

## Hunton Sarket

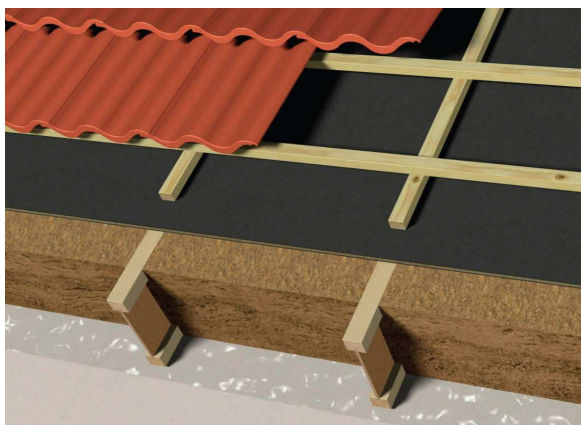


Figure 1 - Picture of Hunton Sarket

### NEPD nr: 214E

Approved according to ISO 14025, § 8.1.4

Approved 31.05.2011

Valid until 31.05.2016



### Verification

Independent verification of data and other environmental information has been carried out by xxx, in accordance with ISO 21930, § 9.1



### The declaration has been prepared by:

Kjersti Folvik, SINTEF Byggforsk



### PCR

NPCR010 Building boards [3]

### About EPD

EPD from other program operators than The Norwegian EPD Foundation may not be comparable.

### Manufacturer information

**Organization** Hunton Fiber AS  
**Address** Postboks 633, 2810 Gjøvik  
**Contact person** Lars Harald Nilsen, nillar@hunton.no, tlf. 995 93807  
**Organisation no.** 964014256  
**ISO 14001/EMAS:** \_\_\_\_\_

### Product information

**Scope of assessment** cradle to grave  
**Functional unit (FU)** 1 m<sup>2</sup> building board, installed and maintained, with an expected average service life of 60 years.  
 All figures in this document refer to 1 functional unit (FU)  
**Expected service life** 60 years  
**Year of study** 2010, with data collection representing 2008  
**Production area** Gjøvik, Norway  
**Expected market area** Nordic

#### Product description

Hunton Undertak (also named Hunton Sarket) is 18 mm thick bitumen impregnated soft fibreboards intended for use as a combined underlay under discontiguous roofing and breather membrane. The boards have a special watertight high density bitumen impregnated layer on the top face. However, the boards also satisfy the performance requirement concerning minimum water vapour permeability applicable for breather membranes on the outside of thermal insulation. Standard board size is 575 mm x 2400 mm (as laid). The boards have tongue and groove on all four sides. The boards may be used as combined roofing underlay and breather membrane in thermal insulated pitched timber roofs, where the roofing is placed on battens and counterbattens and the roof has external drainage.

### Environmental indicators

Global warming	3,6 kg CO <sub>2</sub> -ekv.
Energy consumption	83 MJ
Amount of renewable materials	70,2 %
Indoor classification (according to EN 15251:2007)	not relevant

### Product specification

Tabell 1

Composition of final product		Input i LCA*		Weight final product	
Wood chips	kg	3,36	65,9 %	Spesifikke data	3,20 65,9 %
Oxidized bitumen	kg	1,06	20,7 %	generiske data	1,01 20,7 %
Waste paper	kg	0,22	4,3 %	generiske data	0,21 4,3 %
Resin	kg	0,04	0,8 %	generiske data	0,04 0,8 %
Other	kg	0,42	8,3 %	generiske data	0,40 8,3 %
Total	kg	5,10	100 %		4,86 100 %

