siniat

# Siniat plasterboard **environmental product declaration**

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|---|---|
| **Programme:** | The International EPD® System<br>www.environdec.com |
| **Programme operator:** | EPD Australasia Limited<br>www.epd-australasia.com |
| **Registration nr.:** | S-P-07445 |
| **Valid from:** | 2023-05-16 |
| **Valid until:** | 2028-05-16 |
| **Geographical scope:** | Australia |

AUSTRALASIA EPD®
ENVIRONMENTAL PRODUCT DECLARATION

ECO PLATFORM EPD VERIFIED

In accordance with ISO 14025
and EN15804+A2:2019

etex inspiring ways of living

**Programme**
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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.

The results for EN15804+A1 compliant EPDs are not comparable with EN15804+A2 compliant studies as the methodologies are different. Results that are EN15804+A1 compliant are given in an annex to this document to assist comparability across EPDs.

**www.siniat.com.au**
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Cover image:
Courtesy of Oak & Orange

# what is an environmental **product declaration?**

**Etex, the manufacturer of Siniat products, recognises the importance of providing transparent and independently verified environmental impact information about our products.**

An Environmental Product Declaration (EPD) tells the environmental story of a product over its life cycle. It is like a nutritional label on a food product – it communicates information about the product. An EPD is science-based, independently verified, and globally recognised. It is based on international standards, registered in a central system and publicly available.

An EPD is based on a Life Cycle Assessment (LCA) which is a methodology for assessing environmental impacts associated with all the stages of the life cycle of a commercial product, process, or service. It involves collecting extensive data across the products' life cycles – from raw material extraction and processing (cradle), through the product's manufacture, distribution and use, to the recycling or final disposal of the materials composing it (grave).

An EPD shows that a company is serious about environmental sustainability. It also provides the data 'the market' needs to understand environmental issues and make truly sustainable decisions.

## An EPD can be used for any product or service to:

- show relevant environmental impacts, such as the product's carbon footprint
- describe its functional properties and the materials from which it is composed
- give comparable information in the same product group
- earn points in rating tools, such as Green Star (GBCA) and Infrastructure Sustainability (IS) rating scheme of the Infrastructure Sustainability Council (ISC).

## About this EPD

Siniat plasterboard products are for wall and ceiling linings. The products are manufactured at Etex plants in Australia (Altona Victoria, Bundaberg Queensland, and Matraville New South Wales).

This EPD is based on cradle-to-gate Life Cycle Assessment (LCA) with options, modules C1-C4 and module D (A1-A3, C, D and additional modules A4 and A5). 'Cradle' refers to the raw material extraction and 'the gate' is the gate of the plasterboard manufacturing facility as the product is ready to go out to customers.

Etex Australia, as the EPD owner has the sole ownership, liability, and responsibility for the EPD.

# contents

# Siniat — a **sustainable choice**

**In Australia, Siniat products are manufactured by Etex Australia, part of the Etex Group who are global leaders in lightweight construction materials.**

Siniat's quality range of products and systems designed for performance provide solutions for fire, water, sound and impact resistance, as well as space-giving, acoustic and aesthetic design for all commercial and residential construction projects.

Siniat's innovative lightweight construction systems include plasterboard, steel framing systems for walls and ceilings, decorative, acoustic wall & ceiling linings, façade linings and plaster finishing compounds and accessories for internal applications.

## our commitment to **a sustainable future**

The Siniat vision for sustainability is simple: to be the most sustainable provider of drywall solutions in our sector.

The Etex Group is committed to its 'Road to Sustainability 2030' - a roadmap for the future to help build a safer, sustainable future.

The five priority areas are:

- Health, safety and well-being
- Diversity, equity and inclusion
- Customer Engagement
- Circularity
- Decarbonisation.

A wide range of Siniat products are also GreenTag GreenRate Level A certified, and Etex Australia offers a Climate Active certified opt-in program for a range of Siniat plasterboard and metal products.

**Etex Australia is committed to our organisation's value Connect and Care; and we underscore our vision and commitment in our Sustainability Policy:**

We are responsible for our operational footprint


We work towards a carbon neutral future

We respect and care about our teammates, our customers, and our community.

## our **why**

We want to inspire people around the world to build living spaces that are ever more safe, sustainable, smart and beautiful.

## our **how**

We work as one, fostering a collaborative and caring culture, a pioneering spirit and a passion to always do better for our customers.

## our **what**

Building on our experience and global market needs, we strive to improve our customers quality of living with ever more effective lightweight solutions.

Image credit: Oak & Orange

# our **facilities**

**Siniat is a major supplier to the lightweight construction industry and a one-stop-shop for a complete wall framing solution.**

Our company employs over 340 teammates throughout the country. We have plasterboard manufacturing facilities in Matraville (Sydney, NSW), Altona (Melbourne, Vic) and Bundaberg (Qld). Our compound manufacturing is based in Altona and our metal profile lines are in Beenleigh (Brisbane, Qld).

Our products are distributed via a national distribution network comprising of company owned retail stores, independently owned and operated Plastamasta stores, and other independent retailers.

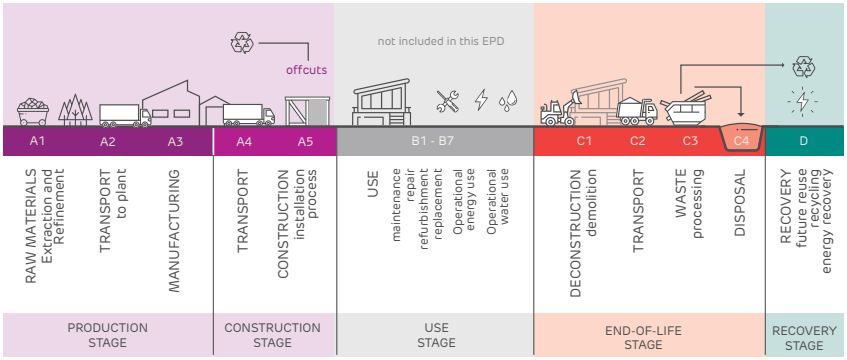

Our manufacturing facilities are certified and independently audited to the stringent requirements of of management systems standards including:

- ISO 9001:2015 Quality
- ISO 14001:2015 Environment
- ISO 45001:2018 Health & Safety

# products considered in this **EPD**

**Siniat plasterboards suit a wide range of standard applications including internal wall linings and ceilings. Some plasterboards have special capabilities such as water resistance, sound resistance, fire resistance, impact resistance, and mould resistance.**

This EPD covers 20 different types of Siniat plasterboards manufactured by Etex Australia Pty Ltd across our manufacturing sites in Matraville, Altona and Bundaberg. The EPD assessment for these products covers the full life cycle including the recovery stage, but excludes the use stage.




**masta**shield 10mm & 13mm

Standard plasterboard made from a core of gypsum sandwiched between two layers of heavy duty recycled paper.

**span**shield 10mm

Plasterboard for use as an internal wall and ceiling lining, particularly suited as an internal ceiling lining.

**water**shield 10mm & 13mm

Wet area plasterboard used as a water-resistant wall and ceiling plasterboard lining and as a substrate for tiles.

**sound**shield 10mm & 13mm

Plasterboard for use in wall and ceiling systems to provide sound insulation.

**opal** 10mm

Plasterboard made with a special pre-primed, heavy duty lining paper and a high-density gypsum core for impact and sound resistance

**fire**shield 13mm & 16mm

A dense fire-resistant plasterboard with improved impact and acoustic resistance due to a higher density gypsum core.

**fire**shield H 13mm

A dense fire-resistant plasterboard with improved impact and acoustic resistance due to a higher density gypsum core.

**multi**shield 13mm & 16mm

A fire, water and mould resistant plasterboard. Used in wet areas and the Interhome system.

**curve**shield 6.5mm

Thin and flexible plasterboard used for internal wall and ceiling linings where very tight curves are required.

**tru**rock 13mm & 16mm

Multifunctional plasterboard with a high-density core and glass fibre reinforcement for impact, water and fire resistance.

**tru**rock HD 13mm & 16mm

Multifunctional plasterboard with a high-density core and glass fibre reinforcement for impact, water and fire resistance.

**shaft**liner 25mm

Plasterboard for elevator systems and other shafts and ducts in multi-level constructions. Also used in the Interhome system.

**inter**shield 25mm

A thick, solid plasterboard with sound, fire, water and mould resistance capabilities.

- Water resistant
- Sound resistant
- Fire resistant
- Design
- Mould resistant
- Impact resistant

Image: Courtesy of Oak & Orange

# how to use **this EPD**

**Etex Australia has developed this EPD to help showcase the environmental credentials of their Siniat-branded plasterboard products. The EPD also provides life cycle data for calculating the impacts of plasterboard products at a building level.**

This data may be used by specifiers and developers to calculate and present the environmental impacts of particular construction projects.

This EPD can allow the represented products to qualify for points under green rating tools, such as the Green Star rating tool of the Australian Green Building Council (GBCA).

*"The use of Environmental Product Declarations (EPDs) in Green Star aims to increase the supply of products and materials with publicly available EPDs that have been completed in accordance with recognised international standards. It does so by incentivising the use of such products and materials in Green Star rated buildings and fitouts."*

Australian Green Building Council (GBCA)

**The remainder of this EPD comprises 2 parts**

**Part 01** is the Technical Information for the method, assumptions and descriptions of environmental indicators.

**Part 02** contains the results from modelling the life cycle assessment of the different products.

# technical **information**

Products manufactured and systems designed by Etex Australia Pty Ltd and branded Siniat, are produced in accordance with the Building Code of Australia and relevant Australian Standards.

Siniat plasterboard products made in Australia have been independently certified by Global GreenTag to GreenRate Level A. Siniat's certified plasterboard products can achieve 100% Green Star points for sustainable building projects.

Altona, Matraville and Bundaberg manufacturing plants are certified to the most current versions of the ISO management system standards for Health & Safety, Quality and Environmental Management: ISO 9001:2015 certification for quality management systems, ISO 14001:2015 certification for environmental management systems and ISO 45001:2018 certification for health & safety management systems.

A range of Siniat plasterboard and metal products made in Australia are available under the Siniat Carbon Neutral Opt-In program to help you meet your sustainability goals. This opt-in program is certified under the Climate Active Standard.

Visit siniat.com.au to find out more.

## declared **unit:** 1 m² of installed plasterboard.

### Table 1. industry classification

| Product type | Classification | Code | Category |
|---|---|---|---|
| **Plasterboard** | UN CPC Ver.2 | 37520 | Articles of plaster or of compositions based on plaster |
| | ANZSIC 2006 | C203200 | Plaster product manufacturing |

# content **declaration**

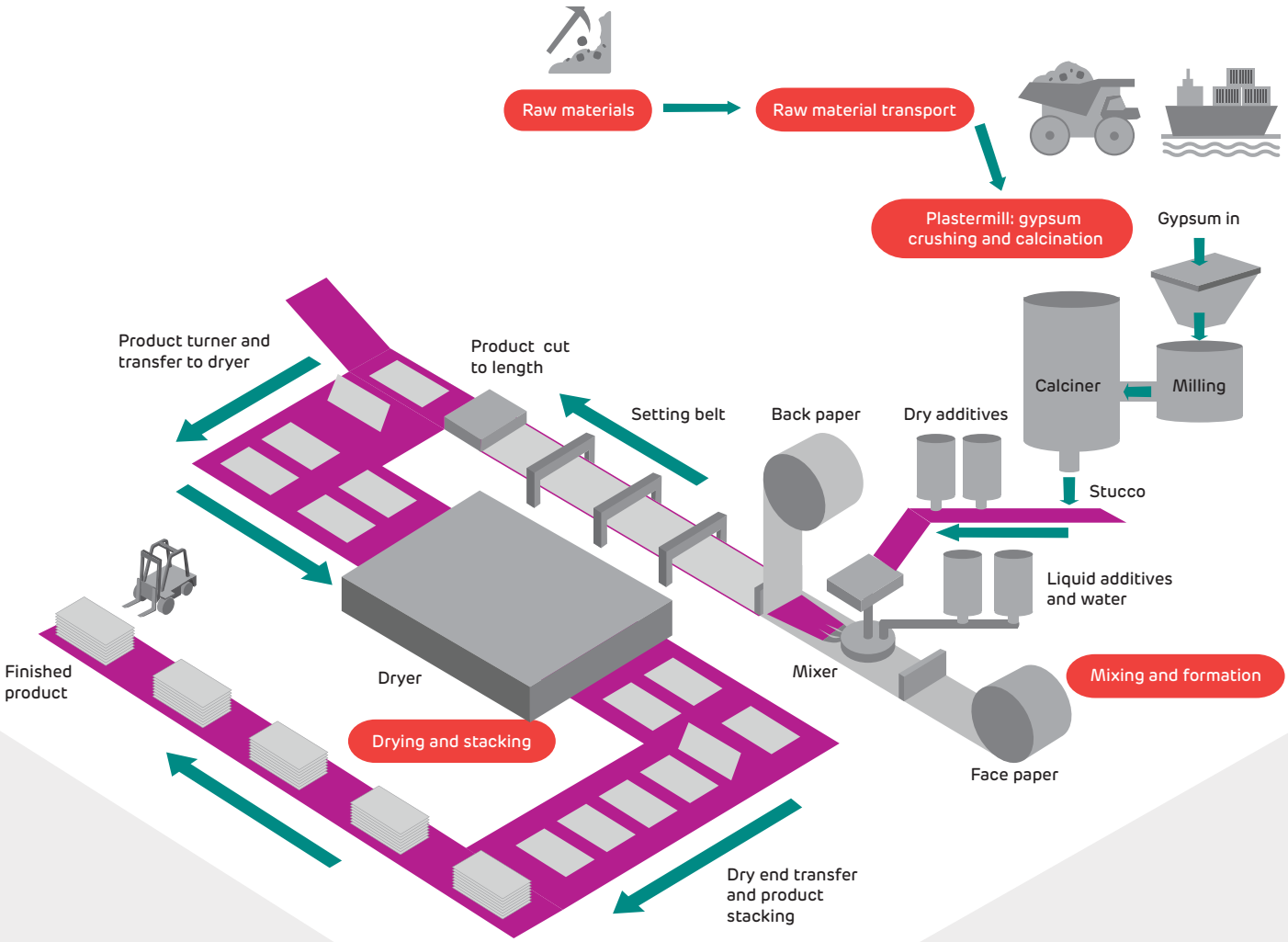
**Table 2. content declaration**

| | Thickness | Average board weight (kg/m²) | Packaging – gluts (kg/m²) | Packaging – cardboard (kg/m²) | Gypsum | Starch | Paper | Flyash | Fibreglass | Vermiculite | Water resistant additive | Other additives |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Plant total / avg** | | 7.5 | 8.76E-02 | 9.32E-05 | 92.3% | 0.2% | 4.4% | 1.0% | 0.1% | 0.6% | 0.1% | 1.4% |
| **masta**shield | 10mm | 6.2 | 7.24E-02 | 7.70E-05 | 93.3% | 0.2% | 5.0% | 0.0% | 0.0% | 0.0% | 0.0% | 1.4% |
| **masta**shield | 13mm | 8.3 | 9.69E-02 | 1.03E-04 | 94.3% | 0.2% | 4.1% | 0.0% | 0.0% | 0.0% | 0.0% | 1.4% |
| **span**shield | 10mm | 6.6 | 7.71E-02 | 8.20E-05 | 93.1% | 0.2% | 5.3% | 0.0% | 0.0% | 0.0% | 0.0% | 1.4% |
| **water**shield | 10mm | 7.6 | 8.88E-02 | 9.44E-05 | 93.1% | 0.3% | 4.4% | 0.0% | 0.0% | 0.0% | 0.8% | 1.4% |
| **water**shield | 13mm | 9.5 | 1.11E-01 | 1.18E-04 | 94.5% | 0.2% | 3.4% | 0.0% | 0.0% | 0.0% | 0.6% | 1.3% |
| **sound**shield | 10mm | 8.5 | 9.93E-02 | 1.06E-04 | 93.2% | 0.2% | 4.2% | 0.0% | 0.0% | 0.0% | 0.0% | 2.4% |
| **sound**shield | 13mm | 12.3 | 1.44E-01 | 1.53E-04 | 87.8% | 0.2% | 2.9% | 6.1% | 0.3% | 1.6% | 0.0% | 1.1% |
| **opal** | 10mm | 8.4 | 9.81E-02 | 1.04E-04 | 93.5% | 0.2% | 5.0% | 0.0% | 0.0% | 0.0% | 0.0% | 1.2% |
| **fire**shield | 13mm | 10.7 | 1.25E-01 | 1.33E-04 | 85.9% | 0.2% | 3.2% | 5.9% | 0.3% | 3.4% | 0.0% | 1.1% |
| **fire**shield | 16mm | 13.1 | 1.53E-01 | 1.63E-04 | 86.2% | 0.2% | 2.5% | 5.7% | 0.3% | 4.0% | 0.0% | 1.1% |
| **fire**shield **H** | 13mm | 12.0 | 1.40E-01 | 1.49E-04 | 86.0% | 0.2% | 2.8% | 6.1% | 0.3% | 3.5% | 0.0% | 1.1% |
| **multi**shield | 13mm | 10.8 | 1.26E-01 | 1.34E-04 | 84.9% | 0.3% | 2.8% | 5.5% | 0.3% | 3.0% | 1.3% | 1.8% |
| **multi**shield | 16mm | 13.1 | 1.53E-01 | 1.63E-04 | 82.0% | 0.3% | 2.9% | 6.3% | 0.4% | 4.6% | 1.7% | 1.9% |
| **curve**shield | 6.5mm | 4.8 | 2.57E-02 | 2.73E-05 | 88.6% | 0.6% | 8.9% | 0.0% | 0.0% | 0.0% | 0.0% | 1.9% |
| **tru**rock | 13mm | 12.4 | 1.45E-01 | 1.54E-04 | 84.6% | 0.2% | 3.6% | 5.9% | 0.3% | 3.4% | 0.7% | 1.3% |
| **tru**rock | 16mm | 14.8 | 1.73E-01 | 1.84E-04 | 84.7% | 0.2% | 2.7% | 6.0% | 0.3% | 4.1% | 0.7% | 1.3% |
| **tru**rock **HD** | 13mm | 12.4 | 1.45E-01 | 1.54E-04 | 82.2% | 0.2% | 3.4% | 5.5% | 2.7% | 3.2% | 1.2% | 1.6% |
| **tru**rock **HD** | 16mm | 14.8 | 1.73E-01 | 1.84E-04 | 84.7% | 0.2% | 3.4% | 5.7% | 0.2% | 3.8% | 1.0% | 1.1% |
| **shaft**liner | 25mm | 21.4 | 2.50E-01 | 2.66E-04 | 86.3% | 0.3% | 2.3% | 6.1% | 0.3% | 3.6% | 0.0% | 1.1% |
| **inter**shield | 25mm | 21.0 | 2.45E-01 | 2.61E-04 | 86.8% | 0.3% | 2.3% | 5.7% | 0.3% | 3.4% | 0.0% | 1.2% |

Siniat products are delivered with packaging. Etex uses 1.17E-02 kg plasterboard gluts and 1.24E-05 kg pack cards (cardboard) per kg of Siniat products, respectively

# dangerous **substances**

None of the products in this EPD contain any materials included on the Candidate List of substances of very high concern under the European REACH Regulation (EC 1907 / 2006) at a concentration greater than 0.1% weight/weight.




# manufacturing **process**

**The manufacture of plasterboard starts with processing of gypsum in the plastermill, where gypsum is ground, and converted to stucco by extracting water (as vapour) under a calcination process.**

Plasterboard is then formed in a continuous production process, by mixing the stucco with water and additives, with the resultant slurry sandwiched between two layers of continuous paper. The resultant board sets via rehydration of the plaster core; that is, chemically re-binding water molecules back into gypsum crystals in the board. The plasterboard is moved via conveyor to the cutting station where it is cut to length and enters the drying process.

After drying, the plasterboard sheets are stacked into packs, and moved to the warehouse for storage, ready for distribution.

# system **boundaries**

As shown in the table below, this EPD is of the 'cradle-to-gate' type with options as shown in Table 3. The options include transport to customer (module A4), installation (module A5), end-of-life (modules C1-C4) and recycling potential (module D). Other life cycle stages (modules B1-B7) are either not relevant or dependent on particular scenarios and best modelled at the building level.

**Table 3. Modules included in the scope of the EPD**

| Module | Production stage | | | Construction process stage | | Use stage | | | | | | | End-of-life | | | | Resource recovery |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Raw material supply | Transport | Manufacturing | Transport | Construction Installation | Use | Maintenance | Repair | Replacement | Refurbishment | Operational energy use | Operational water use | Deconstruction / demolition | Transport | Waste processing | Disposal | Future reuse, recycling or energy recovery potential |
| | A1 | A2 | A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
| Module declared | X | X | X | X | X | ND | ND | ND | ND | ND | ND | ND | X | X | X | X | X |
| Geography | GLO | GLO | AU | AU | AU | - | - | - | - | - | - | - | AU | AU | AU | AU | AU |
| Specific data | >90% | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Variation: products | <10% | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Variation: sites | <10%* | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

X = included in the EPD; ND = Module not declared (such a declaration shall not be regarded as an indicator result of zero), *except for two groups (up to 11.4% for variation in the Module A1-A3 impacts for IPCC AR5 GWP impact category)

## Module A: Production stage

The production stage includes the environmental impacts associated with raw materials extraction and processing of inputs, transport to, between and within the manufacturing site, manufacturing of average product at the exit gate of the manufacturing site and transport of product to customer.

**Module A1** (raw material supply) includes the mining of gypsum in Australia, production of paper in Australia, production of additives globally, generation and transmission of electricity in Australia (in three individual states), and generation of thermal energy from natural gas.

**Module A2** (transportation) includes transport of gypsum via road to port and shipping in a bulk carrier to Sydney (for the Matraville production site), Melbourne (for the Altona production site) and Bundaberg (for the Bundaberg production site). Transport from port to production plant is via truck. Transport for paper and all other additives is a combination of truck and sea freight.

**Module A3** (manufacturing) includes production of plasterboard and ancillary materials and on-site transport by forklift.

## Module A: Construction stage

**Module A4** (distribution) includes distribution from Etex manufacturing sites in Matraville, Altona, and Bundaberg through its distribution centres. An average distribution model is applied, which includes both distribution through builder's merchants and direct delivery by Etex to construction sites in major urban centres. Energy use by merchants and retailers is excluded from the scope of this EPD.

**Module A5** (installation) includes the materials used to install the plasterboard (jointing compound, jointing tape, and screws) and the production and disposal of plasterboard offcuts from installation, including a combination of plasterboard recycling (for gypsum recovery) and landfill.

During plasterboard installation, 15% is lost as offcuts.

In Australia, the resource recovery and recycling rate for masonry materials was 82% in 2018/19 (Blue Environment Pty Ltd, 2020). According to this estimation, it is modelled as 82% of the plasterboard offcuts are sent to industrial recycling facilities, where plasterboard is shredded to separate gypsum and paper, and the rest (18%) is landfilled. The recovered gypsum is largely used to produce agricultural gypsum fertiliser while the paper is sent for recycling.

The transport distance to industrial recycling and landfill facilities is estimated to be 83 km with a capacity utilisation of 85%. All values are based on Etex's internal documentation and conversation with plasterboard waste handlers, which are conservative.

### Table 4. installation materials required per $m^2$ of plasterboard

| Product | Amount per $m^2$ of plasterboard | Unit | Source |
|---|---|---|---|
| **Jointing compound** | 0.25 | kg | Etex internal documentation |
| **Jointing tape** | 0.0105 | kg | |
| **Screws** | 0.0208 | kg | |

## Module C: End-of-Life stage

When a building reaches its end-of-life, plasterboard is disposed. In Australia, the waste materials (including plasterboards) are typically disposed in landfill or recycled. However, due to data limitations, in this EPD it is assumed that all plasterboard waste goes straight to landfill at end-of-life.

**Module C1** (deconstruction/demolition) includes demolition of the whole building including plasterboards, using a 100-kW construction excavator.

**Module C2** (transport to end-of-life) includes transport of waste plasterboard to landfill after demolition of the wall or building where it was used.

**Module C3** (waste processing) includes the processing of plasterboard waste for reuse or recycling. Due to data limitations, as a conservative scenario in this model it is assumed that all plasterboard waste goes straight to landfill at end-of-life, meaning there is no waste processing involved. Therefore, waste processing impacts have been modelled as zero for this EPD.

**Module C4** (disposal) includes plasterboard end-of-life which is landfill.

### Table 5. End of life scenarios for products

| End-of-life scenarios | Unit<br>*(expressed per declared unit of component products or materials by type of material)* |
|---|---|
| **Excavator** | 1$m^2$ plasterboard collected with mixed construction waste |
| **Recovery system specified by type** | 1$m^2$ for landfill |
| **Disposal specified by type** | 1$m^2$ plasterboard going to landfill |
| **Assumptions for scenario development** | Diesel consumption for dismantling plasterboard after use with an Excavator (100kW): 0.172g per kg of plasterboard.<br>All plasterboard waste is transported from construction site to landfill via truck. Transport distance is assumed to be 50km with a capacity utilisation of 85%. |

## Module D: Benefits and loads beyond the system boundary

**Module D** (reuse-recovery-recycling potential) includes plasterboard that is fed into a second life cycle. This module is modelled considering the recovered gypsum via shredding the plasterboard offcuts. While it is assumed that gypsum is fully recovered, it is also assumed that this will replace the virgin gypsum used in the production of agricultural gypsum fertiliser.

For every 1 kg of gypsum in the product, there is an additional 0.15 kg of gypsum required (which goes to waste in A5), of which 82% (0.123 kg) is recycled.

If the inputs are 100% virgin gypsum, then over the life cycle, for each kg of gypsum in the product (1.15 kg of virgin material in total), of which 0.123 kg is recycled and 1.027 kg is landfilled. Hence, for each kg of gypsum in the product composition, 0.123 kg of gypsum is credited in module D.

# life cycle inventory (LCI) **data and assumptions**

**Primary data was used for all manufacturing operations up to the factory gate, including plastermill and plasterboard plant. Primary data for plastermill and plasterboard plant operations was sourced from the period 01 July 2020 to 30 June 2021. Background data was used for input materials sourced from other suppliers.**

All data in the background system was from the GaBi Professional Life Cycle Inventory Database 2021 (Sphera 2021). Most datasets have a reference year between 2016 and 2021 and all fall within the 10-year limit allowable for generic data under EN 15804.

## Upstream data

With the exception of energy and water use (which correctly reflect Australian conditions), minor upstream (supply chain) data used was European/US due to a lack of consistent LCI data for Australia at the time this study was conducted – for example, additives such as fibreglass, water resistant additives and starch.

## Electricity

- Specific electricity mix per region/site

Electricity consumption was modelled using the specific electricity mix per region/site in Australia (NSW, VIC and QLD). The region specific electricity data was based on background data from the GaBi Life Cycle Inventory Database 2021 (Sphera, 2021). The consumption mix in NSW, VIC and QLD resulting in GWP of 1.02, 1.23 and 1.06 kg $CO_2$ eq. per kWh, respectively.

## Recycling

- Plasterboard and paper wastes from the manufacturing process are sent for recycling, as are packcards (cardboard packaging) from installation.
- 82% of the plasterboard offcuts from installation are sent to industrial recycling facilities, where plasterboard is shredded to separate gypsum and paper. The recovered gypsum is largely used to produce agricultural gypsum fertiliser while the paper is sent for recycling.

