

Australian Government  
Carbon Neutral Program  
Public Disclosure Summary




An Australian Government Initiative

NAME OF CERTIFIED ENTITY: Knauf Plasterboard Pty Limited

REPORTING PERIOD: July 2017 – June 2018

Declaration

To the best of my knowledge, the information provided in this Public Disclosure Summary is true and correct and meets the requirements of the National Carbon Offset Standard Carbon Neutral Program.

Signature 	Date 31 <sup>st</sup> October 2018
Name of Signatory	George Mamic
Position of Signatory	Sales Director

Carbon neutral certification category	Product
Date of most recent external verification/audit	Plasterboard – 30 <sup>th</sup> October 2017 Metal – 12 <sup>th</sup> October 2018
Auditor	Carbon Intelligence Pty Limited
Auditor assurance statement link	



**Australian Government**  
**Department of the Environment and Energy**

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## 1. Carbon neutral information

### 1A. Introduction

#### **About Knauf Plasterboard**

Knauf is a global leader in the manufacture and distribution of plasterboard, compounds, cornice, acoustic design solutions, steel and associated products and systems to the lightweight construction industry. With over 150 facilities globally, employing over 23000 people, Knauf uses the innovation derived from its global footprint to produce cutting edge, responsible products that have been used in iconic buildings all over the world.

In Australia, Knauf has plasterboard manufacturing facilities in Matraville (Sydney, NSW), Altona (Melbourne, VIC), Bundaberg (QLD), a metal roll forming production facility in Beenleigh (Brisbane, QLD), and over 300 employees. Knauf is a major supplier of high quality sustainable building materials to the light weight construction industry.

#### **NCOS Product Certification**

Knauf has created an opt-in carbon neutral program for the following products:

- |   |  |
|---|--|
| <p>1. Standard and technical plasterboard products manufactured in the Matraville Plant:</p> <ul style="list-style-type: none"><li>• MastaShield: a standard plasterboard typically used for lining walls and can also be used for ceilings</li><li>• FireShield: a fire resistant plasterboard used in wall and ceiling systems to achieve a Fire Resistance Level (FRL), as well as providing a good sound insulation performance for acoustic comfort</li><li>• WaterShield: a water resistant plasterboard which is used in wet areas such as bathrooms and laundries.</li><li>• The functional unit for NCOS carbon offsetting is per kg of plasterboard product sold.</li></ul> | <p>2. Knauf Metal Range manufactured in the Beenleigh Plant:</p> <ul style="list-style-type: none"><li>• Wall Framing Systems - Stud, Track, Track DH, Track, Flexible, Track Nogging</li><li>• Knauf Acoustic Stud</li><li>• Concealed Ceiling System</li><li>• Beads and Finishing Sections</li><li>• Clips and Accessories</li><li>• InterHome H stud (from 2017/2018 year)</li><li>• The functional unit for NCOS carbon offsetting is per kg of metal product sold.</li></ul> |
|---|--|

These products may be used in both residential and commercial applications. No products were purchased under the opt-in program in 2017/2018.

### **Section 1: Plasterboard Product Range**

Plasterboard is a major building material used within all types of residential and commercial construction, from homes through to offices, hospitals and schools. When used in combination with framing, plasterboard delivers systems which can be used for fire resistance, for acoustic comfort, and to resist damage from impact in high performance areas. Plasterboard is available in different weights, thicknesses and lengths, which are selected depending on project performance needs, and is sold in square metres (m<sup>2</sup>).

Plasterboard is manufactured in a continuous process, primarily from gypsum, paper and minor amounts of additives, to deliver specific performance attributes, such as water resistance, heightened fire resistance and sound resistant properties. Gypsum is a naturally occurring mineral high in chemically bound water, making the product naturally resistant to fire. The other significant raw material is paper, which typically accounts for up to 5% of the product. The paper used is recycled fibre. Gypsum and paper constitute on average over 95% by mass of plasterboard.

