



## Statement of Verification

BREG EN EPD No: 000826

Issue: 01

This is to verify that the Environmental Product Declaration provided by:

**HEMPEL A/S**

are in accordance with the requirements of:

**EN 15804:2012+A2:2019**

and

BRE Global Scheme Document SD207

This declaration is for:

1 kilogram of 70817 Chemical Resistant Urethane High Solids

### Company Address

HEMPEL A/S  
Lundtoftegårdsvej 91  
DK-2800 Kgs. Lyngby  
Denmark



  
Signed for BRE Global Limited

Hayley Thomson  
Operator

24 July 2026  
Date of this Issue

24 July 2026  
Date of First Issue

23 July 2031  
Expiry Date



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# Environmental Product Declaration

EPD Number: 000826

## General Information

| EPD Programme Operator                                                                                                                                                                                                                                                                                                                  | Applicable Product Category Rules                                                                                                                                                                                            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| BRE Global<br>Watford, Herts<br>WD25 9XX<br>United Kingdom                                                                                                                                                                                                                                                                              | BRE Product Category Rules for Type III environmental product declaration of construction products to EN 15804+A2 Rev 3.2 (May 2025).                                                                                        |
| Commissioner of LCA study                                                                                                                                                                                                                                                                                                               | LCA consultant/Tool                                                                                                                                                                                                          |
| HEMPEL A/S<br>Lundtoftegårdsvej 91<br>DK-2800 Kgs. Lyngby<br>Denmark                                                                                                                                                                                                                                                                    | ITeC - The Catalonia Institute of Construction Technology<br>Wellington 19, 08018 Barcelona - Tel +34 933 093 404<br><a href="http://www.itec.cat">www.itec.cat</a><br><br>SimaPro Version 9.6.0.1 by PRé Sustainability BV. |
| Declared/Functional Unit                                                                                                                                                                                                                                                                                                                | Applicability/Coverage                                                                                                                                                                                                       |
| 1 kilogram of 70817 Chemical Resistant Urethane High Solids                                                                                                                                                                                                                                                                             | Product specific                                                                                                                                                                                                             |
| EPD Type                                                                                                                                                                                                                                                                                                                                | Background database                                                                                                                                                                                                          |
| Cradle to Gate with Module C and D                                                                                                                                                                                                                                                                                                      | Ecoinvent v3.10 (2024) database<br>CEPE Raw Material database v4.0                                                                                                                                                           |
| Demonstration of Verification                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                              |
| CEN standard EN 15804 serves as the core PCR <sup>a</sup>                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                              |
| Independent verification of the declaration and data according to EN ISO 14025:2010<br><input type="checkbox"/> Internal <input checked="" type="checkbox"/> External                                                                                                                                                                   |                                                                                                                                                                                                                              |
| (Where appropriate <sup>b</sup> ) Third party verifier:<br>Kim Allbury                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                              |
| a: Product category rules<br>b: Optional for business-to-business communication; mandatory for business-to-consumer communication (see EN ISO 14025:2010, 9.4)                                                                                                                                                                          |                                                                                                                                                                                                                              |
| Comparability                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                              |
| Environmental product declarations from different programmes may not be comparable if not compliant with EN 15804:2012+A2:2019. Comparability is further dependent on the specific product category rules, system boundaries and allocations, and background data sources. See Clause 5.3 of EN 15804:2012+A2:2019 for further guidance |                                                                                                                                                                                                                              |



## Information modules covered

| Product                             |                                     |                                     | Construction             |                             | Use stage                      |                          |                          |                          |                          |                          |                          | End-of-life                         |                                     |                                     |                                     | Benefits and loads beyond the system boundary |
|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|-----------------------------|--------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-----------------------------------------------|
|                                     |                                     |                                     |                          |                             | Related to the building fabric |                          |                          |                          |                          | Related to the building  |                          |                                     |                                     |                                     |                                     |                                               |
| A1                                  | A2                                  | A3                                  | A4                       | A5                          | B1                             | B2                       | B3                       | B4                       | B5                       | B6                       | B7                       | C1                                  | C2                                  | C3                                  | C4                                  | D                                             |
| Raw materials supply                | Transport                           | Manufacturing                       | Transport to site        | Construction – Installation | Use                            | Maintenance              | Repair                   | Replacement              | Refurbishment            | Operational energy use   | Operational water use    | Deconstruction demolition           | Transport                           | Waste processing                    | Disposal                            | Reuse, Recovery and/or Recycling potential    |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>    | <input type="checkbox"/>       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>           |

Note: Ticks indicate the Information Modules declared.