## Transport

Where raw material transport data for each manufacturing site and plasterboard waste transport data (from construction site to landfill) were not available, a standard value of 50 km was used.

## Explanation of Average / Representative Products & Variation

Due to the product being produced between three production plants across Australia, results are calculated as an average weighted by production volume over the full reference period.

## Cut-off criteria

Cut-off criteria are applied for paper waste produced during plasterboard production and installation waste processing. The subsequent life of the paper waste is not considered in this work. The impacts associated with the production of gluts (for packaging) are excluded in this work given their very high reuse rates, but their weights are considered when estimating transportation-related impacts.

Personnel is excluded as per section 4.3.1 in the PCR (EPD International, 2021). thinkstep-anz consistently excludes environmental impacts from infrastructure, construction, production equipment, and tools that are not directly consumed in the production process, ('capital goods') regardless of potential significance. High-quality infrastructure-related data isn't always available and there is no clear cut-off for what to include. For this reason, capital goods data are applied to LCA studies inconsistently. This is expected to lead to reduced consistency and comparability of EPDs. Capital goods were previously excluded from EPDs, thus including capital goods in current EPDs would further reduce their comparability.

## Allocation

Where subdivision of processes was not possible, allocation rules listed in PCR chapter 6.4 have been applied. No secondary materials are used in the production processes. Allocation for input materials that contain secondary material occurs in the upstream datasets.

End-of-life allocation follows the requirements of EN15804:2012+A2:2019 § 6.4.3.3 and generally follows the polluter pays principle.

# environmental **impact indicators**

An introduction to each environmental impact indicator is provided below. The best-known effect of each indicator is listed to the right of its name. The abbreviation corresponds to the labels in the following tables.

**Climate change (global warming potential) (GWP-total, GWP-fossil, GWP-biogenic, GWP-luluc)**

A measure of greenhouse gas emissions, such as $CO_2$ and methane. These emissions are causing an increase in the absorption of radiation emitted by the sun, increasing the natural greenhouse effect. This may in turn have adverse impacts on ecosystem health, human health and material welfare. The Global Warming Potential (GWP) includes four sub indicators: total (GWPt), fossil (GWPf), biogenic (GWPb), and land-use and land-use change (GWPluluc).

**Ozone depletion potential (ODP)**

Depletion of the ozone leads to higher levels of UVB ultraviolet rays reaching the earth's surface with detrimental effects on humans and plants. The Ozone Depletion Potential is a measure of air emissions that contribute to the depletion of the stratospheric ozone layer.

**Acidification potential (AP)**

Acidification Potential is a measure of emissions that cause acidifying effects to the environment. A molecule's acidification potential indicates its capacity to increase the hydrogen ion (H+) concentration in the presence of water, thus decreasing the pH value. Potential effects include fish mortality, forest decline, and the deterioration of building materials.

**Eutrophication potential (EP-fw, EP-m, EP-t)**

Eutrophication covers all potential impacts of excessively high levels of macronutrients, the most important of which are nitrogen (N) and phosphorus (P). In aquatic ecosystems where this term is mostly applied, this typically describes a degradation in water quality. Eutrophication can result in an undesirable change in the type of species that flourish and an increase in the production of biomass. As the decomposition of biomass consumes oxygen, eutrophication may decrease the available oxygen level in the water column and threaten fish in their ability to respire.

**Photochemical ozone formation potential (POFP)**

Photochemical Ozone Formation Potential gives an indication of the emissions from precursors that contribute to ground level smog formation, mainly ozone ($O_3$). Ground level ozone may be harmful to human health and ecosystems and may also damage crops. These emissions are produced by the reaction of volatile organic compounds (VOCs) and carbon monoxide in the presence of nitrogen oxides and UV light.

**Abiotic resource depletion (ADP-mm, ADP-f)**

The consumption of non-renewable resources decreases the availability of these resources and their associated functions in the future. Depletion of mineral resources and non-renewable energy resources are reported separately. Depletion of mineral resources is assessed based on total reserves.

**Water depletion potential (WDP)**

Water scarcity is a measure of the stress on a region due to water consumption.

The results tables describe the different environmental indicators for each product per declared unit, for each declared module. The first section of each table contains the environmental impact indicators, describing the potential environmental impacts of the product as shown in Table 11. The second section shows the resource indicators, describing the use of renewable and non-renewable material resources, renewable and non-renewable primary energy and water, as shown in Table 12. The final section of each table displays the waste and other outputs, as shown in Table 13.

For all products, the following indicators are not relevant, hence result in zero values:

- Components for re-use (CRU) is zero since there are none produced
- Use of secondary material (SM) is zero since there are none used
- Use of renewable secondary fuels (RSF) is zero since there are none used
- Use of non-renewable secondary fuels (NRSF) is zero since there are none used
- Materials for energy recovery (MER) is zero since no credits are claimed for any incinerated wastes, applying the cut-off approach
- Exported electrical energy (EEE) is zero since there is none produced
- Exported thermal energy (EET) is zero since there is none produced.

## Table 6. Indicators for life cycle impact assessment

| Impact category | Abbreviation |
|---|---|
| **Climate change – total** | GWP-total |
| **Climate change – fossil** | GWP-fossil |
| **Climate change – biogenic** | GWP-biogenic |
| **Climate change – land use and land use change** | GWP-luluc |
| **Ozone depletion** | ODP |
| **Acidification** | AP |
| **Eutrophication aquatic freshwater** | EP-fw |
| **Eutrophication aquatic marine** | EP-m |
| **Eutrophication terrestrial** | EP-t |
| **Photochemical ozone formation** | POFP |
| **Depletion of abiotic resources – minerals and metals*** | ADP-m&m |
| **Depletion of abiotic resources – fossil fuels*** | ADP-f |
| **Water Depletion Potential*** | WDP |

### Environmental impacts

The reported impact categories represent impact potentials, i.e., they are approximations of environmental impacts that could occur if the emissions would (a) follow the underlying impact pathway and (b) meet certain conditions in the receiving environment while doing so. The environmental impact results are therefore relative expressions only and do not predict actual impacts, the exceeding of thresholds, safety margins, or risks.

Long-term emissions (>100 years) are not taken into consideration in the impact estimate.

*The results of this environmental impact indicator should be used with care as the uncertainties on these results are high as there is limited experience with the indicator.

## Table 7. Additional Environmental Impact Indicators

| Impact category | Abbreviation |
|---|---|
| **Climate Change**** | GWP-GHG |
| **Particulate Matter emissions** | PM |
| **Ionising Radiation – human health***** | IRP |
| **Eco-toxicity (freshwater)*** | ETP-fw |
| **Human Toxicity, cancer*** | HTP-c |
| **Human Toxicity, non-cancer*** | HTP-nc |
| **Land use related impacts / soil quality*** | LU |

### Additional environmental impact indicators

Optional environmental impact categories provide further information on environmental impacts.

**This indicator is calculated using the characterisation factors from the IPCC AR5 report (IPCC 2013) and has been included in the EPD following the PCR.

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

## Table 8. Life cycle inventory indicators on use of resources

| Indicator | Abbreviation |
|---|---|
| Use of renewable primary energy excluding renewable primary energy resources used as raw materials | PERE |
| Use of renewable primary energy resources used as raw materials | PERM |
| Total use of renewable primary energy resources | PERT |
| Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials | PENRE |
| Use of non-renewable primary energy resources used as raw materials | PENRM |
| Total use of non-renewable primary energy resources | PENRT |
| Use of secondary material | SM |
| Use of renewable secondary fuels | RSF |
| Use of non-renewable secondary fuels | NRSF |
| Total use of net fresh water | FW |

### Resource Use indicators

The resource use indicators describe the use of renewable and non-renewable material resources, renewable and non-renewable primary energy and water.

Note: Water consumption: The FW indicator in the EPD results tables reports consumption (i.e. net use) of 'blue water' (which includes river water, lake water and ground water). This indicator deliberately excludes consumption of 'green water' (rain water), as net loss should be interpreted as any additional water loss beyond what would occur in the original, natural system.

## Table 9. Life cycle inventory indicators on waste categories and output flows

| Indicator | Abbreviation |
|---|---|
| Hazardous waste disposed | HWD |
| Non-hazardous waste disposed | NHWD |
| Radioactive waste disposed | RWD |
| Components for reuse | CRU |
| Materials for energy recovery | MER |
| Materials for recycling | MFR |
| Exported electrical energy | EEE |
| Exported thermal energy | EET |

For plantation softwood forestry, the natural system might be a native forest or a grassland (Quinteiro et al. 2015).

### Waste and Output Flows

Waste indicators describe waste generated within the life cycle of the product. Waste is categorised by hazard class, End-of-Life fate and exported energy content.

## Table 10. Environmental Impact Indicators in accordance with EN15804+A1

| Indicator | Abbreviation |
|---|---|
| Global warming potential | GWP |
| Ozone depletion potential | ODP |
| Acidification potential | AP |
| Eutrophication potential | EP |
| Photochemical ozone creation potential | POCP |
| Abiotic depletion potential for non-fossil resources | ADPE |
| Abiotic depletion potential for fossil resources | ADPF |

### Environmental impact indicators EN15804+A1

EN 15804+A1 Core environmental impact categories aid comparison and backwards compatibility with rating tools.

## Table 11. Product Groups

| Group Number | No. of products | Product | Board thickness | Average board weight [kg/m²] | Location |
|---|---|---|---|---|---|
| **Group 1:** **masta**shield **10 mm** | 3 | mastashield | 10mm | 6.2 | Matraville |
| | | mastashield | 10mm | | Altona |
| | | mastashield | 10mm | | Bundaberg |
| **Group 2:** **masta**shield **13 mm** | 3 | mastashield | 13mm | 8.3 | Matraville |
| | | mastashield | 13mm | | Altona |
| | | mastashield | 13mm | | Bundaberg |
| **Group 3:** **span**shield **10 mm** | 3 | spanshield | 10mm | 6.6 | Matraville |
| | | spanshield | 10mm | | Altona |
| | | spanshield | 10mm | | Bundaberg |
| **Group 4:** **water**shield **10 mm** | 3 | watershield | 10mm | 7.6 | Matraville |
| | | watershield | 10mm | | Altona |
| | | watershield | 10mm | | Bundaberg |
| **Group 5:** **water**shield **13 mm** | 3 | watershield | 13mm | 9.5 | Matraville |
| | | watershield | 13mm | | Altona |
| | | watershield | 13mm | | Bundaberg |
| **Group 6:** **sound**shield **10 mm** | 2 | soundshield | 10mm | 8.5 | Matraville |
| | | soundshield | 10mm | | Altona |
| **Group 7:** **sound**shield **13 mm** | 3 | soundshield | 13mm | 12.3 | Matraville |
| | | soundshield | 13mm | | Altona |
| | | soundshield | 13mm | | Bundaberg |
| **Group 8:** **Opal 10 mm** | 1 | OPAL | 10mm | 8.4 | Matraville |
| **Group 9:** **fire**shield **13 mm** | 3 | fireshield | 13mm | 10.7 | Matraville |
| | | fireshield | 13mm | | Altona |
| | | fireshield | 13mm | | Bundaberg |
| **Group 10:** **fire**shield **16 mm** | 3 | fireshield 16 | 16mm | 13.1 | Matraville |
| | | fireshield 16 | 16mm | | Altona |
| | | fireshield 16 | 16mm | | Bundaberg |
| **Group 11:** **fire**shield **H 13 mm** | 2 | fireshield Heavy | 13mm | 12.0 | Matraville |
| | | fireshield Heavy | 13mm | | Altona |
| **Group 12:** **tru**rock **13 mm** | 3 | trurock | 13mm | 12.4 | Matraville |
| | | trurock | 13mm | | Altona |
| | | trurock | 13mm | | Bundaberg |

### Table 11 continued

| Group Number | No. of products | Product | Board thickness | Average board weight [kg/m²] | Location |
|---|---|---|---|---|---|
| **Group 13:** **tru**rock **16 mm** | 3 | trurock | 16mm | 14.8 | Matraville |
| | | trurock | 16mm | | Altona |
| | | trurock | 16mm | | Bundaberg |
| **Group 14:** **tru**rock **HD 13 mm** | 2 | trurock HD | 13mm | 12.4 | Matraville |
| | | trurock HD | 13mm | | Altona |
| **Group 15:** **tru**rock **HD 16 mm** | 1 | trurock HD | 16mm | 14.8 | Matraville |
| **Group 16:** **shaft**liner/ **inter**shield **25 mm** | 3 | shaftliner | 25mm | 20.8 | Matraville |
| | | intershield | 25mm | | Matraville |
| | | shaftliner | 25mm | | Altona |
| **Group 17:** **multi**shield **13 mm** | 1 | MultiShield | 13mm | 10.8 | Altona |
| **Group 18:** **multi**shield **16 mm** | 2 | MultiShield | 16mm | 13.1 | Altona |
| | | MultiShield | 16mm | | Bundaberg |
| **Group 19:** **curve**shield **6.5 mm** | 1 | CurveShield | 6.5mm | 4.8 | Altona |

# **module A1-A3** LCA results based on EN15804+A2

## A1-A3: core environmental impact indicators

**Table 12. Core environmental impact indicators for 1 m² of product for groups 1-6**

| PARAMETER | UNIT | **masta**shield 10 mm | **masta**shield 13 mm | **span**shield 10 mm | **water**shield 10 mm | **water**shield 13 mm | **sound**shield 10 mm* |
|---|---|---|---|---|---|---|---|
| **GWP** | kg $CO_2$-eq. | 1.40E+00 | 1.92E+00 | 1.42E+00 | 2.11E+00 | 2.66E+00 | 2.23E+00 |
| **GWPf** | kg $CO_2$-eq. | 2.05E+00 | 2.64E+00 | 2.10E+00 | 2.82E+00 | 3.40E+00 | 2.96E+00 |
| **GWPb** | kg $CO_2$-eq. | -6.57E-01 | -7.27E-01 | -6.77E-01 | -7.06E-01 | -7.41E-01 | -7.31E-01 |
| **GWPluluc** | kg $CO_2$-eq. | 3.42E-03 | 4.15E-03 | 3.25E-03 | 3.36E-03 | 4.18E-03 | 3.17E-03 |
| **ODP** | kg CFC-11-eq. | 1.26E-11 | 1.55E-11 | 1.33E-11 | 1.68E-11 | 1.89E-11 | 1.59E-11 |
| **AP** | Mole of H+ eq. | 7.75E-03 | 1.02E-02 | 7.89E-03 | 1.03E-02 | 1.27E-02 | 1.05E-02 |
| **EPfw** | kg P eq. | 2.44E-05 | 3.11E-05 | 2.43E-05 | 3.36E-05 | 3.87E-05 | 2.87E-05 |
| **EPm** | kg N eq. | 2.93E-03 | 3.88E-03 | 2.98E-03 | 3.82E-03 | 4.75E-03 | 3.71E-03 |
| **EPt** | Mole of N eq. | 2.95E-02 | 3.88E-02 | 3.00E-02 | 3.78E-02 | 4.73E-02 | 3.80E-02 |
| **POFP** | kg NMVOC eq. | 6.79E-03 | 8.93E-03 | 6.93E-03 | 8.83E-03 | 1.10E-02 | 8.83E-03 |
| **ADPmm** | kg Sb-eq. | 3.66E-07 | 4.57E-07 | 3.71E-07 | 7.81E-06 | 7.39E-06 | 6.69E-07 |
| **ADPf** | MJ | 2.82E+01 | 3.64E+01 | 2.89E+01 | 3.93E+01 | 4.71E+01 | 4.16E+01 |
| **WDP** | $m^3$ world equiv. | 2.77E-01 | 3.57E-01 | 2.77E-01 | 4.20E-01 | 4.93E-01 | 3.78E-01 |

* Max variation from weighted average is slightly more than 10% due to the low impact of these products which are produced in low volumes at selected plasterboard manufacturing sites

## Table 13. Core environmental impact indicators for 1 m² of product for groups 7-12

| PARAMETER | UNIT | soundshield 13 mm | Opal 10 mm | fireshield 13 mm | fireshield 16 mm | fireshield H 13 mm | trurock 13 mm |
|---|---|---|---|---|---|---|---|
| GWP | kg $CO_2$-eq. | 2.95E+00 | 1.80E+00 | 2.61E+00 | 3.29E+00 | 2.88E+00 | 3.22E+00 |
| GWPf | kg $CO_2$-eq. | 3.75E+00 | 2.69E+00 | 3.35E+00 | 4.05E+00 | 3.62E+00 | 4.14E+00 |
| GWPb | kg $CO_2$-eq. | -7.93E-01 | -8.92E-01 | -7.44E-01 | -7.60E-01 | -7.36E-01 | -9.23E-01 |
| GWPluluc | kg $CO_2$-eq. | 3.36E-03 | 3.05E-03 | 3.68E-03 | 4.25E-03 | 3.39E-03 | 3.02E-03 |
| ODP | kg CFC-11-eq. | 2.06E-11 | 1.71E-11 | 1.86E-11 | 2.14E-11 | 1.97E-11 | 2.26E-11 |
| AP | Mole of H+ eq. | 1.51E-02 | 1.03E-02 | 1.45E-02 | 1.79E-02 | 1.56E-02 | 1.77E-02 |
| EPfw | kg P eq. | 4.12E-05 | 3.30E-05 | 3.65E-05 | 4.17E-05 | 3.85E-05 | 3.93E-05 |
| EPm | kg N eq. | 5.56E-03 | 3.96E-03 | 5.16E-03 | 6.27E-03 | 5.57E-03 | 6.06E-03 |
| EPt | Mole of N eq. | 5.56E-02 | 3.96E-02 | 5.19E-02 | 6.34E-02 | 5.61E-02 | 6.19E-02 |
| POFP | kg NMVOC eq. | 1.28E-02 | 9.10E-03 | 1.21E-02 | 1.48E-02 | 1.31E-02 | 1.47E-02 |
| ADPmm | kg Sb-eq. | 5.86E-07 | 4.75E-07 | 5.36E-07 | 6.50E-07 | 5.62E-07 | 6.07E-07 |
| ADPf | MJ | 5.07E+01 | 3.69E+01 | 4.54E+01 | 5.49E+01 | 4.89E+01 | 6.59E+01 |
| WDP | m³ world equiv. | 5.18E-01 | 3.51E-01 | 4.57E-01 | 5.50E-01 | 4.95E-01 | 5.06E-01 |

## Table 14. Core environmental impact indicators for 1 m² of product for groups 13-19

| PARA-METER | UNIT | trurock 16 mm* | trurock HD 13 mm | trurock HD 16 mm | shaftliner/ intershield 25 mm | multishield 13 mm | multishield 16 mm | curveshield 6.5 mm |
|---|---|---|---|---|---|---|---|---|
| GWP | kg $CO_2$-eq. | 4.12E+00 | 3.42E+00 | 3.71E+00 | 5.58E+00 | 3.17E+00 | 3.64E+00 | 8.59E-01 |
| GWPf | kg $CO_2$-eq. | 5.08E+00 | 4.35E+00 | 4.75E+00 | 6.79E+00 | 3.96E+00 | 4.40E+00 | 1.89E+00 |
| GWPb | kg $CO_2$-eq. | -9.68E-01 | -9.24E-01 | -1.04E+00 | -1.21E+00 | -7.96E-01 | -7.63E-01 | -1.03E+00 |
| GWPluluc | kg $CO_2$-eq. | 3.69E-03 | 3.05E-03 | 3.07E-03 | 7.57E-03 | 4.09E-03 | 3.17E-03 | 3.48E-03 |
| ODP | kg CF-C11-eq. | 2.54E-11 | 2.38E-11 | 2.60E-11 | 3.35E-11 | 1.89E-11 | 2.16E-11 | 1.38E-11 |
| AP | Mole of H+ eq. | 2.17E-02 | 1.86E-02 | 2.10E-02 | 2.82E-02 | 1.61E-02 | 1.83E-02 | 6.61E-03 |
| EPfw | kg P eq. | 4.75E-05 | 4.11E-05 | 4.60E-05 | 8.43E-05 | 4.73E-05 | 4.65E-05 | 4.61E-05 |
| EPm | kg N eq. | 7.39E-03 | 6.27E-03 | 7.21E-03 | 1.04E-02 | 5.72E-03 | 6.31E-03 | 2.93E-03 |
| EPt | Mole of N eq. | 7.53E-02 | 6.39E-02 | 7.34E-02 | 1.03E-01 | 5.67E-02 | 6.33E-02 | 2.62E-02 |
| POFP | kg NMVOC eq. | 1.79E-02 | 1.53E-02 | 1.74E-02 | 2.34E-02 | 1.31E-02 | 1.49E-02 | 5.42E-03 |
| ADPmm | kg Sb-eq. | 7.26E-07 | 5.10E-06 | 6.96E-07 | 1.56E-06 | 6.24E-07 | 1.53E-06 | 4.70E-07 |
| ADPf | MJ | 8.33E+01 | 7.12E+01 | 7.69E+01 | 9.20E+01 | 6.74E+01 | 7.46E+01 | 2.57E+01 |
| WDP | m³ world equiv. | 6.31E-01 | 5.15E-01 | 5.75E-01 | 1.04E+00 | 5.57E-011 | 5.99E-01 | 3.74E-01 |

* Max variation from weighted average is slightly more than 10% due to the low impact of these products which are produced in low volumes at selected plasterboard manufacturing sites

# A1-A3: additional environmental impact indicators

### Table 15. Additional environmental impact indicators for 1 m² of product for groups 1-6

| PARAMETER | UNIT | mastashield 10 mm | mastashield 13 mm | spanshield 10 mm | watershield 10 mm | watershield 13 mm | soundshield 10 mm* |
|---|---|---|---|---|---|---|---|
| PM | Disease incidences | 7.90E-08 | 1.04E-07 | 8.02E-08 | 1.03E-07 | 1.28E-07 | 9.66E-08 |
| IRP | kBq U235 eq. | 2.61E-02 | 3.17E-02 | 2.65E-02 | 6.44E-02 | 6.60E-02 | 3.64E-02 |
| ETf | CTUe | 1.22E+01 | 1.57E+01 | 1.25E+01 | 1.65E+01 | 1.96E+01 | 2.15E+01 |
| HTc | CTUh | 3.26E-10 | 4.27E-10 | 3.36E-10 | 2.37E-09 | 2.33E-09 | 4.68E-10 |
| HTnc | CTUh | 9.94E-09 | 1.22E-08 | 1.01E-08 | 2.41E-07 | 2.27E-07 | 1.48E-08 |
| LU | Pt | 4.15E+01 | 5.37E+01 | 4.09E+01 | 6.19E+01 | 7.41E+01 | 4.27E+01 |

### Table 16. Additional environmental impact indicators for 1 m² of product for groups 7-12

| PARAMETER | UNIT | soundshield 13 mm | Opal 10 mm | fireshield 13 mm | fireshield 16 mm | fireshield H 13 mm | trurock 13 mm |
|---|---|---|---|---|---|---|---|
| PM | Disease incidences | 1.55E-07 | 1.06E-07 | 1.58E-07 | 1.97E-07 | 1.69E-07 | 1.89E-07 |
| IRP | kBq U235 eq. | 3.99E-02 | 3.45E-02 | 3.77E-02 | 4.34E-02 | 3.77E-02 | 4.39E-02 |
| ETf | CTUe | 1.89E+01 | 1.53E+01 | 1.74E+01 | 2.16E+01 | 1.80E+01 | 2.51E+01 |
| HTc | CTUh | 5.94E-10 | 4.48E-10 | 5.32E-10 | 6.43E-10 | 5.86E-10 | 6.72E-10 |
| HTnc | CTUh | 1.62E-08 | 1.26E-08 | 1.51E-08 | 1.87E-08 | 1.57E-08 | 1.94E-08 |
| LU | Pt | 6.99E+01 | 5.48E+01 | 6.13E+01 | 7.24E+01 | 6.53E+01 | 6.64E+01 |

### Table 17. Additional environmental impact indicators for 1 m² of product for groups 13-19

| PARA-METER | UNIT | trurock 16 mm* | trurock HD 13 mm | trurock HD 16 mm | shaftliner/ intershield 25 mm | multishield 13 mm | multishield 16 mm | curveshield 6.5 mm |
|---|---|---|---|---|---|---|---|---|
| PM | Disease incidences | 2.30E-07 | 1.97E-07 | 2.29E-07 | 2.95E-07 | 1.61E-07 | 1.89E-07 | 6.14E-08 |
| IRP | kBq U235 eq. | 4.94E-02 | 5.09E-02 | 4.75E-02 | 7.76E-02 | 4.35E-02 | 4.82E-02 | 4.08E-02 |
| ETf | CTUe | 2.96E+01 | 2.67E+01 | 2.68E+01 | 3.52E+01 | 2.32E+01 | 2.61E+01 | 9.23E+00 |
| HTc | CTUh | 8.24E-10 | 7.40E-10 | 8.04E-10 | 1.07E-09 | 6.39E-10 | 9.42E-10 | 3.10E-10 |
| HTnc | CTUh | 2.32E-08 | 2.21E-08 | 2.16E-08 | 3.20E-08 | 1.92E-08 | 4.84E-08 | 1.10E-08 |
| LU | Pt | 7.81E+01 | 6.85E+01 | 7.99E+01 | 1.31E+02 | 7.08E+01 | 6.91E+01 | 5.07E+01 |

* Max variation from weighted average is slightly more than 10% due to the low impact of these products which are produced in low volumes at selected plasterboard manufacturing sites

# A1-A3: resource use indicators

### Table 18. Resource use indicators for 1 m² of product for groups 1-6

| PARAMETER | UNIT | mastashield 10 mm | mastashield 13 mm | spanshield 10 mm | watershield 10 mm | watershield 13 mm | soundshield 10 mm* |
|---|---|---|---|---|---|---|---|
| PERE | MJ | 3.95E+00 | 4.96E+00 | 4.00E+00 | 8.10E+00 | 8.66E+00 | 4.73E+00 |
| PERM | MJ | 5.48E+00 | 5.87E+00 | 5.68E+00 | 5.60E+00 | 5.70E+00 | 6.08E+00 |
| PERT | MJ | 9.43E+00 | 1.08E+01 | 9.68E+00 | 1.37E+01 | 1.44E+01 | 1.08E+01 |
| PENRE | MJ | 2.82E+01 | 3.64E+01 | 2.89E+01 | 3.93E+01 | 4.71E+01 | 4.17E+01 |
| PENRM | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.45E-06 | 0.00E+00 | 0.00E+00 |
| PENRT | MJ | 2.82E+01 | 3.64E+01 | 2.89E+01 | 3.93E+01 | 4.71E+01 | 4.17E+01 |
| SM | kg | 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 |
| NRSF | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| FW | $m^3$ | 1.27E-02 | 1.63E-02 | 1.34E-02 | 2.03E-02 | 2.27E-02 | 1.83E-02 |

### Table 19. Resource use indicators for 1 m² of product for groups 7-12

| PARAMETER | UNIT | soundshield 13 mm | Opal 10 mm | fireshield 13 mm | fireshield 16 mm | fireshield H 13 mm | trurock 13 mm |
|---|---|---|---|---|---|---|---|
| PERE | MJ | 6.45E+00 | 5.33E+00 | 5.85E+00 | 6.67E+00 | 6.12E+00 | 6.46E+00 |
| PERM | MJ | 6.06E+00 | 7.38E+00 | 5.80E+00 | 5.74E+00 | 5.60E+00 | 7.53E+00 |
| PERT | MJ | 1.25E+01 | 1.27E+01 | 1.16E+01 | 1.24E+01 | 1.17E+01 | 1.40E+01 |
| PENRE | MJ | 5.08E+01 | 3.69E+01 | 4.55E+01 | 5.50E+01 | 4.89E+01 | 6.05E+01 |
| PENRM | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.47E+00 |
| PENRT | MJ | 5.08E+01 | 3.69E+01 | 4.55E+01 | 5.50E+01 | 4.89E+01 | 6.60E+01 |
| SM | kg | 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 |
| NRSF | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| FW | $m^3$ | 2.22E-02 | 1.67E-02 | 1.97E-02 | 2.32E-02 | 2.17E-02 | 2.23E-02 |

