

COMPANY INFORMATION



Reststoffenunie Waterleidingbedrijven B.V.
Groningenhaven 7
3433 PE Nieuwegein

FOR

Lime pellets

MRPI code

20.1.00030.005

DATE OF ISSUE

June 24, 2013

END OF VALIDITY

June 24, 2018

FUNCTIONAL UNIT

One metric ton of lime pellets

SCOPE OF THE DECLARATION

Cradle to gate (A1-A3, A4)

This MRPI – certificate is verified by IVAM UvA. The LCA is executed by EcoReview. The data on this MRPI – certificate are based on the European Standard EN 15804:2012, on the NL national guidelines from the SBK protocol of November 2011, and on the MRPI – review protocol. The verification meets the standard of the ECO platform verification.

VISUAL REPRESENTATION



PRODUCT DESCRIPTION

Material composition (>1%wt)	%
Calcium carbonate (CaCO ₃)	85 – 100%
Inert (sand)	<0.1 – 15%
Moisture content	<1 – 5%

ENVIRONMENTAL PROFILE LIME PELLETS (A1-A3) Cradle to factory gate

Impact category		Unit	Parameter		Unit
Abiotic depletion, non fuel	-6,00E-06	kg Sb eq.	Renewable primary energy ex. raw materials	NA	MJ
Abiotic depletion, fuel	-1,50E-02	kg Sb eq.	Renewable primary energy used as raw materials	NA	MJ
Global warming	-2,03E+00	kg CO ₂ eq.	Renewable primary energy total	-4,28E-01	MJ
Ozone layer depletion	-3,35E-07	kg CFC-11 eq.	Non-renewable primary energy ex. raw materials	NA	MJ
Photochemical ozone creation	-1,44E-03	kg ethene eq.	Non-renewable primary energy used as raw materials	NA	MJ
Acidification (soil and water)	-7,65E-03	kg SO ₂ eq.	Non-renewable primary energy total	-3,48E+01	MJ
Eutrophication	-1,64E-03	kg PO ₄ ³⁻ eq.	Use of secondary material	NA	kg
Human toxicity	-5,81E-01	kg 1,4 DB eq.	Use of renewable secondary fuels	NA	MJ
Ecotoxicity, fresh water	-2,55E-02	kg 1,4 DB eq.	Use of non-renewable secondary fuels	NA	MJ
Ecotoxicity, marine water	-1,04E+02	kg 1,4 DB eq.	Use of net fresh water	-1.45E-03	m ³
Ecotoxicity, terrestrial	-4,80E-03	kg 1.4 DB eq.	Hazardous waste disposed	-8,27E-01	kg
			Non hazardous waste disposed	-7,86E-01	kg
			Radioactive waste disposed	-7,88E-03	kg
			Components for re-use	-6,00E-03	kg
			Materials for recycling	-4,21E-03	kg
			Materials for energy recovery	-1,16E-02	kg
			Exported energy	NA	MJ

ENVIRONMENTAL PROFILE AND RATINGS REPRESENTATIVE

The lime pellets are produced as a residual product from the softening of drinking water by the Drinking Water Companies in The Netherlands: N.V. Waterleiding Maatschappij Limburg, Oasen N.V., N.V. Waterbedrijf Groningen, N.V. Waterleidingmaatschappij Drenthe, Vitens N.V., Brabant Water N.V., N.V. PWN Waterleidingbedrijf Noord-Holland, Waternet, Dunea N.V., and Evides N.V. The lime pellets are produced at 43 production locations with varying color and quality, and e.g. supplied as secondary building material for the construction sector in The Netherlands.

QUALITATIVE INFORMATION

Chemical name: Calcium carbonate
Trade name: Lime pellets, marble granules
(Synonyms: precipitated calcium carbonate, calcite, marble-like limestone)
EC-nr: 207-439-9; CAS-nr: 471-34-1

RELATED CERTIFICATES

REACH-registration numbers:
01-2119486795-18-xxxx (complete registration numbers of individual producers are available on www.reststoffenunie.nl)

NL Building-act information

Impact category	Unit
Abiotic depletion, non fuel	-6,00E-06 kg Sb eq.
Abiotic depletion, fuel	-1,50E-02 kg Sb eq.
Global warming	-2,03E+00 kg CO ₂ eq.

