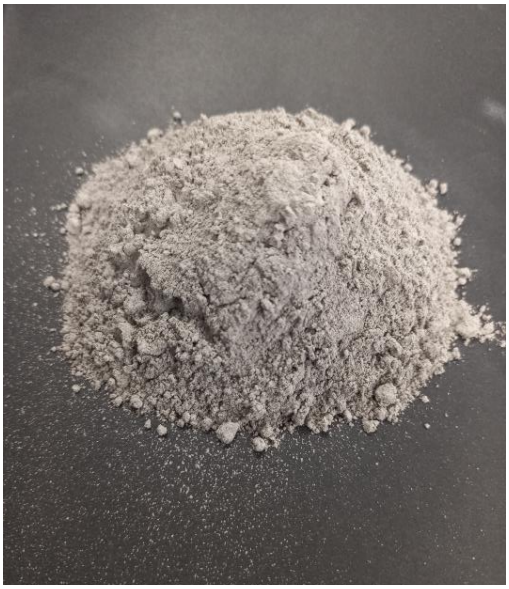
Environmental Product Declaration

According to EN15804+A2 (+indicators A1)

This declaration is for:
DF2

Provided by:
Ankersmit Maalbedrijven B.V.



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1.1.00533.2024
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COMPANY INFORMATION

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MRPI® REGISTRATION

1.1.00533.2024

DATE OF ISSUE

1-5-2024

EXPIRY DATE

1-5-2029

SCOPE OF DECLARATION

This MRPI®-EPD certificate is verified by Anne Kees Jeeninga, Advieslab VOF. The LCA study has been done by Bob Roijen, SGS INTRON. The certificate is based on an LCA-dossier according to EN15804+A2 (+indicators A1). It is verified according to the 'MRPI®-EPD verification protocol November 2020.v4.0'. EPD's of construction products may not be comparable if they do not comply with EN15804+A2. Declaration of SVHC that are listed on the 'Candidate list of Substances of Very High Concern for authorisation' when content exceeds the limits for registration with ECHA.

PROGRAM OPERATOR

Stichting MRPI®
Kingsfordweg 151
1043 GR
Amsterdam

Ing. L. L. Oosterveen MSc. MBA
Managing Director MRPI

PRODUCT

DF2

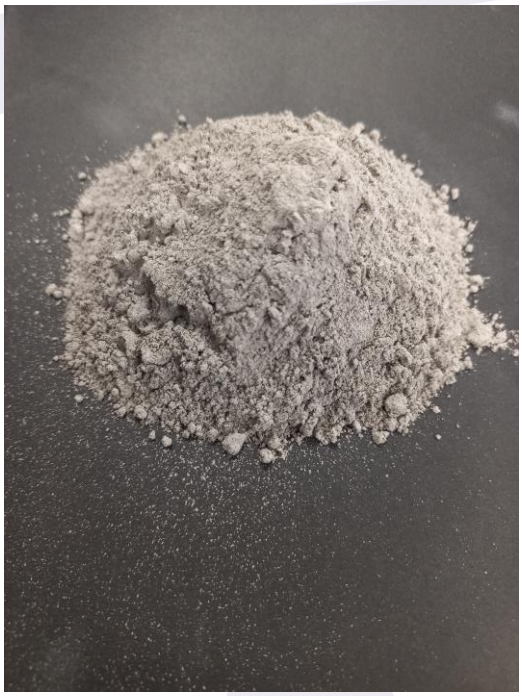
DECLARED UNIT/FUNCTIONAL UNIT

1000 kg

DESCRIPTION OF PRODUCT

Composite filler. Intended use according to DoP: Fillers for asphalt and surface treatment for roads, airfields and other traffic areas.

VISUAL PRODUCT



MORE INFORMATION

-

DEMONSTRATION OF VERIFICATION
CEN standard EN15804 serves as the core PCR(a)
Independent verification of the declaration an data according to EN15804+A2 (+indicators A1) internal: external: x
Third party verifier: Anne Kees Jeeninga, Advieslab VOF
[a] PCR = Product Category Rules