## Manufacturing site(s)

Hempel (USA) Inc. (Dallas)  
2728 Empire Central  
Dallas, TX 75235  
United States of America

## Construction Product:

### Product Description

This EPD is representative for 70817 Chemical Resistant Urethane High Solids.

70817 Chemical Resistant Urethane High Solids (Hempel 57070) is a two-component, ultra-high solids, chemical-resistant aliphatic polyurethane.

### Technical Information

| Property                   | Value, Unit            |
|----------------------------|------------------------|
| Relative density           | 1.11 kg/L              |
| Solids by volume           | 90% mixed              |
| Dry film thickness         | 183 microns            |
| Wet film thickness         | 203 microns            |
| Theoretical spreading rate | 4.9 m <sup>2</sup> /L  |
| Coverage                   | 0.23 kg/m <sup>2</sup> |

Technical information and datasheets are available for consultation at [www.hempel.com](http://www.hempel.com).



## Main Product Contents

The material composition of the declared mixed product is presented below:

| Material/Chemical Input | %       |
|-------------------------|---------|
| Binder                  | 75 – 95 |
| Additives               | 1 – 5   |
| Solvents                | 5 – 10  |

## Manufacturing Process

The manufacturing process involves the controlled mixing and dispersion of multiple chemical substances and materials to obtain a homogeneous final product, which is subsequently packaged and prepared for distribution.

### Process flow diagram



Note: The manufacturing process generates various types of waste, each managed as described below:

- Clean or contaminated packaging (e.g., IBCs, plastic and metal drums and cans) is sent for recycling.
- Contaminated cleaning solvents are sent for recycling.
- Paint and raw material residues are disposed of via incineration.
- Sludge is either incinerated or landfilled.
- Demolition waste is partially recycled and partially landfilled.
- Water contaminated with oil undergoes recycling.
- Dirty paper, cardboard, and plastic are treated through incineration.
- Clean paper, cardboard, and plastic are sent for recycling.
- General and organic waste is sent to landfill.
- Metal scrap is recycled.

## End of Life

The product is disposed of together with the substrate to which it is applied. End-of-life treatments may include recycling, incineration, or landfill, as the coating is unlikely to be separated during waste processing.



## Life Cycle Assessment Calculation Rules

### Declared / Functional unit description

1 kilogram of 70817 Chemical Resistant Urethane High Solids.

### System boundary

The declared product system is Cradle to Gate with Modules C and D, meaning that the Life Cycle Assessment covers the manufacturing of the product up to the factory gate, while also considering the end-of-life stages (Module C) and the potential benefits and loads beyond the system boundary (Module D).

### Data sources, quality and allocation

All data used for the inventory of the manufacturing stage are primary data obtained directly from Hempel A/S.

The primary data for factory operations—including consumption, yield, and waste materials—raw material transport distances, and final product packaging data (transport distances and packaging type) were collected through a detailed sensitivity analysis, compiling all primary data from Hempel's factories worldwide for the reference year January–December 2024. Following a worst-case scenario approach, the data used as the baseline model for the LCA were selected, except for raw material quantities, raw material packaging types, and reference shades, which are specified individually for each studied product.

The background databases used are Ecoinvent v3.10 (2024) cut-off by classification for the general model, and CEPE Raw Material database v4.0 for raw materials; and the characterization factors of the EN 15804 + A2 method (2019) v1.01 / EF 3.1 normalization and weighting set, Cumulative Energy Demand (2024) v1.12 and EDIP 2003 (2018) v1.07.

For the product manufacturing, the allocation of environmental impacts has been performed in accordance with the requirements of the applicable PCR. The following approach has been applied:

- Raw material inputs: Allocated on a mass basis, adjusted by the factory yield factor.
- Energy consumption: Allocated on a mass basis, distributed per kilogram of finished product.
- Manufacturing waste: Allocated on a mass basis, with all process waste directed to the appropriate treatment facility.
- Packaging materials: Allocated on a mass basis, included in the product system.

A location-based approach was applied for the electricity mix. The emission factor was derived from Ember Electricity Data Explorer - 2024 ([ember-climate.org](https://ember-climate.org)), based on the country-specific grid electricity mix of the manufacturing site (0,652 kg CO<sub>2</sub>e/kWh). This factor was used to model electricity-related emissions at the Hempel production facility chosen for the assessment.

The quality of the data and the uncertainties associated with the inventories of each input are also analysed in accordance to Table E.1 of Annex E - Schemes to be applied for data quality assessment of generic and specific data of the EN 15804:2012+A2:2019 standard. The assessment considers three criteria: geographical representativeness, technical representativeness, and temporal representativeness, using a scale from 1 (very good quality) to 5 (very poor quality). Summary of data quality:

- Geographical representativeness: most datasets (≈77,5%) are level 1, around 21% are level 2, and 1,5% are level 3.
- Technical representativeness: all datasets (100 %) are level 1.
- Temporal representativeness: all datasets (100 %) are level 1.