\* Including 5% loss av construction site

## Resource consumption

### Material resources

Table 2

Material resources	Raw materia	Production	Building site	Use stage	Demolition	Transport	Total
<b>New, renewable resources</b>							
Timber (incl. bark) [m³]	kg	3,36	0,06	0,00	0,00	7,5E-08	3,43
Water (fresh) [kg]	kg	8,772	5,834	0,094	-	0,094	14,821
Air [kg]	kg	1,106	9,991	0,166	-	0,166	11,453
Other [kg]	kg	0,005	0,068	0,001	-	0,001	0,076
<b>New, non-renewable resources</b>							
Inert rock [kg]	kg	0,198	3,020	0,051	-	0,051	3,332
Crude oil [kg]	kg	1,061	0,090	7,48E-04	-	7,48E-04	1,251
Hard coal [kg]	kg	0,021	0,259	0,004	-	0,004	0,289
Natural gas [kg]	kg	0,100	0,126	0,002	-	0,002	0,235
Peat [kg]	kg	7,98E-04	0,113	0,002	-	0,002	0,117
Lignite [kg]	kg	0,023	0,033	5,52E-04	-	5,52E-04	0,058
Limestone [kg]	kg	0,007	0,041	7,01E-04	-	7,01E-04	0,050
Soil [kg]	kg	3,76E-04	0,019	3,18E-04	-	3,18E-04	0,020
Sodium chloride (rock salt) [kg]	kg	0,012	9,04E-05	1,45E-06	-	1,45E-06	0,012
Aluminum [kg]	kg	0,006	2,13E-05	3,60E-07	-	3,60E-07	0,006
Heavy spar [kg]	kg	0,003	7,35E-04	1,13E-05	-	1,13E-05	0,004
Iron [kg]	kg	0,003	6,75E-04	1,09E-05	-	1,09E-05	0,004
Other (ore without minerals and	kg	6,81E-04	0,002	3,72E-05	-	3,72E-05	0,003
Clay [kg]	kg	0,002	6,98E-04	1,16E-05	-	1,16E-05	0,003
Quartz sand [kg]	kg	3,56E-04	1,72E-04	2,76E-06	-	2,76E-06	0,000
Gypsum [kg]	kg	4,19E-05	4,13E-04	6,99E-06	-	6,99E-06	0,000
Nickel [kg]	kg	9,20E-05	1,59E-06	2,19E-08	-	2,19E-08	0,000
Barium sulphate [kg]	kg	6,16E-05	2,76E-07	1,93E-14	-	1,93E-14	0,000
Copper [kg]	kg	4,40E-05	1,11E-05	1,87E-07	-	1,87E-07	0,000
Chromium [kg]	kg	3,01E-05	1,26E-05	2,11E-07	-	2,11E-07	0,000
Unspecified [kg]	kg	0,086	0,122	0,002	-	0,002	0,212
<b>Feedstock energy, renewable resources [MJ]</b>							<b>57,1</b>
<b>Feedstock energy, non-renewable resources [MJ]</b>							<b>40,89</b>

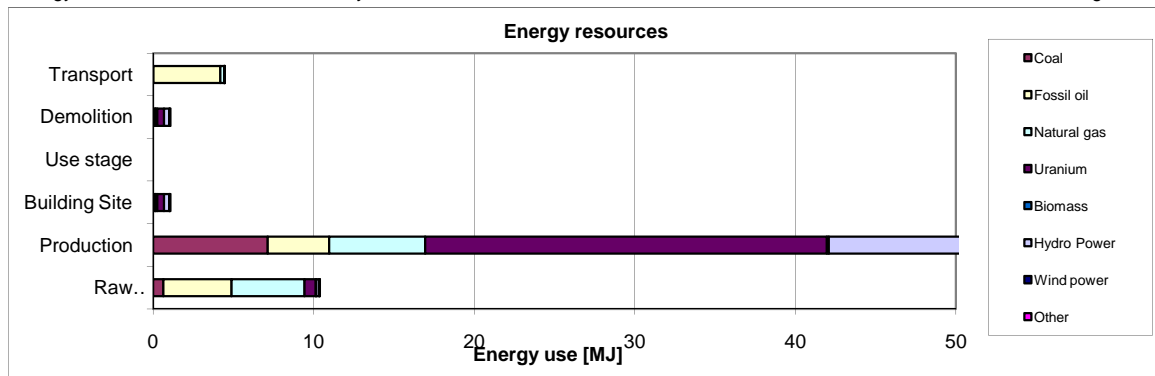
### Land use and water resources

Land use has not been quantified. Water consumption is included in Table 2.