### Table 20. Resource use indicators for 1 m² of product for groups 13-19

| PARA-METER | UNIT | trurock 16 mm* | trurock HD 13 mm | trurock HD 16 mm | shaftliner/ intershield 25 mm | multishield 13 mm | multishield 16 mm | curveshield 6.5 mm |
|---|---|---|---|---|---|---|---|---|
| PERE | MJ | 7.64E+00 | 7.30E+00 | 7.52E+00 | 1.25E+01 | 7.06E+00 | 7.34E+00 | 6.58E+00 |
| PERM | MJ | 7.59E+00 | 7.44E+00 | 8.35E+00 | 8.31E+00 | 5.86E+00 | 5.62E+00 | 8.09E+00 |
| PERT | MJ | 1.52E+01 | 1.47E+01 | 1.59E+01 | 2.08E+01 | 1.29E+01 | 1.30E+01 | 1.47E+01 |
| PENRE | MJ | 7.50E+01 | 6.50E+01 | 6.96E+01 | 9.21E+01 | 5.95E+01 | 6.60E+01 | 2.57E+01 |
| PENRM | MJ | 8.32E+00 | 6.24E+00 | 7.29E+00 | 0.00E+00 | 7.93E+00 | 8.64E+00 | 0.00E+00 |
| PENRT | MJ | 8.33E+01 | 7.12E+01 | 7.69E+01 | 9.21E+01 | 6.74E+01 | 7.46E+01 | 2.57E+01 |
| SM | kg | 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 |
| NRSF | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| FW | $m^3$ | 2.65E-02 | 2.29E-02 | 2.51E-02 | 4.06E-02 | 2.10E-02 | 2.53E-02 | 1.62E-02 |

* Max variation from weighted average is slightly more than 10% due to the low impact of these products which are produced in low volumes at selected plasterboard manufacturing sites

# A1-A3: waste production and output flows

### Table 21. Waste material and output flow indicators for 1 m² of product for groups 1-6

| PARAMETER | UNIT | **masta**shield 10 mm | **masta**shield 13 mm | **span**shield 10 mm | **water**shield 10 mm | **water**shield 13 mm | **sound**shield 10 mm* |
|---|---|---|---|---|---|---|---|
| **HWD** | kg | 1.07E-07 | 1.13E-07 | 1.11E-07 | 1.08E-07 | 1.09E-07 | 1.20E-07 |
| **NHWD** | kg | 2.35E-02 | 2.77E-02 | 2.51E-02 | 1.12E-01 | 1.09E-01 | 1.75E-01 |
| **RWD** | kg | 1.58E-04 | 1.92E-04 | 1.61E-04 | 4.23E-04 | 4.30E-04 | 2.61E-04 |
| **CRU** | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **MFR** | kg | 1.21E-01 | 2.39E-01 | 1.26E-01 | 2.58E-01 | 3.43E-01 | 1.77E+00 |
| **MER** | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **EEE** | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **EET** | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

### Table 22. Waste material and output flow indicators for 1 m² of product for groups 7-12

| PARAMETER | UNIT | **sound**shield 13 mm | Opal 10 mm | **fire**shield 13 mm | **fire**shield 16 mm | **fire**shield H 13 mm | **tru**rock 13 mm |
|---|---|---|---|---|---|---|---|
| **HWD** | kg | 1.16E-07 | 1.45E-07 | 1.11E-07 | 1.09E-07 | 1.07E-07 | 1.46E-07 |
| **NHWD** | kg | 3.79E-02 | 3.38E-02 | 3.44E-02 | 4.01E-02 | 3.55E-02 | 4.20E-02 |
| **RWD** | kg | 2.57E-04 | 2.10E-04 | 2.49E-04 | 2.91E-04 | 2.51E-04 | 2.91E-04 |
| **CRU** | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **MFR** | kg | 3.48E-01 | 2.09E-01 | 0.00E+00 | 4.66E-01 | 3.54E-01 | 6.20E-01 |
| **MER** | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **EEE** | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **EET** | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

### Table 23. Waste material and output flow indicators for 1 m² of product for groups 13-19

| PARA-METER | UNIT | **tru**rock 16 mm* | **tru**rock HD 13 mm | **tru**rock HD 16 mm | **shaft**liner/ **inter**shield 25 mm | **multi**shield 13 mm | **multi**shield 16 mm | **curve**shield 6.5 mm |
|---|---|---|---|---|---|---|---|---|
| **HWD** | kg | 1.47E-07 | 1.46E-07 | 1.63E-07 | 1.52E-07 | 1.11E-07 | 1.06E-07 | 1.56E-07 |
| **NHWD** | kg | 4.77E-02 | 5.26E-02 | 4.45E-02 | 6.68E-02 | 3.79E-02 | 5.18E-02 | 2.60E-02 |
| **RWD** | kg | 3.34E-04 | 3.60E-04 | 3.16E-04 | 5.12E-04 | 2.86E-04 | 3.26E-04 | 2.44E-04 |
| **CRU** | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **MFR** | kg | 1.35E+00 | 4.82E-01 | 1.81E-01 | 1.03E+00 | 5.01E-01 | 4.14E-01 | 2.13E-01 |
| **MER** | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **EEE** | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **EET** | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

* Max variation from weighted average is slightly more than 10% due to the low impact of these products which are produced in low volumes at selected plasterboard manufacturing sites

# A1-A3: Biogenic carbon content

### Table 24. Biogenic carbon content for 1 m² of product for groups 1-6

| PARAMETER | UNIT | **masta**shield 10 mm | **masta**shield 13 mm | **span**shield 10 mm | **water**shield 10 mm | **water**shield 13 mm | **sound**shield 10 mm* |
|---|---|---|---|---|---|---|---|
| **BCC-prod** | kg | 1.74E-01 | 1.90E-01 | 1.80E-01 | 1.82E-01 | 1.88E-01 | 1.94E-01 |
| **BCC-pack** | kg | 3.67E-07 | 4.59E-07 | 3.72E-07 | 7.81E-06 | 7.39E-06 | 6.70E-07 |

### Table 25. Biogenic carbon content for 1 m² of product for groups 7-12

| PARAMETER | UNIT | **sound**shield 13 mm | **Opal** 10 mm | **fire**shield 13 mm | **fire**shield 16 mm | **fire**shield **H** 13 mm | **tru**rock 13 mm |
|---|---|---|---|---|---|---|---|
| **BCC-prod** | kg | 2.02E-01 | 2.37E-01 | 1.90E-01 | 1.91E-01 | 1.86E-01 | 2.43E-01 |
| **BCC-pack** | kg | 5.87E-07 | 4.76E-07 | 5.38E-07 | 6.52E-07 | 5.64E-07 | 6.09E-07 |

### Table 26. Biogenic carbon content for 1 m² of product for groups 13-19

| PARA-METER | UNIT | **tru**rock 16 mm* | **tru**rock **HD** 13 mm | **tru**rock **HD** 16 mm | **shaft**liner/ **inter**shield 25 mm | **multi**shield 13 mm | **multi**shield 16 mm | **curve**shield 6.5 mm |
|---|---|---|---|---|---|---|---|---|
| **BCC-prod** | kg | 2.50E-01 | 2.42E-01 | 2.73E-01 | 2.91E-01 | 1.99E-01 | 1.90E-01 | 2.67E-01 |
| **BCC-pack** | kg | 7.28E-07 | 5.10E-06 | 6.98E-07 | 1.57E-06 | 6.25E-07 | 1.53E-06 | 4.72E-07 |

* Max variation from weighted average is slightly more than 10% due to the low impact of these products which are produced in low volumes at selected plasterboard manufacturing sites

# **module A4** LCA results based on EN15804+A2

## A4: core environmental impact indicators

**Table 27. Core environmental impact indicators for 1 m² of product for groups 1-6**

| PARAMETER | UNIT | **masta**shield 10 mm | **masta**shield 13 mm | **span**shield 10 mm | **water**shield 10 mm | **water**shield 13 mm | **sound**shield 10 mm* |
|---|---|---|---|---|---|---|---|
| **GWP** | kg $CO_2$-eq. | 1.41E-01 | 1.55E-01 | 1.47E-01 | 1.70E-01 | 1.87E-01 | 1.92E-01 |
| **GWPf** | kg $CO_2$-eq. | 1.40E-01 | 1.54E-01 | 1.46E-01 | 1.69E-01 | 1.85E-01 | 1.91E-01 |
| **GWPb** | kg $CO_2$-eq. | 9.09E-04 | 1.00E-03 | 9.48E-04 | 1.10E-03 | 1.20E-03 | 1.24E-03 |
| **GWPluluc** | kg $CO_2$-eq. | 1.52E-06 | 1.67E-06 | 1.58E-06 | 1.83E-06 | 2.01E-06 | 2.07E-06 |
| **ODP** | kg CFC-11-eq. | 1.42E-14 | 1.56E-14 | 1.48E-14 | 1.71E-14 | 1.87E-14 | 1.93E-14 |
| **AP** | Mole of H+ eq. | 2.59E-04 | 2.85E-04 | 2.70E-04 | 3.12E-04 | 3.42E-04 | 3.53E-04 |
| **EPfw** | kg P eq. | 2.32E-08 | 2.55E-08 | 2.42E-08 | 2.80E-08 | 3.07E-08 | 3.16E-08 |
| **EPm** | kg N eq. | 1.09E-04 | 1.20E-04 | 1.14E-04 | 1.32E-04 | 1.44E-04 | 1.49E-04 |
| **EPt** | Mole of N eq. | 1.20E-03 | 1.32E-03 | 1.26E-03 | 1.45E-03 | 1.59E-03 | 1.64E-03 |
| **POFP** | kg NMVOC eq. | 2.53E-04 | 2.79E-04 | 2.64E-04 | 3.05E-04 | 3.34E-04 | 3.45E-04 |
| **ADPmm** | kg Sb-eq. | 2.54E-09 | 2.80E-09 | 2.65E-09 | 3.07E-09 | 3.36E-09 | 3.46E-09 |
| **ADPf** | MJ | 1.87E+00 | 2.06E+00 | 1.95E+00 | 2.26E+00 | 2.47E+00 | 2.55E+00 |
| **WDP** | $m^3$ world equiv. | 8.93E-04 | 9.82E-04 | 9.31E-04 | 1.08E-03 | 1.18E-03 | 1.22E-03 |

* Max variation from weighted average is slightly more than 10% due to the low impact of these products which are produced in low volumes at selected plasterboard manufacturing sites

## Table 28. Core environmental impact indicators for 1 m² of product for groups 7-12

| PARAMETER | UNIT | soundshield 13 mm | Opal 10 mm | fireshield 13 mm | fireshield 16 mm | fireshield H 13 mm | trurock 13 mm |
|---|---|---|---|---|---|---|---|
| GWP | kg $CO_2$-eq. | 2.61E-01 | 1.07E-01 | 2.28E-01 | 2.90E-01 | 2.01E-01 | 2.56E-01 |
| GWPf | kg $CO_2$-eq. | 2.59E-01 | 1.06E-01 | 2.27E-01 | 2.88E-01 | 1.99E-01 | 2.54E-01 |
| GWPb | kg $CO_2$-eq. | 1.68E-03 | 6.89E-04 | 1.47E-03 | 1.87E-03 | 1.29E-03 | 1.65E-03 |
| GWPluluc | kg $CO_2$-eq. | 2.80E-06 | 1.15E-06 | 2.45E-06 | 3.12E-06 | 2.16E-06 | 2.75E-06 |
| ODP | kg CFC-11-eq. | 2.61E-14 | 1.07E-14 | 2.29E-14 | 2.91E-14 | 2.01E-14 | 2.57E-14 |
| AP | Mole of H+ eq. | 4.78E-04 | 1.96E-04 | 4.18E-04 | 5.32E-04 | 3.68E-04 | 4.69E-04 |
| EPfw | kg P eq. | 4.28E-08 | 1.76E-08 | 3.75E-08 | 4.77E-08 | 3.30E-08 | 4.21E-08 |
| EPm | kg N eq. | 2.01E-04 | 8.28E-05 | 1.76E-04 | 2.24E-04 | 1.55E-04 | 1.98E-04 |
| EPt | Mole of N eq. | 2.22E-03 | 9.13E-04 | 1.94E-03 | 2.47E-03 | 1.71E-03 | 2.18E-03 |
| POFP | kg NMVOC eq. | 4.67E-04 | 1.92E-04 | 4.09E-04 | 5.20E-04 | 3.59E-04 | 4.59E-04 |
| ADPmm | kg Sb-eq. | 4.69E-09 | 1.93E-09 | 4.10E-09 | 5.22E-09 | 3.61E-09 | 4.61E-09 |
| ADPf | MJ | 3.45E+00 | 1.42E+00 | 3.02E+00 | 3.85E+00 | 2.66E+00 | 3.39E+00 |
| WDP | m³ world equiv. | 1.65E-03 | 6.77E-04 | 1.44E-03 | 1.83E-03 | 1.27E-03 | 1.62E-03 |

## Table 29. Core environmental impact indicators for 1 m² of product for groups 13-19

| PARA-METER | UNIT | trurock 16 mm* | trurock HD 13 mm | trurock HD 16 mm | shaftliner/ intershield 25 mm | multishield 13 mm | multishield 16 mm | curveshield 6.5 mm |
|---|---|---|---|---|---|---|---|---|
| GWP | kg $CO_2$-eq. | 2.98E-01 | 1.68E-01 | 1.89E-01 | 4.93E-01 | 2.60E-01 | 3.25E-01 | 1.16E-01 |
| GWPf | kg $CO_2$-eq. | 2.96E-01 | 1.67E-01 | 1.88E-01 | 4.89E-01 | 2.58E-01 | 3.23E-01 | 1.15E-01 |
| GWPb | kg $CO_2$-eq. | 1.92E-03 | 1.08E-03 | 1.22E-03 | 3.17E-03 | 1.67E-03 | 2.09E-03 | 7.44E-04 |
| GWPluluc | kg $CO_2$-eq. | 3.21E-06 | 1.81E-06 | 2.03E-06 | 5.30E-06 | 2.79E-06 | 3.50E-06 | 1.24E-06 |
| ODP | kg CFC-11-eq. | 2.99E-14 | 1.68E-14 | 1.90E-14 | 4.94E-14 | 2.60E-14 | 3.26E-14 | 1.16E-14 |
| AP | Mole of H+ eq. | 5.46E-04 | 3.08E-04 | 3.47E-04 | 9.03E-04 | 4.76E-04 | 5.96E-04 | 2.12E-04 |
| EPfw | kg P eq. | 4.90E-08 | 2.76E-08 | 3.11E-08 | 8.10E-08 | 4.27E-08 | 5.34E-08 | 1.90E-08 |
| EPm | kg N eq. | 2.31E-04 | 1.30E-04 | 1.46E-04 | 3.81E-04 | 2.01E-04 | 2.51E-04 | 8.94E-05 |
| EPt | Mole of N eq. | 2.54E-03 | 1.43E-03 | 1.61E-03 | 4.20E-03 | 2.21E-03 | 2.77E-03 | 9.86E-04 |
| POFP | kg NMVOC eq. | 5.35E-04 | 3.01E-04 | 3.39E-04 | 8.83E-04 | 4.65E-04 | 5.83E-04 | 2.07E-04 |
| ADPmm | kg Sb-eq. | 5.37E-09 | 3.02E-09 | 3.40E-09 | 8.87E-09 | 4.67E-09 | 5.85E-09 | 2.08E-09 |
| ADPf | MJ | 3.95E+00 | 2.23E+00 | 2.51E+00 | 6.53E+00 | 3.44E+00 | 4.31E+00 | 1.53E+00 |
| WDP | m³ world equiv. | 1.89E-03 | 1.06E-03 | 1.20E-03 | 3.11E-03 | 1.64E-03 | 2.05E-03 | 7.31E-04 |

* Max variation from weighted average is slightly more than 10% due to the low impact of these products which are produced in low volumes at selected plasterboard manufacturing sites

# A4: additional environmental impact indicators

### Table 30. Additional environmental impact indicators for 1 m² of product for groups 1-6

| PARAMETER | UNIT | **masta**shield 10 mm | **masta**shield 13 mm | **span**shield 10 mm | **water**shield 10 mm | **water**shield 13 mm | **sound**shield 10 mm* |
|---|---|---|---|---|---|---|---|
| **PM** | Disease incidences | 1.85E-09 | 2.04E-09 | 1.93E-09 | 2.24E-09 | 2.45E-09 | 2.53E-09 |
| **IRP** | kBq U235 eq. | 4.75E-05 | 5.23E-05 | 4.96E-05 | 5.74E-05 | 6.28E-05 | 6.48E-05 |
| **ETf** | CTUe | 7.50E-01 | 8.26E-01 | 7.83E-01 | 9.06E-01 | 9.91E-01 | 1.02E+00 |
| **HTc** | CTUh | 1.27E-11 | 1.39E-11 | 1.32E-11 | 1.53E-11 | 1.67E-11 | 1.73E-11 |
| **HTnc** | CTUh | 4.54E-10 | 5.00E-10 | 4.73E-10 | 5.48E-10 | 6.00E-10 | 6.19E-10 |
| **LU** | Pt | 5.28E-03 | 5.81E-03 | 5.50E-03 | 6.37E-03 | 6.97E-03 | 7.19E-03 |

### Table 31. Additional environmental impact indicators for 1 m² of product for groups 7-12

| PARAMETER | UNIT | **sound**shield 13 mm | **Opal** 10 mm | **fire**shield 13 mm | **fire**shield 16 mm | **fire**shield **H** 13 mm | **tru**rock 13 mm |
|---|---|---|---|---|---|---|---|
| **PM** | Disease incidences | 3.42E-09 | 1.41E-09 | 3.00E-09 | 3.81E-09 | 2.63E-09 | 3.36E-09 |
| **IRP** | kBq U235 eq. | 8.77E-05 | 3.60E-05 | 7.67E-05 | 9.76E-05 | 6.75E-05 | 8.61E-05 |
| **ETf** | CTUe | 1.39E+00 | 5.69E-01 | 1.21E+00 | 1.54E+00 | 1.07E+00 | 1.36E+00 |
| **HTc** | CTUh | 2.34E-11 | 9.61E-12 | 2.05E-11 | 2.60E-11 | 1.80E-11 | 2.30E-11 |
| **HTnc** | CTUh | 8.38E-10 | 3.44E-10 | 7.33E-10 | 9.33E-10 | 6.45E-10 | 8.23E-10 |
| **LU** | Pt | 9.74E-03 | 4.00E-03 | 8.52E-03 | 1.08E-02 | 7.50E-03 | 9.57E-03 |

### Table 32. Additional environmental impact indicators for 1 m² of product for groups 13-19

| PARA-METER | UNIT | **tru**rock 16 mm* | **tru**rock **HD** 13 mm | **tru**rock **HD** 16 mm | **shaft**liner/ **inter**shield 25 mm | **multi**shield 13 mm | **multi**shield 16 mm | **curve**shield 6.5 mm |
|---|---|---|---|---|---|---|---|---|
| **PM** | Disease incidences | 3.92E-09 | 2.21E-09 | 2.48E-09 | 6.47E-09 | 3.41E-09 | 4.27E-09 | 1.52E-09 |
| **IRP** | kBq U235 eq. | 1.00E-04 | 5.65E-05 | 6.36E-05 | 1.66E-04 | 8.74E-05 | 1.09E-04 | 3.89E-05 |
| **ETf** | CTUe | 1.59E+00 | 8.93E-01 | 1.01E+00 | 2.62E+00 | 1.38E+00 | 1.73E+00 | 6.15E-01 |
| **HTc** | CTUh | 2.68E-11 | 1.51E-11 | 1.70E-11 | 4.42E-11 | 2.33E-11 | 2.92E-11 | 1.04E-11 |
| **HTnc** | CTUh | 9.59E-10 | 5.40E-10 | 6.08E-10 | 1.58E-09 | 8.35E-10 | 1.04E-09 | 3.72E-10 |
| **LU** | Pt | 1.11E-02 | 6.28E-03 | 7.07E-03 | 1.84E-02 | 9.70E-03 | 1.21E-02 | 4.32E-03 |

* Max variation from weighted average is slightly more than 10% due to the low impact of these products which are produced in low volumes at selected plasterboard manufacturing sites

# A4: resource use indicators

### Table 33. Resource use indicators for 1 m² of product for groups 1-6

| PARAMETER | UNIT | mastashield 10 mm | mastashield 13 mm | spanshield 10 mm | watershield 10 mm | watershield 13 mm | soundshield 10 mm* |
|---|---|---|---|---|---|---|---|
| PERE | MJ | 9.14E-03 | 1.01E-02 | 9.54E-03 | 1.10E-02 | 1.21E-02 | 1.25E-02 |
| PERM | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PERT | MJ | 9.14E-03 | 1.01E-02 | 9.54E-03 | 1.10E-02 | 1.21E-02 | 1.25E-02 |
| PENRE | MJ | 1.87E+00 | 2.06E+00 | 1.95E+00 | 2.26E+00 | 2.47E+00 | 2.55E+00 |
| PENRM | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PENRT | MJ | 1.87E+00 | 2.06E+00 | 1.95E+00 | 2.26E+00 | 2.47E+00 | 2.55E+00 |
| SM | kg | 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 |
| NRSF | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| FW | $m^3$ | 1.78E-05 | 1.96E-05 | 1.86E-05 | 2.15E-05 | 2.35E-05 | 2.43E-05 |

### Table 34. Resource use indicators for 1 m² of product for groups 7-12

| PARAMETER | UNIT | soundshield 13 mm | Opal 10 mm | fireshield 13 mm | fireshield 16 mm | fireshield H 13 mm | trurock 13 mm |
|---|---|---|---|---|---|---|---|
| PERE | MJ | 1.69E-02 | 6.93E-03 | 1.48E-02 | 1.88E-02 | 1.30E-02 | 1.66E-02 |
| PERM | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PERT | MJ | 1.69E-02 | 6.93E-03 | 1.48E-02 | 1.88E-02 | 1.30E-02 | 1.66E-02 |
| PENRE | MJ | 3.45E+00 | 1.42E+00 | 3.02E+00 | 3.85E+00 | 2.66E+00 | 3.39E+00 |
| PENRM | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PENRT | MJ | 3.45E+00 | 1.42E+00 | 3.02E+00 | 3.85E+00 | 2.66E+00 | 3.39E+00 |
| SM | kg | 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 |
| NRSF | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| FW | $m^3$ | 3.29E-05 | 1.35E-05 | 2.88E-05 | 3.66E-05 | 2.53E-05 | 3.23E-05 |

### Table 35. Resource use indicators for 1 m² of product for groups 13-19

| PARA-METER | UNIT | trurock 16 mm* | trurock HD 13 mm | trurock HD 16 mm | shaftliner/ intershield 25 mm | multishield 13 mm | multishield 16 mm | curveshield 6.5 mm |
|---|---|---|---|---|---|---|---|---|
| PERE | MJ | 1.93E-02 | 1.09E-02 | 1.22E-02 | 3.19E-02 | 1.68E-02 | 2.10E-02 | 7.49E-03 |
| PERM | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PERT | MJ | 1.93E-02 | 1.09E-02 | 1.22E-02 | 3.19E-02 | 1.68E-02 | 2.10E-02 | 7.49E-03 |
| PENRE | MJ | 3.95E+00 | 2.23E+00 | 2.51E+00 | 6.53E+00 | 3.44E+00 | 4.31E+00 | 1.53E+00 |
| PENRM | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PENRT | MJ | 3.95E+00 | 2.23E+00 | 2.51E+00 | 6.53E+00 | 3.44E+00 | 4.31E+00 | 1.53E+00 |
| SM | kg | 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 |
| NRSF | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| FW | $m^3$ | 3.77E-05 | 2.12E-05 | 2.39E-05 | 6.22E-05 | 3.28E-05 | 4.10E-05 | 1.46E-05 |

* Max variation from weighted average is slightly more than 10% due to the low impact of these products which are produced in low volumes at selected plasterboard manufacturing sites

# A4: waste production and output flows

### Table 36. Waste material and output flow indicators for 1 m² of product for groups 1-6

| PARAMETER | UNIT | **masta**shield 10 mm | **masta**shield 13 mm | **span**shield 10 mm | **water**shield 10 mm | **water**shield 13 mm | **sound**shield 10 mm* |
|---|---|---|---|---|---|---|---|
| HWD | kg | 3.04E-12 | 3.34E-12 | 3.17E-12 | 3.67E-12 | 4.01E-12 | 4.14E-12 |
| NHWD | kg | 4.54E-05 | 5.00E-05 | 4.73E-05 | 5.48E-05 | 6.00E-05 | 6.19E-05 |
| RWD | kg | 3.65E-07 | 4.02E-07 | 3.81E-07 | 4.41E-07 | 4.83E-07 | 4.98E-07 |
| CRU | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MFR | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MER | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EEE | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EET | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

### Table 37. Waste material and output flow indicators for 1 m² of product for groups 7-12

| PARAMETER | UNIT | **sound**shield 13 mm | Opal 10 mm | **fire**shield 13 mm | **fire**shield 16 mm | **fire**shield H 13 mm | **tru**rock 13 mm |
|---|---|---|---|---|---|---|---|
| HWD | kg | 5.60E-12 | 2.30E-12 | 4.90E-12 | 6.24E-12 | 4.31E-12 | 5.50E-12 |
| NHWD | kg | 8.38E-05 | 3.44E-05 | 7.33E-05 | 9.33E-05 | 6.45E-05 | 8.23E-05 |
| RWD | kg | 6.74E-07 | 2.77E-07 | 5.90E-07 | 7.51E-07 | 5.19E-07 | 6.62E-07 |
| CRU | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MFR | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MER | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EEE | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EET | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

### Table 38. Waste material and output flow indicators for 1 m² of product for groups 13-19

| PARA-METER | UNIT | **tru**rock 16 mm* | **tru**rock HD 13 mm | **tru**rock HD 16 mm | **shaft**liner/ **inter**shield 25 mm | **multi**shield 13 mm | **multi**shield 16 mm | **curve**shield 6.5 mm |
|---|---|---|---|---|---|---|---|---|
| HWD | kg | 6.41E-12 | 3.61E-12 | 4.07E-12 | 1.06E-11 | 5.58E-12 | 6.99E-12 | 2.49E-12 |
| NHWD | kg | 9.59E-05 | 5.40E-05 | 6.08E-05 | 1.58E-04 | 8.35E-05 | 1.04E-04 | 3.72E-05 |
| RWD | kg | 7.72E-07 | 4.35E-07 | 4.89E-07 | 1.27E-06 | 6.72E-07 | 8.41E-07 | 2.99E-07 |
| CRU | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MFR | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MER | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EEE | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EET | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

* Max variation from weighted average is slightly more than 10% due to the low impact of these products which are produced in low volumes at selected plasterboard manufacturing sites

