ENVIRONMENTAL PRODUCT DECLARATION

as per *ISO 14025* and *EN 15804+A1*

Owner of the Declaration	Dachziegelwerke Nelskamp GmbH
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-NEL-20150325-IBD1-EN
Issue date	03.03.2021
Valid to	02.03.2026

NELSKAMP Finkenberger tile
NELSKAMP Kronen tile
NELSKAMP S-tile
NELSKAMP Sigma tile
NELSKAMP Planum tile
Including special formats

Dachziegelwerke Nelskamp GmbH

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ECO PLATFORM EPD VERIFIED

1. General Information

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Programme holder
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Owner of the declaration
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Declaration number
EPD-NEL-20150325-IBD1-EN

Declared product / declared unit
1 tonne concrete roof tiles and special formats

This declaration is based on the product category rules:
Concrete roofing tiles, 11.2017
(PCR checked and approved by the SVR)

Issue date
03.03.2021

Valid to
02.03.2026

Scope:
This document refers to concrete roof tiles manufactured by Dachziegelwerke Nelskamp GmbH. In addition to the listed product articles, this also applies to special formats and the Longlife and Climalife concrete roof tiles. The process-specific data was collected for the reference year 2014. The data was collected for the plant in Dieburg.
By recording the process-specific data in a representative production plant, the life cycle assessment used here is based on plausible, comprehensible and transparent data, and is representative for roof tiles from Dachziegelwerke Nelskamp GmbH. The owner of the declaration shall be liable for the underlying information and evidence; the IBU shall not be liable with respect to manufacturer information, life cycle assessment data and evidence.

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The EPD was created according to the specifications of *EN 15804+A1*. In the following, the standard will be simplified as *EN 15804*.

Verification

The standard *EN 15804* serves as the core PCR
Independent verification of the declaration and data according to *ISO 14025:2011*
☐ internally ☒ externally

Hans Peters

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2. Product

2.1 Product description/Product definition

Dachziegelwerke Nelskamp GmbH produces unreinforced concrete roof tiles of various formats and profiles at its sites in Dieburg, Gartrop and Schönerlinde. The

- Finkenberger tile
- Kronen tile
- S-tile
- Sigma tile
- Planum tile

products are practically identical, both in terms of composition and production methods. In order to calculate the potential environmental impacts, the process-specific data for the Dieburg production site was recorded and averaged over the production quantities. The total quantity of roof tiles produced and all input materials required for production (raw materials, intermediate products, energy and auxiliary materials) as well as the co-products and waste generated were recorded.

This Declaration also applies to Longlife and Clima Life roof tiles. However, the surface coating must be considered separately for the Longlife product. For the product Clima Life, the proportion of titanium dioxide particles must be considered separately.

(EU) Directive No. 305/2011 (CPR) applies for placing the product on the market in the EU/EFTA (with the exception of Switzerland). The product requires a Declaration of Performance taking consideration of the EN 490 and CE marking. Use is governed by the respective national provisions; in Germany: the rules of the German roofing trade and information supplied by the manufacturer, Dachziegelwerke Nelskamp GmbH.

2.2 Application

Concrete roof tiles are used as roofing material for any roof architecture. The standard roof pitch is 22°, roof battens are used as the substructure.

2.3 Technical Data

Bautechnische Daten

Name	Value	Unit
Dimensional deviation in accordance with /DIN EN 197-1/	4	mm
Coverage width	300	mm
Water impermeability	fulfilled	-
Mechanical resistance (bearing capacity) (profiled/smooth roof tiles)	2200/1500	N/mm^2
Durability (freeze-thaw resistance)	fulfilled	-
Weight	4.1 - 5	kg/pce
Requirements	10	pce/m^2
Gross density	2150	kg/m^3
Width x length	332x420/ 340x420	mm

The product's performance values correspond with the Declaration of Performance in terms of its essential properties in accordance with the current EN 490 standard.

2.4 Delivery status

Dimensions on delivery are as follows:

length x width

- 420 mm x 332 mm (Sigma, Planum, S-tiles)
- 420 mm x 340 mm (Finkenberger, Kronen tiles)

Coverage width: 300 mm (as per DIN EN 490/491/)
Depending on the order, packaging is carried out individually. The concrete roof tiles can be provided in standard palletisation or as crane goods for shipping.