### Energy resources

Energy carrier distribution for each life cycle fase

Figure 2



Energy consumption specified for the different energy carrier and life cycle stages

Table 3

	Unit	Raw materia	Production	Building Site	Use stage	Demolition	Transport	Total
<b>Fossil energy</b>								
Coal	MJ	0,641	7,135	0,120	0,00E+00	0,120	0,016	8,033
Fossil oil	MJ	4,244	3,816	0,032	0,00E+00	0,032	4,159	12,282
Natural gas	MJ	4,531	5,988	0,097	0,00E+00	0,097	0,238	10,951
Uranium	MJ	0,710	25,004	0,423	0,00E+00	0,423	0,022	26,583
<b>Renewable energy</b>								
Biomass	MJ	0,039	0,127	8,49E-06	0,00E+00	8,49E-06	1,10E-06	0,166
Hydro Power	MJ	0,181	20,219	0,343	0,00E+00	0,343	0,005	21,090
Wind power	MJ	0,019	1,095	0,019	0,00E+00	0,019	4,77E-04	1,152
Other	MJ	0,008	2,385	0,040	0,00E+00	0,040	4,22E-04	2,474
<b>Total</b>	<b>MJ</b>							<b>82,73</b>

\* Electricity used for production in Norway is assumed base on Nordic electricity grid mix (NORDEL)

## Emissions and environmental impacts

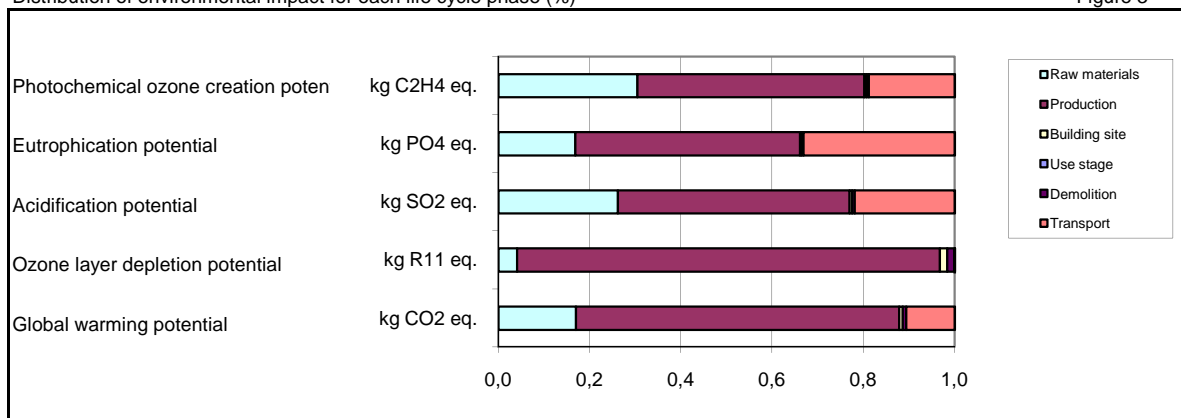
### Environmental impacts

Table 4

Indicator	Unit	Raw materials	Production	Building site	Use stage	Demolition	Transport	Total
Global warming potential	kg CO <sub>2</sub> eq.	0,604	2,517	0,027	0,00E+00	0,027	0,377	3,552
Ozone layer depletion potential	kg R11 eq.	2,96E-08	6,73E-07	1,14E-08	0,00E+00	1,14E-08	5,97E-10	7,27E-07
Acidification potential	kg SO <sub>2</sub> eq.	0,004	0,007	7,86E-05	0,00E+00	7,86E-05	0,003	0,014
Eutrophication potential	kg PO <sub>4</sub> eq.	2,75E-04	8,05E-04	6,17E-06	0,00E+00	6,17E-06	5,42E-04	0,002
Photochemical ozone creation pote	kg C <sub>2</sub> H <sub>4</sub> eq.	3,33E-04	5,43E-04	5,23E-06	0,00E+00	5,23E-06	2,06E-04	0,001