# **module A5** LCA results based on EN15804+A2

## A5: core environmental impact indicators

**Table 39. Core environmental impact indicators for 1 m² of product for groups 1-6**

| PARAMETER | UNIT | **masta**shield 10 mm | **masta**shield 13 mm | **span**shield 10 mm | **water**shield 10 mm | **water**shield 13 mm | **sound**shield 10 mm* |
|---|---|---|---|---|---|---|---|
| **GWP** | kg $CO_2$-eq. | 4.60E-01 | 5.71E-01 | 4.73E-01 | 5.98E-01 | 7.04E-01 | 6.41E-01 |
| **GWPf** | kg $CO_2$-eq. | 4.41E-01 | 5.54E-01 | 4.52E-01 | 5.86E-01 | 6.96E-01 | 6.17E-01 |
| **GWPb** | kg $CO_2$-eq. | 1.88E-02 | 1.63E-02 | 2.13E-02 | 1.19E-02 | 7.64E-03 | 2.40E-02 |
| **GWPluluc** | kg $CO_2$-eq. | 6.24E-04 | 7.54E-04 | 5.95E-04 | 6.15E-04 | 7.60E-04 | 5.82E-04 |
| **ODP** | kg CFC-11-eq. | 2.39E-12 | 2.90E-12 | 2.51E-12 | 3.13E-12 | 3.51E-12 | 2.99E-12 |
| **AP** | Mole of H+ eq. | 1.67E-03 | 2.13E-03 | 1.70E-03 | 2.15E-03 | 2.60E-03 | 2.20E-03 |
| **EPfw** | kg P eq. | 4.58E-06 | 5.77E-06 | 4.57E-06 | 6.21E-06 | 7.11E-06 | 5.35E-06 |
| **EPm** | kg N eq. | 6.21E-04 | 7.97E-04 | 6.32E-04 | 7.86E-04 | 9.58E-04 | 7.73E-04 |
| **EPt** | Mole of N eq. | 6.33E-03 | 8.08E-03 | 6.45E-03 | 7.89E-03 | 9.65E-03 | 7.98E-03 |
| **POFP** | kg NMVOC eq. | 1.48E-03 | 1.88E-03 | 1.51E-03 | 1.86E-03 | 2.27E-03 | 1.87E-03 |
| **ADPmm** | kg Sb-eq. | 7.02E-08 | 8.68E-08 | 7.12E-08 | 1.38E-06 | 1.31E-06 | 1.24E-07 |
| **ADPf** | MJ | 6.01E+00 | 7.55E+00 | 6.16E+00 | 8.09E+00 | 9.57E+00 | 8.56E+00 |
| **WDP** | $m^3$ world equiv. | 5.69E-02 | 7.22E-02 | 5.72E-02 | 8.31E-02 | 9.70E-02 | 7.61E-02 |

* Max variation from weighted average is slightly more than 10% due to the low impact of these products which are produced in low volumes at selected plasterboard manufacturing sites

## Table 40. Core environmental impact indicators for 1 m² of product for groups 7-12

| PARAMETER | UNIT | soundshield 13 mm | Opal 10 mm | fireshield 13 mm | fireshield 16 mm | fireshield H 13 mm | trurock 13 mm |
|---|---|---|---|---|---|---|---|
| GWP | kg $CO_2$-eq. | 7.88E-01 | 5.85E-01 | 7.09E-01 | 8.45E-01 | 7.51E-01 | 8.77E-01 |
| GWPf | kg $CO_2$-eq. | 7.79E-01 | 5.54E-01 | 6.99E-01 | 8.40E-01 | 7.45E-01 | 8.49E-01 |
| GWPb | kg $CO_2$-eq. | 9.00E-03 | 3.13E-02 | 1.03E-02 | 4.69E-03 | 6.27E-03 | 2.82E-02 |
| GWPluluc | kg $CO_2$-eq. | 6.19E-04 | 5.60E-04 | 6.74E-04 | 7.76E-04 | 6.23E-04 | 5.59E-04 |
| ODP | kg CFC-11-eq. | 3.84E-12 | 3.19E-12 | 3.48E-12 | 3.98E-12 | 3.68E-12 | 4.19E-12 |
| AP | Mole of H+ eq. | 3.07E-03 | 2.14E-03 | 2.95E-03 | 3.59E-03 | 3.14E-03 | 3.54E-03 |
| EPfw | kg P eq. | 7.56E-06 | 6.10E-06 | 6.73E-06 | 7.65E-06 | 7.07E-06 | 7.22E-06 |
| EPm | kg N eq. | 1.12E-03 | 8.06E-04 | 1.04E-03 | 1.25E-03 | 1.11E-03 | 1.21E-03 |
| EPt | Mole of N eq. | 1.13E-02 | 8.14E-03 | 1.06E-02 | 1.28E-02 | 1.13E-02 | 1.24E-02 |
| POFP | kg NMVOC eq. | 2.64E-03 | 1.90E-03 | 2.48E-03 | 3.00E-03 | 2.65E-03 | 2.97E-03 |
| ADPmm | kg Sb-eq. | 1.11E-07 | 8.97E-08 | 1.01E-07 | 1.22E-07 | 1.06E-07 | 1.14E-07 |
| ADPf | MJ | 1.05E+01 | 7.55E+00 | 9.41E+00 | 1.13E+01 | 1.00E+01 | 1.32E+01 |
| WDP | m³ world equiv. | 1.03E-01 | 7.14E-02 | 9.13E-02 | 1.09E-01 | 9.87E-02 | 1.01E-01 |

## Table 41. Core environmental impact indicators for 1 m² of product for groups 13-19

| PARA-METER | UNIT | trurock 16 mm* | trurock HD 13 mm | trurock HD 16 mm | shaftliner/ intershield 25 mm | multishield 13 mm | multishield 16 mm | curveshield 6.5 mm |
|---|---|---|---|---|---|---|---|---|
| GWP | kg $CO_2$-eq. | 1.05E+00 | 8.96E-01 | 9.82E-01 | 1.37E+00 | 8.16E-01 | 9.09E-01 | 4.31E-01 |
| GWPf | kg $CO_2$-eq. | 1.03E+00 | 8.69E-01 | 9.52E-01 | 1.38E+00 | 8.13E-01 | 9.08E-01 | 4.03E-01 |
| GWPb | kg $CO_2$-eq. | 2.20E-02 | 2.67E-02 | 3.06E-02 | -9.32E-03 | 2.59E-03 | 9.17E-04 | 2.73E-02 |
| GWPluluc | kg $CO_2$-eq. | 6.80E-04 | 5.65E-04 | 5.71E-04 | 1.37E-03 | 7.46E-04 | 5.87E-04 | 6.33E-04 |
| ODP | kg CFC-11-eq. | 4.70E-12 | 4.40E-12 | 4.82E-12 | 6.19E-12 | 3.53E-12 | 4.03E-12 | 2.58E-12 |
| AP | Mole of H+ eq. | 4.28E-03 | 3.68E-03 | 4.13E-03 | 5.58E-03 | 3.24E-03 | 3.68E-03 | 1.45E-03 |
| EPfw | kg P eq. | 8.67E-06 | 7.54E-06 | 8.40E-06 | 1.52E-05 | 8.64E-06 | 8.50E-06 | 8.41E-06 |
| EPm | kg N eq. | 1.46E-03 | 1.23E-03 | 1.41E-03 | 2.03E-03 | 1.14E-03 | 1.26E-03 | 6.14E-04 |
| EPt | Mole of N eq. | 1.50E-02 | 1.27E-02 | 1.45E-02 | 2.03E-02 | 1.15E-02 | 1.28E-02 | 5.69E-03 |
| POFP | kg NMVOC eq. | 3.56E-03 | 3.04E-03 | 3.45E-03 | 4.66E-03 | 2.68E-03 | 3.03E-03 | 1.22E-03 |
| ADPmm | kg Sb-eq. | 1.36E-07 | 9.07E-07 | 1.30E-07 | 2.85E-07 | 1.17E-07 | 2.77E-07 | 8.83E-08 |
| ADPf | MJ | 1.64E+01 | 1.39E+01 | 1.50E+01 | 1.86E+01 | 1.34E+01 | 1.49E+01 | 5.46E+00 |
| WDP | m³ world equiv. | 1.25E-01 | 1.03E-01 | 1.14E-01 | 2.00E-01 | 1.09E-01 | 1.18E-01 | 7.34E-02 |

* Max variation from weighted average is slightly more than 10% due to the low impact of these products which are produced in low volumes at selected plasterboard manufacturing sites

# A5: additional environmental impact indicators

### Table 42. Additional environmental impact indicators for 1 m² of product for groups 1-6

| PARAMETER | UNIT | **masta**shield 10 mm | **masta**shield 13 mm | **span**shield 10 mm | **water**shield 10 mm | **water**shield 13 mm | **sound**shield 10 mm* |
|---|---|---|---|---|---|---|---|
| **PM** | Disease incidences | 1.72E-08 | 2.19E-08 | 1.75E-08 | 2.17E-08 | 2.64E-08 | 2.07E-08 |
| **IRP** | kBq U235 eq. | 5.19E-03 | 6.20E-03 | 5.27E-03 | 1.20E-02 | 1.23E-02 | 7.03E-03 |
| **ETf** | CTUe | 2.54E+00 | 3.19E+00 | 2.60E+00 | 3.34E+00 | 3.93E+00 | 4.26E+00 |
| **HTc** | CTUh | 6.99E-11 | 8.95E-11 | 7.21E-11 | 4.33E-10 | 4.28E-10 | 9.76E-11 |
| **HTnc** | CTUh | 2.43E-09 | 2.98E-09 | 2.49E-09 | 4.33E-08 | 4.10E-08 | 3.46E-09 |
| **LU** | Pt | 1.06E+01 | 1.28E+01 | 1.05E+01 | 1.42E+01 | 1.64E+01 | 1.08E+01 |

### Table 43. Additional environmental impact indicators for 1 m² of product for groups 7-12

| PARAMETER | UNIT | **sound**shield 13 mm | **Opal** 10 mm | **fire**shield 13 mm | **fire**shield 16 mm | **fire**shield **H** 13 mm | **tru**rock 13 mm |
|---|---|---|---|---|---|---|---|
| **PM** | Disease incidences | 3.16E-08 | 2.22E-08 | 3.19E-08 | 3.92E-08 | 3.38E-08 | 3.77E-08 |
| **IRP** | kBq U235 eq. | 7.68E-03 | 6.69E-03 | 7.27E-03 | 8.30E-03 | 7.29E-03 | 8.39E-03 |
| **ETf** | CTUe | 3.92E+00 | 3.09E+00 | 3.60E+00 | 4.42E+00 | 3.69E+00 | 5.00E+00 |
| **HTc** | CTUh | 1.24E-10 | 9.25E-11 | 1.11E-10 | 1.33E-10 | 1.21E-10 | 1.38E-10 |
| **HTnc** | CTUh | 4.02E-09 | 3.03E-09 | 3.70E-09 | 4.52E-09 | 3.86E-09 | 4.59E-09 |
| **LU** | Pt | 1.56E+01 | 1.30E+01 | 1.41E+01 | 1.61E+01 | 1.48E+01 | 1.50E+01 |

### Table 44. Additional environmental impact indicators for 1 m² of product for groups 13-19

| PARA-METER | UNIT | **tru**rock 16 mm* | **tru**rock **HD** 13 mm | **tru**rock **HD** 16 mm | **shaft**liner/ **inter**shield 25 mm | **multi**shield 13 mm | **multi**shield 16 mm | **curve**shield 6.5 mm |
|---|---|---|---|---|---|---|---|---|
| **PM** | Disease incidences | 4.52E-08 | 3.89E-08 | 4.49E-08 | 5.80E-08 | 3.26E-08 | 3.79E-08 | 1.39E-08 |
| **IRP** | kBq U235 eq. | 9.39E-03 | 9.63E-03 | 9.05E-03 | 1.44E-02 | 8.30E-03 | 9.16E-03 | 7.77E-03 |
| **ETf** | CTUe | 5.86E+00 | 5.21E+00 | 5.27E+00 | 7.12E+00 | 4.64E+00 | 5.24E+00 | 1.98E+00 |
| **HTc** | CTUh | 1.67E-10 | 1.48E-10 | 1.62E-10 | 2.19E-10 | 1.31E-10 | 1.87E-10 | 6.58E-11 |
| **HTnc** | CTUh | 5.44E-09 | 5.01E-09 | 5.10E-09 | 7.54E-09 | 4.45E-09 | 9.78E-09 | 2.51E-09 |
| **LU** | Pt | 1.71E+01 | 1.54E+01 | 1.74E+01 | 2.64E+01 | 1.58E+01 | 1.55E+01 | 1.22E+01 |

* Max variation from weighted average is slightly more than 10% due to the low impact of these products which are produced in low volumes at selected plasterboard manufacturing sites

# A5: resource use indicators

### Table 45. Resource use indicators for 1 m² of product for groups 1-6

| PARAMETER | UNIT | **masta**shield 10 mm | **masta**shield 13 mm | **span**shield 10 mm | **water**shield 10 mm | **water**shield 13 mm | **sound**shield 10 mm* |
|---|---|---|---|---|---|---|---|
| **PERE** | MJ | 9.08E-01 | 1.10E+00 | 9.18E-01 | 1.65E+00 | 1.75E+00 | 1.06E+00 |
| **PERM** | MJ | 1.12E+00 | 1.19E+00 | 1.16E+00 | 1.15E+00 | 1.16E+00 | 1.23E+00 |
| **PERT** | MJ | 2.03E+00 | 2.29E+00 | 2.08E+00 | 2.79E+00 | 2.92E+00 | 2.28E+00 |
| **PENRE** | MJ | 6.02E+00 | 7.56E+00 | 6.16E+00 | 8.09E+00 | 9.57E+00 | 8.58E+00 |
| **PENRM** | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 6.09E-07 | 0.00E+00 | 0.00E+00 |
| **PENRT** | MJ | 6.02E+00 | 7.56E+00 | 6.16E+00 | 8.09E+00 | 9.57E+00 | 8.58E+00 |
| **SM** | kg | 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 |
| **NRSF** | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **FW** | $m^3$ | 2.41E-03 | 3.06E-03 | 2.54E-03 | 3.76E-03 | 4.20E-03 | 3.42E-03 |

### Table 46. Resource use indicators for 1 m² of product for groups 7-12

| PARAMETER | UNIT | **sound**shield 13 mm | Opal 10 mm | **fire**shield 13 mm | **fire**shield 16 mm | **fire**shield H 13 mm | **tru**rock 13 mm |
|---|---|---|---|---|---|---|---|
| **PERE** | MJ | 1.38E+00 | 1.16E+00 | 1.26E+00 | 1.42E+00 | 1.32E+00 | 1.38E+00 |
| **PERM** | MJ | 1.23E+00 | 1.46E+00 | 1.18E+00 | 1.17E+00 | 1.14E+00 | 1.49E+00 |
| **PERT** | MJ | 2.60E+00 | 2.62E+00 | 2.44E+00 | 2.59E+00 | 2.46E+00 | 2.86E+00 |
| **PENRE** | MJ | 1.05E+01 | 7.55E+00 | 9.42E+00 | 1.13E+01 | 1.00E+01 | 1.22E+01 |
| **PENRM** | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 9.66E-01 |
| **PENRT** | MJ | 1.05E+01 | 7.55E+00 | 9.42E+00 | 1.13E+01 | 1.00E+01 | 1.32E+01 |
| **SM** | kg | 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 |
| **NRSF** | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **FW** | $m^3$ | 4.14E-03 | 3.14E-03 | 3.70E-03 | 4.33E-03 | 4.05E-03 | 4.16E-03 |

### Table 47. Resource use indicators for 1 m² of product for groups 13-19

| PARA-METER | UNIT | **tru**rock 16 mm* | **tru**rock HD 13 mm | **tru**rock HD 16 mm | **shaft**liner/ **inter**shield 25 mm | **multi**shield 13 mm | **multi**shield 16 mm | **curve**shield 6.5 mm |
|---|---|---|---|---|---|---|---|---|
| **PERE** | MJ | 1.60E+00 | 1.52E+00 | 1.57E+00 | 2.49E+00 | 1.48E+00 | 1.54E+00 | 1.37E+00 |
| **PERM** | MJ | 1.50E+00 | 1.47E+00 | 1.63E+00 | 1.62E+00 | 1.19E+00 | 1.15E+00 | 1.59E+00 |
| **PERT** | MJ | 3.09E+00 | 2.99E+00 | 3.20E+00 | 4.11E+00 | 2.67E+00 | 2.68E+00 | 2.95E+00 |
| **PENRE** | MJ | 1.49E+01 | 1.28E+01 | 1.37E+01 | 1.86E+01 | 1.20E+01 | 1.33E+01 | 5.46E+00 |
| **PENRM** | MJ | 1.47E+00 | 1.10E+00 | 1.29E+00 | 0.00E+00 | 1.40E+00 | 1.53E+00 | 0.00E+00 |
| **PENRT** | MJ | 1.64E+01 | 1.39E+01 | 1.50E+01 | 1.86E+01 | 1.34E+01 | 1.49E+01 | 5.46E+00 |
| **SM** | kg | 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 |
| **NRSF** | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **FW** | $m^3$ | 4.93E-03 | 4.26E-03 | 4.69E-03 | 7.47E-03 | 3.92E-03 | 4.70E-03 | 3.03E-03 |

* Max variation from weighted average is slightly more than 10% due to the low impact of these products which are produced in low volumes at selected plasterboard manufacturing sites

# A5: waste production and output flows

### Table 48. Waste material and output flow indicators for 1 m² of product for groups 1-6

| PARAMETER | UNIT | **masta**shield 10 mm | **masta**shield 13 mm | **span**shield 10 mm | **water**shield 10 mm | **water**shield 13 mm | **sound**shield 10 mm* |
|---|---|---|---|---|---|---|---|
| HWD | kg | 2.13E-08 | 2.25E-08 | 2.21E-08 | 2.15E-08 | 2.17E-08 | 2.37E-08 |
| NHWD | kg | 1.94E-01 | 2.62E-01 | 2.07E-01 | 2.56E-01 | 3.16E-01 | 2.91E-01 |
| RWD | kg | 3.18E-05 | 3.78E-05 | 3.23E-05 | 7.86E-05 | 8.00E-05 | 5.00E-05 |
| CRU | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MFR | kg | 9.20E-01 | 1.25E+00 | 9.82E-01 | 1.16E+00 | 1.45E+00 | 1.54E+00 |
| MER | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EEE | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EET | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

### Table 49. Waste material and output flow indicators for 1 m² of product for groups 7-12

| PARAMETER | UNIT | **sound**shield 13 mm | Opal 10 mm | **fire**shield 13 mm | **fire**shield 16 mm | **fire**shield H 13 mm | **tru**rock 13 mm |
|---|---|---|---|---|---|---|---|
| HWD | kg | 2.29E-08 | 2.80E-08 | 2.20E-08 | 2.16E-08 | 2.14E-08 | 2.83E-08 |
| NHWD | kg | 3.92E-01 | 2.63E-01 | 3.42E-01 | 4.19E-01 | 3.82E-01 | 3.94E-01 |
| RWD | kg | 4.97E-05 | 4.10E-05 | 4.82E-05 | 5.58E-05 | 4.86E-05 | 5.57E-05 |
| CRU | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MFR | kg | 1.85E+00 | 1.26E+00 | 1.64E+00 | 1.99E+00 | 1.81E+00 | 1.92E+00 |
| MER | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EEE | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EET | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

### Table 50. Waste material and output flow indicators for 1 m² of product for groups 13-19

| PARA-METER | UNIT | **tru**rock 16 mm* | **tru**rock HD 13 mm | **tru**rock HD 16 mm | **shaft**liner/ **inter**shield 25 mm | **multi**shield 13 mm | **multi**shield 16 mm | **curve**shield 6.5 mm |
|---|---|---|---|---|---|---|---|---|
| HWD | kg | 2.85E-08 | 2.82E-08 | 3.13E-08 | 2.93E-08 | 2.21E-08 | 2.12E-08 | 3.00E-08 |
| NHWD | kg | 4.71E-01 | 3.97E-01 | 4.70E-01 | 6.84E-01 | 0.345183 | 4.21E-01 | 1.46E-01 |
| RWD | kg | 6.35E-05 | 6.79E-05 | 6.03E-05 | 9.54E-05 | 5.46E-05 | 6.20E-05 | 4.69E-05 |
| CRU | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MFR | kg | 2.39E+00 | 1.90E+00 | 2.19E+00 | 3.29E+00 | 1.66E+00 | 1.98E+00 | 7.34E-01 |
| MER | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EEE | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EET | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

* Max variation from weighted average is slightly more than 10% due to the low impact of these products which are produced in low volumes at selected plasterboard manufacturing sites

# module C1

## C1: core environmental impact indicators

**Table 51. Core environmental impact indicators for 1 m² of product for groups 1-6**

| PARAMETER | UNIT | **masta**shield 10 mm | **masta**shield 13 mm | **span**shield 10 mm | **water**shield 10 mm | **water**shield 13 mm | **sound**shield 10 mm* |
|---|---|---|---|---|---|---|---|
| **GWP** | kg $CO_2$-eq. | 1.73E-03 | 2.33E-03 | 1.85E-03 | 2.14E-03 | 2.68E-03 | 2.36E-03 |
| **GWPf** | kg $CO_2$-eq. | 1.66E-03 | 2.23E-03 | 1.77E-03 | 2.05E-03 | 2.56E-03 | 2.26E-03 |
| **GWPb** | kg $CO_2$-eq. | 7.31E-05 | 9.83E-05 | 7.80E-05 | 9.05E-05 | 1.13E-04 | 9.96E-05 |
| **GWPluluc** | kg $CO_2$-eq. | 1.88E-08 | 2.53E-08 | 2.01E-08 | 2.33E-08 | 2.91E-08 | 2.56E-08 |
| **ODP** | kg CFC-11-eq. | 1.75E-16 | 2.36E-16 | 1.87E-16 | 2.17E-16 | 2.71E-16 | 2.39E-16 |
| **AP** | Mole of H+ eq. | 2.28E-05 | 3.07E-05 | 2.44E-05 | 2.82E-05 | 3.53E-05 | 3.11E-05 |
| **EPfw** | kg P eq. | 2.87E-10 | 3.86E-10 | 3.07E-10 | 3.56E-10 | 4.44E-10 | 3.92E-10 |
| **EPm** | kg N eq. | 1.04E-05 | 1.40E-05 | 1.11E-05 | 1.29E-05 | 1.61E-05 | 1.42E-05 |
| **EPt** | Mole of N eq. | 1.14E-04 | 1.53E-04 | 1.22E-04 | 1.41E-04 | 1.76E-04 | 1.55E-04 |
| **POFP** | kg NMVOC eq. | 3.11E-05 | 4.18E-05 | 3.32E-05 | 3.85E-05 | 4.80E-05 | 4.23E-05 |
| **ADPmm** | kg Sb-eq. | 3.15E-11 | 4.23E-11 | 3.36E-11 | 3.89E-11 | 4.86E-11 | 4.29E-11 |
| **ADPf** | MJ | 2.32E-02 | 3.11E-02 | 2.47E-02 | 2.87E-02 | 3.58E-02 | 3.16E-02 |
| **WDP** | $m^3$ world equiv. | 1.11E-05 | 1.49E-05 | 1.18E-05 | 1.37E-05 | 1.71E-05 | 1.51E-05 |

* Max variation from weighted average is slightly more than 10% due to the low impact of these products which are produced in low volumes at selected plasterboard manufacturing sites

## Table 52. Core environmental impact indicators for 1 m² of product for groups 7-12

| PARAMETER | UNIT | soundshield 13 mm | Opal 10 mm | fireshield 13 mm | fireshield 16 mm | fireshield H 13 mm | trurock 13 mm |
|---|---|---|---|---|---|---|---|
| GWP | kg $CO_2$-eq. | 3.45E-03 | 2.35E-03 | 3.02E-03 | 3.67E-03 | 3.36E-03 | 3.48E-03 |
| GWPf | kg $CO_2$-eq. | 3.31E-03 | 2.25E-03 | 2.89E-03 | 3.52E-03 | 3.22E-03 | 3.33E-03 |
| GWPb | kg $CO_2$-eq. | 1.46E-04 | 9.93E-05 | 1.27E-04 | 1.55E-04 | 1.42E-04 | 1.47E-04 |
| GWPluluc | kg $CO_2$-eq. | 3.75E-08 | 2.55E-08 | 3.28E-08 | 3.99E-08 | 3.65E-08 | 3.78E-08 |
| ODP | kg CFC-11-eq. | 3.50E-16 | 2.38E-16 | 3.06E-16 | 3.72E-16 | 3.40E-16 | 3.53E-16 |
| AP | Mole of H+ eq. | 4.55E-05 | 3.10E-05 | 3.98E-05 | 4.84E-05 | 4.43E-05 | 4.59E-05 |
| EPfw | kg P eq. | 5.73E-10 | 3.90E-10 | 5.01E-10 | 6.10E-10 | 5.58E-10 | 5.78E-10 |
| EPm | kg N eq. | 2.08E-05 | 1.41E-05 | 1.81E-05 | 2.21E-05 | 2.02E-05 | 2.09E-05 |
| EPt | Mole of N eq. | 2.27E-04 | 1.55E-04 | 1.99E-04 | 2.42E-04 | 2.21E-04 | 2.29E-04 |
| POFP | kg NMVOC eq. | 6.20E-05 | 4.22E-05 | 5.42E-05 | 6.60E-05 | 6.03E-05 | 6.25E-05 |
| ADPmm | kg Sb-eq. | 6.28E-11 | 4.27E-11 | 5.49E-11 | 6.68E-11 | 6.11E-11 | 6.33E-11 |
| ADPf | MJ | 4.62E-02 | 3.15E-02 | 4.04E-02 | 4.92E-02 | 4.50E-02 | 4.66E-02 |
| WDP | m³ world equiv. | 2.20E-05 | 1.50E-05 | 1.93E-05 | 2.35E-05 | 2.15E-05 | 2.22E-05 |

## Table 53. Core environmental impact indicators for 1 m² of product for groups 13-19

| PARA-METER | UNIT | trurock 16 mm* | trurock HD 13 mm | trurock HD 16 mm | shaftliner/ intershield 25 mm | multishield 13 mm | multishield 16 mm | curveshield 6.5 mm |
|---|---|---|---|---|---|---|---|---|
| GWP | kg $CO_2$-eq. | 4.14E-03 | 3.49E-03 | 4.15E-03 | 6.00E-03 | 3.04E-03 | 3.67E-03 | 1.35E-03 |
| GWPf | kg $CO_2$-eq. | 3.97E-03 | 3.34E-03 | 3.98E-03 | 5.74E-03 | 2.91E-03 | 3.52E-03 | 1.30E-03 |
| GWPb | kg $CO_2$-eq. | 1.75E-04 | 1.47E-04 | 1.75E-04 | 2.53E-04 | 1.28E-04 | 1.55E-04 | 5.72E-05 |
| GWPluluc | kg $CO_2$-eq. | 4.50E-08 | 3.79E-08 | 4.51E-08 | 6.51E-08 | 3.30E-08 | 3.99E-08 | 1.47E-08 |
| ODP | kg CFC-11-eq. | 4.20E-16 | 3.54E-16 | 4.21E-16 | 6.07E-16 | 3.08E-16 | 3.72E-16 | 1.37E-16 |
| AP | Mole of H+ eq. | 5.46E-05 | 4.60E-05 | 5.47E-05 | 7.90E-05 | 4.01E-05 | 4.84E-05 | 1.79E-05 |
| EPfw | kg P eq. | 6.88E-10 | 5.80E-10 | 6.89E-10 | 9.95E-10 | 5.05E-10 | 6.10E-10 | 2.25E-10 |
| EPm | kg N eq. | 2.49E-05 | 2.10E-05 | 2.50E-05 | 3.60E-05 | 1.83E-05 | 2.21E-05 | 8.15E-06 |
| EPt | Mole of N eq. | 2.73E-04 | 2.30E-04 | 2.73E-04 | 3.95E-04 | 2.00E-04 | 2.42E-04 | 8.92E-05 |
| POFP | kg NMVOC eq. | 7.44E-05 | 6.27E-05 | 7.45E-05 | 1.08E-04 | 5.46E-05 | 6.60E-05 | 2.43E-05 |
| ADPmm | kg Sb-eq. | 7.53E-11 | 6.35E-11 | 7.55E-11 | 1.09E-10 | 5.53E-11 | 6.68E-11 | 2.46E-11 |
| ADPf | MJ | 5.55E-02 | 4.67E-02 | 5.56E-02 | 8.03E-02 | 4.07E-02 | 4.92E-02 | 1.81E-02 |
| WDP | m³ world equiv. | 2.65E-05 | 2.23E-05 | 2.65E-05 | 3.83E-05 | 1.94E-05 | 2.35E-05 | 8.65E-06 |

