Environmental Product Declaration (ISO DIS 21 930)
ALTERNA Slates

General Information

Name and address of the manufacturer:	N.V. ETERNIT Kuiermansstraat, 1 1880 Kapelle-op-den-Bos Belgium
Description of the product:	The product studied is a fibre cement slate. Alterna slates are used to for roof covering. The dimensions of one unit are: 0.6 m x 0.32 m x 0.004 m The weight of one slate is 1.63 kg.
Functional Unit and Reference flow:	To cover 100 m² of roof during the reference service life (60 years). Number of units needed to cover 100 m² of roof : 1210 Reference flow: 1972 kg of slates
Product identification by name and code:	Alterna Slates
Visual representation of the product:	Photo needed
Ancillary Materials:	Copper nails are needed (10 kg per 100 m²)
Packaging:	To transport 1660 kg of slates: 1 wood pallet (20 kg) 2.5 kg of cardboard 1.5 kg of LDPE 0.83 kg of HDPE
Replacement and Maintenance:	No repair is assumed.
PCR identification:	The PCR is currently being written under the supervision of the EFFCM.
Date of issue:	27/07/06
Stages considered:	All the life cycle phases are included: - Production, transport, construction, use and maintenance, demolition and recycling.
Representativity of the declaration:	This declaration is representative of one product produced in one plant.

PCR review was conducted by: To be completed
Independent verification of the declaration and data, according to ISO 14025 ☐ Internal ☐ External
Third party verifier:

Environmental aspects

Resource use and environmental impacts

All flows are related to the functional unit: to cover 100 m² of roof with Alterna slates. This corresponds to 1972 kg of product.

			Total	1 Production	2 construction	3 Use/ Operation	4 Use/ Maintenance	5 End of life
Material Resources		Unit						
Non renewable material resources	Limestone	kg	1 931	1 931	0.285	0	0	0.00217
	Gravel	kg	0.691	0.680	0.00767	0	0	0.00299
	Clay	kg	611	611	0.0413	0	0	0.000358
	Iron	kg	18.3	18.1	0.196	0	0	0.000839
Renewable material resources	Wood (dry)	kg	240	192	47.2	0	0	0.000927
	Other	kg						
Secondary Materials used		kg	18.6	11.5	7.01	0	0	0.00288
Inputs not traced back		kg	0.868	0.834	0.0312	0	0	0.00277
Water Consumption		Litres	11 924	10 791	1 118	0	0	15.3
Energy Resources								
Non renewable energy		MJ	19 884	18 372	1 360	0	0	151
Fossil Energy	Coal	kg	180	172	8.34	0	0	0.176
	Lignite	kg	12.9	5.30	7.41	0	0	0.159
	Natural Gas	kg	113	105	7.61	0	0	0.155
	Oil	kg	166	144	18.4	0	0	3.19
	Uranium	MJ	1 021	939	80.5	0	0	1.53
Nuclear Energy	Uranium	kg	0.00785	0.00722	0.000619	0	0	1.18 E-05
Renewable Energy		MJ	4 742	4 381	361	0	0	1.10
Recovered Energy (secondary fuels)			2050	2050	0	0	0	0