## Product system description

The NCOS Carbon Account covers the following life cycle stages of plasterboard products and has been prepared in accordance with the requirements of the NCOS standard:

- Product stage: covering raw material supply and product manufacturing
- Product use: covering delivery to site, installation
- End of life: covering deconstruction and disposal.

This Carbon Account covers the time period 1<sup>st</sup> July 2017 to 30<sup>th</sup> June 2018.

### Raw material supply

Includes the extraction and processing of raw materials and energy which occur upstream from the plasterboard manufacturing process. The majority of gypsum is from natural sources and a proportion of recycled gypsum may also be used. This stage includes the transport of the gypsum to the production site. The other major raw material is paper, which is from recycled fibre.

### Product manufacturing

The manufacturing of plasterboard starts with the processing of gypsum into the plastermill, where the gypsum is ground, and converted to stucco by extracting water (as vapour) under a calcination process. Milling and calcination uses thermal energy (natural gas) and grid electrical power to produce ground gypsum and then stucco.

The plasterboard is then formed in a continuous production process. Stucco is mixed with water and additives, distributed on a layer of continuous paper and covered with a second layer of 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 transported via conveyor belts to the cutting station where it is cut to a standard length and then enters the drying process. The conveyors and cutting machine use electric power.

The plasterboard is dried in an oven, which is natural gas-fired, using grid electric power for the conveyors. After drying, the plasterboard sheets are stacked into packs, and moved to the warehouse for storage, ready for distribution. The product is moved with forklifts powered by compressed natural gas.

The use of natural gas and electricity accounts for over 98% of energy sources within the production gate.

### Product use

Plasterboard packs are then transported to the construction site. Plasterboard is mostly installed manually. Ancillary materials such as screws are not included within the system. The use or in-service life of the product is not covered, as plasterboard is a passive building product, requiring little maintenance.

### Demolition and end of life

This phase includes the transport of the plasterboard at end of life to either recycling or to landfill.

## 1B. Emission sources within certification boundary

### Quantified sources

The following emissions sources have been included:

- Upstream emissions resulting from raw materials (gypsum, paper and additives);
- Gate to gate emissions:
  - resulting from manufacture and warehousing of plasterboard on Matraville site;
  - resulting from the operation of Knauf Matraville premises; such as overall site energy and water consumption;
- Downstream emissions:
  - resulting from transport of product to the customer;

- resulting from the installation of the product; and
- resulting from the reuse, recycling or final disposal of the product at end of life.

The main emissions sources for plasterboard manufacturing operations relate to the consumption of energy (over 98% primarily natural gas, and electricity). Other energy sources are minor in usage. Emissions have also been included for business travel and company vehicles attributable to the scope of certification.

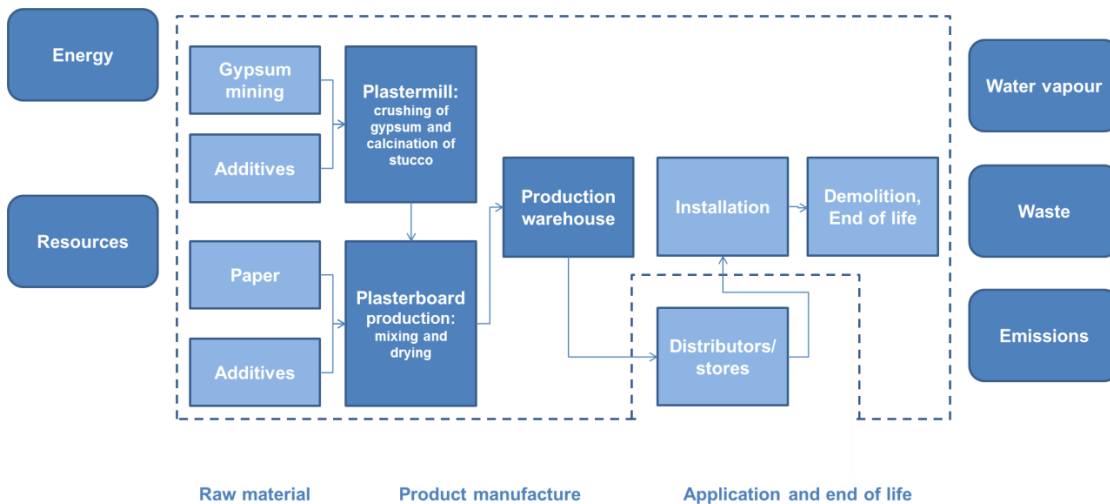
The NCOS Carbon Account covers the emissions from the six greenhouse gas types included under the Kyoto Protocol.