* Max variation from weighted average is slightly more than 10% due to the low impact of these products which are produced in low volumes at selected plasterboard manufacturing sites

# C1: additional environmental impact indicators

### Table 54. Additional environmental impact indicators for 1 m² of product for groups 1-6

| PARAMETER | UNIT | mastashield 10 mm | mastashield 13 mm | spanshield 10 mm | watershield 10 mm | watershield 13 mm | soundshield 10 mm* |
|---|---|---|---|---|---|---|---|
| **PM** | Disease incidences | 1.20E-09 | 1.61E-09 | 1.28E-09 | 1.48E-09 | 1.85E-09 | 1.63E-09 |
| **IRP** | kBq U235 eq. | 5.89E-07 | 7.91E-07 | 6.28E-07 | 7.28E-07 | 9.10E-07 | 8.02E-07 |
| **ETf** | CTUe | 9.32E-03 | 1.25E-02 | 9.95E-03 | 1.15E-02 | 1.44E-02 | 1.27E-02 |
| **HTc** | CTUh | 1.57E-13 | 2.11E-13 | 1.67E-13 | 1.94E-13 | 2.42E-13 | 2.13E-13 |
| **HTnc** | CTUh | 1.36E-11 | 1.83E-11 | 1.45E-11 | 1.68E-11 | 2.10E-11 | 1.85E-11 |
| **LU** | Pt | 6.54E-05 | 8.79E-05 | 6.97E-05 | 8.09E-05 | 1.01E-04 | 8.91E-05 |

### Table 55. Additional environmental impact indicators for 1 m² of product for groups 7-12

| PARAMETER | UNIT | soundshield 13 mm | Opal 10 mm | fireshield 13 mm | fireshield 16 mm | fireshield H 13 mm | trurock 13 mm |
|---|---|---|---|---|---|---|---|
| **PM** | Disease incidences | 2.39E-09 | 1.63E-09 | 2.09E-09 | 2.54E-09 | 2.33E-09 | 2.41E-09 |
| **IRP** | kBq U235 eq. | 1.17E-06 | 7.99E-07 | 1.03E-06 | 1.25E-06 | 1.14E-06 | 1.18E-06 |
| **ETf** | CTUe | 1.86E-02 | 1.27E-02 | 1.63E-02 | 1.98E-02 | 1.81E-02 | 1.88E-02 |
| **HTc** | CTUh | 3.13E-13 | 2.13E-13 | 2.73E-13 | 3.33E-13 | 3.04E-13 | 3.15E-13 |
| **HTnc** | CTUh | 2.71E-11 | 1.85E-11 | 2.37E-11 | 2.89E-11 | 2.64E-11 | 2.73E-11 |
| **LU** | Pt | 1.30E-04 | 8.88E-05 | 1.14E-04 | 1.39E-04 | 1.27E-04 | 1.31E-04 |

### Table 56. Additional environmental impact indicators for 1 m² of product for groups 13-19

| PARA-METER | UNIT | trurock 16 mm* | trurock HD 13 mm | trurock HD 16 mm | shaftliner/ intershield 25 mm | multishield 13 mm | multishield 16 mm | curveshield 6.5 mm |
|---|---|---|---|---|---|---|---|---|
| **PM** | Disease incidences | 2.87E-09 | 2.42E-09 | 2.87E-09 | 4.15E-09 | 2.10E-09 | 2.54E-09 | 9.38E-10 |
| **IRP** | kBq U235 eq. | 1.41E-06 | 1.19E-06 | 1.41E-06 | 2.04E-06 | 1.03E-06 | 1.25E-06 | 4.61E-07 |
| **ETf** | CTUe | 2.23E-02 | 1.88E-02 | 2.24E-02 | 3.23E-02 | 1.64E-02 | 1.98E-02 | 7.30E-03 |
| **HTc** | CTUh | 3.75E-13 | 3.16E-13 | 3.76E-13 | 5.43E-13 | 2.75E-13 | 3.33E-13 | 1.23E-13 |
| **HTnc** | CTUh | 3.25E-11 | 2.74E-11 | 3.26E-11 | 4.71E-11 | 2.39E-11 | 2.89E-11 | 1.06E-11 |
| **LU** | Pt | 1.56E-04 | 1.32E-04 | 1.57E-04 | 2.26E-04 | 1.15E-04 | 1.39E-04 | 5.12E-05 |

* Max variation from weighted average is slightly more than 10% due to the low impact of these products which are produced in low volumes at selected plasterboard manufacturing sites

# C1: resource use indicators

### Table 57. Resource use indicators for 1 m² of product for groups 1-6

| PARAMETER | UNIT | **masta**shield 10 mm | **masta**shield 13 mm | **span**shield 10 mm | **water**shield 10 mm | **water**shield 13 mm | **sound**shield 10 mm* |
|---|---|---|---|---|---|---|---|
| PERE | MJ | 1.13E-04 | 1.52E-04 | 1.21E-04 | 1.40E-04 | 1.75E-04 | 1.54E-04 |
| PERM | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PERT | MJ | 1.13E-04 | 1.52E-04 | 1.21E-04 | 1.40E-04 | 1.75E-04 | 1.54E-04 |
| PENRE | MJ | 2.32E-02 | 3.12E-02 | 2.47E-02 | 2.87E-02 | 3.58E-02 | 3.16E-02 |
| PENRM | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PENRT | MJ | 2.32E-02 | 3.12E-02 | 2.47E-02 | 2.87E-02 | 3.58E-02 | 3.16E-02 |
| SM | kg | 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 |
| NRSF | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| FW | $m^3$ | 2.21E-07 | 2.97E-07 | 2.36E-07 | 2.73E-07 | 3.41E-07 | 3.01E-07 |

### Table 58. Resource use indicators for 1 m² of product for groups 7-12

| PARAMETER | UNIT | **sound**shield 13 mm | Opal 10 mm | **fire**shield 13 mm | **fire**shield 16 mm | **fire**shield H 13 mm | **tru**rock 13 mm |
|---|---|---|---|---|---|---|---|
| PERE | MJ | 2.26E-04 | 1.54E-04 | 1.97E-04 | 2.40E-04 | 2.20E-04 | 2.28E-04 |
| PERM | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PERT | MJ | 2.26E-04 | 1.54E-04 | 1.97E-04 | 2.40E-04 | 2.20E-04 | 2.28E-04 |
| PENRE | MJ | 4.62E-02 | 3.15E-02 | 4.04E-02 | 4.92E-02 | 4.50E-02 | 4.66E-02 |
| PENRM | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PENRT | MJ | 4.62E-02 | 3.15E-02 | 4.04E-02 | 4.92E-02 | 4.50E-02 | 4.66E-02 |
| SM | kg | 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 |
| NRSF | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| FW | $m^3$ | 4.40E-07 | 3.00E-07 | 3.85E-07 | 4.69E-07 | 4.28E-07 | 4.44E-07 |

### Table 59. Resource use indicators for 1 m² of product for groups 13-19

| PARA-METER | UNIT | **tru**rock 16 mm* | **tru**rock HD 13 mm | **tru**rock HD 16 mm | **shaft**liner/ **inter**shield 25 mm | **multi**shield 13 mm | **multi**shield 16 mm | **curve**shield 6.5 mm |
|---|---|---|---|---|---|---|---|---|
| PERE | MJ | 2.71E-04 | 2.28E-04 | 2.72E-04 | 3.92E-04 | 1.99E-04 | 2.40E-04 | 8.86E-05 |
| PERM | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PERT | MJ | 2.71E-04 | 2.28E-04 | 2.72E-04 | 3.92E-04 | 1.99E-04 | 2.40E-04 | 8.86E-05 |
| PENRE | MJ | 5.55E-02 | 4.67E-02 | 5.56E-02 | 8.03E-02 | 4.07E-02 | 4.92E-02 | 1.81E-02 |
| PENRM | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PENRT | MJ | 5.55E-02 | 4.67E-02 | 5.56E-02 | 8.03E-02 | 4.07E-02 | 4.92E-02 | 1.81E-02 |
| SM | kg | 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 |
| NRSF | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| FW | $m^3$ | 5.28E-07 | 4.45E-07 | 5.30E-07 | 7.65E-07 | 3.88E-07 | 4.69E-07 | 1.73E-07 |

* Max variation from weighted average is slightly more than 10% due to the low impact of these products which are produced in low volumes at selected plasterboard manufacturing sites

# C1: waste production and output flows

### Table 60. Waste material and output flow indicators for 1 m² of product for groups 1-6

| PARAMETER | UNIT | **masta**shield 10 mm | **masta**shield 13 mm | **span**shield 10 mm | **water**shield 10 mm | **water**shield 13 mm | **sound**shield 10 mm* |
|---|---|---|---|---|---|---|---|
| HWD | kg | 3.76E-14 | 5.05E-14 | 4.01E-14 | 4.65E-14 | 5.81E-14 | 5.12E-14 |
| NHWD | kg | 5.62E-07 | 7.56E-07 | 6.00E-07 | 6.96E-07 | 8.69E-07 | 7.66E-07 |
| RWD | kg | 4.53E-09 | 6.08E-09 | 4.83E-09 | 5.60E-09 | 7.00E-09 | 6.17E-09 |
| CRU | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MFR | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MER | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EEE | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EET | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

### Table 61. Waste material and output flow indicators for 1 m² of product for groups 7-12

| PARAMETER | UNIT | **sound**shield 13 mm | Opal 10 mm | **fire**shield 13 mm | **fire**shield 16 mm | **fire**shield H 13 mm | **tru**rock 13 mm |
|---|---|---|---|---|---|---|---|
| HWD | kg | 7.50E-14 | 5.11E-14 | 6.56E-14 | 7.98E-14 | 7.30E-14 | 7.56E-14 |
| NHWD | kg | 1.12E-06 | 7.63E-07 | 9.80E-07 | 1.19E-06 | 1.09E-06 | 1.13E-06 |
| RWD | kg | 9.03E-09 | 6.15E-09 | 7.89E-09 | 9.61E-09 | 8.78E-09 | 9.10E-09 |
| CRU | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MFR | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MER | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EEE | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EET | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

### Table 62. Waste material and output flow indicators for 1 m² of product for groups 13-19

| PARA-METER | UNIT | **tru**rock 16 mm* | **tru**rock HD 13 mm | **tru**rock HD 16 mm | **shaft**liner/ **inter**shield 25 mm | **multi**shield 13 mm | **multi**shield 16 mm | **curve**shield 6.5 mm |
|---|---|---|---|---|---|---|---|---|
| HWD | kg | 9.00E-14 | 7.58E-14 | 9.02E-14 | 1.30E-13 | 6.61E-14 | 7.98E-14 | 2.94E-14 |
| NHWD | kg | 1.35E-06 | 1.13E-06 | 1.35E-06 | 1.95E-06 | 9.88E-07 | 1.19E-06 | 4.40E-07 |
| RWD | kg | 1.08E-08 | 9.13E-09 | 1.09E-08 | 1.57E-08 | 7.95E-09 | 9.61E-09 | 3.54E-09 |
| CRU | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MFR | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MER | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EEE | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EET | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

* Max variation from weighted average is slightly more than 10% due to the low impact of these products which are produced in low volumes at selected plasterboard manufacturing sites

# module C2

## C2: core environmental impact indicators

### Table 63. Core environmental impact indicators for 1 m² of product for groups 1-6

| PARAMETER | UNIT | **masta**shield 10 mm | **masta**shield 13 mm | **span**shield 10 mm | **water**shield 10 mm | **water**shield 13 mm | **sound**shield 10 mm* |
|---|---|---|---|---|---|---|---|
| **GWP** | kg $CO_2$-eq. | 1.92E-02 | 2.59E-02 | 2.05E-02 | 2.38E-02 | 2.97E-02 | 2.62E-02 |
| **GWPf** | kg $CO_2$-eq. | 1.91E-02 | 2.57E-02 | 2.04E-02 | 2.37E-02 | 2.96E-02 | 2.61E-02 |
| **GWPb** | kg $CO_2$-eq. | 1.24E-04 | 1.67E-04 | 1.32E-04 | 1.54E-04 | 1.92E-04 | 1.69E-04 |
| **GWPluluc** | kg $CO_2$-eq. | 2.07E-07 | 2.79E-07 | 2.21E-07 | 2.57E-07 | 3.21E-07 | 2.83E-07 |
| **ODP** | kg CFC-11-eq. | 1.93E-15 | 2.60E-15 | 2.06E-15 | 2.39E-15 | 2.99E-15 | 2.63E-15 |
| **AP** | Mole of H+ eq. | 3.22E-05 | 4.32E-05 | 3.43E-05 | 3.98E-05 | 4.97E-05 | 4.38E-05 |
| **EPfw** | kg P eq. | 3.17E-09 | 4.26E-09 | 3.38E-09 | 3.92E-09 | 4.90E-09 | 4.32E-09 |
| **EPm** | kg N eq. | 1.33E-05 | 1.78E-05 | 1.41E-05 | 1.64E-05 | 2.05E-05 | 1.81E-05 |
| **EPt** | Mole of N eq. | 1.46E-04 | 1.96E-04 | 1.56E-04 | 1.81E-04 | 2.26E-04 | 1.99E-04 |
| **POFP** | kg NMVOC eq. | 3.16E-05 | 4.25E-05 | 3.37E-05 | 3.91E-05 | 4.89E-05 | 4.31E-05 |
| **ADPmm** | kg Sb-eq. | 3.47E-10 | 4.66E-10 | 3.70E-10 | 4.29E-10 | 5.36E-10 | 4.73E-10 |
| **ADPf** | MJ | 2.56E-01 | 3.43E-01 | 2.73E-01 | 3.16E-01 | 3.95E-01 | 3.48E-01 |
| **WDP** | $m^3$ world equiv. | 1.22E-04 | 1.64E-04 | 1.30E-04 | 1.51E-04 | 1.88E-04 | 1.66E-04 |

### Table 64. Core environmental impact indicators for 1 m² of product for groups 7-12

| PARAMETER | UNIT | **sound**shield 13 mm | Opal 10 mm | **fire**shield 13 mm | **fire**shield 16 mm | **fire**shield H 13 mm | **tru**rock 13 mm |
|---|---|---|---|---|---|---|---|
| **GWP** | kg $CO_2$-eq. | 3.84E-02 | 2.61E-02 | 3.36E-02 | 4.08E-02 | 3.73E-02 | 3.87E-02 |
| **GWPf** | kg $CO_2$-eq. | 3.81E-02 | 2.60E-02 | 3.33E-02 | 4.06E-02 | 3.71E-02 | 3.85E-02 |
| **GWPb** | kg $CO_2$-eq. | 2.48E-04 | 1.69E-04 | 2.16E-04 | 2.63E-04 | 2.41E-04 | 2.50E-04 |
| **GWPluluc** | kg $CO_2$-eq. | 4.14E-07 | 2.82E-07 | 3.62E-07 | 4.40E-07 | 4.02E-07 | 4.17E-07 |
| **ODP** | kg CFC-11-eq. | 3.86E-15 | 2.63E-15 | 3.37E-15 | 4.10E-15 | 3.75E-15 | 3.89E-15 |
| **AP** | Mole of H+ eq. | 6.41E-05 | 4.37E-05 | 5.61E-05 | 6.83E-05 | 6.24E-05 | 6.47E-05 |
| **EPfw** | kg P eq. | 6.32E-09 | 4.30E-09 | 5.53E-09 | 6.73E-09 | 6.15E-09 | 6.37E-09 |
| **EPm** | kg N eq. | 2.64E-05 | 1.80E-05 | 2.31E-05 | 2.81E-05 | 2.57E-05 | 2.67E-05 |
| **EPt** | Mole of N eq. | 2.91E-04 | 1.98E-04 | 2.55E-04 | 3.10E-04 | 2.84E-04 | 2.94E-04 |
| **POFP** | kg NMVOC eq. | 6.30E-05 | 4.29E-05 | 5.51E-05 | 6.71E-05 | 6.13E-05 | 6.36E-05 |
| **ADPmm** | kg Sb-eq. | 6.92E-10 | 4.71E-10 | 6.05E-10 | 7.37E-10 | 6.73E-10 | 6.98E-10 |
| **ADPf** | MJ | 5.10E-01 | 3.47E-01 | 4.46E-01 | 5.42E-01 | 4.96E-01 | 5.14E-01 |
| **WDP** | $m^3$ world equiv. | 2.43E-04 | 1.66E-04 | 2.13E-04 | 2.59E-04 | 2.37E-04 | 2.45E-04 |

* Max variation from weighted average is slightly more than 10% due to the low impact of these products which are produced in low volumes at selected plasterboard manufacturing sites

## Table 65. Core environmental impact indicators for 1 m² of product for groups 13-19

| PARA-METER | UNIT | **tru**rock 16 mm* | **tru**rock HD 13 mm | **tru**rock HD 16 mm | **shaft**liner/ **inter**shield 25 mm | **multi**shield 13 mm | **multi**shield 16 mm | **curve**shield 6.5 mm |
|---|---|---|---|---|---|---|---|---|
| **GWP** | kg $CO_2$-eq. | 4.61E-02 | 3.88E-02 | 4.62E-02 | 6.66E-02 | 3.38E-02 | 4.08E-02 | 1.51E-02 |
| **GWPf** | kg $CO_2$-eq. | 4.58E-02 | 3.86E-02 | 4.59E-02 | 6.62E-02 | 3.36E-02 | 4.06E-02 | 1.50E-02 |
| **GWPb** | kg $CO_2$-eq. | 2.97E-04 | 2.50E-04 | 2.98E-04 | 4.30E-04 | 2.18E-04 | 2.63E-04 | 9.71E-05 |
| **GWPluluc** | kg $CO_2$-eq. | 4.96E-07 | 4.18E-07 | 4.97E-07 | 7.18E-07 | 3.64E-07 | 4.40E-07 | 1.62E-07 |
| **ODP** | kg CFC-11-eq. | 4.63E-15 | 3.90E-15 | 4.64E-15 | 6.70E-15 | 3.40E-15 | 4.10E-15 | 1.51E-15 |
| **AP** | Mole of H+ eq. | 7.70E-05 | 6.49E-05 | 7.71E-05 | 1.11E-04 | 5.65E-05 | 6.83E-05 | 2.52E-05 |
| **EPfw** | kg P eq. | 7.59E-09 | 6.39E-09 | 7.60E-09 | 1.10E-08 | 5.57E-09 | 6.73E-09 | 2.48E-09 |
| **EPm** | kg N eq. | 3.17E-05 | 2.67E-05 | 3.18E-05 | 4.59E-05 | 2.33E-05 | 2.81E-05 | 1.04E-05 |
| **EPt** | Mole of N eq. | 3.50E-04 | 2.95E-04 | 3.50E-04 | 5.06E-04 | 2.57E-04 | 3.10E-04 | 1.14E-04 |
| **POFP** | kg NMVOC eq. | 7.57E-05 | 6.37E-05 | 7.58E-05 | 1.09E-04 | 5.55E-05 | 6.71E-05 | 2.47E-05 |
| **ADPmm** | kg Sb-eq. | 8.31E-10 | 7.00E-10 | 8.32E-10 | 1.20E-09 | 6.10E-10 | 7.36E-10 | 2.72E-10 |
| **ADPf** | MJ | 6.12E-01 | 5.15E-01 | 6.13E-01 | 8.85E-01 | 4.49E-01 | 5.42E-01 | 2.00E-01 |
| **WDP** | m³ world equiv. | 2.92E-04 | 2.46E-04 | 2.92E-04 | 4.22E-04 | 2.14E-04 | 2.59E-04 | 9.54E-05 |

* Max variation from weighted average is slightly more than 10% due to the low impact of these products which are produced in low volumes at selected plasterboard manufacturing sites

# C2: additional environmental impact indicators

### Table 66. Additional environmental impact indicators for 1 m² of product for groups 1-6

| PARAMETER | UNIT | **masta**shield 10 mm | **masta**shield 13 mm | **span**shield 10 mm | **water**shield 10 mm | **water**shield 13 mm | **sound**shield 10 mm* |
|---|---|---|---|---|---|---|---|
| **PM** | Disease incidences | 2.37E-10 | 3.18E-10 | 2.53E-10 | 2.93E-10 | 3.66E-10 | 3.22E-10 |
| **IRP** | kBq U235 eq. | 6.49E-06 | 8.72E-06 | 6.92E-06 | 8.03E-06 | 1.00E-05 | 8.84E-06 |
| **ETf** | CTUe | 1.02E-01 | 1.38E-01 | 1.09E-01 | 1.27E-01 | 1.58E-01 | 1.40E-01 |
| **HTc** | CTUh | 1.73E-12 | 2.33E-12 | 1.85E-12 | 2.14E-12 | 2.67E-12 | 2.36E-12 |
| **HTnc** | CTUh | 6.07E-11 | 8.16E-11 | 6.48E-11 | 7.51E-11 | 9.38E-11 | 8.27E-11 |
| **LU** | Pt | 7.21E-04 | 9.69E-04 | 7.69E-04 | 8.92E-04 | 1.11E-03 | 9.82E-04 |

### Table 67. Additional environmental impact indicators for 1 m² of product for groups 7-12

| PARAMETER | UNIT | **sound**shield 13 mm | Opal 10 mm | **fire**shield 13 mm | **fire**shield 16 mm | **fire**shield H 13 mm | **tru**rock 13 mm |
|---|---|---|---|---|---|---|---|
| **PM** | Disease incidences | 4.72E-10 | 3.21E-10 | 4.13E-10 | 5.02E-10 | 4.59E-10 | 4.76E-10 |
| **IRP** | kBq U235 eq. | 1.29E-05 | 8.81E-06 | 1.13E-05 | 1.38E-05 | 1.26E-05 | 1.31E-05 |
| **ETf** | CTUe | 2.04E-01 | 1.39E-01 | 1.79E-01 | 2.18E-01 | 1.99E-01 | 2.06E-01 |
| **HTc** | CTUh | 3.45E-12 | 2.35E-12 | 3.02E-12 | 3.67E-12 | 3.36E-12 | 3.48E-12 |
| **HTnc** | CTUh | 1.21E-10 | 8.24E-11 | 1.06E-10 | 1.29E-10 | 1.18E-10 | 1.22E-10 |
| **LU** | Pt | 1.44E-03 | 9.79E-04 | 1.26E-03 | 1.53E-03 | 1.40E-03 | 1.45E-03 |

### Table 68. Additional environmental impact indicators for 1 m² of product for groups 13-19

| PARA-METER | UNIT | **tru**rock 16 mm* | **tru**rock HD 13 mm | **tru**rock HD 16 mm | **shaft**liner/ **inter**shield 25 mm | **multi**shield 13 mm | **multi**shield 16 mm | **curve**shield 6.5 mm |
|---|---|---|---|---|---|---|---|---|
| **PM** | Disease incidences | 5.67E-10 | 4.77E-10 | 5.68E-10 | 8.20E-10 | 4.16E-10 | 5.02E-10 | 1.85E-10 |
| **IRP** | kBq U235 eq. | 1.55E-05 | 1.31E-05 | 1.56E-05 | 2.25E-05 | 1.14E-05 | 1.38E-05 | 5.08E-06 |
| **ETf** | CTUe | 2.45E-01 | 2.07E-01 | 2.46E-01 | 3.55E-01 | 1.80E-01 | 2.17E-01 | 8.02E-02 |
| **HTc** | CTUh | 4.14E-12 | 3.49E-12 | 4.15E-12 | 5.99E-12 | 3.04E-12 | 3.67E-12 | 1.35E-12 |
| **HTnc** | CTUh | 1.45E-10 | 1.22E-10 | 1.46E-10 | 2.10E-10 | 1.07E-10 | 1.29E-10 | 4.75E-11 |
| **LU** | Pt | 1.73E-03 | 1.45E-03 | 1.73E-03 | 2.50E-03 | 1.27E-03 | 1.53E-03 | 5.64E-04 |

* Max variation from weighted average is slightly more than 10% due to the low impact of these products which are produced in low volumes at selected plasterboard manufacturing sites

# C2: resource use indicators

### Table 69. Resource use indicators for 1 m² of product for groups 1-6

| PARAMETER | UNIT | **masta**shield 10 mm | **masta**shield 13 mm | **span**shield 10 mm | **water**shield 10 mm | **water**shield 13 mm | **sound**shield 10 mm* |
|---|---|---|---|---|---|---|---|
| **PERE** | MJ | 1.25E-03 | 1.68E-03 | 1.33E-03 | 1.55E-03 | 1.93E-03 | 1.70E-03 |
| **PERM** | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **PERT** | MJ | 1.25E-03 | 1.68E-03 | 1.33E-03 | 1.55E-03 | 1.93E-03 | 1.70E-03 |
| **PENRE** | MJ | 2.56E-01 | 3.44E-01 | 2.73E-01 | 3.16E-01 | 3.95E-01 | 3.48E-01 |
| **PENRM** | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **PENRT** | MJ | 2.56E-01 | 3.44E-01 | 2.73E-01 | 3.16E-01 | 3.95E-01 | 3.48E-01 |
| **SM** | kg | 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 |
| **NRSF** | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **FW** | $m^3$ | 2.43E-06 | 3.27E-06 | 2.60E-06 | 3.01E-06 | 3.76E-06 | 3.32E-06 |

### Table 70. Resource use indicators for 1 m² of product for groups 7-12

| PARAMETER | UNIT | **sound**shield 13 mm | Opal 10 mm | **fire**shield 13 mm | **fire**shield 16 mm | **fire**shield H 13 mm | **tru**rock 13 mm |
|---|---|---|---|---|---|---|---|
| **PERE** | MJ | 2.49E-03 | 1.70E-03 | 2.18E-03 | 2.65E-03 | 2.42E-03 | 2.51E-03 |
| **PERM** | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **PERT** | MJ | 2.49E-03 | 1.70E-03 | 2.18E-03 | 2.65E-03 | 2.42E-03 | 2.51E-03 |
| **PENRE** | MJ | 5.10E-01 | 3.47E-01 | 4.46E-01 | 5.42E-01 | 4.96E-01 | 5.14E-01 |
| **PENRM** | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **PENRT** | MJ | 5.10E-01 | 3.47E-01 | 4.46E-01 | 5.42E-01 | 4.96E-01 | 5.14E-01 |
| **SM** | kg | 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 |
| **NRSF** | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **FW** | $m^3$ | 4.86E-06 | 3.31E-06 | 4.24E-06 | 5.17E-06 | 4.72E-06 | 4.90E-06 |

