

National Carbon Offset Standard Carbon Neutral Program Public Disclosure Summary



An Australian Government Initiative

KNAUF PLASTERBOARD

REPORTING PERIOD

JULY 2014 – JUNE 2015

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.

17th December 2015

Sean Wareham

Executive Vice-President Operations

Type of carbon neutral certification: product

Verification

Date of most recent external verification/audit: 16th December 2015

Auditor: Graham A Brown & Associates in association with Carbon Intelligence

Auditor assurance statement link:



Australian Government
Department of the Environment

Page 1/8

Public Disclosure Summary documents are prepared by the submitting organisation. The material in Public Disclosure Summary documents represents the views of the organisation and do not necessarily reflect the views of the Commonwealth. The Commonwealth does not guarantee the accuracy of the contents of the Public Disclosure Summary documents and disclaims liability for any loss arising from the use of the document for any purpose.

1. Carbon neutral information

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 two plasterboard manufacturing facilities in Matraville (Sydney) and Altona (Melbourne), a light weight metal framing production facility in Beenleigh (Brisbane), 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 is creating an opt-in carbon neutral program for standard and technical plasterboard products manufactured in the Matraville Plant:

- MastaShield: a standard plasterboard typically used for lining walls and can also be used for ceilings
- 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
- WaterShield: a water resistant plasterboard which is used in wet areas such as bathrooms and laundries.

These products may be used in both residential and commercial applications. The functional unit for NCOS carbon offsetting is per kg of plasterboard product sold.

Plasterboard

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 (m²).

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 LCA covers the following life cycle stages of plasterboard products, and has been prepared in accordance with the NCOS standard, National Greenhouse & Energy Reporting Scheme, and is based on the requirements of ISO 14040:2006 and ISO 14044:2006:

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

The LCA covers the time period 1st July 2014 to 30th June 2015.

Raw material supply

This 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 with a proportion of recycled gypsum being 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.

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.

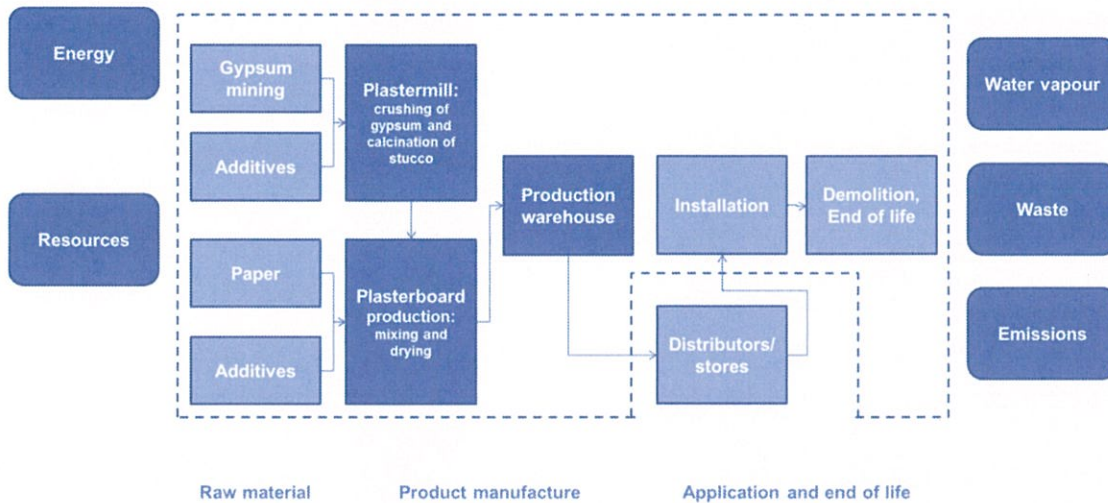
The LCA covers the emissions from the six greenhouse gas types included under the Kyoto Protocol.

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.

Diagram of certification boundary



2. Emissions reduction measures

Part A. Emissions over time

Not applicable for initial applications.

Part B. Emissions reduction strategy

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).

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. Consumption is managed on a daily basis in operations, and reported and tracked monthly by major fuel or source. Energy intensity or efficiency is also measured and reported. Knauf reports energy and associated carbon emissions as relevant to the government via programs such as National Greenhouse and Energy Reporting and Energy Efficiencies Opportunities. Knauf Plasterboard 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 and Altona manufacturing facilities are independently certified to ISO 14001:2004 Environmental Management Systems, ISO 9001:2008 Quality Management Systems, and OHSAS 18001:2007 Health & Safety Management Systems.

Part C. Emissions reduction actions

Knauf runs ongoing operational efficiency programs which include:

- 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.

Knauf Plasterboard has previously completed several Energy Efficiencies Opportunities reports as part of our commitment to improving production energy efficiency. These reports are available from our website which outline previous activities in energy efficiency measures. 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 use of natural light.

In this reporting year (which is the base year) no other specific measures were introduced which are being claimed for this period.

3. Emissions summary

Table 2. Emissions Summary		
Scope	Emission source	t CO ₂ -e
	Plasterboard products purchased under the opt-in program	340
	Total Gross Emissions	340
	GreenPower or retired LGCs	Nil
	Total Net Emissions	340

4. Carbon offsets

Part A. Offsets summary

Table 3. Offsets Summary			
Offset type and registry	Year retired	Quantity	Serial numbers
Gold Standard VER	2015	340	GS1-1-KE-GS886-16-2014-3496-1000 to 1299 GS1-1-KE-GS886-16-2013-3495-1101 to 1140
Gold Standard VER	n/a	60	**
Total offsets retired			340
Net emissions			340
Total offsets held in surplus for future years: [include serial number batch]			60

Part B. 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.

Part C. Offset projects (Co-benefits)

Safe Water Provision – LifeStraw, Western Province, Kenya

This project relates to 100% of the total offsets purchased and retired for this reporting period.

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.