### Excluded sources

The following emissions sources have not been quantified, as the impact of excluding these sources is not expected to materially affect the overall total emissions:

- Capital goods are not included: due to the long lifetime of plant and equipment used in the product manufacture, the emissions are likely to be negligible, and are also difficult to determine and allocate to a functional unit relative to their likely significance.
- Franchise and distributor store premises are not included: these premises are independently operated and emissions resulting from their operations are not fully attributable to the scope of certification.
- Some emission sources have been excluded as they are of low environmental significance or outside of operational control. This can include items such as employee travel to and from work (separate from company vehicles), and minor use of in plant materials such as welding gases.

### 1C. Diagram of the certification boundary



## Section 2: Metal Product Range

Light weight metal framing systems are used within all types of residential and commercial construction, from homes through to offices, hospitals and schools. When used in combination with plasterboard, light weight metal framing delivers systems which can be used for fire resistance, for acoustic comfort, and to resist damage from impact in high performance areas. Stud and track is available in different profiles, lengths, and Base Metal Thicknesses (BMT), which are selected depending on project performance needs, and is sold in lineal metres (m).

Knauf Metal products are manufactured on different product lines, to meet specific product specifications. The products being certified are made out of BlueScope Zinalume® AM 150 steel (in G300 and G550 tensile strengths) BMT from 0.5 up to 1.15. BlueScope aluminium-zinc-magnesium metallic coated products are produced using a world-leading, patented coating technology delivering a better quality, longer lasting

performance for ZINCALUME® AM150 steel. BlueScope products are known for their quality and reliability, which contribute to long life, durable buildings.

### **Product system description**

The NCOS Carbon Account covers the following life cycle stages of Knauf metal products, and has been prepared in accordance with the NCOS standard, and National Greenhouse & Energy Reporting Scheme:

- Product stage: covering raw material supply and product manufacturing
- Product use: covering delivery to site, installation
- End of life: covering disposal and recycling.

The time period 1<sup>st</sup> July 2017 to 30<sup>th</sup> June 2018 is covered.

#### **Raw material supply**

This includes the steel production at Bluescope Steel from raw and recycled materials, including the extraction of raw materials and transport to the steel manufacturing site. Also included are the production of consumables used in the Knauf production process, coil slitting, and the transport by road of coil steel to coil slitters and from coil slitters to Knauf.

#### **Product manufacturing**

The manufacturing of the metal profiles starts with loading of metal coil to individual production lines, then forming, cutting and punching, stacking and packing of the products, and transfer into the warehouse. Grid electrical power is used to operate the production lines, and forklifts powered by diesel fuel move the coil and finished goods around the site.

#### **Product use**

Metal packs are then transported to the construction site by road transport (trucks). Knauf metal products are mostly installed manually with use of power tools. Ancillary materials such as screws are not included within the system. The use or in-service life of the product is not covered, as the installed system is a passive building product, requiring little maintenance.

#### **End of life**

This phase includes the transport of the metal at end of life to either recycling or to landfill, the processing of the steel scrap, and a benefit for the recycled steel at end of life is included.