CARBON FOOTPRINT FUNCTIONAL UNIT

-2,03E+00 kg CO₂ equivalents / metric ton lime pellets

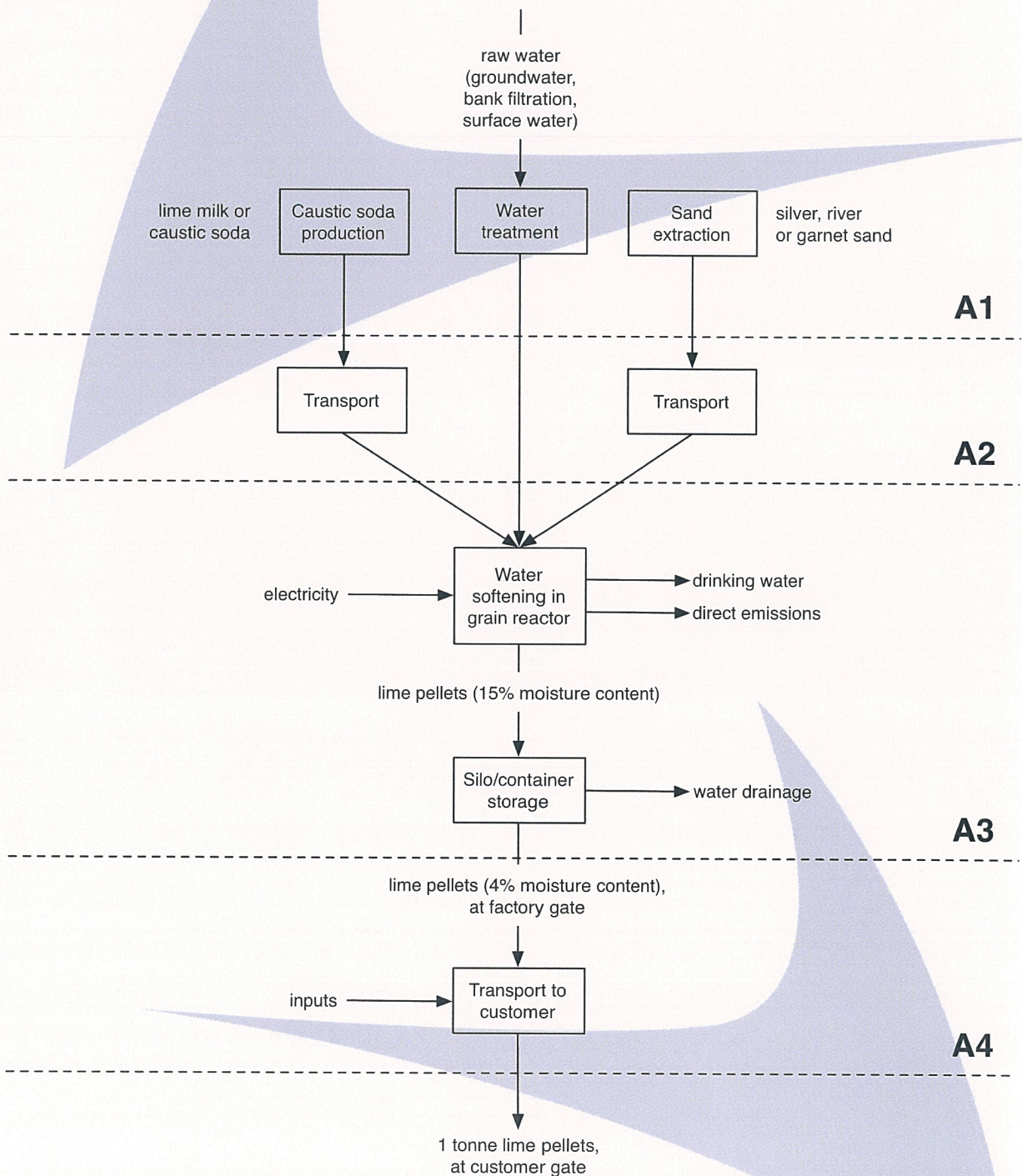
SOURCING RAW MATERIALS

Material composition (>1%wt raw materials)	Source
Calcium carbonate	Drinking Water Companies in The Netherlands

DATA QUALITY

The source of background data, i.e. transport services, is the Ecoinvent database v2.2. The weighted average of the transport services for the delivery of lime pellets at customers in The Netherlands are calculated by means of horizontal aggregation. Following the allocation procedure of recycling and reuse-processes, defined in NEN 8006:2004, the system cut-off of the lime pellets product system from the drinking water product system is based on the economical turning point. As a result, 47% of the transport phase (A4) is attributed to the disposal phase of the drinking water system (which leads to negative A1-A3 impacts) and the remaining 53% to the lime pellets product system. Data collection period is the year 2013, since transport services are fixed beforehand by means of contracts.