2.5 Base materials/Ancillary materials

Name	Value	Unit
Quartz sand	69,3	% by mass
Cement	22,1	% by mass
Water	7,5	% by mass
Dye through	0,6	% by mass
Dispersion paint	0,5	% by mass

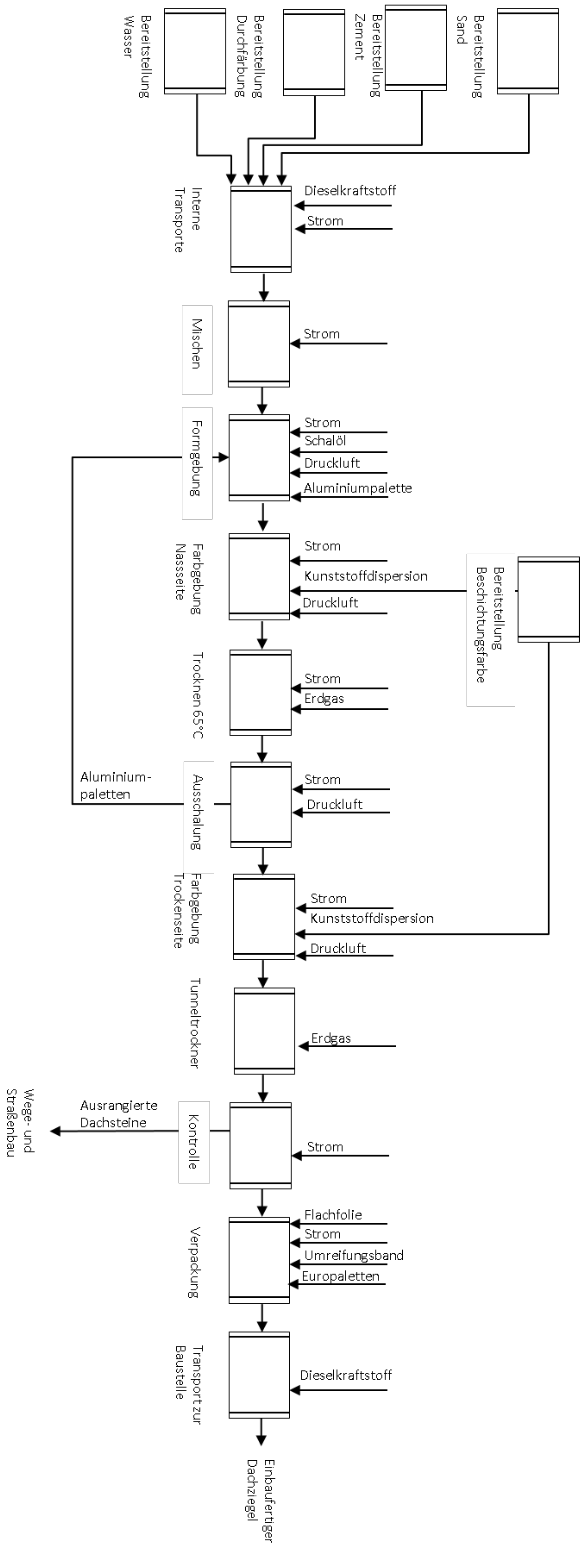
For the production of concrete roof tiles, sand, cement, through-colouring, coating colour and water are required as raw materials.
The composition of the roof tiles is shown in the table above.
1) The product / At least one partial product contains substances from the ECHA list of candidates of Substances of Very High Concern (SVHC) (07.01.2019) exceeding 0.1% by mass: no
2) The product / At least one partial product contains other CMR substances in categories 1A or 1B which are not on the candidate list, exceeding 0.1 percentage by mass in at least one partial product: no
3) Biocide products were added to this construction product or it has been treated with biocide products (this then concerns a treated product as defined by the (EU) Ordinance on Biocide Products No. 528/2012): no