## **1B. Emission sources within certification boundary**

### **Quantified sources**

The following emissions sources have been included:

- Upstream emissions resulting from raw materials (manufacture of steel);
- Gate to gate emissions:
  - resulting from manufacture and warehousing of metal products on Beenleigh site;
  - resulting from the operation of Knauf Beenleigh premises; such as overall site energy and water consumption;
- Downstream emissions:
  - resulting from transport of product to the customer;
  - resulting from the installation of the product; and
  - resulting from the reuse, recycling or final disposal of the product at end of life.

The main emissions sources relate to the consumption of energy upstream in the manufacture of the steel. Other energy sources are minor in usage in comparison. Emissions have also been included for business travel and company vehicles attributable to the scope of certification.

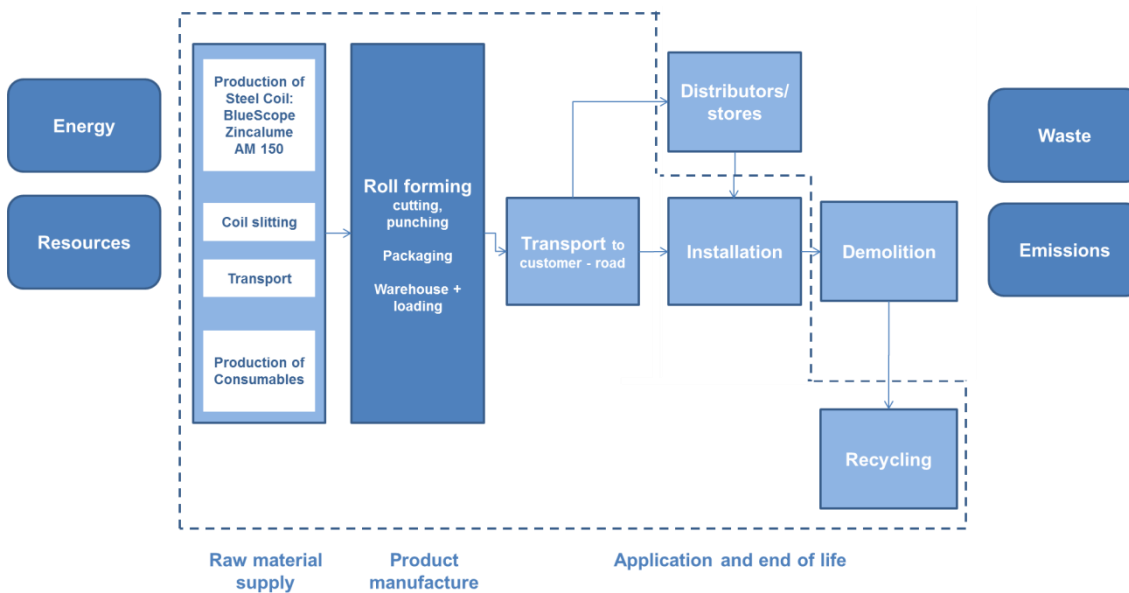
The carbon account covers the emissions from the six greenhouse gas types included under the Kyoto Protocol.

## Non-quantified sources

The following emissions sources have not been quantified, as the impact of excluding these sources is not expected to materially affect the overall total emissions:

- Capital goods are not included: due to the long lifetime of plant and equipment used in the product manufacture, the emissions are likely to be negligible, and are also difficult to determine and allocate to a functional unit relative to their likely significance.
- Franchise and distributor store premises are not included: these premises are independently operated and emissions resulting from their operations are not fully attributable to the scope of certification.
- Some emission sources have been excluded as they are of low environmental significance or outside of operational control. This can include items such as employee travel to and from work (separate from company vehicles), and minor use of in plant materials such as welding gases.

### 1C. Diagram of certification boundary



## 2. Emissions reduction measures

### 2A. Emissions over time

No products were purchased under the opt-in carbon neutral program in the reporting period 2017/2018.