### Cut-off criteria

For the present analysis, more than 99% of the mass and energy inputs and outputs of the system have been considered, leaving out diffuse emissions in the factory and the production of manufacturing infrastructure such as industrial machinery and equipment.

## LCA Results

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

| Parameters describing environmental impacts               |                                      |      |                       |                       |                       |                       |             |                       |                                        |
|-----------------------------------------------------------|--------------------------------------|------|-----------------------|-----------------------|-----------------------|-----------------------|-------------|-----------------------|----------------------------------------|
|                                                           |                                      |      | GWP-total             | GWP-fossil            | GWP-biogenic          | GWP-luluc             | ODP         | AP                    | EP-freshwater                          |
|                                                           |                                      |      | kg CO <sub>2</sub> eq | kg CO <sub>2</sub> eq | kg CO <sub>2</sub> eq | kg CO <sub>2</sub> eq | kg CFC11 eq | mol H <sup>+</sup> eq | kg (PO <sub>4</sub> ) <sup>3-</sup> eq |
| Product stage                                             | Raw material supply                  | A1   | AGG                   | AGG                   | AGG                   | AGG                   | AGG         | AGG                   | AGG                                    |
|                                                           | Transport                            | A2   | AGG                   | AGG                   | AGG                   | AGG                   | AGG         | AGG                   | AGG                                    |
|                                                           | Manufacturing                        | A3   | AGG                   | AGG                   | AGG                   | AGG                   | AGG         | AGG                   | AGG                                    |
|                                                           | Total (of product stage)             | A1-3 | 6,64E+00              | 6,62E+00              | 2,29E-02              | 3,38E-03              | 1,83E-07    | 1,86E-02              | 8,36E-05                               |
| Construction process stage                                | Transport                            | A4   | MND                   | MND                   | MND                   | MND                   | MND         | MND                   | MND                                    |
|                                                           | Construction                         | A5   | MND                   | MND                   | MND                   | MND                   | MND         | MND                   | MND                                    |
| Use stage                                                 | Use                                  | B1   | MND                   | MND                   | MND                   | MND                   | MND         | MND                   | MND                                    |
|                                                           | Maintenance                          | B2   | MND                   | MND                   | MND                   | MND                   | MND         | MND                   | MND                                    |
|                                                           | Repair                               | B3   | MND                   | MND                   | MND                   | MND                   | MND         | MND                   | MND                                    |
|                                                           | Replacement                          | B4   | MND                   | MND                   | MND                   | MND                   | MND         | MND                   | MND                                    |
|                                                           | Refurbishment                        | B5   | MND                   | MND                   | MND                   | MND                   | MND         | MND                   | MND                                    |
|                                                           | Operational energy use               | B6   | MND                   | MND                   | MND                   | MND                   | MND         | MND                   | MND                                    |
|                                                           | Operational water use                | B7   | MND                   | MND                   | MND                   | MND                   | MND         | MND                   | MND                                    |
| End of life                                               | Deconstruction, demolition           | C1   | 0                     | 0                     | 0                     | 0                     | 0           | 0                     | 0                                      |
|                                                           | Transport                            | C2   | 4,56E-03              | 4,55E-03              | 1,49E-06              | 1,12E-07              | 9,29E-11    | 5,31E-06              | 3,82E-09                               |
|                                                           | Waste processing                     | C3   | 0                     | 0                     | 0                     | 0                     | 0           | 0                     | 0                                      |
|                                                           | Disposal                             | C4   | 9,25E-02              | 9,24E-02              | 1,22E-05              | 3,84E-06              | 2,59E-10    | 6,79E-05              | 5,90E-08                               |
| Potential benefits and loads beyond the system boundaries | Reuse, recovery, recycling potential | D    | 0                     | 0                     | 0                     | 0                     | 0           | 0                     | 0                                      |

GWP-total = Global warming potential, total;  
 GWP-fossil = Global warming potential, fossil;  
 GWP-biogenic = Global warming potential, biogenic;  
 GWP-luluc = Global warming potential, land use and land use change;

ODP = Depletion potential of the stratospheric ozone layer;  
 AP = Acidification potential, accumulated exceedance; and  
 EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment

## LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

| Parameters describing environmental impacts               |                                      |      |           |                |             |                    |                         |                                  |                   |
|-----------------------------------------------------------|--------------------------------------|------|-----------|----------------|-------------|--------------------|-------------------------|----------------------------------|-------------------|
|                                                           |                                      |      | EP-marine | EP-terrestrial | POCP        | ADP-mineral&metals | ADP-fossil              | WDP                              | PM                |
|                                                           |                                      |      | kg N eq   | mol N eq       | kg NMVOC eq | kg Sb eq           | MJ, net calorific value | m <sup>3</sup> world eq deprived | disease incidence |
| Product stage                                             | Raw material supply                  | A1   | AGG       | AGG            | AGG         | AGG                | AGG                     | AGG                              | AGG               |
|                                                           | Transport                            | A2   | AGG       | AGG            | AGG         | AGG                | AGG                     | AGG                              | AGG               |
|                                                           | Manufacturing                        | A3   | AGG       | AGG            | AGG         | AGG                | AGG                     | AGG                              | AGG               |
|                                                           | Total (of product stage)             | A1-3 | 4,17E-03  | 4,20E-02       | 1,67E-02    | 1,38E-05           | 1,31E+02                | 8,41E-01                         | 1,93E-07          |
| Construction process stage                                | Transport                            | A4   | MND       | MND            | MND         | MND                | MND                     | MND                              | MND               |
|                                                           | Construction                         | A5   | MND       | MND            | MND         | MND                | MND                     | MND                              | MND               |
| Use stage                                                 | Use                                  | B1   | MND       | MND            | MND         | MND                | MND                     | MND                              | MND               |
|                                                           | Maintenance                          | B2   | MND       | MND            | MND         | MND                | MND                     | MND                              | MND               |
|                                                           | Repair                               | B3   | MND       | MND            | MND         | MND                | MND                     | MND                              | MND               |
|                                                           | Replacement                          | B4   | MND       | MND            | MND         | MND                | MND                     | MND                              | MND               |
|                                                           | Refurbishment                        | B5   | MND       | MND            | MND         | MND                | MND                     | MND                              | MND               |
|                                                           | Operational energy use               | B6   | MND       | MND            | MND         | MND                | MND                     | MND                              | MND               |
|                                                           | Operational water use                | B7   | MND       | MND            | MND         | MND                | MND                     | MND                              | MND               |
| End of life                                               | Deconstruction, demolition           | C1   | 0         | 0              | 0           | 0                  | 0                       | 0                                | 0                 |
|                                                           | Transport                            | C2   | 1,18E-06  | 1,29E-05       | 1,15E-05    | 1,50E-10           | 6,01E-02                | 2,56E-05                         | 2,69E-10          |
|                                                           | Waste processing                     | C3   | 0         | 0              | 0           | 0                  | 0                       | 0                                | 0                 |
|                                                           | Disposal                             | C4   | 2,71E-05  | 2,96E-04       | 1,25E-04    | 9,33E-10           | 2,22E-01                | 1,01E-02                         | 1,60E-09          |
| Potential benefits and loads beyond the system boundaries | Reuse, recovery, recycling potential | D    | 0         | 0              | 0           | 0                  | 0                       | 0                                | 0                 |

EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment;  
 EP-terrestrial = Eutrophication potential, accumulated exceedance;  
 POCP = Formation potential of tropospheric ozone;  
 ADP-mineral&metals = Abiotic depletion potential for non-fossil resources;

ADP-fossil = Depletion potential of the stratospheric ozone layer;  
 WDP = Water (user) deprivation potential, deprivation-weighted water consumption; and  
 PM = Particulate matter.

## LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

| Parameters describing environmental impacts               |                                      |      |                         |          |          |          |               |
|-----------------------------------------------------------|--------------------------------------|------|-------------------------|----------|----------|----------|---------------|
|                                                           |                                      |      | IRP                     | ETP-fw   | HTP-c    | HTP-nc   | SQP           |
|                                                           |                                      |      | kBq U <sup>235</sup> eq | CTUe     | CTUh     | CTUh     | dimensionless |
| Product stage                                             | Raw material supply                  | A1   | AGG                     | AGG      | AGG      | AGG      | AGG           |
|                                                           | Transport                            | A2   | AGG                     | AGG      | AGG      | AGG      | AGG           |
|                                                           | Manufacturing                        | A3   | AGG                     | AGG      | AGG      | AGG      | AGG           |
|                                                           | Total (of product stage)             | A1-3 | 1,62E+00                | 6,47E+01 | 3,38E-08 | 5,27E-07 | 1,05E+01      |
| Construction process stage                                | Transport                            | A4   | MND                     | MND      | MND      | MND      | MND           |
|                                                           | Construction                         | A5   | MND                     | MND      | MND      | MND      | MND           |
| Use stage                                                 | Use                                  | B1   | MND                     | MND      | MND      | MND      | MND           |
|                                                           | Maintenance                          | B2   | MND                     | MND      | MND      | MND      | MND           |
|                                                           | Repair                               | B3   | MND                     | MND      | MND      | MND      | MND           |
|                                                           | Replacement                          | B4   | MND                     | MND      | MND      | MND      | MND           |
|                                                           | Refurbishment                        | B5   | MND                     | MND      | MND      | MND      | MND           |
|                                                           | Operational energy use               | B6   | MND                     | MND      | MND      | MND      | MND           |
|                                                           | Operational water use                | B7   | MND                     | MND      | MND      | MND      | MND           |
| End of life                                               | Deconstruction, demolition           | C1   | 0                       | 0        | 0        | 0        | 0             |
|                                                           | Transport                            | C2   | 8,19E-06                | 2,06E-03 | 3,17E-13 | 3,02E-11 | 1,35E-04      |
|                                                           | Waste processing                     | C3   | 0                       | 0        | 0        | 0        | 0             |
|                                                           | Disposal                             | C4   | 4,44E-05                | 1,72E-02 | 5,17E-12 | 1,51E-10 | 5,43E-01      |
| Potential benefits and loads beyond the system boundaries | Reuse, recovery, recycling potential | D    | 0                       | 0        | 0        | 0        | 0             |

IRP = Potential human exposure efficiency relative to U235;  
ETP-fw = Potential comparative toxic unit for ecosystems;  
HTP-c = Potential comparative toxic unit for humans;

HTP-nc = Potential comparative toxic unit for humans; and  
SQP = Potential soil quality index.



## LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

| Parameters describing resource use, primary energy        |                                      |      | PERE     | PERM     | PERT     | PENRE    | PENRM    | PENRT    |
|-----------------------------------------------------------|--------------------------------------|------|----------|----------|----------|----------|----------|----------|
|                                                           |                                      |      | MJ       | MJ       | MJ       | MJ       | MJ       | MJ       |
| Product stage                                             | Raw material supply                  | A1   | AGG      | AGG      | AGG      | AGG      | AGG      | AGG      |
|                                                           | Transport                            | A2   | AGG      | AGG      | AGG      | AGG      | AGG      | AGG      |
|                                                           | Manufacturing                        | A3   | AGG      | AGG      | AGG      | AGG      | AGG      | AGG      |
|                                                           | Total (of product stage)             | A1-3 | 3,66E+00 | 0,00E+00 | 3,66E+00 | 1,41E+02 | 2,80E+01 | 1,69E+02 |
| Construction process stage                                | Transport                            | A4   | MND      | MND      | MND      | MND      | MND      | MND      |
|                                                           | Construction                         | A5   | MND      | MND      | MND      | MND      | MND      | MND      |
| Use stage                                                 | Use                                  | B1   | MND      | MND      | MND      | MND      | MND      | MND      |
|                                                           | Maintenance                          | B2   | MND      | MND      | MND      | MND      | MND      | MND      |
|                                                           | Repair                               | B3   | MND      | MND      | MND      | MND      | MND      | MND      |
|                                                           | Replacement                          | B4   | MND      | MND      | MND      | MND      | MND      | MND      |
|                                                           | Refurbishment                        | B5   | MND      | MND      | MND      | MND      | MND      | MND      |
|                                                           | Operational energy use               | B6   | MND      | MND      | MND      | MND      | MND      | MND      |
|                                                           | Operational water use                | B7   | MND      | MND      | MND      | MND      | MND      | MND      |
| End of life                                               | Deconstruction, demolition           | C1   | 0        | 0        | 0        | 0        | 0        | 0        |
|                                                           | Transport                            | C2   | 2,13E-04 | 0        | 2,13E-04 | 6,39E-02 | 0        | 6,39E-02 |
|                                                           | Waste processing                     | C3   | 0        | 0        | 0        | 0        | 0        | 0        |
|                                                           | Disposal                             | C4   | 1,54E-03 | 0        | 1,54E-03 | 2,36E-01 | 0        | 2,36E-01 |
| Potential benefits and loads beyond the system boundaries | Reuse, recovery, recycling potential | D    | 0        | 0        | 0        | 0        | 0        | 0        |

PERE = Use of renewable primary energy excluding renewable primary energy used as raw materials;  
 PERM = Use of renewable primary energy resources used as raw materials;  
 PERT = Total use of renewable primary energy resources;

