



Product Environmental Assessment

*In accordance with NF EN 15804+A2
and its French National Annex NF EN 15804/CN*

SOCLI NHL Limes manufactured at the Izaourt plant (65),
France, sold in bags



Version : 1.1

Disclaimer

The information contained in this Life Cycle Inventory (LCI) is provided under the responsibility of Heidelberg Materials France Socli (HMF SOCLI) in accordance with NF EN 15804+A2 and its French National Annex NF EN 15804+A2/CN.

Any use, whether in whole or in part, of the information contained in this document shall be accompanied, at a minimum, by full reference to the original LCI and its declarant, who can provide a complete copy upon request.

Reading Guide

Example: -9.0 E-03 = -9.0×10^{-3}

The following display rules apply:

When the calculated inventory result is zero, the value is displayed as 0.

Abbreviations used: N/A: Not Applicable, DU: Declared Unit

Units are specified for each flow: kilogram (kg), gram (g), kilowatt-hour (kWh), megajoule (MJ), cubic metre (m³) and kilometre (km)

Precautions for the Use of the Life Cycle Inventory (LCI)

The purpose of making LCIs available through the INIES database is to enable manufacturers using the products described in the LCIs for the production of construction products to develop Environmental Product Declarations (EPDs) by incorporating these LCIs into their modelling.

These LCIs may therefore be used in the same manner as other background data sets (ecoinvent, GABI, etc.) generally included in product LCA software such as GABI, SimaPro, and similar tools.

1 General Information

Declarant Name and Address

Heidelberg Materials France Socli (HMF SOCLI),
2, Quartier Castans, 65370 Izaourt, France

Contact : Pierre-Alexandre Laplante, Chef des Ventes & Export Manager,
pierre-alexandre.laplante@heidelbergmaterials.com .

Production Site Represented by the LCI

HMF Socli, Izaourt plant (65), France

LCI Type

Cradle-to-gate LCI, covering modules A1-A3.

LCI Type

Individuel

Product identification

SOCLI NHL bagged limes, including: NHL 3.5 White Lime, NHL 3.5 Lime, NHL 5 Lime

Validity Framework : N/A

External Independent verification of the declaration and data according to EN ISO 14025: (version august 2010) by :

The CEN standard EN 15804+A2 and NF EN 16908 serve as the Product Category Rules (PCR).
Independent verification of the declaration and data according to EN ISO 14025:2010: ☐ Internal ☒ External
Third-Party Verifier PORRAS David
Verification Date : 08/07/2026
Validity period : ☒ 5 years ☐ 2 years from the date of first publication.

Commercial References

La Chaux Socli – Chaux Socli (NHL 3,5), Rénoblanche (NHL 3,5 blanche), Rénobat (NHL 5)
Chaux Rabot (NHL5)...

Place production

Metropolitan France

2 Description of the Declared Unit and Product

Declared Unit (DU)

One tonne of Natural Hydraulic Lime (NHL) produced at the SOCLI Izaourt plant (65), France,
packaged in bags and ready for shipment.

Main Performance of the Declared Unit

The product complies with the mechanical requirements of NF EN 459-1 for its strength class:

Mechanical Requirements (NF EN 459-1)		Lime type NHL 3,5	Lime type NHL 5
Compressive Strength	à 7 days	-	≥ 2 MPa
	à 28 days	≥ 3,5 à ≤10 MPa	≥ 5 à ≤15 MPa

Product and Packaging Description

NHL lime supplied in paper bags on wrapped pallets, complying with NF EN 459-1.

Hydraulic lime is a construction lime consisting mainly of: Calcium hydroxide, Calcium silicates and Calcium aluminates

It sets and hardens when mixed with water and/or under water. The reaction with atmospheric carbon dioxide also contributes to hardening.

Intended Use

NHL is an intermediate product used in the manufacture of: Concrete, Mortars, Grouts, Renders and plasters. Other construction mixtures and building products

As an intermediate product, it is not possible to assess impacts related to the Construction, Use and End-of-Life stages, which depend on its final application.

Additional Technical Characteristics

NF EN 459-1 includes: Mechanical requirements, Physical requirements, Chemical requirements and Constituent requirements. The standard also establishes conformity criteria and corresponding assessment rules.

Main Components of the Product and Packaging

The hydraulic properties arise exclusively from the specific chemical composition of the natural raw material.

SOCLI NHL lime contains no added materials. The packaging rate for the ready-for-dispatch bagged product is 2.3%.

Packaging Description per Tonne of Finished Product	Weight (kg/t)
Wooden pallet (wet, 0.667 pallet)	16,8
Plastic (sleeve, sheet, PE contained in bags)	1,28
Paper bags	4,77

REACH Candidate List Substances

The NHL lime covered by this document does not contain substances from the REACH Candidate List in concentrations greater than 0.1% by mass.