DETAILED PRODUCT DESCRIPTION

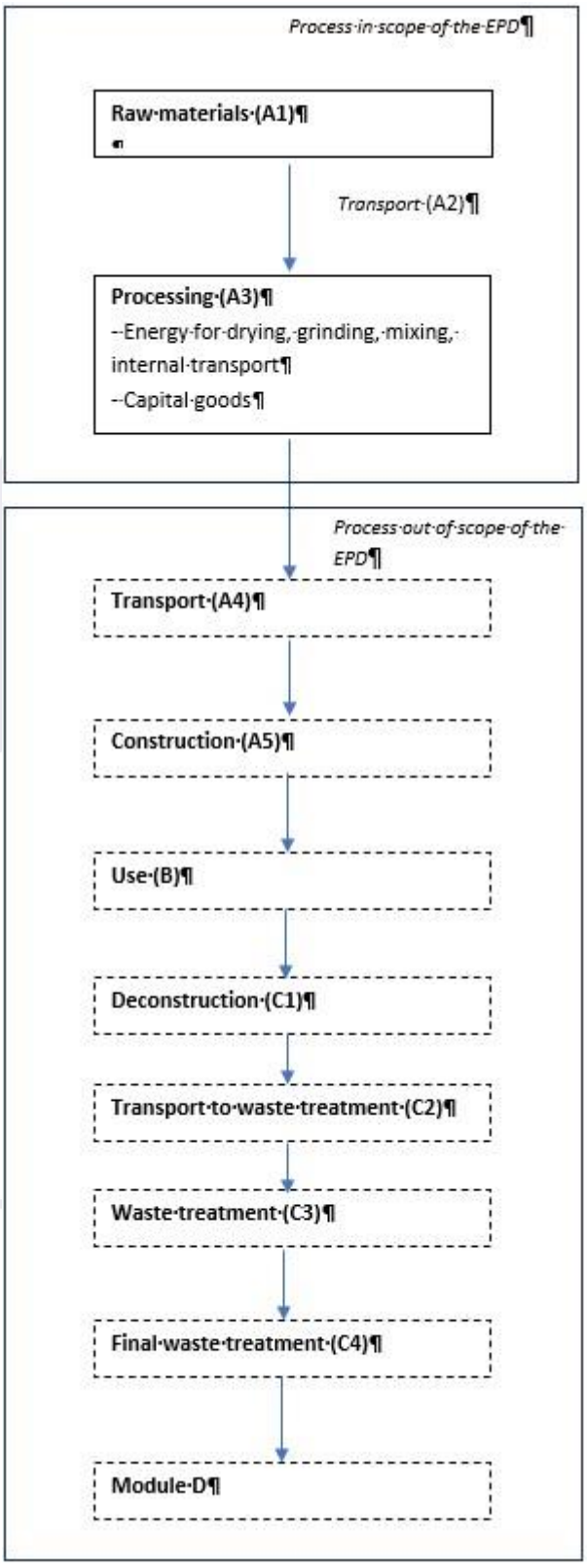
Raw materials are ground and mixed in ball mills. Damp materials are dried in order to yield a dry end-product. This drying process consumes natural gas. Some products are produced by mixing intermediates. All the drying, grinding, and mixing occur at Sibelco's facility. The product is delivered as bulk product.

Component > 1% of total mass	(%)
Raw material	amount
Primary raw materials	approx 30 – 40%
Secondary raw materials	approx 60 – 70%

SCOPE AND TYPE

The filler is produced at the location of Ankerpoort Maalbedrijven in Maastricht. Since filler is a semi-finished product only the production phase is included. The LCA calculations have been made in Simapro using Ecoinvent database v3.6 (allocation cut-off) and the NMD process database v3.3.

PRODUCT STAGE		CONSTRUCTION PROCESS STAGE			USER STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Rawmaterial supply	Transport	Manufacturing	Transport gate to 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	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
X= Modules Assessed ND= Not Declared																



REPRESENTATIVENESS

Not applicable, in this study a specific product is considered produced at a specific production site.

ENVIRONMENT IMPACT per functional unit or declared unit (core indicators A1)

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
ADPE	kg Sb eq.	3,23 E-06	6,71 E-04	5,15 E-05	7,26 E-04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ADPF	MJ	2,76 E+00	4,04 E+02	4,68 E+02	8,75 E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GWP	kg CO2 eq.	2,07 E-01	2,65 E+01	3,06 E+01	5,73 E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ODP	Kg CFC11 eq.	3,23 E-08	4,72 E-06	3,16 E-06	7,91 E-06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
POCP	Kg ethene eq.	2,34 E-04	1,60 E-02	5,46 E-03	2,17 E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AP	kg SO2 eq.	1,54 E-03	1,15 E-01	3,61 E-02	1,53 E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EP	kg (PO4) 3- eq.	3,25 E-04	2,26 E-02	6,31 E-03	2,92 E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Toxicity indicators for Dutch market