Distribution of environmental impact for each life cycle phase (%)

Figure 3



### Emissions and waste

Table 5

	Unit	Raw materials	Production	Building site	Use stage	Demolition	Transport	Total
<b>Emissions to air</b>								
NH <sub>3</sub> [g]	g	0,009	0,017	1,67E-04	-	1,67E-04	0,002	0,029
CO <sub>2</sub> [g]	g	503,944	2664,422	29,733	-	29,733	367,987	3595,820
CO [g]	g	0,666	2,677	0,024	-	0,024	0,595	3,986
HCl [g]	g	0,007	0,053	8,85E-04	-	8,85E-04	3,92E-04	0,062
Hg [g]	g	1,09E-05	1,30E-05	2,18E-07	-	2,18E-07	2,91E-07	2,46E-05
CH <sub>4</sub> [g]	g	3,721	3,326	0,053	-	0,053	0,299	7,452
N <sub>2</sub> O [g]	g	0,015	0,057	5,96E-04	-	5,96E-04	0,005	0,078
NOx [g]	g	2,063	6,054	0,046	-	0,046	4,151	12,360
NM VOC [g]	g	0,970	0,500	0,004	-	0,004	0,227	1,705
Particles [g]	g	0,087	0,753	0,006	-	0,006	0,070	0,922
Pb [g]	g	8,97E-05	3,13E-04	5,27E-06	-	5,27E-06	4,69E-06	4,18E-04
SO <sub>2</sub> [g]	g	2,216	2,891	0,046	-	0,046	0,165	5,366
<b>Emissions to water</b>								
BOD [g]	g	0,190	0,002	1,84E-05	-	1,84E-05	3,88E-04	0,192
COD [g]	g	0,635	106,695	0,006	-	0,006	0,012	107,354
N [g]	g	0,063	0,130	8,11E-04	-	8,11E-04	3,53E-04	0,195
P [g]	g	0,005	0,012	6,96E-06	-	6,96E-06	1,12E-04	0,018
<b>Waste</b>								
Waste to landfill [kg]	kg	0,1932	3,059	0,295	-	0,052	0,011	3,609
Hazardous waste [kg]	kg	0,1930	3,0521	0,0517	-	0,052	0,011	3,360

## Waste treatment of final product

Hunton Sarket is sorted as mixed waste on demolition site. The product shall be delivered to an authorized waste treatment plant for recovery. No organic waste may be landfilled after July 2009, and the products is assumed to be entirely energy recovered.

## Use of chemicals

Use of chemicals in the production process and in the final product is assessed according to guidelines for environmental information in SINTEF Technical Approval [6] and the methodology document for EcoProduct [7].

All priority substances according to list of priority substances [8] and REACH candidate list [9] are declared regardless of concentration.

In addition, substances giving EcoProduct score Red (bad or unacceptable) or White (average) are also

### Chemicals in production process \*):

Name	CAS	Amount [g]	Weight %	Process	Grouping according to EcoProduct
Acrylamide	79-06-01	0,00067	0,000013	Production of boards	1 CMR - effects