2.6 Manufacture

The production phase begins with the delivery of the various raw materials. The moist sand is poured by truck from a nearby gravel plant into a feed hopper and reaches storage silos via covered conveyor belts. The cement is delivered in silo trucks and is blown into two cement silos with fine dust extraction. The colours are delivered by tanker or in containers. The tanker goods are stored in silo tanks. The colouring is fed into the production process via pipelines with the help of pumps. The well water is fed to the liquid scale via pumps.
Sand, cement, colouring and water are fed to a fully-automatic weighing system. The materials are weighed according to a recipe that must be followed exactly and then added to the intensive mixer one after the other.
The mixer is discharged into a concrete supply hopper suspended below the mixer platform. The fresh concrete reaches the roof tile box (shaping machine) via discharge belts.
The shaping machine works according to the extrusion process with a production speed of up to 150 roof tiles per minute, which corresponds to 700 kg of fresh concrete processing per minute.
Aluminium pallets are fed to the shaping machine via transport devices (conveyor belts, chains, belt conveyors). These aluminium pallets are wetted with mould oil via a roller system.
The wetted aluminium pallets pass through the roof tile box and are filled with fresh concrete from above. In the box, the upper contour of the roof tile is formed under strong pressure with the help of a spiked shaft, roller and shaping mouthpiece.
The profiled fresh concrete leaves the shaping machine as a continuous strand and is cut to the length of the roof tile with a knife controlled by compressed air.
For surface finishing, the wet roof tile is fed into the paint booth and coated with a water-based plastic dispersion.
After this coating, the roof tiles are transported to the elevator via several automatic conveyor and collecting belts. There, the roof tiles are transported to the setting chamber by a group of vehicles. At a temperature of up to 65 °C and a humidity of approx. 95%, the roof tiles set and reach their strength for further processing after

approx. 6 hours. The drying chamber is closed with a gate. The moisture deviation is minimal.
The roof tiles are automatically stacked from the chambers into a lowering system and then return to the production process via transport routes. The set roof tiles with the aluminium pallets are separated in a demoulding machine. The aluminium pallets are returned to the shaping machine, while the roof tile is given its final coating (water-based plastic dispersion) by another paint booth.
To dry the coating before packaging, a tunnel dryer is run through for additional drying acceleration.
The final inspection station is immediately after the surface drying and the controlled, finished product is fed to the automatic packaging plant. The roof tiles are stacked in rows of 30 or 34 and then shrink-wrapped in flat film.
The finished shipping units can then be grouped into six packages each on Euro pallets by an automatic palletising system. The concrete roof tiles are stacked in rows of 30 or 34 and shrink-wrapped with in flat film (PE film). These shipping units are grouped into 6 packages on a Euro pallet and bound with a plastic strap (PET). Alternatively, the roof tiles can also be provided as crane goods. The manufacturing process is illustrated by the process flow diagram in the figures below.

[Legend:]	
Bereitstellung Wasser	Provision of water
Bereitstellung Durchfärbung	Provision of colour-through
Bereitstellung Zement	Provision of cement
Bereitstellung Sand	Provision of sand
Interne Transporte	Internal transport
Dieselkraftstoff	Diesel fuel
Strom	Electricity
Mischen	Mixing
Strom	Electricity
Formgebung	Forming
Strom	Electricity
Schalöl	Mould oil
Druckluft	Compressed air
Aluminiumpalette	Aluminium pallet
Farbgebung Nassseite	Wet side colouring
Strom	Electricity
Kunststoffdispersion	Plastic dispersion
Druckluft	Compressed air
Bereitstellung Beschichtungsfarbe	Provision of coating colour
Trocknen 65 °C	Drying 65 °C
Strom	Electricity
Erdgas	Natural gas
Aluminiumpalette	Aluminium pallet
Ausschalung	Demoulding
Strom	Electricity
Druckluft	Compressed air
Farbgebung Trockenseite	Dry side colouring
Strom	Electricity
Kunststoffdispersion	Plastic dispersion
Druckluft	Compressed air
Tunneltrockner	Tunnel dryer
Erdgas	Natural gas
Wege- und Straßenbau	Road and path construction
Ausrangierte Dachsteine	Discarded roof tiles
Kontrolle	Control
Strom	Electricity
Verpackung	Packaging
Flachfolie	Flat film
Strom	Electricity
Umreifungsband	Strapping
Europaletten	Euro pallets
Transport zur Baustelle	Transport to construction site
Dieselkraftstoff	Diesel fuel
Einbaufertiger Dachziegel	Ready-to-install roof tile



2.7 Environment and health during manufacturing

The production of the roof tiles is energy-saving everywhere and uses practical recycling processes. An active energy management system in accordance with /ISO 50001/ is operated at all production sites.
Negative influences on the environment and health are not to be expected if the usual protective measures are observed.