HTP	kg DCB-Eq	9,60 E-02	1,12 E+01	3,90 E+00	1,52 E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FAETP	kg DCB-Eq	1,18 E-03	3,27 E-01	5,29 E-02	3,81 E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAETP	kg DCB-Eq	4,45 E+00	1,18 E+03	1,98 E+02	1,38 E+03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TETP	kg DCB-Eq	1,61 E-04	3,95 E-02	3,04 E-02	7,01 E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ECI	euro	2,93 E-02	3,19 E+00	2,16 E+00	5,38 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ADPF	kg Sb eq.	1,35 E-03	1,95 E-01	2,56 E-01	4,53 E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

ADPE = Abiotic Depletion Potential for non-fossil resources
ADPF = Abiotic Depletion Potential for fossil resources
GWP = Global Warming Potential
ODP = Depletion potential of the stratospheric ozone layer
POCP = Formation potential of tropospheric ozone photochemical oxidants
AP = Acidification Potential of land and water
EP = Eutrophication Potential
HTP = Human Toxicity Potential
FAETP = Fresh water aquatic ecotoxicity potential
MAETP = Marine aquatic ecotoxicity potential
TETP = Terrestrial ecotoxicity potential
ECI = Environmental Cost Indicator
ADPF = Abiotic Depletion Potential for fossil resources expressed in [kg Sb-eq.]

ENVIRONMENT IMPACT per functional unit or declared unit (core indicators A2)

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-total	kg CO2 eq.	2,12 E-01	2,67 E+01	3,12 E+01	5,81 E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GWP-fossil	kg CO2 eq.	2,12 E-01	2,67 E+01	3,10 E+01	5,80 E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GWP-biogenic	kg CO2 eq.	6,15 E-04	1,26 E-02	1,08 E-01	1,21 E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GWP-luluc)	kg CO2 eq.	2,45 E-05	9,74 E-03	4,75 E-03	1,45 E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ODP	kg CFC11 eq.	4,07 E-08	5,92 E-06	3,53 E-06	9,49 E-06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AP	mol H+ eq.	2,13 E-03	1,53 E-01	4,61 E-02	2,01 E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EP-freshwater	kg PO4 eq.	1,95 E-06	2,68 E-04	5,87 E-04	8,57 E-04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EP-marine	kg N eq.	8,64 E-04	5,36 E-02	1,18 E-02	6,63 E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EP-terrestrial	mol N eq.	9,59 E-03	5,91 E-01	1,36 E-01	7,36 E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
POCP	kg NMVOC eq.	2,68 E-03	1,69 E-01	4,03 E-02	2,12 E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ADP-minerals & metals	kg Sb eq.	3,23 E-06	6,71 E-04	5,15 E-05	7,26 E-04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ADP-fossil	MJ, net calorific value	2,76 E+00	4,04 E+02	4,68 E+02	8,75 E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WDP	m3 world eq. Deprived	1,50 E-02	1,44 E+00	1,27 E+00	2,72 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

GWP-total = Global Warming Potential total
GWP-fossil = Global Warming Potential fossil fuels
GWP-biogenic = Global Warming Potential biogenic
GWP-luluc = Global Warming Potential land use and land use change
ODP = Depletion potential of the stratospheric ozone layer
AP = Acidification Potential, Accumulated Exceedence
EP-freshwater = Eutrophication Potential, fraction of nutrients reaching freshwater end compartment
EP-marine = Eutrophication Potential, fraction of nutrients reaching marine end compartment
EP-terrestrial = Eutrophication Potential, Accumulated Exceedence
POCP = Formation potential of tropospheric ozone photochemical oxidants
ADP-minerals&metals = Abiotic Depletion Potential for non-fossil resources [2]
ADP-fossil = Abiotic Depletion for fossil resources potential [2]
WDP = Water (user) deprivation potential, deprivation-weighted water consumption [2]

Disclaimer [2]
- The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator

ENVIRONMENT IMPACT per functional unit or declared unit (additional indicators A2)

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PM	Disease incidence	6,05 E-08	2,40 E-06	2,89 E-07	2,75 E-06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
IRP	kBq U235 eq.	1,12 E-02	1,69 E+00	4,31 E-01	2,14 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ETP-fw	CTUe	2,66 E+00	3,59 E+02	1,72 E+02	5,33 E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
HTP-c	CTUh	7,76 E-11	1,16 E-08	7,95 E-09	1,96 E-08	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
HTP-nc	CTUh	3,48 E-09	3,93 E-07	1,49 E-07	5,45 E-07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SQP	----	3,93 E+00	3,54 E+02	3,19 E+01	3,90 E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

PM = Potential incidence of disease due to PM emissions
IRP = Potential Human exposure efficiency relative to U235 [1]
ETP-fw = Potential Comparative Toxic Unit for ecosystems [2]
HTP-c = Potential Comparative Toxic Unit for humans [2]
HTP-nc = Potential Comparative Toxic Unit for humans, non-cancer [2]
SQP = Potential soil quality index [2]

Disclamer [1]
- This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste.