LIFE CYLCE STAGES



**ENVIRONMENTAL PRODUCT DECLARATION
PRODUCT STAGE (A1-3)**

Impact category	Unit	A1	A2	A3
Abiotic depletion, non fuel	kg Sb eq.	0	0	-6,00E-06
Abiotic depletion, fuel	kg Sb eq.	0	0	-1,50E-02
Global warming	kg CO ₂ eq.	0	0	-2,03E+00
Ozone layer depletion	kg CFC-11 eq.	0	0	-3,35E-07
Photochemical ozone creation	kg ethene eq.	0	0	-1,44E-03
Acidification for soil and water	kg SO ₂ eq.	0	0	-7,65E-03
Eutrophication	kg PO ₄ ³⁻ eq.	0	0	-1,64E-03
Human toxicity	kg 1,4 DB eq.	0	0	-5.81E-01
Ecotoxicity, fresh water	kg 1,4 DB eq.	0	0	-2.55E-02
Ecotoxicity, marine water	kg 1,4 DB eq.	0	0	-1.04E+02
Ecotoxicity, terrestrial	kg 1.4 DB eq.	0	0	-4.80E-03
Parameter	Unit	A1	A2	A3
Renewable primary energy ex. raw materials	MJ	0	0	NA
Renewable primary energy used as raw materials	MJ	0	0	NA
Renewable primary energy total	MJ	0	0	-4,28E-01
Non-renewable primary energy ex. raw materials	MJ	0	0	NA
Non-renewable primary energy used as raw materials	MJ	0	0	NA
Non-renewable primary energy total	MJ	0	0	-3,48E+01
Use of secondary material	kg	0	0	NA
Use of renewable secondary fuels	MJ	0	0	NA
Use of non-renewable secondary fuels	MJ	0	0	NA
Use of net fresh water*	m ³	0	0	-1.45E-03
Hazardous waste disposed	kg	0	0	-8,27E-01
Non hazardous waste disposed	kg	0	0	-7,86E-01
Radioactive waste disposed	kg	0	0	-7,88E-03
Components for re-use	kg	0	0	-6,00E-03
Materials for recycling	kg	0	0	-4,21E-03
Materials for energy recovery	kg	0	0	-1,16E-02
Exported energy	MJ	0	0	NA

* Water resource depletion is calculated using the ILCD impact methodology.

**ENVIRONMENTAL PRODUCT DECLARATION
TRANSPORT TO CUSTOMER A4**

Impact category	Unit	A4	Cradle to customer gate
Abiotic depletion, non fuel	kg Sb eq.	1,27E-05	6,74E-06
Abiotic depletion, fuel	kg Sb eq.	3,19E-02	1,69E-02
Global warming	kg CO ₂ eq.	4,31E+00	2,28E+00
Ozone layer depletion	kg CFC-11 eq.	7,12E-07	3,77E-07
Photochemical ozone creation	kg ethene eq.	3,06E-03	1,62E-03
Acidification for soil and water	kg SO ₂ eq.	1,62E-02	8,60E-03
Eutrophication	kg PO ₄ ³⁻ eq.	3,48E-03	1,84E-03
Human toxicity	kg 1,4 DB eq.	1.23E+00	6.54E-01
Ecotoxicity, fresh water	kg 1,4 DB eq.	5.41E-02	2.87E-02
Ecotoxicity, marine water	kg 1,4 DB eq.	2.20E+02	1.16E+02
Ecotoxicity, terrestrial	kg 1.4 DB eq.	1.02E-02	5.40E-03
Parameter	Unit	A4	Cradle to customer gate
Renewable primary energy ex. raw materials	MJ	NA	NA
Renewable primary energy used as raw materials	MJ	NA	NA
Renewable primary energy total	MJ	9,08E-01	4,81E-01
Non-renewable primary energy ex. raw materials	MJ	NA	NA
Non-renewable primary energy used as raw materials	MJ	NA	NA
Non-renewable primary energy total	MJ	7,40E+01	3,92E+01
Use of secondary material	kg	NA	NA
Use of renewable secondary fuels	MJ	NA	NA
Use of non-renewable secondary fuels	MJ	NA	NA
Use of net fresh water*	m ³	3,08E-03	1,63E-03
Hazardous waste disposed	kg	1,76E+00	9,30E-01
Non hazardous waste disposed	kg	1,67E+00	8,84E-01
Radioactive waste disposed	kg	1,67E-02	8,86E-03
Components for re-use	kg	1,28E-02	6,75E-03
Materials for recycling	kg	8,95E-03	4,74E-03
Materials for energy recovery	kg	2,47E-02	1,31E-02
Exported energy	MJ	NA	NA

* Water resource depletion is calculated using the ILCD impact methodology.



ACCOUNTABILITY

CEN standard FprEN 15804 serves as the core PCR
Independent verification of the declaration, according to EN ISO 14025:2010, € Internal € External
Third party verifier: IVAM UvA BV

The data on this MRPI[®]-certificate are based on the guidelines from the SBK protocol of November 2011 and the MRPI[®]-review protocol for the NEN8006:2004, version 2.0.

As a general rule, a comparison or evaluation of EPD data is only possible when all of the data records to be compared have been drawn up in accordance with EN 15804 and the building context and/or product-specific performance features are taken into consideration.