2.8 Product processing/Installation

The roof tiles are transported to the roof level with the help of an inclined lift or a crane. The roof tiles are then attached to the roof substructure by hand. Individual roof surfaces require the adjustment of individual roof tiles on site using appropriate cutting or separating equipment. The respective equipment for this must comply with the applicable specifications and be used as designated. When laying, the laying instructions of the respective product article, which are provided by Nelskamp Dachziegelwerke GmbH, must be observed. In addition, the professional rules of the German roofing trade and the VOB (roof tile covering) apply.

2.9 Packaging
The ready-to-transport roof tiles are individually packed depending on the respective order. The concrete roof tiles can be stacked on Euro pallets or as crane goods and shrink-wrapped using PE film. In some cases, the roof tiles are strapped with PET tape.

2.10 Condition of use
Due to the hydration of the cement, quartz sand and colour pigments are firmly bound in the hardened cement paste (calcium silicate hydrates). The coating is also firmly bound by the binder.
The composition of the roof tiles does not change during their service life.

2.11 Environment and health during use
If used as designated, hazards to water, air and soil can be ruled out according to current knowledge.
Due to the raw materials used and their behaviour in the state of use, health hazards are also not known according to the current state of knowledge.

2.12 Reference service life
According to the /BBSR table 2011/ No. 363.513, roof tiles have a reference service life of over 50 years. There are no verifiable influences on ageing when the products are applied in accordance with the generally accepted rules of technology. Roof tiles have a 30-year guarantee.

2.13 Extraordinary effects

Fire
The roofing tiles declared here comply with building material class A2, s1-d0 in accordance with DIN 13501, i.e. they are not combustible. In case of fire, they do not emit toxic gases or vapours, and as hard roofing they are resistant to flying sparks and radiant heat.

Fire protection

Name	Value
Building material class	A2
Burning droplets	d0
Smoke gas development	s1

Water
No components which are hazardous to water are washed out.

Mechanical destruction
Not of relevance

2.14 Re-use phase
Dismantled roof tiles, provided they are undamaged, can be reused according to their original purpose. Alternatively, roof tiles can be collected by type, ground and used as a secondary additive in the production of building materials. Broken roof tiles are suitable for further use as a secondary aggregate in road construction, for example.

2.15 Disposal
If the reuse options outlined in section 2.15 are not possible, the roof tiles must be disposed of under waste code AVV 17 01 01 (concrete).

2.16 Further information
More information available at www.nelskamp.de

3. LCA: Calculation rules

3.1 Declared Unit
In accordance with PCR, Part B, 1 tonne of concrete roof tiles was chosen as the declared unit. The conversion factor and the area reference of the individual roof tile types are shown in the following table.

Deklarierte Einheit

Name	Value	Unit
Declared unit	1	t
conversion factor [Mass/Declared Unit] to 1 kg	0.001	-
Planum tile basis weight	50	m
Finkenberger tile basis weight	42	kg/m²
Sigma tile basis weight	41	kg/m²
S-tile basis weight	44	kg/m²
Kronen tile basis weight	44,5	kg/m²

3.2 System boundary
This Environmental Product Declaration is a cradle-to-gate EPD with options, i.e. all potential environmental impacts by the product from the cradle to the plant gate are considered. In accordance with DIN EN 15804, this applies to product phases A1-A3. Transport from the plant gate to the respective construction sites (A4) is also considered.
The following individual processes of roofing tile production have been included:

- Raw material supply
- Transporting the raw materials to the production facility
- Manufacturing process in the plant including energy, manufacturing auxiliaries, disposing of any residual materials incurred
- Manufacturing the pro rata packaging
- Transport to the respective construction site

3.3 Estimates and assumptions
It was possible to record all relevant process-specific data. Therefore, no result-relevant estimates and assumptions were made.
The capacity utilisation of the truck transports for transport to the respective construction sites (A4) was assumed to be 85%. No further consideration was given to empty runs, as the environmental impact is negligible in relation to the overall result.