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 resource

## LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

| Parameters describing resource use, secondary materials and fuels, use of water |                                      |      |     |                           |                           |                |
|---------------------------------------------------------------------------------|--------------------------------------|------|-----|---------------------------|---------------------------|----------------|
|                                                                                 |                                      |      | SM  | RSF                       | NRSF                      | FW             |
|                                                                                 |                                      |      | kg  | MJ<br>net calorific value | MJ<br>net calorific value | m <sup>3</sup> |
| Product stage                                                                   | Raw material supply                  | A1   | AGG | AGG                       | AGG                       | AGG            |
|                                                                                 | Transport                            | A2   | AGG | AGG                       | AGG                       | AGG            |
|                                                                                 | Manufacturing                        | A3   | AGG | AGG                       | AGG                       | AGG            |
|                                                                                 | Total (of product stage)             | A1-3 | 0   | 0                         | 0                         | 2,08E-02       |
| Construction process stage                                                      | Transport                            | A4   | MND | MND                       | MND                       | MND            |
|                                                                                 | Construction                         | A5   | MND | MND                       | MND                       | MND            |
| Use stage                                                                       | Use                                  | B1   | MND | MND                       | MND                       | MND            |
|                                                                                 | Maintenance                          | B2   | MND | MND                       | MND                       | MND            |
|                                                                                 | Repair                               | B3   | MND | MND                       | MND                       | MND            |
|                                                                                 | Replacement                          | B4   | MND | MND                       | MND                       | MND            |
|                                                                                 | Refurbishment                        | B5   | MND | MND                       | MND                       | MND            |
|                                                                                 | Operational energy use               | B6   | MND | MND                       | MND                       | MND            |
|                                                                                 | Operational water use                | B7   | MND | MND                       | MND                       | MND            |
| End of life                                                                     | Deconstruction, demolition           | C1   | 0   | 0                         | 0                         | 0              |
|                                                                                 | Transport                            | C2   | 0   | 0                         | 0                         | 1,54E-06       |
|                                                                                 | Waste processing                     | C3   | 0   | 0                         | 0                         | 0              |
|                                                                                 | Disposal                             | C4   | 0   | 0                         | 0                         | 2,40E-04       |
| Potential benefits and loads beyond the system boundaries                       | Reuse, recovery, recycling potential | D    | 0   | 0                         | 0                         | 0              |

SM = Use of secondary material;  
RSF = Use of renewable secondary fuels;

NRSF = Use of non-renewable secondary fuels;  
FW = Net use of fresh water

## LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

| Other environmental information describing waste categories |                                      |      |          |          |          |
|-------------------------------------------------------------|--------------------------------------|------|----------|----------|----------|
|                                                             |                                      |      | HWD      | NHWD     | RWD      |
|                                                             |                                      |      | kg       | kg       | kg       |
| Product stage                                               | Raw material supply                  | A1   | AGG      | AGG      | AGG      |
|                                                             | Transport                            | A2   | AGG      | AGG      | AGG      |
|                                                             | Manufacturing                        | A3   | AGG      | AGG      | AGG      |
|                                                             | Total (of product stage)             | A1-3 | 1,81E-04 | 2,07E-02 | 4,04E-05 |
| Construction process stage                                  | Transport                            | A4   | MND      | MND      | MND      |
|                                                             | Construction                         | A5   | MND      | MND      | MND      |
| Use stage                                                   | Use                                  | B1   | MND      | MND      | MND      |
|                                                             | Maintenance                          | B2   | MND      | MND      | MND      |
|                                                             | Repair                               | B3   | MND      | MND      | MND      |
|                                                             | Replacement                          | B4   | MND      | MND      | MND      |
|                                                             | Refurbishment                        | B5   | MND      | MND      | MND      |
|                                                             | Operational energy use               | B6   | MND      | MND      | MND      |
|                                                             | Operational water use                | B7   | MND      | MND      | MND      |
| End of life                                                 | Deconstruction, demolition           | C1   | 0        | 0        | 0        |
|                                                             | Transport                            | C2   | 3,99E-07 | 1,83E-06 | 5,65E-09 |
|                                                             | Waste processing                     | C3   | 0        | 0        | 0        |
|                                                             | Disposal                             | C4   | 1,47E-06 | 1,00E+00 | 2,71E-08 |
| Potential benefits and loads beyond the system boundaries   | Reuse, recovery, recycling potential | D    | 0        | 0        | 0        |

HWD = Hazardous waste disposed;  
 NHWD = Non-hazardous waste disposed;  
 RWD = Radioactive waste disposed

## LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

| Other environmental information describing output flows – at end of life |                                      |      |          |          |          |                       |                           |                             |
|--------------------------------------------------------------------------|--------------------------------------|------|----------|----------|----------|-----------------------|---------------------------|-----------------------------|
|                                                                          |                                      |      | CRU      | MFR      | MER      | EE                    | Biogenic carbon (product) | Biogenic carbon (packaging) |
|                                                                          |                                      |      | kg       | kg       | kg       | MJ per energy carrier | kg C                      | kg C                        |
| Product stage                                                            | Raw material supply                  | A1   | AGG      | AGG      | AGG      | AGG                   | AGG                       | AGG                         |
|                                                                          | Transport                            | A2   | AGG      | AGG      | AGG      | AGG                   | AGG                       | AGG                         |
|                                                                          | Manufacturing                        | A3   | AGG      | AGG      | AGG      | AGG                   | AGG                       | AGG                         |
|                                                                          | Total (Residual+GO)                  | A1-3 | 1,36E-02 | 3,72E-02 | 1,49E-03 | 9,91E-03              | 0                         | 0                           |
| Construction process stage                                               | Transport                            | A4   | MND      | MND      | MND      | MND                   | MND                       | MND                         |
|                                                                          | Construction                         | A5   | MND      | MND      | MND      | MND                   | MND                       | MND                         |
| Use stage                                                                | Use                                  | B1   | MND      | MND      | MND      | MND                   | MND                       | MND                         |
|                                                                          | Maintenance                          | B2   | MND      | MND      | MND      | MND                   | MND                       | MND                         |
|                                                                          | Repair                               | B3   | MND      | MND      | MND      | MND                   | MND                       | MND                         |
|                                                                          | Replacement                          | B4   | MND      | MND      | MND      | MND                   | MND                       | MND                         |
|                                                                          | Refurbishment                        | B5   | MND      | MND      | MND      | MND                   | MND                       | MND                         |
|                                                                          | Operational energy use               | B6   | MND      | MND      | MND      | MND                   | MND                       | MND                         |
|                                                                          | Operational water use                | B7   | MND      | MND      | MND      | MND                   | MND                       | MND                         |
| End of life                                                              | Deconstruction, demolition           | C1   | 0        | 0        | 0        | 0                     | 0                         | 0                           |
|                                                                          | Transport                            | C2   | 0        | 0        | 0        | 0                     | 0                         | 0                           |
|                                                                          | Waste processing                     | C3   | 0        | 0        | 0        | 0                     | 0                         | 0                           |
|                                                                          | Disposal                             | C4   | 0        | 0        | 0        | 0                     | 0                         | 0                           |
| Potential benefits and loads beyond the system boundaries                | Reuse, recovery, recycling potential | D    | 0        | 0        | 0        | 0                     | 0                         | 0                           |

CRU = Components for reuse;  
MFR = Materials for recycling

MER = Materials for energy recovery;  
EE = Exported Energy

## Scenarios and additional technical information

| Scenarios and additional technical information |                                                        |       |          |
|------------------------------------------------|--------------------------------------------------------|-------|----------|
| Scenario                                       | Parameter                                              | Units | Results  |
| A4 – Transport to the building site            | Module not declared                                    |       |          |
| A5 – Installation in the building              | Module not declared                                    |       |          |
| B2 – Maintenance                               | Module not declared                                    |       |          |
| B3 – Repair                                    | Module not declared                                    |       |          |
| B4 – Replacement                               | Module not declared                                    |       |          |
| B5 – Refurbishment                             | Module not declared                                    |       |          |
| Reference service life                         | Module not declared                                    |       |          |
| B6 – Use of energy;<br>B7 – Use of water       | Module not declared                                    |       |          |
| C1 to C4<br>End of life,                       | Waste for final disposal: Landfill                     | %     | 100      |
|                                                | Transport to waste processing: Truck, fuel consumption | kgkm  | 4.56E-03 |
|                                                | Transport to waste processing: Distance                | km    | 30       |
|                                                | Transport to waste processing: Capacity utilisation    | %     | 85       |
| Module D                                       | No loads or benefits associated with module D          |       |          |

The product is commercialized on a global scale; end-of-life scenario: assumed to occur globally, without geographic restriction.

## Interpretation

The results presented in Figure 1 correspond to 1 kilogram of 70817 Chemical Resistant Urethane High Solids. The figure illustrates the relative contributions of the assessed modules to various environmental impact categories and to primary energy use. Most impacts are associated with the raw materials used in the product (Module A1–A3).