### Chemicals in final product <sup>1)</sup>

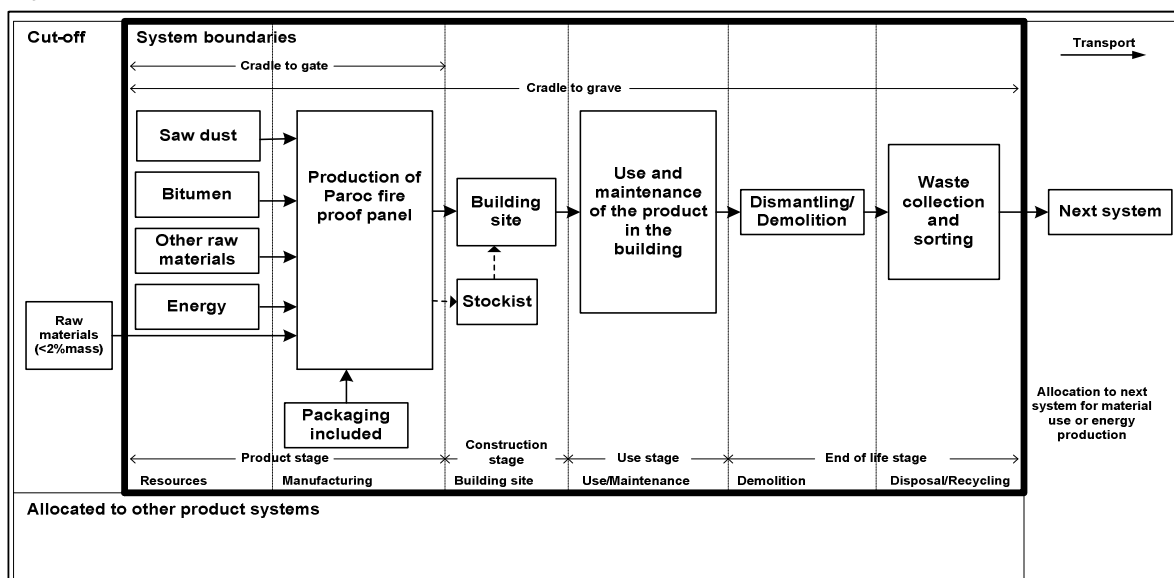
Name	CAS	Amount [g]	Weight %	Process	Grouping according to EcoProduct
PAH (max. 100 mg/kg bitumen)		0,1056	0,00207	Bitumen	1 CMR - effects
Sodium hydroxide	1310-73-2	4,082	0,08001	Resin	6 Harmful to health
Phenol	108-95-2	0,1225	0,00240	Resin	2 Toxic
Formaldehyde	50-00-0	0,0408	0,00080	Resin	1 CMR effects

<sup>1)</sup> Declared values are maximum amounts according to health and safety data sheets.

## Methodology

### System boundaries

Figur 4



## References

- [1] NS-ISO 14025:2006, Miljømerker og deklarasjoner - Miljødeklarasjoner type III - Prinsipper og prosedyrer
- [2] ISO 21930:2007, Sustainability in building construction - Environmental declaration of building products
- [3] PCR NPCR10 - Product category rules for preparing an environmental product declaration of Building boards
- [4] Sintef Byggforsk (2011): "3 Environmental Product Declarations (EPD) of Hunton bitumen boards", LCA-report
- [5] EN 15251:2007, Indoor environmental input parameters for design and assessment of energy performance of buildings addressing indoor air quality, thermal environment, lighting and acoustics
- [6] Sintef Byggforsk 2010 - Orientering til søkere om dokumentasjon av miljørelaterte egenskaper i SINTEF Teknisk Godkjenning
- [7] Strand-Hanssen 2008 - EcoProduct: Metodebeskrivelse 2.0, SINTEF Byggforsk oppdragsrapport
- [8] Prioritetsliste. Klima- og forurensningsdirektoratet oppdatert 24.02.2010, <http://www.miljostatus.no/Tema/Kjemikalier/Kjemikalier/Prioritetslisten/>
- [9] Candidate List of Substances of Very High Concern for authorisation, [http://echa.europa.eu/chem\\_data/authorisation\\_process/candidate\\_list\\_table\\_en.asp](http://echa.europa.eu/chem_data/authorisation_process/candidate_list_table_en.asp)