			Total	1 Production	2 construction	3 Use/ Operation	4 Use/ Maintenance	5 End of life
Impacts								
Climate Change	TOTAL	kg eq. CO2	2 078	1 972	95.9	0	0	11.5
	Air - Carbon dioxide	kg eq. CO2	2 030	1 930	90.2	0	0	10.9
	Air - Other	kg eq. CO2	48.2	41.8	5.72	0	0	0.604
Destruction of the Ozone layer	TOTAL	g eq. CFC-11	0.119	0.0576	0.0535	0	0	0.00780
	Air - Halon 1301	g eq. CFC-11	0.119	0.0576	0.0535	0	0	0.00780
	Air - Other	g eq. CFC-11	6.07 E-06	6.07 E-06	0	0	0	0
Acidification	TOTAL	g eq. SO2	8 024	6 036	1 911	0	0	77.6
	Air - Nitrogen Oxide (Nox)	g eq. SO2	2 400	2 105	231	0	0	63.6
	Air -Sulphur Oxide (Sox)	g eq. SO2	5 569	3 876	1 678	0	0	14.0
	Air - Other	g eq. SO2	55.2	54.2	1.03	0	0	0.00116
Eutrophication	TOTAL	g eq. PO4	685	602	66.2	0	0	16.7
	Air - Nitrogen Oxide (Nox)	g eq. PO4	624	547	60.1	0	0	16.5
	Water - COD	g eq. PO4	33.4	33.3	0.130	0	0	0.0103
	Air - Water - Soil - Other	g eq. PO4	27.6	21.4	5.95	0	0	0.167
Formation of photochemical oxidants	TOTAL	g eq. Ethylene	611	541	57.3	0	0	13.6
	Air - Carbon Monoxide	g eq. Ethylene	41.1	36.4	3.45	0	0	1.20
	Air - Ethylene	g eq. Ethylene	46.4	45.8	0.510	0	0	0.135
	Air - Non methanoic hydrocarbons (unspecified)	g eq. Ethylene	201	138	50.6	0	0	11.7
	Air - Non methanoic organic compounds (unspecified)	g eq. Ethylene	50.0	50.0	0	0	0	0
	Air - Volatile Organic Compounds	g eq. Ethylene	197	197	0.312	0	0	0
	Air - Other	g eq. Ethylene	75.9	72.9	2.41	0	0	0.503
Depletion of fossil energy ressources	TOTAL	kg eq. Sb	8.80	8.00	0.732	0	0	0.0717
	Coal	kg eq. Sb	2.41	2.30	0.112	0	0	0.00236
	Lignite	kg eq. Sb	0.0864	0.0356	0.0497	0	0	0.00107

			Total	1 Production	2 construction	3 Use/ Operation	4 Use/ Maintenance	5 End of life
	Natural Gas	kg eq. Sb	2.90	2.70	0.201	0	0	0.00408
	Oil	kg eq. Sb	3.21	2.78	0.370	0	0	0.0642
	Uranium	kg eq. Sb	2.21 E-05	2.03 E-05	1.78 E-06	0	0	3.38 E-08

Depletion of mineral ressources	TOTAL	kg eq. Sb	0.0196	0.000140	0.0194	0	0	3.48 E-09
	Chromium	kg eq. Sb	3.40 E-05	3.40 E-05	1.42 E-09	0	0	3.72 E-11
	Molybdenum	kg eq. Sb	7.14 E-05	7.14 E-05	0	0	0	0
	Other	kg eq. Sb	0.0195	3.50 E-05	0.0194	0	0	3.45 E-09

Waste to disposal

		Total	1 Production	2 construction	3 Use/ Operation	4 Use/ Maintenance	5 End of life
Waste mineral inert	kg	154	162	161	0.254	0	0
Waste non dangerous	kg	128	131	130	1.17	0	0
Waste dangerous	kg	2.37	2.42	2.27	0.142	0	0
Mining waste	kg	44.0	44.8	44.6	0.0972	0	0

Emissions to water and to indoor air

There are no emissions to water or to indoor air during the life in use phase of this product since it is used as an outside wall panel.

Additional environmental information

Impacts and potential impacts on biodiversity:	Not applicable
Toxicity related to human health and/or the environment:	Not applicable
Environmental Management System:	The Kapelle plant is certified … to be completed
Participation to recovery and recycling programs for the product end of life:	To be completed
Instructions and limits for efficient use:	Not applicable
Hazard and risk assessment on human health and the environment:	Not applicable
Information on absence or level of presence of a material/ substance in the product that is considered of environmental significance	Not applicable
Preferred waste management option for used products:	To be completed
Potential for incidents that have impacts on the environment:	Not applicable

Scenarios and Technical information

Reference service life of the product with reference in-use conditions according to ISO/DIS 15 686-8:	60 years
Production stage:	The production stage includes the slates manufacturing process as well as the production of 99.96% of the inputs.
Transportation stage (included in the construction stage)	The average transport distance for the slates is 232 km by road (40% transported to Belgium, 40% to France and 20% to the UK).
Construction stage:	10 kg of copper nails are needed for the fixing of 100 m² of slates. No electric tool is needed.
Use/ Operation stage:	Non applicable.
Use/ Maintenance stage:	No maintenance is assumed.
End of life:	The product is assumed to be transported and crushed to produce new material
Information on energy and water-saving etc. and other improvements like acoustical improvements:	Not applicable
Energy content of the building product for energy recovery in the end of life:	Not applicable
Content of recycled material:	0.94%