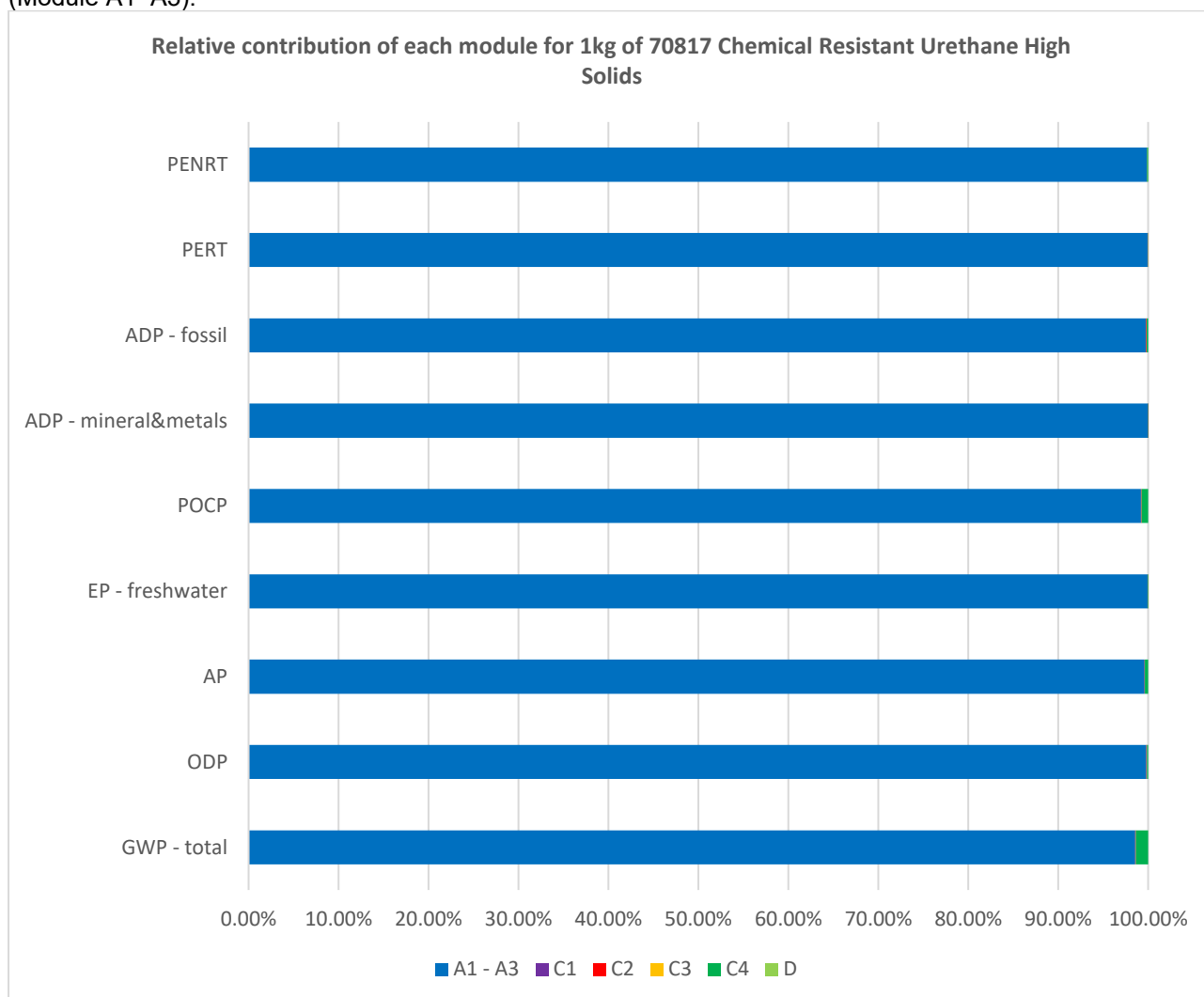


Figure 1: *Relative contribution of each module for 1 kilogram of 70817 Chemical Resistant Urethane High Solids.*

Raw materials and transport (56,56%), packaging (30,72%) and manufacturing consumption (12,72%) account for the total use of renewable primary energy resources (PERT). Raw materials and transport (94,12%) have the greatest impact on the use of non-renewable primary energy resources (PENRT), while the impact of the production process (due to plant consumption and product packaging) accounts for 5,88%. Electricity accounts for more than 30 % of the total energy use in the manufacturing process. Pre-product manufacturing (raw materials and transport) is the main contributor in all impact categories for A1-A3 modules, with an average of 69,95%.

GWP-biogenic indicator emissions are mainly caused by the packaging of raw materials, whose waste management is carried out in A1-A3 modules (fabrication stage). This explains why biogenic emissions do not follow “-1+1” biogenic CO<sub>2</sub> sequestration flow, as the product itself does not contain biogenic carbon.



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