3.4 Cut-off criteria
In the case of through-colouring, it was not possible to use corresponding environmental impacts from the databases used, so only the manufacturer's information on CO2 emissions was taken into account. However, as through-colouring only accounts for 0.6 percent of the concrete raw materials, this simplification only has a minimal impact on the overall results. In addition, a solvent-free hot-melt adhesive was not taken into account, as this was also not assigned a suitable data set and its share of the total product only accounts for 0.01 per cent. The adhesive is used as an anti-scratch agent.

3.5 Background data
The GaBi 6 software was used for modelling the life cycle. The GaBi database was accessed for calculating the upstream and downstream processes. The data was partly supplemented by more specific data sets from other databases (probas, manufacturers' specifications).

3.6 Data quality
The data was provided by Nelskamp Dachziegelwerke GmbH and partly supported by invoices from 2014. For other data, internal documents could be used for verification (e.g. waste balances, production records etc.). The data refers to the annual average of inputs used in 2014 (raw materials, preliminary products, energy etc.) and the outputs produced (products, co-products, waste, emissions etc.) at the production facility in Dieburg. 40% of the total production of concrete roof tiles is manufactured in Dieburg. The composition of the roof tiles and the production method is almost identical at all locations. Dieburg represents the average of the three plants with regard to the proportion of special formats. In Gartrop, this share is much higher; in Schönerlinde, no special formats are produced. The production processes are also almost identical at all three locations.

The secondary data was taken from the current GaBi database, supplemented by other current data sets (no more than 5 years old). Accordingly, the requirements concerning primary and secondary data are fulfilled. Very good data quality can be assumed.

3.7 Period under review
This LCA is based on data from the 2014 business year.

3.8 Allocation
Allocations were avoided within the framework of the Life Cycle Assessment. The cleaning of the paint booths produces process water, which is then reused as mixing water in the mixing process. This is therefore closed-loop recycling. Since the process water is recycled within modules A1-A3, no co-product allocation needs to be carried out. Full waste treatment is credited to modules A1 to A3 for packaging waste. An allocation of the environmental impact is carried out for roof tiles which are sorted out due to insufficient quality requirements. Broken tiles are used as a secondary aggregate in road construction, so only the transport costs for the broken tiles to the recycling yard are considered in the life cycle assessment of the potential environmental impacts of roof tile production. Further processing (crushing, grinding etc.) is attributed to the respective product in which the secondary aggregates are used.

3.9 Comparability
Basically, a comparison or an evaluation of EPD data is only possible if all the data sets to be compared were created according to *EN 15804* and the building context, respectively the product-specific characteristics of performance, are taken into account.

Data from the GaBi 6B database was used as background data.

4. LCA: Scenarios and additional technical information

The following details form the basis for the declared modules or can be used for developing specific scenarios within the context of a building analysis.

The reference useful life is taken from /BBSR Table 2011/ No. 363.513 and is voluntary.

Transport to construction site (A4)

Name	Value	Unit
Litres of fuel	32 - 33	l/100km
Transport distance	236	km
Capacity utilisation (including empty runs)	85	%
Gross density of products transported	2050 - 2310	kg/m^3

If a **Reference Service Life** is declared in accordance with the applicable ISO standards, the assumptions and conditions of use based on the RSL established must be declared.
Furthermore, reference must be made to the fact that the declared RSL only applies under the reference conditions of use referred to. The same shall apply for a service life declared by the manufacturer.

The corresponding information on reference conditions of use do not need to be declared for a service life in accordance with the *BNB* table.

Reference service life

Name	Value	Unit
Reference service life	> 50	a

5. LCA: Results

The following tables indicate the potential environmental impacts for the individual indicators of the impact estimate, use of resources, waste and other outputs. The results refer to the declared unit of 1 tonne roofing tiles manufactured by Dachziegelwerke Nelskamp GmbH.