Disclamer [2]
- The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

OUTPUT FLOWS AND WASTE CATEGORIES per functional unit or declared unit (A1 / A2)

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
HWD	kg	7,57 E-06	1,02 E-03	2,22 E-02	2,32 E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NHWD	kg	9,78 E-03	2,59 E+01	1,37 E+00	2,73 E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RWD	kg	1,80 E-05	2,66 E-03	5,11 E-04	3,18 E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CRU	kg	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MFR	kg	0,00 E+00	0,00 E+00	1,43 E-01	1,43 E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MER	kg	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EEE	MJ	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ETE	MJ	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

HWD = Hazardous Waste Disposed
RWD = Radioactive Waste Disposed
MFR = Materials for recycling
EEE = Exported Electrical Energy
NHWD = Non Hazardous Waste Disposed
CRU = Components for reuse
MER = Materials for energy recovery
ETE = Exported Thermal Energy

RESOURCE USE per functional unit or declared unit (A1 / A2)

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	4,05 E-02	5,06 E+00	1,30 E+01	1,81 E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PERM	MJ	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PERT	MJ	4,05 E-02	5,06 E+00	1,30 E+01	1,81 E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PENRE	MJ	2,93 E+00	4,29 E+02	5,14 E+02	9,46 E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PENRM	MJ	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PENRT	MJ	2,93 E+00	4,29 E+02	5,14 E+02	9,46 E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SM	kg	6,63 E+02	0,00 E+00	0,00 E+00	6,63 E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RSF	MJ	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NRSF	MJ	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FW	m3	7,42 E-03	4,91 E-02	8,62 E-02	1,43 E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

PERE = Use of renewable energy excluding renewable primary energy resources
PERM = Use of renewable energy resources used as raw materials
PERT = Total use of renewable primary energy resources
PENRE = Use of non-renewable primary energy resources excluding non-renewable energy resources used as raw materials
PENRM = Use of non-renewable primary energy resources used as raw materials
PENRT = Total use of non-renewable primary energy resources
SM = Use of secondary materials
RSF = Use of renewable secondary fuels
NRSF = Use of non-renewable secondary fuels
FW = Use of net fresh water

BIOGEEN CARBON CONTENT per functional unit or declared unit (A1 / A2)

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
BBCpr	Kg C	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BCCpa	kg C	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

BCCpr = Biogenic carbon content in product
BCCpa = Biogenic carbon content in packaging

CALCULATION RULES

This EPD is based on production data collected in 2021 over a complete production year: 2020. Virtually no materials or processes have been excluded from the study (cut-off rule is well below 1%). In case secondary materials are applied transport to the production location of Sibelco and processing (eg: drying) is allocated to the production of the filler. Infrastructure processes in Ecoinvent processes have been included, long term emissions in Ecoinvent processes have been excluded from the LCA calculations.

SENARIOS AND ADDITIONAL TECHNICAL INFORMATION

The filler is produced by milling and grinding raw materials in crushers and ball mills. Moisture in raw materials is evaporated in order to yield a dry end product. The drying process consumes natural gas. Some of the products are produced by mixing intermediate products. However all of the drying, grinding and mixing takes place at the facilities of Sibelco and is included in the data collection and LCA calculations.

DECLARATION OF SVHC

No substances that are listed in the latest “Candidate List of Substances of Very High Concern for authorisation” are included in the product that exceeds the limit for registration.

REFERENCES

•Stichting Nationale Milieudatabase, Bepalingsmethode Milieuprestatie Bouwwerken Versie 1.0 (juli 2020).

•EN 15804:2012+A2:2019, Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products, 2019.

•ISO 14040:2006. Environmental management — Life cycle assessment — Principles and framework. 2006.

•ISO 14044:2006. Environmental management — Life cycle assessment — Requirements and guidelines. 2006.

•ISO 21930:2017. Sustainability in buildings and civil engineering works — Core rules for environmental product declarations of construction products and services. 2017.

• ISO 14025:2006. Environmental labels and declarations — Type III environmental declarations — Principles and procedures. 2006.

•SGS INTRON report: A117300/R20210185b, January 6th 2022

•DoP 0431/004 DF2 modifications are possible to a limited extent.

REMARKS

None.