	2014/2015	2015/2016	2016/2017	2017/2018
Scope 1	109	No products were purchased under the opt-in carbon neutral program in the reporting period 2015/2016.	No products were purchased under the opt-in carbon neutral program in the reporting period 2016/2017.	No products were purchased under the opt-in carbon neutral program in the reporting period 2017/2018.
Scope 2	31			
Scope 3	200			
Total	340			

## 2B. Emissions reduction strategy

### **Plasterboard Products**

The most significant contribution to emissions from Knauf Plasterboard processes, is the use of natural gas (thermal energy) in the drying and plastermill activities in the plant. Electricity in the same plant areas is the other major contributor to emissions. Together, these account for over 98% of emissions from product manufacture.

These emissions are from:

- Combustion emissions from natural gas (Scope 1)
- Indirect emissions from electricity generation (Scope 2).

### **Metal Products**

In terms of the actual manufacturing process cradle to grave, the largest component of the carbon account is due to the manufacture of the steel. Of the activities under Knauf operational control (or gate to gate), the most significant contribution to emissions from Knauf processes is the use of electricity in the rollforming stage.

Knauf's emission reduction strategy is to work on operational and behavioural reductions through training of personnel, and to invest where practicable in the most efficient manufacturing processes for local operations.

Energy efficiency is a key sustainability indicator for Knauf. Knauf reports energy and associated carbon emissions as relevant to the government via programs such as National Greenhouse and Energy Reporting, and is benchmarked internationally within the Knauf Group for energy consumption and efficiency. Knauf conducts internal and external energy audits and is benchmarked internationally within the Knauf Group for energy consumption and efficiency. Examples of energy efficiency measures include optimising dryer processes to reduce energy required and the installation of waste heat recovery systems.

Knauf Plasterboard's Matraville, Beenleigh and Altona manufacturing facilities are independently certified to ISO 14001:2015 Environmental Management Systems, ISO 9001:2015 Quality Management Systems, and OHSAS 18001:2007 Health & Safety Management Systems.

## 2C. Emissions reduction actions

Knauf runs ongoing operational efficiency programs which include:

- Energy efficiency targets in plastermill and board drying activities
- Water reduction measures, which reduce energy consumption or allow greater production (improving efficiencies)
- Ongoing scrap reduction targets, reducing waste and hence better resource efficiency
- Efficient product changeovers minimising stoppages on the production line
- Training for personnel on the above and specific topics such as energy management in drying and calcination.

Due to synergies with other projects, it can be difficult to quantify the effects of these measures individually and no reductions are being claimed within this reporting period.

Some examples of energy efficiency improvements in which Knauf has invested since 2009 for Matraville (and Altona) production facilities include:

- Recycling of waste heat in the plastermill
- Improved calcination equipment increasing throughput in the plant
- Heat exchangers installed on dryers saving gas consumption and collecting water
- Optimised mixing processes using Knauf proprietary technology, reducing water demand in the process and hence reducing energy required to dry the board
- VSDs and automated shutdown of idle equipment
- LED light replacement program in warehouse areas and skylight replacement, reducing electricity consumption for lighting such that lighting is not required during daylight hours.

Energy efficiency improvements for Beenleigh manufacturing facility since 2015 has included:

### **Over 15% reduction in electricity consumption per tonne of product as a result of:**

- Power Factor Correction equipment installed to optimise electricity usage, with further equipment under investigation.
- PLC controlled Variable Speed Drives connected on all roll formers and compressors

- Lighting timers installed around the site, and LUX meters investigated for LED High bay lighting
- Ongoing LED light replacement throughout warehouse areas, replacing Metal Halides or Mercury Vapour lights.
- Ongoing replacement and addition of skylight panels.