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE NOT DECLARED; MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse- Recovery- Recycling- potential
A1	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
X	X	X	X	MND	MND	MND	MNR	MNR	MNR	MND	MND	MND	MND	MND	MND	MND

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A1: 1t concrete roof tiles

Parameter	Unit	A1-A3	A4
Global warming potential	[kg CO_2-Eq.]	2.09E+2	1.31E+1
Depletion potential of the stratospheric ozone layer	[kg CFC11-Eq.]	6.06E-9	1.61E-11
Acidification potential of land and water	[kg SO_2-Eq.]	3.09E-1	3.41E-2
Eutrophication potential	[kg $(PO_4)^{3-}$-Eq.]	3.64E-2	9.58E-3
Formation potential of tropospheric ozone photochemical oxidants	[kg ethene-Eq.]	3.95E-2	-1.00E-2
Abiotic depletion potential for non-fossil resources	[kg Sb-Eq.]	4.59E-4	6.76E-7
Abiotic depletion potential for fossil resources	[MJ]	1.21E+3	1.78E+2

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A1: 1t concrete roof tiles

Parameter	Unit	A1-A3	A4
Renewable primary energy as energy carrier	[MJ]	1.58E+2	1.37E+1
Renewable primary energy resources as material utilization	[MJ]	IND	IND
Total use of renewable primary energy resources	[MJ]	1.58E+2	1.37E+1
Non-renewable primary energy as energy carrier	[MJ]	1.22E+3	1.79E+2
Non-renewable primary energy as material utilization	[MJ]	1.33E+2	IND
Total use of non-renewable primary energy resources	[MJ]	1.35E+3	1.79E+2
Use of secondary material	[kg]	IND	IND
Use of renewable secondary fuels	[MJ]	IND	IND
Use of non-renewable secondary fuels	[MJ]	IND	IND
Use of net fresh water	[m^3]	2.88E-1	9.92E-3

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A1: 1t concrete roof tiles

Parameter	Unit	A1-A3	A4
Hazardous waste disposed	[kg]	2.19E-2	1.44E-4
Non-hazardous waste disposed	[kg]	5.17E+2	1.20E+0
Radioactive waste disposed	[kg]	5.25E-2	2.38E-4
Components for re-use	[kg]	IND	IND
Materials for recycling	[kg]	6.76E+1	IND
Materials for energy recovery	[kg]	IND	IND
Exported electrical energy	[MJ]	IND	IND
Exported thermal energy	[MJ]	IND	IND

6. LCA: Interpretation

In the categories for the use of primary energy, one-third of the resource use in the production stage is influenced by the manufacturing processes and two-thirds by the provision of the concrete raw materials. In the case of freshwater consumption (FW), 58% is due to the concrete raw materials and 42% to the manufacturing processes. In terms of resource use, the transport of raw materials to the plant is marginal.

In terms of resource use, the share of non-renewable resources (**PENRE**) is dominant in all life cycle phases.The share of renewable resources (**PERT**) varies between 7 and 14%.
In the provision of raw materials, the highest share of renewable raw materials is achieved. Despite the predominantly used natural raw materials, these are largely non-renewable, as made clear by the composition of the resource input.

In the life cycle phases A2 and A4 (transport processes), the share of renewable raw materials can be justified by the biodiesel share of the diesel mix used.
In the manufacturing phase, the resource input is largely determined by the consumption of energy. Here, too, the share of renewable energy sources is mainly caused by the share of renewable energies in the electricity mix.
Considering the total use of renewable and non-renewable raw materials over the product life phases, just under half of the resource use is caused by the provision of raw materials. Another good third is accounted for by the manufacturing phase. Transport to the respective construction sites is responsible for just under 10% of the resources consumed.