### Table 71. Resource use indicators for 1 m² of product for groups 13-19

| PARA-METER | UNIT | **tru**rock 16 mm* | **tru**rock HD 13 mm | **tru**rock HD 16 mm | **shaftliner/ inter**shield 25 mm | **multi**shield 13 mm | **multi**shield 16 mm | **curve**shield 6.5 mm |
|---|---|---|---|---|---|---|---|---|
| **PERE** | MJ | 2.99E-03 | 2.52E-03 | 2.99E-03 | 4.32E-03 | 2.19E-03 | 2.65E-03 | 9.77E-04 |
| **PERM** | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **PERT** | MJ | 2.99E-03 | 2.52E-03 | 2.99E-03 | 4.32E-03 | 2.19E-03 | 2.65E-03 | 9.77E-04 |
| **PENRE** | MJ | 6.12E-01 | 5.15E-01 | 6.13E-01 | 8.85E-01 | 4.49E-01 | 5.42E-01 | 2.00E-01 |
| **PENRM** | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **PENRT** | MJ | 6.12E-01 | 5.15E-01 | 6.13E-01 | 8.85E-01 | 4.49E-01 | 5.42E-01 | 2.00E-01 |
| **SM** | kg | 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 |
| **NRSF** | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **FW** | $m^3$ | 5.83E-06 | 4.91E-06 | 5.84E-06 | 8.43E-06 | 4.28E-06 | 5.17E-06 | 1.91E-06 |

* Max variation from weighted average is slightly more than 10% due to the low impact of these products which are produced in low volumes at selected plasterboard manufacturing sites

# C2: waste production and output flows

### Table 72. Waste material and output flow indicators for 1 m² of product for groups 1-6

| PARAMETER | UNIT | mastashield 10 mm | mastashield 13 mm | spanshield 10 mm | watershield 10 mm | watershield 13 mm | soundshield 10 mm* |
|---|---|---|---|---|---|---|---|
| HWD | kg | 4.15E-13 | 5.57E-13 | 4.42E-13 | 5.13E-13 | 6.41E-13 | 5.65E-13 |
| NHWD | kg | 6.20E-06 | 8.33E-06 | 6.61E-06 | 7.67E-06 | 9.58E-06 | 8.45E-06 |
| RWD | kg | 4.99E-08 | 6.71E-08 | 5.32E-08 | 6.18E-08 | 7.71E-08 | 6.80E-08 |
| CRU | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MFR | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MER | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EEE | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EET | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

### Table 73. Waste material and output flow indicators for 1 m² of product for groups 7-12

| PARAMETER | UNIT | soundshield 13 mm | Opal 10 mm | fireshield 13 mm | fireshield 16 mm | fireshield H 13 mm | trurock 13 mm |
|---|---|---|---|---|---|---|---|
| HWD | kg | 8.27E-13 | 5.63E-13 | 7.23E-13 | 8.80E-13 | 8.05E-13 | 8.34E-13 |
| NHWD | kg | 1.24E-05 | 8.42E-06 | 1.08E-05 | 1.32E-05 | 1.20E-05 | 1.25E-05 |
| RWD | kg | 9.95E-08 | 6.78E-08 | 8.70E-08 | 1.06E-07 | 9.68E-08 | 1.00E-07 |
| CRU | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MFR | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MER | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EEE | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EET | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

### Table 74. Waste material and output flow indicators for 1 m² of product for groups 13-19

| PARA-METER | UNIT | trurock 16 mm* | trurock HD 13 mm | trurock HD 16 mm | shaftliner/ intershield 25 mm | multishield 13 mm | multishield 16 mm | curveshield 6.5 mm |
|---|---|---|---|---|---|---|---|---|
| HWD | kg | 9.93E-13 | 8.36E-13 | 9.94E-13 | 1.44E-12 | 7.28E-13 | 8.80E-13 | 3.25E-13 |
| NHWD | kg | 1.48E-05 | 1.25E-05 | 1.49E-05 | 2.15E-05 | 1.09E-05 | 1.32E-05 | 4.85E-06 |
| RWD | kg | 1.19E-07 | 1.01E-07 | 1.20E-07 | 1.73E-07 | 8.77E-08 | 1.06E-07 | 3.91E-08 |
| CRU | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MFR | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MER | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EEE | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EET | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

* Max variation from weighted average is slightly more than 10% due to the low impact of these products which are produced in low volumes at selected plasterboard manufacturing sites

# module C3

Due to data limitations, as a conservative scenario in this model it is assumed that all plasterboard waste goes straight to landfill at end-of-life, meaning there is no waste processing involved.

# module C4

## C4: average core environmental impact indicators

**Table 75. Core environmental impact indicators for 1 m² of product for groups 1-6**

| PARAMETER | UNIT | **masta**shield 10 mm | **masta**shield 13 mm | **span**shield 10 mm | **water**shield 10 mm | **water**shield 13 mm | **sound**shield 10 mm* |
|---|---|---|---|---|---|---|---|
| **GWP** | kg $CO_2$-eq. | 2.04E+00 | 2.21E+00 | 2.12E+00 | 2.12E+00 | 2.19E+00 | 2.29E+00 |
| **GWPf** | kg $CO_2$-eq. | 1.14E-01 | 1.47E-01 | 1.21E-01 | 1.37E-01 | 1.66E-01 | 1.49E-01 |
| **GWPb** | kg $CO_2$-eq. | 1.93E+00 | 2.07E+00 | 2.00E+00 | 1.98E+00 | 2.02E+00 | 2.14E+00 |
| **GWPluluc** | kg $CO_2$-eq. | 1.70E-04 | 2.28E-04 | 1.81E-04 | 2.10E-04 | 2.62E-04 | 2.31E-04 |
| **ODP** | kg CFC-11-eq. | 2.49E-13 | 3.26E-13 | 2.65E-13 | 3.02E-13 | 3.69E-13 | 3.31E-13 |
| **AP** | Mole of H+ eq. | 8.61E-04 | 1.10E-03 | 9.11E-04 | 1.02E-03 | 1.23E-03 | 1.12E-03 |
| **EPfw** | kg P eq. | 1.65E-07 | 2.19E-07 | 1.75E-07 | 2.02E-07 | 2.50E-07 | 2.22E-07 |
| **EPm** | kg N eq. | 2.54E-04 | 3.18E-04 | 2.68E-04 | 2.97E-04 | 3.51E-04 | 3.24E-04 |
| **EPt** | Mole of N eq. | 2.79E-03 | 3.49E-03 | 2.94E-03 | 3.26E-03 | 3.85E-03 | 3.55E-03 |
| **POFP** | kg NMVOC eq. | 1.04E-03 | 1.26E-03 | 1.09E-03 | 1.18E-03 | 1.35E-03 | 1.28E-03 |
| **ADPmm** | kg Sb-eq. | 1.12E-08 | 1.46E-08 | 1.19E-08 | 1.35E-08 | 1.65E-08 | 1.48E-08 |
| **ADPf** | MJ | 1.48E+00 | 1.92E+00 | 1.57E+00 | 1.78E+00 | 2.16E+00 | 1.95E+00 |
| **WDP** | $m^3$ world equiv. | 1.65E-02 | 2.04E-02 | 1.73E-02 | 1.91E-02 | 2.24E-02 | 2.08E-02 |

* Max variation from weighted average is slightly more than 10% due to the low impact of these products which are produced in low volumes at selected plasterboard manufacturing sites

## Table 76. Core environmental impact indicators for 1 m² of product for groups 7-12

| PARAMETER | UNIT | soundshield 13 mm | Opal 10 mm | fireshield 13 mm | fireshield 16 mm | fireshield H 13 mm | trurock 13 mm |
|---|---|---|---|---|---|---|---|
| GWP | kg $CO_2$-eq. | 2.36E+00 | 2.73E+00 | 2.23E+00 | 2.25E+00 | 2.20E+00 | 2.84E+00 |
| GWPf | kg $CO_2$-eq. | 2.08E-01 | 1.53E-01 | 1.84E-01 | 2.19E-01 | 2.02E-01 | 2.14E-01 |
| GWPb | kg $CO_2$-eq. | 2.15E+00 | 2.58E+00 | 2.05E+00 | 2.04E+00 | 2.00E+00 | 2.62E+00 |
| GWPluluc | kg $CO_2$-eq. | 3.38E-04 | 2.29E-04 | 2.96E-04 | 3.60E-04 | 3.30E-04 | 3.39E-04 |
| ODP | kg CFC-11-eq. | 4.68E-13 | 3.35E-13 | 4.12E-13 | 4.95E-13 | 4.54E-13 | 4.77E-13 |
| AP | Mole of H+ eq. | 1.54E-03 | 1.16E-03 | 1.36E-03 | 1.61E-03 | 1.49E-03 | 1.59E-03 |
| EPfw | kg P eq. | 3.21E-07 | 2.22E-07 | 2.81E-07 | 3.40E-07 | 3.12E-07 | 3.24E-07 |
| EPm | kg N eq. | 4.32E-04 | 3.41E-04 | 3.85E-04 | 4.48E-04 | 4.16E-04 | 4.53E-04 |
| EPt | Mole of N eq. | 4.74E-03 | 3.74E-03 | 4.23E-03 | 4.92E-03 | 4.57E-03 | 4.97E-03 |
| POFP | kg NMVOC eq. | 1.62E-03 | 1.39E-03 | 1.46E-03 | 1.65E-03 | 1.55E-03 | 1.74E-03 |
| ADPmm | kg Sb-eq. | 2.08E-08 | 1.51E-08 | 1.83E-08 | 2.19E-08 | 2.02E-08 | 2.13E-08 |
| ADPf | MJ | 2.72E+00 | 1.99E+00 | 2.40E+00 | 2.86E+00 | 2.63E+00 | 2.79E+00 |
| WDP | m³ world equiv. | 2.74E-02 | 2.21E-02 | 2.45E-02 | 2.83E-02 | 2.63E-02 | 2.89E-02 |

## Table 77. Core environmental impact indicators for 1 m² of product for groups 13-19

| PARA-METER | UNIT | trurock 16 mm* | trurock HD 13 mm | trurock HD 16 mm | shaftliner/ intershield 25 mm | multishield 13 mm | multishield 16 mm | curveshield 6.5 mm |
|---|---|---|---|---|---|---|---|---|
| GWP | kg $CO_2$-eq. | 2.92E+00 | 2.83E+00 | 3.17E+00 | 3.30E+00 | 2.29E+00 | 2.23E+00 | 2.96E+00 |
| GWPf | kg $CO_2$-eq. | 2.50E-01 | 2.14E-01 | 2.52E-01 | 3.52E-01 | 1.86E-01 | 2.19E-01 | 1.03E-01 |
| GWPb | kg $CO_2$-eq. | 2.67E+00 | 2.61E+00 | 2.92E+00 | 2.95E+00 | 2.10E+00 | 2.01E+00 | 2.86E+00 |
| GWPluluc | kg $CO_2$-eq. | 4.04E-04 | 3.40E-04 | 4.04E-04 | 5.85E-04 | 2.98E-04 | 3.60E-04 | 1.30E-04 |
| ODP | kg CFC-11-eq. | 5.61E-13 | 4.79E-13 | 5.65E-13 | 7.98E-13 | 4.16E-13 | 4.94E-13 | 2.15E-13 |
| AP | Mole of H+ eq. | 1.84E-03 | 1.59E-03 | 1.87E-03 | 2.58E-03 | 1.38E-03 | 1.61E-03 | 8.08E-04 |
| EPfw | kg P eq. | 3.83E-07 | 3.25E-07 | 3.84E-07 | 5.51E-07 | 2.83E-07 | 3.40E-07 | 1.32E-07 |
| EPm | kg N eq. | 5.20E-04 | 4.54E-04 | 5.31E-04 | 7.15E-04 | 3.91E-04 | 4.48E-04 | 2.58E-04 |
| EPt | Mole of N eq. | 5.71E-03 | 4.98E-03 | 5.82E-03 | 7.85E-03 | 4.29E-03 | 4.92E-03 | 2.83E-03 |
| POFP | kg NMVOC eq. | 1.95E-03 | 1.74E-03 | 2.02E-03 | 2.60E-03 | 1.49E-03 | 1.65E-03 | 1.18E-03 |
| ADPmm | kg Sb-eq. | 2.49E-08 | 2.13E-08 | 2.51E-08 | 3.53E-08 | 1.85E-08 | 2.19E-08 | 9.85E-09 |
| ADPf | MJ | 3.26E+00 | 2.79E+00 | 3.29E+00 | 4.59E+00 | 2.43E+00 | 2.86E+00 | 1.33E+00 |
| WDP | m³ world equiv. | 3.30E-02 | 2.90E-02 | 3.38E-02 | 4.50E-02 | 2.49E-02 | 2.83E-02 | 1.73E-02 |

* Max variation from weighted average is slightly more than 10% due to the low impact of these products which are produced in low volumes at selected plasterboard manufacturing sites

# C4: additional environmental impact indicators

### Table 78. Additional environmental impact indicators for 1 m² of product for groups 1-6

| PARAMETER | UNIT | **masta**shield 10 mm | **masta**shield 13 mm | **span**shield 10 mm | **water**shield 10 mm | **water**shield 13 mm | **sound**shield 10 mm* |
|---|---|---|---|---|---|---|---|
| **PM** | Disease incidences | 9.26E-09 | 1.21E-08 | 9.83E-09 | 1.12E-08 | 1.37E-08 | 1.23E-08 |
| **IRP** | kBq U235 eq. | 1.63E-03 | 2.15E-03 | 1.73E-03 | 1.98E-03 | 2.45E-03 | 2.18E-03 |
| **ETf** | CTUe | 7.80E-01 | 1.02E+00 | 8.28E-01 | 9.44E-01 | 1.15E+00 | 1.03E+00 |
| **HTc** | CTUh | 1.13E-10 | 1.49E-10 | 1.20E-10 | 1.38E-10 | 1.70E-10 | 1.51E-10 |
| **HTnc** | CTUh | 1.23E-08 | 1.63E-08 | 1.31E-08 | 1.51E-08 | 1.86E-08 | 1.65E-08 |
| **LU** | Pt | 2.60E-01 | 3.46E-01 | 2.77E-01 | 3.20E-01 | 3.97E-01 | 3.51E-01 |

### Table 79. Additional environmental impact indicators for 1 m² of product for groups 7-12

| PARAMETER | UNIT | **sound**shield 13 mm | Opal 10 mm | **fire**shield 13 mm | **fire**shield 16 mm | **fire**shield H 13 mm | **tru**rock 13 mm |
|---|---|---|---|---|---|---|---|
| **PM** | Disease incidences | 1.74E-08 | 1.24E-08 | 1.53E-08 | 1.84E-08 | 1.69E-08 | 1.77E-08 |
| **IRP** | kBq U235 eq. | 3.12E-03 | 2.18E-03 | 2.74E-03 | 3.31E-03 | 3.04E-03 | 3.16E-03 |
| **ETf** | CTUe | 1.46E+00 | 1.05E+00 | 1.29E+00 | 1.55E+00 | 1.42E+00 | 1.49E+00 |
| **HTc** | CTUh | 2.16E-10 | 1.52E-10 | 1.90E-10 | 2.29E-10 | 2.10E-10 | 2.19E-10 |
| **HTnc** | CTUh | 2.38E-08 | 1.66E-08 | 2.09E-08 | 2.52E-08 | 2.31E-08 | 2.40E-08 |
| **LU** | Pt | 5.09E-01 | 3.49E-01 | 4.47E-01 | 5.42E-01 | 4.96E-01 | 5.13E-01 |

### Table 80. Additional environmental impact indicators for 1 m² of product for groups 13-19

| PARA-METER | UNIT | **tru**rock 16 mm* | **tru**rock HD 13 mm | **tru**rock HD 16 mm | **shaft**liner/ **inter**shield 25 mm | **multi**shield 13 mm | **multi**shield 16 mm | **curve**shield 6.5 mm |
|---|---|---|---|---|---|---|---|---|
| **PM** | Disease incidences | 2.08E-08 | 1.77E-08 | 2.10E-08 | 2.96E-08 | 1.54E-08 | 1.83E-08 | 7.94E-09 |
| **IRP** | kBq U235 eq. | 3.74E-03 | 3.17E-03 | 3.75E-03 | 5.35E-03 | 2.77E-03 | 3.31E-03 | 1.34E-03 |
| **ETf** | CTUe | 1.75E+00 | 1.50E+00 | 1.77E+00 | 2.49E+00 | 1.30E+00 | 1.54E+00 | 6.72E-01 |
| **HTc** | CTUh | 2.59E-10 | 2.20E-10 | 2.60E-10 | 3.70E-10 | 1.92E-10 | 2.29E-10 | 9.33E-11 |
| **HTnc** | CTUh | 2.84E-08 | 2.41E-08 | 2.85E-08 | 4.07E-08 | 2.10E-08 | 2.52E-08 | 1.01E-08 |
| **LU** | Pt | 6.09E-01 | 5.15E-01 | 6.10E-01 | 8.77E-01 | 4.50E-01 | 5.42E-01 | 2.05E-01 |

* Max variation from weighted average is slightly more than 10% due to the low impact of these products which are produced in low volumes at selected plasterboard manufacturing sites

# C4: resource use indicators

### Table 81. Resource use indicators for 1 m² of product for groups 1-6

| PARAMETER | UNIT | mastashield 10 mm | mastashield 13 mm | spanshield 10 mm | watershield 10 mm | watershield 13 mm | soundshield 10 mm* |
|---|---|---|---|---|---|---|---|
| PERE | MJ | 2.03E-01 | 2.66E-01 | 2.15E-01 | 2.46E-01 | 3.02E-01 | 2.70E-01 |
| PERM | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PERT | MJ | 2.03E-01 | 2.66E-01 | 2.15E-01 | 2.46E-01 | 3.02E-01 | 2.70E-01 |
| PENRE | MJ | 1.49E+00 | 1.92E+00 | 1.57E+00 | 1.78E+00 | 2.16E+00 | 1.95E+00 |
| PENRM | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PENRT | MJ | 1.49E+00 | 1.92E+00 | 1.57E+00 | 1.78E+00 | 2.16E+00 | 1.95E+00 |
| SM | kg | 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 |
| NRSF | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| FW | $m^3$ | 4.58E-04 | 5.76E-04 | 4.84E-04 | 5.37E-04 | 6.36E-04 | 5.86E-04 |

### Table 82. Resource use indicators for 1 m² of product for groups 7-12

| PARAMETER | UNIT | soundshield 13 mm | Opal 10 mm | fireshield 13 mm | fireshield 16 mm | fireshield H 13 mm | trurock 13 mm |
|---|---|---|---|---|---|---|---|
| PERE | MJ | 3.85E-01 | 2.72E-01 | 3.38E-01 | 4.07E-01 | 3.74E-01 | 3.91E-01 |
| PERM | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PERT | MJ | 3.85E-01 | 2.72E-01 | 3.38E-01 | 4.07E-01 | 3.74E-01 | 3.91E-01 |
| PENRE | MJ | 2.72E+00 | 1.99E+00 | 2.40E+00 | 2.86E+00 | 2.64E+00 | 2.79E+00 |
| PENRM | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PENRT | MJ | 2.72E+00 | 1.99E+00 | 2.40E+00 | 2.86E+00 | 2.64E+00 | 2.79E+00 |
| SM | kg | 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 |
| NRSF | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| FW | $m^3$ | 7.84E-04 | 6.17E-04 | 6.98E-04 | 8.15E-04 | 7.55E-04 | 8.21E-04 |

### Table 83. Resource use indicators for 1 m² of product for groups 13-19

| PARA-METER | UNIT | trurock 16 mm* | trurock HD 13 mm | trurock HD 16 mm | shaftliner/ intershield 25 mm | multishield 13 mm | multishield 16 mm | curveshield 6.5 mm |
|---|---|---|---|---|---|---|---|---|
| PERE | MJ | 4.61E-01 | 3.92E-01 | 4.63E-01 | 6.57E-01 | 3.41E-01 | 4.07E-01 | 1.70E-01 |
| PERM | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PERT | MJ | 4.61E-01 | 3.92E-01 | 4.63E-01 | 6.57E-01 | 3.41E-01 | 4.07E-01 | 1.70E-01 |
| PENRE | MJ | 3.26E+00 | 2.80E+00 | 3.29E+00 | 4.60E+00 | 2.43E+00 | 2.86E+00 | 1.34E+00 |
| PENRM | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PENRT | MJ | 3.26E+00 | 2.80E+00 | 3.29E+00 | 4.60E+00 | 2.43E+00 | 2.86E+00 | 1.34E+00 |
| SM | kg | 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 |
| NRSF | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| FW | $m^3$ | 9.44E-04 | 8.23E-04 | 9.63E-04 | 1.30E-03 | 7.08E-04 | 8.14E-04 | 4.63E-04 |

* Max variation from weighted average is slightly more than 10% due to the low impact of these products which are produced in low volumes at selected plasterboard manufacturing sites

# C4: waste production and output flows

### Table 84. Waste material and output flow indicators for 1 m² of product for groups 1-6

| PARAMETER | UNIT | mastashield 10 mm | mastashield 13 mm | spanshield 10 mm | watershield 10 mm | watershield 13 mm | soundshield 10 mm* |
|---|---|---|---|---|---|---|---|
| HWD | kg | 7.90E-11 | 1.02E-10 | 8.37E-11 | 9.44E-11 | 1.14E-10 | 1.03E-10 |
| NHWD | kg | 6.12E+00 | 8.21E+00 | 6.52E+00 | 7.57E+00 | 9.46E+00 | 8.32E+00 |
| RWD | kg | 1.48E-05 | 1.95E-05 | 1.58E-05 | 1.81E-05 | 2.22E-05 | 1.98E-05 |
| CRU | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MFR | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MER | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EEE | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EET | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

### Table 85. Waste material and output flow indicators for 1 m² of product for groups 7-12

| PARAMETER | UNIT | soundshield 13 mm | Opal 10 mm | fireshield 13 mm | fireshield 16 mm | fireshield H 13 mm | trurock 13 mm |
|---|---|---|---|---|---|---|---|
| HWD | kg | 1.43E-10 | 1.06E-10 | 1.26E-10 | 1.50E-10 | 1.38E-10 | 1.47E-10 |
| NHWD | kg | 1.22E+01 | 8.22E+00 | 1.07E+01 | 1.30E+01 | 1.19E+01 | 1.22E+01 |
| RWD | kg | 2.83E-05 | 1.99E-05 | 2.49E-05 | 3.00E-05 | 2.75E-05 | 2.87E-05 |
| CRU | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MFR | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MER | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EEE | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EET | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

### Table 86. Waste material and output flow indicators for 1 m² of product for groups 13-19

| PARA-METER | UNIT | trurock 16 mm* | trurock HD 13 mm | trurock HD 16 mm | shaftliner/ intershield 25 mm | multishield 13 mm | multishield 16 mm | curveshield 6.5 mm |
|---|---|---|---|---|---|---|---|---|
| HWD | kg | 1.71E-10 | 1.47E-10 | 1.73E-10 | 2.41E-10 | 1.28E-10 | 1.50E-10 | 7.28E-11 |
| NHWD | kg | 1.46E+01 | 1.23E+01 | 1.46E+01 | 2.11E+01 | 10.74866 | 1.30E+01 | 4.61E+00 |
| RWD | kg | 3.39E-05 | 2.88E-05 | 3.41E-05 | 4.84E-05 | 2.51E-05 | 3.00E-05 | 1.23E-05 |
| CRU | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MFR | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MER | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EEE | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EET | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

* Max variation from weighted average is slightly more than 10% due to the low impact of these products which are produced in low volumes at selected plasterboard manufacturing sites

# module D

## D: core environmental impact indicators

### Table 87. Core environmental impact indicators for 1 m² of product for groups 1-6

| PARAMETER | UNIT | **masta**shield 10 mm | **masta**shield 13 mm | **span**shield 10 mm | **water**shield 10 mm | **water**shield 13 mm | **sound**shield 10 mm* |
|---|---|---|---|---|---|---|---|
| **GWP** | kg $CO_2$-eq. | -1.04E-01 | -1.18E-01 | -1.09E-01 | -1.11E-01 | -1.19E-01 | -1.18E-01 |
| **GWPf** | kg $CO_2$-eq. | -1.04E-01 | -1.17E-01 | -1.09E-01 | -1.11E-01 | -1.19E-01 | -1.18E-01 |
| **GWPb** | kg $CO_2$-eq. | -1.41E-04 | -1.66E-04 | -1.48E-04 | -1.56E-04 | -1.73E-04 | -1.70E-04 |
| **GWPluluc** | kg $CO_2$-eq. | -6.05E-06 | -7.29E-06 | -6.36E-06 | -6.84E-06 | -7.79E-06 | -7.41E-06 |
| **ODP** | kg CFC-11-eq. | -4.07E-13 | -4.43E-13 | -4.22E-13 | -4.25E-13 | -4.39E-13 | -4.56E-13 |
| **AP** | Mole of H+ eq. | -7.59E-04 | -9.21E-04 | -8.03E-04 | -8.36E-04 | -9.54E-04 | -8.33E-04 |
| **EPfw** | kg P eq. | -5.37E-08 | -5.96E-08 | -5.59E-08 | -5.69E-08 | -5.98E-08 | -6.07E-08 |
| **EPm** | kg N eq. | -1.87E-04 | -2.31E-04 | -1.98E-04 | -2.09E-04 | -2.43E-04 | -2.09E-04 |
| **EPt** | Mole of N eq. | -2.04E-03 | -2.53E-03 | -2.17E-03 | -2.28E-03 | -2.66E-03 | -2.29E-03 |
| **POFP** | kg NMVOC eq. | -5.05E-04 | -6.24E-04 | -5.36E-04 | -5.62E-04 | -6.52E-04 | -5.58E-04 |
| **ADPmm** | kg Sb-eq. | -8.01E-09 | -8.84E-09 | -8.34E-09 | -8.44E-09 | -8.81E-09 | -8.98E-09 |
| **ADPf** | MJ | -1.15E+00 | -1.30E+00 | -1.20E+00 | -1.23E+00 | -1.32E+00 | -1.31E+00 |
| **WDP** | m³ world equiv. | -3.57E-02 | -3.89E-02 | -3.71E-02 | -3.74E-02 | -3.85E-02 | -4.00E-02 |