**Distribution improvements:**

- Increased utilisation rate for interstate trucks to 98%
- Reduced delivery mileage of customer orders by grouping runs
- Reconfigured yard to reduce forklift movements
- Higher tonnage throughput by forklifts
- Higher focus on selecting the best suited truck for coil orders (right-sizing of vehicle for utilisation)
- Adblue diesel additive used in new truck fleet to reduce emissions.

**Waste reduction:** reducing waste generation by 19% from the previous reporting year

- Reduction of scrap metal from 0.6% to 0.35% due to implementation and improvement of operation processes, quality control systems, lean manufacturing initiatives and enhanced operator training
- Improved recycling: cardboard recycling commenced, and focus to improve scrap metal recycling.

### 3. Emissions summary

Table 2. Emissions Summary		
Scope	Emission source	t CO <sub>2</sub> -e
	Plasterboard products purchased under the opt-in program Scope 1 Scope 2 Scope 3	nil
	Metal products purchased under the opt-in program Scope 1 Scope 2 Scope 3	nil
<b>Total Gross Emissions</b>		nil
GreenPower or retired LGCs		nil
<b>Total Net Emissions</b>		nil

### 4. Carbon offsets

#### 4A. Offsets summary

Table 3. Offsets Summary				
Date of cancellation	Offset project, unit type and registry	Serial numbers	Vintage	Quantity
n/a	Gold Standard VER, Markit registry	n/a	n/a	nil
Total offsets cancelled				nil
Net emissions after offsetting				n/a



Table 3. Offsets Summary				
Date of cancellation	Offset project, unit type and registry	Serial numbers	Vintage	Quantity
Total offsets banked for use future years: (if any) [include serial numbers]				60 tonnes GS1-1-KE- GS886-16- 2013-3495- 1141 to 1200

#### 4B. Offsets purchasing and retirement strategy

As this is an opt-in program, offsets will be purchased and retired at the end of the reporting period.

Knauf uses qualified providers of offsets, which will meet the NCOS standard requirements (such as Gold Standard VERs or Verified Carbon Standard VCUs). Offsets may be either Australian or international in origin. The process of purchase and surrender will be managed by the provider on behalf of Knauf. The purchase and surrender of offsets will be completed within the reporting period requirement, that is, within four months of the conclusion of the reporting year.

Knauf will select offsets based on the following criteria:

- A strong social responsibility aspect, such as improvements for communities and individuals
- Replace carbon intensive energy use with renewable energy sources.

#### 4C. Offset projects (Co-benefits)

The offsets currently held in surplus for future years are for the Safe Water Provision LifeStraw program, in Western Province, Kenya.

LifeStraw offers a point-of-use water treatment solution and is the first program directly linking carbon credits with safe drinking water. The program intervenes at the small household level, creating one of the world's largest carbon reduction projects. Benefits of the LifeStraw project:

- Expected to deliver an estimated 4.8 billion litres of safe drinking water annually to 4.5 million people for a period of at least ten years.
- Reduces incidence of waterborne diseases; statistically significant reduction in odds of diarrhoea, dysentery and severe dehydration among under-5s using it exclusively.
- Saves 1.5 million tonnes of wood from being burned each year, slowing deforestation among Kenya's dwindling woodland, with 1.35 million tonnes of CO2 avoided in the first 6 months.
- Empowers Kenyans who can now filter their own drinking water. Women and children spend less time gathering and carrying firewood.
- Addresses 4 UN Millennium Development Goals: reducing child mortality; improving maternal health; combating diseases; and ensuring environmental sustainability.
- Thousands of jobs created locally to distribute filters and monitor usage during twice-yearly campaigns. User training provided upon installation.
- Regular visits continue every 6 months to ensure that the filters are in working condition and that each householder is happy using their filter.

## 5. Use of trade mark

Table 4. Trade mark register	
Where used	Logo type
Trademark use: Corporate Website: <a href="http://www.knaufplasterboard.com.au/carbon-neutral-program">http://www.knaufplasterboard.com.au/carbon-neutral-program</a> From which can be viewed the Brochure, Case Study.	