)                                 | Sphera Database;                   | 2021                |
| Organic Binders (EU)                                      | Sphera Database;                   | 2015                |
| Fillers (EU/US)   | Sphera Database;<br>Ecoinvent 3.8  | 2021                |
| Additives (EU/US)   | Ecoinvent 3.8                      | 2021                |
| Residual electricity grid mix (US/CAN)                    | Sphera Database                    | 2021                |
| Packaging components (EU)                                 | Sphera Database;<br>Ecoinvent 3.8; | 2021                |
| <b>A2</b>   |                                    |                     |
| Truck, Euro 5, 27t payload (GLO)                          | Sphera Database                    | 2021                |
| Light train, gross tonne weight 500t / 363t payload (GLO) | Sphera Database                    | 2021                |
| Oceanic ship (27500 DWT – GLO)                            | Sphera Database                    | 2021                |
| Diesel for transport (US)                                 | Sphera Database                    | 2019                |
| Heavy Fuel Oil (US)                                       | Sphera Database                    | 2019                |
| Electricity grid mix (US)                                 | Sphera Database                    | 2019                |
| <b>A4</b>   |                                    |                     |
| Truck, Euro 5, 27t payload (GLO)                          | Sphera Database                    | 2021                |
| Diesel for transport (US)                                 | Sphera Database                    | 2019                |
| <b>A5</b>   |                                    |                     |
| Tap water from surface water                              | Sphera Database                    | 2021                |
| Commercial waste in municipal waste incineration plant    | Sphera Database                    | 2021                |
| Inert matter on landfill                                  | Sphera Database                    | 2021                |
| Electricity grid mix (US)                                 | Sphera database                    | 2019                |
| <b>C1 – C4</b>  |                                    |                     |
| Truck (EURO 6 - 9,3 ton payload – GLO)                    | Sphera Database                    | 2021                |
| Electricity grid mix (US)                                 | Sphera Database                    | 2019                |
| Diesel for transport (US)                                 | Sphera Database                    | 2019                |
| Construction waste dumping (US)                           | Sphera Database                    | 2021                |
| Construction waste treatment (US)                         | Sphera Database                    | 2021                |

All data included in table above refer to a period between 2015 and 2021; the most relevant ones are specific from supplier, while the others (i.e. transport and minor contribution dataset), come from European and global databases.

All dataset are not more than 10 years old according to EN 15804 §6.3.8.2 “Data quality requirements”. The Quality level concerning datasets used in the EPD can be considered as “very good” or “good” according to Annex E of the EN 15804 (current version); Primary data concern the year 2021 and represent the whole annual production.

## 9. ADDITIONAL INFORMATION

### 9.1 Traci 2.1

| Indicator                                    | Unit                     | A1-A3    |
|--|--------------------------|----------|
| AP   | (kg SO <sub>2</sub> eq.) | 1,57E-03 |
| EP   | (kg N eq.)               | 3,80E-04 |
| GWP  | (kg CO <sub>2</sub> eq.) | 3,19E-01 |
| ODP  | (kg CFC 11 eq.)          | 1,30E-08 |
| Resources                                    | (MJ)                     | 4,86E-01 |
| SFP  | (kg O <sub>3</sub> eq.)  | 2,11E-02 |
| IPCC AR5 GWP <sub>100</sub>                  | (kg CO <sub>2</sub> eq.) | 3,28E-01 |
| ADP <sub>FOSSIL</sub><br>CML 2001 - Jan 2016 | (MJ)                     | 4,60E+00 |

**AP:** Acidification Potential; **EP:** Eutrophication Potential; **GWP:** Global Warming Air, excl. biogenic carbon; **ODP:** Depletion Potential of the stratospheric Ozone layer; **Resources:** Resources, Fossil fuels [MJ surplus energy] **SFP:** Smog Formation Potential; **IPCC AR5:** GWP<sub>100</sub>, incl. cc fb, excl. biogenic carbon; **ADP<sub>FOSSIL</sub>:** Abiotic Depletion Potential for fossil resources;

## 9.2 Disassembly

The finished product is potentially suitable for disassembly through selective demolition.

## 9.3 Biogenic Content

The biogenic carbon content in packaging at the factory gate referred to 1 kg of product with packaging is 6,45E-03.

## 10. VERIFICATION AND REGISTRATION

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but from different programmes may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804. For further information about comparability, see EN 15804 and ISO 14025.

### CEN standard EN15804 served as the Core Product Category Rules (PCR)

|  |   |
|--|---|
| PCR:   | PCR 2019:14 Construction products (EN 15804:A2), Version 1.11, 2021-02-05, UN CPC code 54   |
| PCR review was conducted by:   | The Technical Committee of the International EPD® System. See <a href="http://www.environdec.com/TC">www.environdec.com/TC</a> for a list of members.<br>Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat <a href="http://www.environdec.com/contact">www.environdec.com/contact</a> . |
| Independent third-party verification of the declaration and data, according to ISO 14025:2006: | <input checked="" type="checkbox"/> EPD Process Certification<br><input type="checkbox"/> EPD Verification  |
| Third party verifier:  | Certiquality S.r.l.<br>Number of accreditations: 003H rev15   |
| Accredited or approved by:   | Accredia  |
| Procedure for follow-up of data during EPD validity involves third-party verifier              | <input checked="" type="checkbox"/> Yes<br><input type="checkbox"/> No  |

## 11. REFERENCES

- EN 15804: SUSTAINABILITY OF CONSTRUCTION WORKS - ENVIRONMENTAL PRODUCT DECLARATIONS - CORE RULES FOR THE PRODUCT CATEGORY OF CONSTRUCTION PRODUCTS
- GENERAL PROGRAMME INSTRUCTIONS OF THE INTERNATIONAL EPD® SYSTEM. VERSION 3.01
- ISO 14025 ENVIRONMENTAL LABELS AND DECLARATIONS - TYPE III ENVIRONMENTAL DECLARATIONS - PRINCIPLES AND PROCEDURES
- ISO 14044 ENVIRONMENTAL MANAGEMENT – LIFE CYCLE ASSESSMENT – REQUIREMENTS AND GUIDELINES
- PCR 2019:14 CONSTRUCTION PRODUCTS (EN 15804: A2), UN CPC CODE 54; VERSION 1.11
- UNITED STATES RESIDUAL MIXES - IEA WEBSITE - TOTAL ENERGY SUPPLY (TES) BY SOURCE
- CANADA RESIDUAL MIXES - IEA WEBSITE - TOTAL ENERGY SUPPLY (TES) BY SOURCE

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