### Table 88. Core environmental impact indicators for 1 m² of product for groups 7-12

| PARAMETER | UNIT | **sound**shield 13 mm | Opal 10 mm | **fire**shield 13 mm | **fire**shield 16 mm | **fire**shield H 13 mm | **tru**rock 13 mm |
|---|---|---|---|---|---|---|---|
| **GWP** | kg $CO_2$-eq. | -1.31E-01 | -1.43E-01 | -1.23E-01 | -1.28E-01 | -1.23E-01 | -1.55E-01 |
| **GWPf** | kg $CO_2$-eq. | -1.31E-01 | -1.43E-01 | -1.23E-01 | -1.28E-01 | -1.23E-01 | -1.55E-01 |
| **GWPb** | kg $CO_2$-eq. | -2.00E-04 | -1.95E-04 | -1.82E-04 | -1.99E-04 | -1.91E-04 | -2.24E-04 |
| **GWPluluc** | kg $CO_2$-eq. | -9.26E-06 | -8.23E-06 | -8.38E-06 | -9.42E-06 | -8.83E-06 | -1.01E-05 |
| **ODP** | kg CFC-11-eq. | -4.71E-13 | -5.53E-13 | -4.45E-13 | -4.47E-13 | -4.35E-13 | -5.69E-13 |
| **AP** | Mole of H+ eq. | -1.10E-03 | -1.06E-03 | -1.02E-03 | -1.13E-03 | -1.06E-03 | -1.28E-03 |
| **EPfw** | kg P eq. | -6.53E-08 | -7.33E-08 | -6.13E-08 | -6.30E-08 | -6.09E-08 | -7.77E-08 |
| **EPm** | kg N eq. | -2.84E-04 | -2.62E-04 | -2.63E-04 | -2.95E-04 | -2.76E-04 | -3.24E-04 |
| **EPt** | Mole of N eq. | -3.11E-03 | -2.87E-03 | -2.88E-03 | -3.23E-03 | -3.02E-03 | -3.55E-03 |
| **POFP** | kg NMVOC eq. | -7.59E-04 | -7.09E-04 | -7.05E-04 | -7.88E-04 | -7.37E-04 | -8.73E-04 |
| **ADPmm** | kg Sb-eq. | -9.55E-09 | -1.09E-08 | -8.99E-09 | -9.15E-09 | -8.87E-09 | -1.15E-08 |
| **ADPf** | MJ | -1.47E+00 | -1.58E+00 | -1.37E+00 | -1.44E+00 | -1.38E+00 | -1.72E+00 |
| **WDP** | m³ world equiv. | -4.14E-02 | -4.86E-02 | -3.91E-02 | -3.92E-02 | -3.82E-02 | -5.00E-02 |

* Max variation from weighted average is slightly more than 10% due to the low impact of these products which are produced in low volumes at selected plasterboard manufacturing sites

## Table 89. Core environmental impact indicators for 1 m² of product for groups 13-19

| PARA-METER | UNIT | **tru**rock 16 mm* | **tru**rock HD 13 mm | **tru**rock HD 16 mm | **shaft**liner/ **inter**shield 25 mm | **multi**shield 13 mm | **multi**shield 16 mm | **curve**shield 6.5 mm |
|---|---|---|---|---|---|---|---|---|
| **GWP** | kg $CO_2$-eq. | -1.62E-01 | -1.55E-01 | -1.77E-01 | -1.93E-01 | -1.24E-01 | -1.25E-01 | -1.48E-01 |
| **GWPf** | kg $CO_2$-eq. | -1.62E-01 | -1.55E-01 | -1.77E-01 | -1.93E-01 | -1.24E-01 | -1.25E-01 | -1.48E-01 |
| **GWPb** | kg $CO_2$-eq. | -2.46E-04 | -2.28E-04 | -2.62E-04 | -3.15E-04 | -1.89E-04 | -1.98E-04 | -1.85E-04 |
| **GWPluluc** | kg $CO_2$-eq. | -1.13E-05 | -1.01E-05 | -1.18E-05 | -1.49E-05 | -8.53E-06 | -9.37E-06 | -7.20E-06 |
| **ODP** | kg CFC-11-eq. | -5.85E-13 | -5.68E-13 | -6.39E-13 | -6.75E-13 | -4.63E-13 | -4.43E-13 | -6.20E-13 |
| **AP** | Mole of H+ eq. | -1.33E-03 | -1.29E-03 | -1.51E-03 | -1.58E-03 | -9.21E-04 | -1.04E-03 | -8.63E-04 |
| **EPfw** | kg P eq. | -8.08E-08 | -7.77E-08 | -8.81E-08 | -9.52E-08 | -6.29E-08 | -6.21E-08 | -7.86E-08 |
| **EPm** | kg N eq. | -3.42E-04 | -3.29E-04 | -3.87E-04 | -4.18E-04 | -2.36E-04 | -2.71E-04 | -2.01E-04 |
| **EPt** | Mole of N eq. | -3.74E-03 | -3.60E-03 | -4.23E-03 | -4.58E-03 | -2.59E-03 | -2.96E-03 | -2.19E-03 |
| **POFP** | kg NMVOC eq. | -9.14E-04 | -8.83E-04 | -1.04E-03 | -1.10E-03 | -6.27E-04 | -7.19E-04 | -5.45E-04 |
| **ADPmm** | kg Sb-eq. | -1.18E-08 | -1.14E-08 | -1.29E-08 | -1.37E-08 | -9.22E-09 | -9.01E-09 | -1.19E-08 |
| **ADPf** | MJ | -1.81E+00 | -1.73E+00 | -1.98E+00 | -2.17E+00 | -1.38E+00 | -1.40E+00 | -1.61E+00 |
| **WDP** | $m^3$ world equiv. | -5.14E-02 | -4.99E-02 | -5.61E-02 | -5.93E-02 | -4.07E-02 | -3.90E-02 | -5.45E-02 |

* Max variation from weighted average is slightly more than 10% due to the low impact of these products which are produced in low volumes at selected plasterboard manufacturing sites

# D: additional environmental impact indicators

### Table 90. Additional environmental impact indicators for 1 m² of product for groups 1-6

| PARAMETER | UNIT | mastashield 10 mm | mastashield 13 mm | spanshield 10 mm | watershield 10 mm | watershield 13 mm | soundshield 10 mm* |
|---|---|---|---|---|---|---|---|
| PM | Disease incidences | -9.38E-09 | -1.18E-08 | -1.00E-08 | -1.05E-08 | -1.23E-08 | -1.01E-08 |
| IRP | kBq U235 eq. | -3.27E-05 | -4.06E-05 | -3.48E-05 | -3.63E-05 | -4.22E-05 | -3.51E-05 |
| ETf | CTUe | -2.70E-01 | -3.20E-01 | -2.84E-01 | -2.95E-01 | -3.30E-01 | -3.04E-01 |
| HTc | CTUh | -9.93E-12 | -1.13E-11 | -1.04E-11 | -1.06E-11 | -1.14E-11 | -1.11E-11 |
| HTnc | CTUh | -3.53E-10 | -4.07E-10 | -3.70E-10 | -3.80E-10 | -4.14E-10 | -3.97E-10 |
| LU | Pt | -3.10E+00 | -4.18E+00 | -3.31E+00 | -3.85E+00 | -4.82E+00 | -4.24E+00 |

### Table 91. Additional environmental impact indicators for 1 m² of product for groups 7-12

| PARAMETER | UNIT | soundshield 13 mm | Opal 10 mm | fireshield 13 mm | fireshield 16 mm | fireshield H 13 mm | trurock 13 mm |
|---|---|---|---|---|---|---|---|
| PM | Disease incidences | -1.44E-08 | -1.32E-08 | -1.34E-08 | -1.51E-08 | -1.40E-08 | -1.67E-08 |
| IRP | kBq U235 eq. | -4.90E-05 | -4.59E-05 | -4.58E-05 | -5.11E-05 | -4.75E-05 | -5.69E-05 |
| ETf | CTUe | -3.76E-01 | -3.75E-01 | -3.50E-01 | -3.80E-01 | -3.60E-01 | -4.36E-01 |
| HTc | CTUh | -1.26E-11 | -1.36E-11 | -1.18E-11 | -1.24E-11 | -1.19E-11 | -1.49E-11 |
| HTnc | CTUh | -4.64E-10 | -4.86E-10 | -4.33E-10 | -4.61E-10 | -4.40E-10 | -5.44E-10 |
| LU | Pt | -6.24E+00 | -4.20E+00 | -5.45E+00 | -6.65E+00 | -6.07E+00 | -6.27E+00 |

### Table 92. Additional environmental impact indicators for 1 m² of product for groups 13-19

| PARA-METER | UNIT | trurock 16 mm* | trurock HD 13 mm | trurock HD 16 mm | shaftliner/ intershield 25 mm | multishield 13 mm | multishield 16 mm | curveshield 6.5 mm |
|---|---|---|---|---|---|---|---|---|
| PM | Disease incidences | -1.72E-08 | -1.68E-08 | -1.99E-08 | -2.05E-08 | -1.14E-08 | -1.35E-08 | -9.40E-09 |
| IRP | kBq U235 eq. | -5.86E-05 | -5.74E-05 | -6.77E-05 | -6.94E-05 | -3.93E-05 | -4.57E-05 | -3.43E-05 |
| ETf | CTUe | -4.58E-01 | -4.39E-01 | -5.09E-01 | -5.52E-01 | -3.31E-01 | -3.58E-01 | -3.35E-01 |
| HTc | CTUh | -1.55E-11 | -1.50E-11 | -1.71E-11 | -1.83E-11 | -1.17E-11 | -1.20E-11 | -1.37E-11 |
| HTnc | CTUh | -5.69E-10 | -5.47E-10 | -6.29E-10 | -6.78E-10 | -4.23E-10 | -4.41E-10 | -4.71E-10 |
| LU | Pt | -7.48E+00 | -6.29E+00 | -7.49E+00 | -1.09E+01 | -5.49E+00 | -6.65E+00 | -2.37E+00 |

* Max variation from weighted average is slightly more than 10% due to the low impact of these products which are produced in low volumes at selected plasterboard manufacturing sites

# D: resource use indicators

### Table 93. Resource use indicators for 1 m² of product for groups 1-6

| PARAMETER | UNIT | mastashield 10 mm | mastashield 13 mm | spanshield 10 mm | watershield 10 mm | watershield 13 mm | soundshield 10 mm* |
|---|---|---|---|---|---|---|---|
| PERE | MJ | -2.13E-01 | -2.32E-01 | -2.21E-01 | -2.23E-01 | -2.30E-01 | -2.39E-01 |
| PERM | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PERT | MJ | -2.13E-01 | -2.32E-01 | -2.21E-01 | -2.23E-01 | -2.30E-01 | -2.39E-01 |
| PENRE | MJ | -1.15E+00 | -1.30E+00 | -1.20E+00 | -1.23E+00 | -1.32E+00 | -1.31E+00 |
| PENRM | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PENRT | MJ | -1.15E+00 | -1.30E+00 | -1.20E+00 | -1.23E+00 | -1.32E+00 | -1.31E+00 |
| SM | kg | 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 |
| NRSF | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| FW | $m^3$ | -5.03E-04 | -5.48E-04 | -5.22E-04 | -5.26E-04 | -5.43E-04 | -5.64E-04 |

### Table 94. Resource use indicators for 1 m² of product for groups 7-12

| PARAMETER | UNIT | soundshield 13 mm | Opal 10 mm | fireshield 13 mm | fireshield 16 mm | fireshield H 13 mm | trurock 13 mm |
|---|---|---|---|---|---|---|---|
| PERE | MJ | -2.47E-01 | -2.90E-01 | -2.33E-01 | -2.35E-01 | -2.29E-01 | -2.99E-01 |
| PERM | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PERT | MJ | -2.47E-01 | -2.90E-01 | -2.33E-01 | -2.35E-01 | -2.29E-01 | -2.99E-01 |
| PENRE | MJ | -1.47E+00 | -1.58E+00 | -1.37E+00 | -1.44E+00 | -1.38E+00 | -1.72E+00 |
| PENRM | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PENRT | MJ | -1.47E+00 | -1.58E+00 | -1.37E+00 | -1.44E+00 | -1.38E+00 | -1.72E+00 |
| SM | kg | 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 |
| NRSF | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| FW | $m^3$ | -5.83E-04 | -6.84E-04 | -5.50E-04 | -5.53E-04 | -5.39E-04 | -7.04E-04 |

### Table 95. Resource use indicators for 1 m² of product for groups 13-19

| PARA-METER | UNIT | trurock 16 mm* | trurock HD 13 mm | trurock HD 16 mm | shaftliner/ intershield 25 mm | multishield 13 mm | multishield 16 mm | curveshield 6.5 mm |
|---|---|---|---|---|---|---|---|---|
| PERE | MJ | -3.07E-01 | -2.98E-01 | -3.35E-01 | -3.55E-01 | -2.43E-01 | -2.33E-01 | -3.25E-01 |
| PERM | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PERT | MJ | -3.07E-01 | -2.98E-01 | -3.35E-01 | -3.55E-01 | -2.43E-01 | -2.33E-01 | -3.25E-01 |
| PENRE | MJ | -1.81E+00 | -1.73E+00 | -1.98E+00 | -2.17E+00 | -1.38E+00 | -1.40E+00 | -1.61E+00 |
| PENRM | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PENRT | MJ | -1.81E+00 | -1.73E+00 | -1.98E+00 | -2.17E+00 | -1.38E+00 | -1.40E+00 | -1.61E+00 |
| SM | kg | 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 |
| NRSF | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| FW | $m^3$ | -7.25E-04 | -7.02E-04 | -7.90E-04 | -8.36E-04 | -5.73E-04 | -5.49E-04 | -7.66E-04 |

* Max variation from weighted average is slightly more than 10% due to the low impact of these products which are produced in low volumes at selected plasterboard manufacturing sites

# D: waste production and output flows

### Table 96. Waste material and output flow indicators for 1 m² of product for groups 1-6

| PARAMETER | UNIT | **masta**shield 10 mm | **masta**shield 13 mm | **span**shield 10 mm | **water**shield 10 mm | **water**shield 13 mm | **sound**shield 10 mm* |
|---|---|---|---|---|---|---|---|
| HWD | kg | -3.34E-11 | -3.65E-11 | -3.47E-11 | -3.50E-11 | -3.62E-11 | -3.74E-11 |
| NHWD | kg | -3.18E-04 | -3.49E-04 | -3.30E-04 | -3.34E-04 | -3.47E-04 | -3.55E-04 |
| RWD | kg | -2.40E-07 | -2.95E-07 | -2.55E-07 | -2.65E-07 | -3.06E-07 | -2.59E-07 |
| CRU | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MFR | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MER | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EEE | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EET | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

### Table 97. Waste material and output flow indicators for 1 m² of product for groups 7-12

| PARAMETER | UNIT | **sound**shield 13 mm | Opal 10 mm | **fire**shield 13 mm | **fire**shield 16 mm | **fire**shield H 13 mm | **tru**rock 13 mm |
|---|---|---|---|---|---|---|---|
| HWD | kg | -3.90E-11 | -4.55E-11 | -3.68E-11 | -3.71E-11 | -3.61E-11 | -4.70E-11 |
| NHWD | kg | -3.75E-04 | -4.33E-04 | -3.53E-04 | -3.58E-04 | -3.48E-04 | -4.51E-04 |
| RWD | kg | -3.54E-07 | -3.37E-07 | -3.31E-07 | -3.68E-07 | -3.43E-07 | -4.12E-07 |
| CRU | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MFR | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MER | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EEE | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EET | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

### Table 98. Waste material and output flow indicators for 1 m² of product for groups 13-19

| PARA-METER | UNIT | **tru**rock 16 mm* | **tru**rock HD 13 mm | **tru**rock HD 16 mm | **shaft**liner/ **inter**shield 25 mm | **multi**shield 13 mm | **multi**shield 16 mm | **curve**shield 6.5 mm |
|---|---|---|---|---|---|---|---|---|
| HWD | kg | -4.84E-11 | -4.69E-11 | -5.29E-11 | -5.59E-11 | -3.81E-11 | -3.67E-11 | -5.06E-11 |
| NHWD | kg | -4.65E-04 | -4.50E-04 | -5.09E-04 | -5.38E-04 | -3.63E-04 | -3.53E-04 | -4.75E-04 |
| RWD | kg | -4.25E-07 | -4.15E-07 | -4.89E-07 | -5.02E-07 | -2.87E-07 | -3.31E-07 | -2.60E-07 |
| CRU | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MFR | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MER | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EEE | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EET | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

* Max variation from weighted average is slightly more than 10% due to the low impact of these products which are produced in low volumes at selected plasterboard manufacturing sites

# **module A1-A3** LCA results based on EN15804+A1

**Table 99. EN 15804+A1 impact indicators (modules A1-A3) for 1 m² of product for groups 1-6**

| PARA-METER | UNIT | **masta**shield 10 mm | **masta**shield 13 mm | **span**shield 10 mm | **water**shield 10 mm | **water**shield 13 mm | **sound**shield 10 mm* |
|---|---|---|---|---|---|---|---|
| **GWP** | kg $CO_2$-eq. | 1.35E+00 | 1.86E+00 | 1.38E+00 | 2.05E+00 | 2.58E+00 | 2.16E+00 |
| **ODP** | kg CFC-11-eq. | 1.43E-11 | 1.72E-11 | 1.50E-11 | 1.88E-11 | 2.09E-11 | 1.78E-11 |
| **AP** | kg $SO_2$-eq. | 5.76E-03 | 7.54E-03 | 5.86E-03 | 7.68E-03 | 9.47E-03 | 7.89E-03 |
| **EP** | kg $PO_4^{3-}$-eq. | 1.28E-03 | 1.69E-03 | 1.30E-03 | 1.71E-03 | 2.09E-03 | 1.60E-03 |
| **POCP** | kg $C_2H_4$-eq. | 3.04E-04 | 4.03E-04 | 3.16E-04 | 4.80E-04 | 5.66E-04 | 4.54E-04 |
| **ADPE** | kg Sb-eq. | 3.67E-07 | 4.59E-07 | 3.72E-07 | 7.81E-06 | 7.39E-06 | 6.70E-07 |
| **ADPF** | MJ | 2.77E+01 | 3.57E+01 | 2.84E+01 | 3.81E+01 | 4.58E+01 | 3.97E+01 |

**Table 100. EN 15804+A1 impact indicators (modules A1-A3) for 1 m² of product for groups 7-12**

| PARA-METER | UNIT | **sound**shield 13 mm | Opal 10 mm | **fire**shield 13 mm | **fire**shield 16 mm | **fire**shield H 13 mm | **tru**rock 13 mm |
|---|---|---|---|---|---|---|---|
| **GWP** | kg $CO_2$-eq. | 2.88E+00 | 1.74E+00 | 2.54E+00 | 3.20E+00 | 2.81E+00 | 3.13E+00 |
| **ODP** | kg CFC-11-eq. | 2.24E-11 | 1.94E-11 | 2.04E-11 | 2.31E-11 | 2.14E-11 | 2.49E-11 |
| **AP** | kg $SO_2$-eq. | 1.13E-02 | 7.66E-03 | 1.09E-02 | 1.35E-02 | 1.17E-02 | 1.35E-02 |
| **EP** | kg $PO_4^{3-}$eq. | 2.38E-03 | 1.73E-03 | 2.19E-03 | 2.63E-03 | 2.35E-03 | 2.52E-03 |
| **POCP** | kg $C_2H_4$-eq. | 5.92E-04 | 4.02E-04 | 5.83E-04 | 7.26E-04 | 6.24E-04 | 7.82E-04 |
| **ADPE** | kg Sb-eq. | 5.87E-07 | 4.76E-07 | 5.38E-07 | 6.52E-07 | 5.64E-07 | 6.09E-07 |
| **ADPF** | MJ | 4.99E+01 | 3.62E+01 | 4.46E+01 | 5.40E+01 | 4.81E+01 | 6.50E+01 |

**Table 101. EN 15804+A1 impact indicators (modules A1-A3) for 1 m² of product for groups 13-19**

| PARA-METER | UNIT | **tru**rock 16 mm* | **tru**rock HD 13 mm | **tru**rock HD 16 mm | **shaft**liner/ **inter**shield 25 mm | **multi**shield 13 mm | **multi**shield 16 mm | **curve**shield 6.5 mm |
|---|---|---|---|---|---|---|---|---|
| **GWP** | kg $CO_2$-eq. | 4.00E+00 | 3.32E+00 | 3.60E+00 | 5.43E+00 | 3.07E+00 | 3.53E+00 | 8.20E-01 |
| **ODP** | kg CFC-11-eq. | 2.77E-11 | 2.64E-11 | 2.87E-11 | 3.59E-11 | 2.07E-11 | 2.33E-11 | 1.63E-11 |
| **AP** | kg $SO_2$-eq. | 1.65E-02 | 1.42E-02 | 1.60E-02 | 2.12E-02 | 1.21E-02 | 1.39E-02 | 4.76E-03 |
| **EP** | kg $PO_4^{3-}$-eq. | 3.06E-03 | 2.61E-03 | 2.98E-03 | 4.56E-03 | 2.51E-03 | 2.70E-03 | 1.55E-03 |
| **POCP** | kg $C_2H_4$-eq. | 9.61E-04 | 8.40E-04 | 9.17E-04 | 1.09E-03 | 6.82E-04 | 8.32E-04 | 2.16E-04 |
| **ADPE** | kg Sb-eq. | 7.28E-07 | 5.10E-06 | 6.98E-07 | 1.57E-06 | 6.25E-07 | 1.53E-06 | 4.72E-07 |
| **ADPF** | MJ | 8.21E+01 | 7.01E+01 | 7.59E+01 | 9.04E+01 | 6.65E+01 | 7.35E+01 | 2.50E+01 |

* Max variation from weighted average is slightly more than 10% due to the low impact of these products which are produced in low volumes at selected plasterboard manufacturing sites

# module A4

## Table 102. EN 15804+A1 impact indicators (module A4) for 1 m² of product for groups 1-6

| PARA-METER | UNIT | **masta**shield 10 mm | **masta**shield 13 mm | **span**shield 10 mm | **water**shield 10 mm | **water**shield 13 mm | **sound**shield 10 mm* |
|---|---|---|---|---|---|---|---|
| **GWP** | kg $CO_2$-eq. | 1.39E-01 | 1.53E-01 | 1.45E-01 | 1.68E-01 | 1.84E-01 | 1.90E-01 |
| **ODP** | kg CFC-11-eq. | 1.67E-14 | 1.84E-14 | 1.74E-14 | 2.01E-14 | 2.20E-14 | 2.27E-14 |
| **AP** | kg $SO_2$-eq. | 1.86E-04 | 2.04E-04 | 1.94E-04 | 2.24E-04 | 2.45E-04 | 2.53E-04 |
| **EP** | kg $PO_4^{3-}$-eq. | 3.72E-05 | 4.09E-05 | 3.87E-05 | 4.48E-05 | 4.91E-05 | 5.06E-05 |
| **POCP** | kg $C_2H_4$-eq. | -3.19E-05 | -3.51E-05 | -3.33E-05 | -3.85E-05 | -4.21E-05 | -4.35E-05 |
| **ADPE** | kg Sb-eq. | 2.54E-09 | 2.80E-09 | 2.65E-09 | 3.07E-09 | 3.36E-09 | 3.47E-09 |
| **ADPF** | MJ | 1.87E+00 | 2.05E+00 | 1.95E+00 | 2.25E+00 | 2.47E+00 | 2.54E+00 |

## Table 103. EN 15804+A1 impact indicators (module A4) for 1 m² of product for groups 7-12

| PARA-METER | UNIT | **sound**shield 13 mm | Opal 10 mm | **fire**shield 13 mm | **fire**shield 16 mm | **fire**shield H 13 mm | **tru**rock 13 mm |
|---|---|---|---|---|---|---|---|
| **GWP** | kg $CO_2$-eq. | 2.57E-01 | 1.06E-01 | 2.25E-01 | 2.86E-01 | 1.98E-01 | 2.53E-01 |
| **ODP** | kg CFC-11-eq. | 3.08E-14 | 1.26E-14 | 2.69E-14 | 3.43E-14 | 2.37E-14 | 3.02E-14 |
| **AP** | kg $SO_2$-eq. | 3.43E-04 | 1.41E-04 | 3.00E-04 | 3.81E-04 | 2.64E-04 | 3.36E-04 |
| **EP** | kg $PO_4^{3-}$-eq. | 6.86E-05 | 2.82E-05 | 6.00E-05 | 7.63E-05 | 5.28E-05 | 6.73E-05 |
| **POCP** | kg $C_2H_4$-eq. | -5.89E-05 | -2.42E-05 | -5.15E-05 | -6.56E-05 | -4.53E-05 | -5.78E-05 |
| **ADPE** | kg Sb-eq. | 4.70E-09 | 1.93E-09 | 4.11E-09 | 5.23E-09 | 3.61E-09 | 4.61E-09 |
| **ADPF** | MJ | 3.44E+00 | 1.42E+00 | 3.01E+00 | 3.84E+00 | 2.65E+00 | 3.38E+00 |

## Table 104. EN 15804+A1 impact indicators (module A4) for 1 m² of product for groups 13-19

| PARA-METER | UNIT | **tru**rock 16 mm* | **tru**rock **HD** 13 mm | **tru**rock **HD** 16 mm | **shaft**liner/ **inter**shield 25 mm | **multi**shield 13 mm | **multi**shield 16 mm | **curve**shield 6.5 mm |
|---|---|---|---|---|---|---|---|---|
| **GWP** | kg $CO_2$-eq. | 2.94E-01 | 1.66E-01 | 1.87E-01 | 4.86E-01 | 2.56E-01 | 3.21E-01 | 1.14E-01 |
| **ODP** | kg CFC-11-eq. | 3.52E-14 | 1.98E-14 | 2.23E-14 | 5.82E-14 | 3.07E-14 | 3.84E-14 | 1.37E-14 |
| **AP** | kg $SO_2$-eq. | 3.92E-04 | 2.21E-04 | 2.49E-04 | 6.48E-04 | 3.41E-04 | 4.27E-04 | 1.52E-04 |
| **EP** | kg $PO_4^{3-}$-eq. | 7.85E-05 | 4.42E-05 | 4.98E-05 | 1.30E-04 | 6.83E-05 | 8.55E-05 | 3.04E-05 |
| **POCP** | kg $C_2H_4$-eq. | -6.74E-05 | -3.79E-05 | -4.27E-05 | -1.11E-04 | -5.87E-05 | -7.34E-05 | -2.61E-05 |
| **ADPE** | kg Sb-eq. | 5.37E-09 | 3.03E-09 | 3.41E-09 | 8.88E-09 | 4.68E-09 | 5.86E-09 | 2.08E-09 |
| **ADPF** | MJ | 3.94E+00 | 2.22E+00 | 2.50E+00 | 6.51E+00 | 3.43E+00 | 4.30E+00 | 1.53E+00 |

* Max variation from weighted average is slightly more than 10% due to the low impact of these products which are produced in low volumes at selected plasterboard manufacturing sites

# module A5

## Table 105. A5 EN 15804+A1 impact indicators (module A5) for 1 m² of product for groups 1-6

| PARA-METER | UNIT | **masta**shield 10 mm | **masta**shield 13 mm | **span**shield 10 mm | **water**shield 10 mm | **water**shield 13 mm | **sound**shield 10 mm* |
|---|---|---|---|---|---|---|---|
| GWP | kg $CO_2$-eq. | 4.91E-01 | 5.98E-01 | 5.04E-01 | 6.26E-01 | 7.29E-01 | 6.66E-01 |
| ODP | kg CFC-11-eq. | 2.72E-12 | 3.26E-12 | 2.86E-12 | 3.54E-12 | 3.92E-12 | 3.36E-12 |
| AP | kg $SO_2$-eq. | 1.25E-03 | 1.58E-03 | 1.27E-03 | 1.61E-03 | 1.94E-03 | 1.66E-03 |
| EP | kg $PO_4^{3-}$-eq. | 2.64E-04 | 3.39E-04 | 2.68E-04 | 3.42E-04 | 4.12E-04 | 3.25E-04 |
| POCP | kg $C_2H_4$-eq. | 5.96E-05 | 7.75E-05 | 6.18E-05 | 9.02E-05 | 1.05E-04 | 8.53E-05 |
| ADPE | kg Sb-eq. | 7.04E-08 | 8.70E-08 | 7.14E-08 | 1.38E-06 | 1.31E-06 | 1.25E-07 |
| ADPF | MJ | 5.91E+00 | 7.43E+00 | 6.06E+00 | 7.85E+00 | 9.33E+00 | 8.21E+00 |