In the production stage, the potential environmental impacts of concrete roof tiles are mainly caused by the provision of concrete raw materials. Depending on the impact category, 79 to 90% (with the exception of Abiotic Resource Depletion, **ADPF** and **ADPE**) of the environmental impact is incurred during the raw material supply phase. The manufacturing processes in the plants contribute between 12 and 21% (with the exception of abiotic resource depletion) to the environmental impact. The transport processes of raw materials to the production site have a marginal impact on the overall outcome of the production stage. Abiotic depletion of resources (**ADPF** and **ADPE**) accounts for one-third of the impact due to the manufacturing processes. These emissions are primarily due to energy consumption (electricity, natural gas and diesel consumption), but also packaging. Two-thirds are incurred by the provision of raw materials. Within the provision of raw materials, the production of cement is of particular importance. For example, a good 93% of climate-relevant emissions are attributable to cement production. Another 5% are caused by the surface coating. In the case of acidification, eutrophication and tropospheric ozone creation potential (**AP**, **EP** and **POCP**), around 80% each is attributable to cement. In these impact categories, between 11 and 18% of the emissions are due to the surface coating. The provision of cement and plastic dispersion contribute approximately equally to the ozone depletion potential. The remaining concrete output materials are of minor importance.

The output flows are dominated in all waste categories by the provision of concrete constituents.
When considering the environmental impacts caused by transporting the roof tiles to the respective construction sites (A4) in relation to the results of the production stage, this life cycle phase has a relevant influence on the overall result, especially in the area of eutrophication potential with 21%. In the impact categories Global Warming Potential (**GWP**), Acidification Potential (**AP**) and Abiotic Fossil Fuel Depletion Potential (**ADPF**), emissions contribute 6 to 13% to the overall result. For the resource use indicators, the share for primary energy use is also 7 to 8%.

Overall, the **data quality** can be classified as very good. It was possible to collect all relevant process-specific data in the inventory analysis. Consistent data records from the Gabi database were available for almost all inputs and outputs or could be supplemented by consistent data records from alternative databases or scientific sources. Pre-production of the through-colouring could be partially taken into account by the information provided by the manufacturer. The background data fulfils the requirements of /DIN EN 15804/.
The production data was recorded for the 2014 operating year. The quantities of raw materials, consumables and supplies used and the energy consumption were recorded and averaged over the entire operating year. 40% of the declared products are produced at the Dieburg plant, another 40% at the Gartrop plant, and 20% at the Schönerlinde plant. The composition and the manufacturing processes of the roof tiles are almost identical at all locations. In order to check the representativeness of the data, the composition of the concrete roof tiles from the different plants was compared in detail. Since the cement content has a decisive influence on the results of the LCA, special attention was paid to this. The cement content in Gartrop and Schönerlinde deviates by less than 1% from the cement content of the roof tiles from Dieburg. In Gartrop, it is up to half a percent below the Dieburg value, depending on whether it is a flat tile or a special format. Schönerlinde is about 0.8% above the value, but also accounts for the smallest share of the production volume (20% of total production).
Therefore, a very good representativeness of the data for the declared average product can be assumed.

7. Requisite evidence

7.1 Leaching

For the Gartrop site, the leaching behaviour was examined for the Finkenberger tile in order to thus ensure environmental compatibility.
The investigation was carried out in accordance with EA NEN 7375. It could be confirmed that the requirements according to BRL 5070 are met.

Based on this test by ALcontrol Specials on 6 March 2003, KIWA Netherlands was able to declare conformity with the Dutch Soil Quality Decree NL-BBK (formerly Dutch Building Materials Decree NL-BSB).

8. References

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DIN EN ISO 14025:2011-10, Environmental labels and declarations – Type III environmental declarations – Principles and procedures

EN 15804
EN 15804:2012-04+A1 2013, Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products

Product Categories for Building Products, Part B: Requirements on the EPD for concrete roof tiles, 2012-07

DIN EN ISO 50001
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Energy management systems: Requirements with guidance for use

DIN EN 197-1
DIN EN 197-1: 2011-11: Cement – Part 1: Composition, specifications and conformity criteria for common cement, German version EN 197-1:2011

DIN EN 490
DIN EN 490: Concrete roof tiles and fittings for roof coverings and wall claddings – Product specifications; German version EN 490:2011

DIN 13501
DIN 13501: Fire classification of construction products and building elements – Part 1: Classification using data from reaction to fire tests, German version EN 13501-1:2007+A1:2009

DIN EN 491
DIN EN 491: Concrete roof tiles and fittings for roof coverings and wall claddings – Test methods; German version EN 491:2011

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BBSR, BNB_Nutzungsdauern_von_Bauteilen
Table 2011 / No. 363.513, 2011-11-03

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