## Table 106. EN 15804+A1 impact indicators (module A5) for 1 m² of product for groups 7-12

| PARA-METER | UNIT | **sound**shield 13 mm | Opal 10 mm | **fire**shield 13 mm | **fire**shield 16 mm | **fire**shield H 13 mm | **tru**rock 13 mm |
|---|---|---|---|---|---|---|---|
| GWP | kg $CO_2$-eq. | 8.11E-01 | 6.05E-01 | 7.35E-01 | 8.68E-01 | 7.77E-01 | 8.90E-01 |
| ODP | kg CFC-11-eq. | 4.21E-12 | 3.65E-12 | 3.84E-12 | 4.33E-12 | 4.03E-12 | 4.65E-12 |
| AP | kg $SO_2$-eq. | 2.31E-03 | 1.60E-03 | 2.23E-03 | 2.72E-03 | 2.37E-03 | 2.69E-03 |
| EP | kg $PO_4^{3-}$-eq. | 4.71E-04 | 3.44E-04 | 4.33E-04 | 5.17E-04 | 4.62E-04 | 4.94E-04 |
| POCP | kg $C_2H_4$-eq. | 1.08E-04 | 8.08E-05 | 1.07E-04 | 1.30E-04 | 1.16E-04 | 1.43E-04 |
| ADPE | kg Sb-eq. | 1.11E-07 | 9.00E-08 | 1.02E-07 | 1.22E-07 | 1.06E-07 | 1.15E-07 |
| ADPF | MJ | 1.03E+01 | 7.41E+00 | 9.26E+00 | 1.11E+01 | 9.84E+00 | 1.30E+01 |

## Table 107. EN 15804+A1 impact indicators (module A5) for 1 m² of product for groups 13-19

| PARA-METER | UNIT | **tru**rock 16 mm* | **tru**rock **HD** 13 mm | **tru**rock **HD** 16 mm | **shaft**liner/ **inter**shield 25 mm | **multi**shield 13 mm | **multi**shield 16 mm | **curve**shield 6.5 mm |
|---|---|---|---|---|---|---|---|---|
| GWP | kg $CO_2$-eq. | 1.06E+00 | 9.08E-01 | 9.88E-01 | 1.37E+00 | 8.37E-01 | 9.29E-01 | 4.51E-01 |
| ODP | kg CFC-11-eq. | 5.16E-12 | 4.91E-12 | 5.33E-12 | 6.67E-12 | 3.89E-12 | 4.38E-12 | 3.07E-12 |
| AP | kg $SO_2$-eq. | 3.26E-03 | 2.81E-03 | 3.14E-03 | 4.19E-03 | 2.45E-03 | 2.80E-03 | 1.05E-03 |
| EP | kg $PO_4^{3-}$-eq. | 5.95E-04 | 5.07E-04 | 5.75E-04 | 8.77E-04 | 4.91E-04 | 5.30E-04 | 3.09E-04 |
| POCP | kg $C_2H_4$-eq. | 1.74E-04 | 1.57E-04 | 1.71E-04 | 1.91E-04 | 1.23E-04 | 1.48E-04 | 4.77E-05 |
| ADPE | kg Sb-eq. | 1.36E-07 | 9.08E-07 | 1.31E-07 | 2.86E-07 | 1.17E-07 | 2.77E-07 | 8.86E-08 |
| ADPF | MJ | 1.62E+01 | 1.37E+01 | 1.48E+01 | 1.83E+01 | 1.32E+01 | 1.47E+01 | 5.32E+00 |

* Max variation from weighted average is slightly more than 10% due to the low impact of these products which are produced in low volumes at selected plasterboard manufacturing sites

# module C1

## Table 108.1 C1 EN 15804+A1 impact indicators (module C1) for 1 m² of product for groups 1-6

| PARA-METER | UNIT | **masta**shield 10 mm | **masta**shield 13 mm | **span**shield 10 mm | **water**shield 10 mm | **water**shield 13 mm | **sound**shield 10 mm* |
|---|---|---|---|---|---|---|---|
| **GWP** | kg $CO_2$-eq. | 1.70E-03 | 2.28E-03 | 1.81E-03 | 2.10E-03 | 2.62E-03 | 2.31E-03 |
| **ODP** | kg CFC-11-eq. | 2.07E-16 | 2.78E-16 | 2.20E-16 | 2.55E-16 | 3.19E-16 | 2.81E-16 |
| **AP** | kg $SO_2$-eq. | 1.61E-05 | 2.17E-05 | 1.72E-05 | 2.00E-05 | 2.50E-05 | 2.20E-05 |
| **EP** | kg $PO_4^{3-}$-eq. | 3.48E-06 | 4.68E-06 | 3.72E-06 | 4.31E-06 | 5.38E-06 | 4.75E-06 |
| **POCP** | kg $C_2H_4$-eq. | 1.69E-06 | 2.27E-06 | 1.80E-06 | 2.09E-06 | 2.61E-06 | 2.30E-06 |
| **ADPE** | kg Sb-eq. | 3.15E-11 | 4.24E-11 | 3.36E-11 | 3.90E-11 | 4.87E-11 | 4.29E-11 |
| **ADPF** | MJ | 2.31E-02 | 3.11E-02 | 2.47E-02 | 2.86E-02 | 3.57E-02 | 3.15E-02 |

## Table 109. EN 15804+A1 impact indicators (module C1) for 1 m² of product for groups 7-12

| PARA-METER | UNIT | **sound**shield 13 mm | Opal 10 mm | **fire**shield 13 mm | **fire**shield 16 mm | **fire**shield H 13 mm | **tru**rock 13 mm |
|---|---|---|---|---|---|---|---|
| **GWP** | kg $CO_2$-eq. | 3.38E-03 | 2.30E-03 | 2.96E-03 | 3.60E-03 | 3.29E-03 | 3.41E-03 |
| **ODP** | kg CFC-11-eq. | 4.12E-16 | 2.80E-16 | 3.60E-16 | 4.38E-16 | 4.01E-16 | 4.15E-16 |
| **AP** | kg $SO_2$-eq. | 3.22E-05 | 2.19E-05 | 2.82E-05 | 3.43E-05 | 3.13E-05 | 3.25E-05 |
| **EP** | kg $PO_4^{3-}$-eq. | 6.95E-06 | 4.73E-06 | 6.07E-06 | 7.39E-06 | 6.76E-06 | 7.01E-06 |
| **POCP** | kg $C_2H_4$-eq. | 3.37E-06 | 2.29E-06 | 2.95E-06 | 3.59E-06 | 3.28E-06 | 3.40E-06 |
| **ADPE** | kg Sb-eq. | 6.28E-11 | 4.28E-11 | 5.49E-11 | 6.69E-11 | 6.11E-11 | 6.34E-11 |
| **ADPF** | MJ | 4.61E-02 | 3.14E-02 | 4.03E-02 | 4.91E-02 | 4.49E-02 | 4.65E-02 |

## Table 110. EN 15804+A1 impact indicators (module C1) for 1 m² of product for groups 13-19

| PARA-METER | UNIT | **tru**rock 16 mm* | **tru**rock HD 13 mm | **tru**rock HD 16 mm | **shaft**liner/ **inter**shield 25 mm | **multi**shield 13 mm | **multi**shield 16 mm | **curve**shield 6.5 mm |
|---|---|---|---|---|---|---|---|---|
| **GWP** | kg $CO_2$-eq. | 4.06E-03 | 3.42E-03 | 4.07E-03 | 5.88E-03 | 2.98E-03 | 3.60E-03 | 1.33E-03 |
| **ODP** | kg CFC-11-eq. | 4.94E-16 | 4.16E-16 | 4.95E-16 | 7.15E-16 | 3.63E-16 | 4.38E-16 | 1.62E-16 |
| **AP** | kg $SO_2$-eq. | 3.87E-05 | 3.26E-05 | 3.87E-05 | 5.59E-05 | 2.84E-05 | 3.43E-05 | 1.26E-05 |
| **EP** | kg $PO_4^{3-}$-eq. | 8.34E-06 | 7.03E-06 | 8.35E-06 | 1.21E-05 | 6.12E-06 | 7.39E-06 | 2.73E-06 |
| **POCP** | kg $C_2H_4$-eq. | 4.04E-06 | 3.41E-06 | 4.05E-06 | 5.85E-06 | 2.97E-06 | 3.59E-06 | 1.32E-06 |
| **ADPE** | kg Sb-eq. | 7.54E-11 | 6.35E-11 | 7.56E-11 | 1.09E-10 | 5.53E-11 | 6.69E-11 | 2.47E-11 |
| **ADPF** | MJ | 5.53E-02 | 4.66E-02 | 5.54E-02 | 8.01E-02 | 4.06E-02 | 4.91E-02 | 1.81E-02 |

* Max variation from weighted average is slightly more than 10% due to the low impact of these products which are produced in low volumes at selected plasterboard manufacturing sites

# module C2

### Table 111. EN 15804+A1 impact indicators (module C2) for 1 m² of product for groups 1-6

| PARA-METER | UNIT | **masta**shield 10 mm | **masta**shield 13 mm | **span**shield 10 mm | **water**shield 10 mm | **water**shield 13 mm | **sound**shield 10 mm* |
|---|---|---|---|---|---|---|---|
| **GWP** | kg $CO_2$-eq. | 1.90E-02 | 2.55E-02 | 2.03E-02 | 2.35E-02 | 2.94E-02 | 2.59E-02 |
| **ODP** | kg CFC-11-eq. | 2.28E-15 | 3.06E-15 | 2.43E-15 | 2.82E-15 | 3.52E-15 | 3.10E-15 |
| **AP** | kg $SO_2$-eq. | 2.32E-05 | 3.12E-05 | 2.48E-05 | 2.87E-05 | 3.59E-05 | 3.16E-05 |
| **EP** | kg $PO_4^{3-}$-eq. | 4.52E-06 | 6.07E-06 | 4.82E-06 | 5.59E-06 | 6.98E-06 | 6.15E-06 |
| **POCP** | kg $C_2H_4$-eq. | -3.28E-06 | -4.40E-06 | -3.49E-06 | -4.05E-06 | -5.06E-06 | -4.46E-06 |
| **ADPE** | kg Sb-eq. | 3.47E-10 | 4.67E-10 | 3.71E-10 | 4.30E-10 | 5.37E-10 | 4.73E-10 |
| **ADPF** | MJ | 2.55E-01 | 3.43E-01 | 2.72E-01 | 3.15E-01 | 3.94E-01 | 3.47E-01 |

### Table 112. EN 15804+A1 impact indicators (module C2) for 1 m² of product for groups 7-12

| PARA-METER | UNIT | **sound**shield 13 mm | Opal 10 mm | **fire**shield 13 mm | **fire**shield 16 mm | **fire**shield H 13 mm | **tru**rock 13 mm |
|---|---|---|---|---|---|---|---|
| **GWP** | kg $CO_2$-eq. | 3.79E-02 | 2.58E-02 | 3.31E-02 | 4.03E-02 | 3.69E-02 | 3.82E-02 |
| **ODP** | kg CFC-11-eq. | 4.54E-15 | 3.09E-15 | 3.97E-15 | 4.83E-15 | 4.42E-15 | 4.58E-15 |
| **AP** | kg $SO_2$-eq. | 4.63E-05 | 3.15E-05 | 4.05E-05 | 4.93E-05 | 4.51E-05 | 4.67E-05 |
| **EP** | kg $PO_4^{3-}$-eq. | 9.01E-06 | 6.13E-06 | 7.88E-06 | 9.59E-06 | 8.77E-06 | 9.08E-06 |
| **POCP** | kg $C_2H_4$-eq. | -6.53E-06 | -4.45E-06 | -5.71E-06 | -6.95E-06 | -6.36E-06 | -6.59E-06 |
| **ADPE** | kg Sb-eq. | 6.93E-10 | 4.72E-10 | 6.06E-10 | 7.37E-10 | 6.74E-10 | 6.99E-10 |
| **ADPF** | MJ | 5.08E-01 | 3.46E-01 | 4.44E-01 | 5.41E-01 | 4.95E-01 | 5.13E-01 |

### Table 113. EN 15804+A1 impact indicators (module C2) for 1 m² of product for groups 13-19

| PARA-METER | UNIT | **tru**rock 16 mm* | **tru**rock **HD** 13 mm | **tru**rock **HD** 16 mm | **shaft**liner/ **inter**shield 25 mm | **multi**shield 13 mm | **multi**shield 16 mm | **curve**shield 6.5 mm |
|---|---|---|---|---|---|---|---|---|
| **GWP** | kg $CO_2$-eq. | 4.55E-02 | 3.83E-02 | 4.55E-02 | 6.58E-02 | 3.34E-02 | 4.03E-02 | 1.49E-02 |
| **ODP** | kg CFC-11-eq. | 5.45E-15 | 4.59E-15 | 5.46E-15 | 7.88E-15 | 4.00E-15 | 4.83E-15 | 1.78E-15 |
| **AP** | kg $SO_2$-eq. | 5.56E-05 | 4.68E-05 | 5.57E-05 | 8.04E-05 | 4.08E-05 | 4.93E-05 | 1.82E-05 |
| **EP** | kg $PO_4^{3-}$-eq. | 1.08E-05 | 9.11E-06 | 1.08E-05 | 1.56E-05 | 7.93E-06 | 9.59E-06 | 3.54E-06 |
| **POCP** | kg $C_2H_4$-eq. | -7.84E-06 | -6.61E-06 | -7.86E-06 | -1.13E-05 | -5.75E-06 | -6.95E-06 | -2.56E-06 |
| **ADPE** | kg Sb-eq. | 8.32E-10 | 7.01E-10 | 8.33E-10 | 1.20E-09 | 6.10E-10 | 7.37E-10 | 2.72E-10 |
| **ADPF** | MJ | 6.10E-01 | 5.14E-01 | 6.11E-01 | 8.83E-01 | 4.48E-01 | 5.41E-01 | 2.00E-01 |

# module C3

As all plasterboard waste goes straight to landfill at end-of-life, there is no waste processing involved. Therefore, waste processing impacts have been modelled as zero for this EPD.

* Max variation from weighted average is slightly more than 10% due to the low impact of these products which are produced in low volumes at selected plasterboard manufacturing sites

# module C4

## Table 114. EN 15804+A1 impact indicators (module C4) for 1 m² of product for groups 1-6

| PARA-METER | UNIT | **masta**shield 10 mm | **masta**shield 13 mm | **span**shield 10 mm | **water**shield 10 mm | **water**shield 13 mm | **sound**shield 10 mm* |
|---|---|---|---|---|---|---|---|
| **GWP** | kg $CO_2$-eq. | 1.10E+00 | 1.21E+00 | 1.14E+00 | 1.16E+00 | 1.22E+00 | 1.24E+00 |
| **ODP** | kg CFC-11-eq. | 2.94E-13 | 3.84E-13 | 3.12E-13 | 3.55E-13 | 4.35E-13 | 3.89E-13 |
| **AP** | kg $SO_2$-eq. | 6.71E-04 | 8.61E-04 | 7.11E-04 | 8.00E-04 | 9.64E-04 | 8.74E-04 |
| **EP** | kg $PO_4^{3-}$-eq. | 8.76E-05 | 1.10E-04 | 9.25E-05 | 1.03E-04 | 1.21E-04 | 1.12E-04 |
| **POCP** | kg $C_2H_4$-eq. | 2.30E-04 | 2.59E-04 | 2.39E-04 | 2.47E-04 | 2.65E-04 | 2.65E-04 |
| **ADPE** | kg Sb-eq. | 1.13E-08 | 1.47E-08 | 1.20E-08 | 1.36E-08 | 1.66E-08 | 1.49E-08 |
| **ADPF** | MJ | 1.44E+00 | 1.86E+00 | 1.53E+00 | 1.73E+00 | 2.09E+00 | 1.89E+00 |

## Table 115. EN 15804+A1 impact indicators (module C4) for 1 m² of product for groups 7-12

| PARA-METER | UNIT | **sound**shield 13 mm | Opal 10 mm | **fire**shield 13 mm | **fire**shield 16 mm | **fire**shield H 13 mm | **tru**rock 13 mm |
|---|---|---|---|---|---|---|---|
| **GWP** | kg $CO_2$-eq. | 1.33E+00 | 1.47E+00 | 1.25E+00 | 1.28E+00 | 1.24E+00 | 1.55E+00 |
| **ODP** | kg CFC-11-eq. | 5.51E-13 | 3.95E-13 | 4.86E-13 | 5.82E-13 | 5.35E-13 | 5.62E-13 |
| **AP** | kg $SO_2$-eq. | 1.21E-03 | 9.01E-04 | 1.07E-03 | 1.27E-03 | 1.17E-03 | 1.24E-03 |
| **EP** | kg $PO_4^{3-}$-eq. | 1.49E-04 | 1.18E-04 | 1.33E-04 | 1.55E-04 | 1.44E-04 | 1.57E-04 |
| **POCP** | kg $C_2H_4$-eq. | 2.97E-04 | 3.07E-04 | 2.76E-04 | 2.92E-04 | 2.79E-04 | 3.39E-04 |
| **ADPE** | kg Sb-eq. | 2.10E-08 | 1.52E-08 | 1.85E-08 | 2.21E-08 | 2.03E-08 | 2.15E-08 |
| **ADPF** | MJ | 2.63E+00 | 1.93E+00 | 2.33E+00 | 2.77E+00 | 2.55E+00 | 2.70E+00 |

## Table 116. EN 15804+A1 impact indicators (module C4) for 1 m² of product for groups13-19

| PARA-METER | UNIT | **tru**rock 16 mm* | **tru**rock **HD** 13 mm | **tru**rock **HD** 16 mm | **shaft**liner/ **inter**shield 25 mm | **multi**shield 13 mm | **multi**shield 16 mm | **curve**shield 6.5 mm |
|---|---|---|---|---|---|---|---|---|
| **GWP** | kg $CO_2$-eq. | 1.62E+00 | 1.55E+00 | 1.75E+00 | 1.92E+00 | 1.29E+00 | 1.27E+00 | 1.57E+00 |
| **ODP** | kg CFC-11-eq. | 6.61E-13 | 5.63E-13 | 6.65E-13 | 9.39E-13 | 4.90E-13 | 5.82E-13 | 2.53E-13 |
| **AP** | kg $SO_2$-eq. | 1.45E-03 | 1.25E-03 | 1.47E-03 | 2.03E-03 | 1.08E-03 | 1.27E-03 | 6.22E-04 |
| **EP** | kg $PO_4^{3-}$-eq. | 1.80E-04 | 1.57E-04 | 1.83E-04 | 2.47E-04 | 1.35E-04 | 1.55E-04 | 8.87E-05 |
| **POCP** | kg $C_2H_4$-eq. | 3.61E-04 | 3.39E-04 | 3.84E-04 | 4.42E-04 | 2.84E-04 | 2.90E-04 | 3.12E-04 |
| **ADPE** | kg Sb-eq. | 2.51E-08 | 2.15E-08 | 2.54E-08 | 3.56E-08 | 1.87E-08 | 2.21E-08 | 9.93E-09 |
| **ADPF** | MJ | 3.16E+00 | 2.71E+00 | 3.19E+00 | 4.45E+00 | 2.35E+00 | 2.77E+00 | 1.30E+00 |

* Max variation from weighted average is slightly more than 10% due to the low impact of these products which are produced in low volumes at selected plasterboard manufacturing sites

# module D

## Table 117. EN 15804+A1 impact indicators (module D) for 1 m² of product for groups 1-6

| PARA-METER | UNIT | **masta**shield 10 mm | **masta**shield 13 mm | **span**shield 10 mm | **water**shield 10 mm | **water**shield 13 mm | **sound**shield 10 mm* |
|---|---|---|---|---|---|---|---|
| **GWP** | kg $CO_2$-eq. | -1.03E-01 | -1.16E-01 | -1.07E-01 | -1.10E-01 | -1.17E-01 | -1.17E-01 |
| **ODP** | kg CFC-11-eq. | -4.79E-13 | -5.22E-13 | -4.97E-13 | -5.01E-13 | -5.17E-13 | -5.36E-13 |
| **AP** | kg $SO_2$-eq. | -6.09E-04 | -7.38E-04 | -6.44E-04 | -6.70E-04 | -7.63E-04 | -6.67E-04 |
| **EP** | kg $PO_4^{3-}$-eq. | -6.35E-05 | -7.85E-05 | -6.73E-05 | -7.09E-05 | -8.23E-05 | -7.10E-05 |
| **POCP** | kg $C_2H_4$-eq. | -2.20E-05 | -2.46E-05 | -2.32E-05 | -2.20E-05 | -2.30E-05 | -1.85E-05 |
| **ADPE** | kg Sb-eq. | -8.02E-09 | -8.84E-09 | -8.34E-09 | -8.44E-09 | -8.81E-09 | -8.98E-09 |
| **ADPF** | MJ | -1.14E+00 | -1.30E+00 | -1.20E+00 | -1.23E+00 | -1.32E+00 | -1.30E+00 |

## Table 118. EN 15804+A1 impact indicators (module D) for 1 m² of product for groups 7-12

| PARA-METER | UNIT | **sound**shield 13 mm | **Opal** 10 mm | **fire**shield 13 mm | **fire**shield 16 mm | **fire**shield **H** 13 mm | **tru**rock 13 mm |
|---|---|---|---|---|---|---|---|
| **GWP** | kg $CO_2$-eq. | -1.29E-01 | -1.41E-01 | -1.21E-01 | -1.26E-01 | -1.22E-01 | -1.52E-01 |
| **ODP** | kg CFC-11-eq. | -5.54E-13 | -6.51E-13 | -5.23E-13 | -5.26E-13 | -5.12E-13 | -6.70E-13 |
| **AP** | kg $SO_2$-eq. | -8.77E-04 | -8.51E-04 | -8.18E-04 | -9.01E-04 | -8.46E-04 | -1.02E-03 |
| **EP** | kg $PO_4^{3-}$-eq. | -9.63E-05 | -8.91E-05 | -8.90E-05 | -9.97E-05 | -9.35E-05 | -1.10E-04 |
| **POCP** | kg $C_2H_4$-eq. | -2.34E-05 | -3.00E-05 | -2.40E-05 | -2.39E-05 | -2.16E-05 | -3.26E-05 |
| **ADPE** | kg Sb-eq. | -9.55E-09 | -1.09E-08 | -9.00E-09 | -9.16E-09 | -8.88E-09 | -1.15E-08 |
| **ADPF** | MJ | -1.46E+00 | -1.57E+00 | -1.36E+00 | -1.43E+00 | -1.38E+00 | -1.71E+00 |

## Table 119. EN 15804+A1 impact indicators (module D) for 1 m² of product for groups 13-19

| PARA-METER | UNIT | **tru**rock 16 mm* | **tru**rock **HD** 13 mm | **tru**rock **HD** 16 mm | **shaft**liner/ **inter**shield 25 mm | **multi**shield 13 mm | **multi**shield 16 mm | **curve**shield 6.5 mm |
|---|---|---|---|---|---|---|---|---|
| **GWP** | kg $CO_2$-eq. | -1.60E-01 | -1.53E-01 | -1.74E-01 | -1.90E-01 | -1.23E-01 | -1.23E-01 | -1.46E-01 |
| **ODP** | kg CFC-11-eq. | -6.89E-13 | -6.68E-13 | -7.52E-13 | -7.95E-13 | -5.45E-13 | -5.22E-13 | -7.30E-13 |
| **AP** | kg $SO_2$-eq. | -1.06E-03 | -1.03E-03 | -1.20E-03 | -1.26E-03 | -7.35E-04 | -8.24E-04 | -6.98E-04 |
| **EP** | kg $PO_4^{3-}$-eq. | -1.16E-04 | -1.11E-04 | -1.31E-04 | -1.42E-04 | -8.02E-05 | -9.18E-05 | -6.86E-05 |
| **POCP** | kg $C_2H_4$-eq. | -2.77E-05 | -3.14E-05 | -3.64E-05 | -2.27E-05 | -1.68E-05 | -1.82E-05 | -2.82E-05 |
| **ADPE** | kg Sb-eq. | -1.18E-08 | -1.15E-08 | -1.30E-08 | -1.37E-08 | -9.22E-09 | -9.01E-09 | -1.19E-08 |
| **ADPF** | MJ | -1.80E+00 | -1.72E+00 | -1.97E+00 | -2.16E+00 | -1.38E+00 | -1.40E+00 | -1.61E+00 |

* Max variation from weighted average is slightly more than 10% due to the low impact of these products which are produced in low volumes at selected plasterboard manufacturing sites

# program-related information **and verification**

| | |
|---|---|
| **Declaration owner** | **Etex Australia Pty Ltd**<br>Siniat.com.au<br>opt2act@siniat.com.au<br>Etex Australia Pty Ltd<br>31 Military Road<br>Matraville NSW 2036, Australia |
| **Geographical scope** | Australia |
| **Reference year** | 1 July 2020 - 30 June 2021 |
| **EPD produced by** | **thinkstep pty ltd**<br>thinkstep-anz.com<br>anz@thinkstep-anz.com<br>thinkstep pty ltd.<br>25 Jubilee Street, South Perth<br>Western Australia 6151, Australia |
| **EPD programme operator** | **EPD Australasia Limited**<br>epd-australasia.com<br>info@epd-australasia.com<br>EPD Australasia Limited,<br>315a Hardy Street<br>7010 Nelson, New Zealand |
| **CEN standard EN 15804+A2 served as the core PCR** | |
| **PCR** | PCR 2019:14, version 1.11 Construction Products.<br>EPD International., 2021-02-05 |
| **PCR review conducted by** | The Technical Committee of the International EPD® System<br>Claudia A. Peña<br>info@environdec.com |
| **Independent verification of the declaration and data, according to ISO 14025** | ☐ EPD process certification (Internal)<br>☑ EPD verification (External) |
| **Third party verifier , approved by EPD Australasia** | **Rob Rouwette**<br>start2see Pty Ltd<br>www.start2see.com.au<br>Rob.Rouwette@start2see.com.au |
| **Procedure for follow-up of data during EPD validity involved third-party verifier** | ☐ yes<br>☑ no |
| **Version history** | 1.0 |

An Environmental Product Declaration, or EPD, is a standardised and verified way of quantifying the environmental impacts of a product based on a consistent set of rules known as a PCR (Product Category Rules).

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.

# references

Blue Environment Pty Ltd. (2020). National Waste Report 2020. Melbourne: Department of Agriculture, Water and the Environment.

EPD International. (2021). PCR 2019:14, version 1.11 Construction Products. www.environdec.com

EPD International (2019). General Programme Instructions for the International EPD System version 3.01, dated 2019-09-18. www.environdec.com.

EN 15804:2012+A1:2013; Sustainability of construction works — Environmental product declarations — Core rules for the product category of construction products . Brussels: European Committee for Standardization.

ISO 14040:2006; Environmental management – Life cycle assessment – Principles and framework. Geneva: International Organization for Standardization.

ISO 14044:2006; Environmental management – Life cycle assessment – Requirements and guidelines. Geneva: International Organization for Standardization.

ISO 14025:2006; Environmental labels and declarations — Type III environmental declarations — Principles and procedures. Geneva: International Organization for Standardization.

Sphera (2021). GaBi Life Cycle Inventory Database 2021 Documentation. Retrieved from Sphera: https://gabi.sphera.com/ international/ support/gabi/gabi-database-2021-lcidocumentation/

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