Evidence of Fitness for Use

NHL lime complying with NF EN 459-1.

Distribution Channel

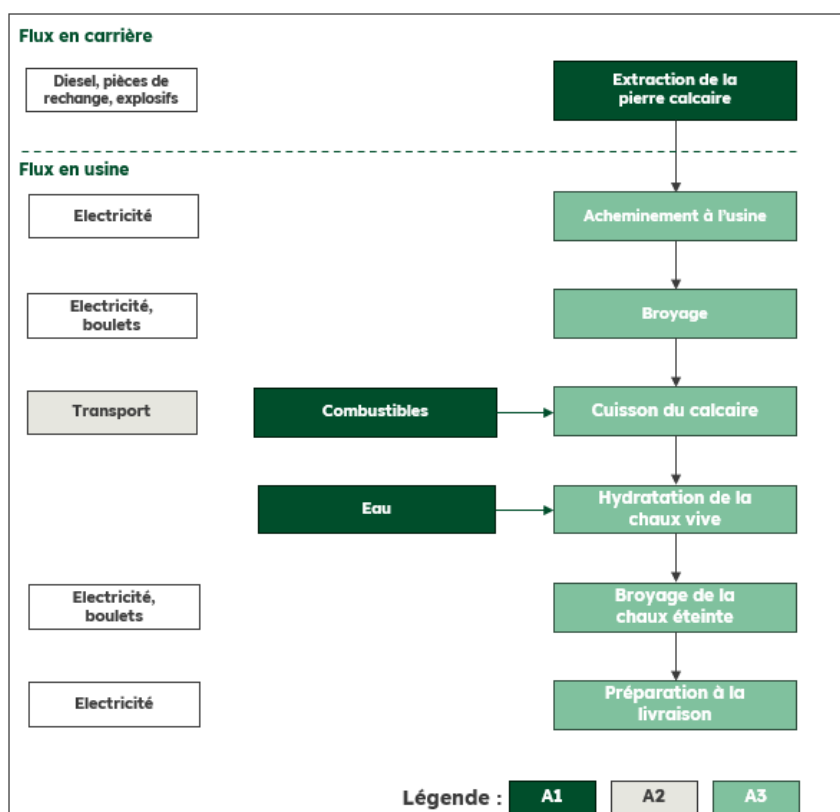
B-to-B

Biogenic Carbon Content

Biogenic Carbon Content	Amount per Declared Unit
Product (at factory gate)	0 kg C
Associated packaging (at factory gate)	10,4 kg C

3 Life Cycle Stages

This LCI covers the production stage, corresponding to aggregated module A1-A3.



Production Stage (A1-A3)

The production of NHL limes includes:

- Extraction of limestone and primary fuels
- Transport of raw materials to the factory gate and internal transport operations
- Crushing of limestone and transfer to the kiln
- Manufacture of upstream products (quicklime and hydrated lime)
- Grinding and preparation of NHL lime for delivery in bags

4 Information for Lifecycle Assessment Calculation

PCR used	NF EN 15804+A2, October 2019 NF EN 15804+A2/CN, October 2022 NF EN 16908+A1, March 2022, "Cement and Building Lime"
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System Boundaries	This declaration covers the lifecycle stages defined by NF EN 15804+A2 and NF EN 15804+A2/CN. Excluded from the System • Manufacturing of production equipment • Lighting, heating and cleaning of workshops • Administrative activities • Employee transportation • Manufacture of vehicles and transport infrastructure used for personnel and product transportation
Allocation	<u>Allocation and Co-products in a Lime Plant</u> No co-products are generated during lime production. Therefore, all environmental impacts are assigned to NHL lime using mass allocation. <u>Co-products or Recovered Waste Used as Material</u> No co-products or waste materials are incorporated into SOCLI NHL lime.
Geographical and Temporal Representativeness	The primary data from the Izaourt plant are representative of production occurring between: 1 January 2024 and 31 December 2024 Secondary data mainly originate from the ecoinvent v3.10 database.

Data Quality Description

Specific data	100% of the specific data used were rated “very good”.
Generic Data	The quality assessment of the generic data is: • 14% rated “very good” • 86% rated “good” The LCA was carried out using the GCCA Industry EPD Tool for Cement and Concrete, version 5.2.. All the references regarding the tool are available by following the link : Concrete EPD Tool.

5 Life Cycle Information: Cradle-to-Gate Indicator Results (A1-A3)

The following tables summarize the Life Cycle Assessment (LCA) results.

Due to rounding, totals may not exactly equal the sum of the rounded values.

Core Environmental Impact Indicators

Environmental Impact	Unit per tonne	Production Stage (A1-A3)
Climate Change – Total	kg CO ₂ éq.	6,26E+02
Climate Change – Fossil Fuels	kg CO ₂ éq.	6,26E+02
Climate Change – Biogenic	kg CO ₂ éq.	1,00E-01
Climate Change – Land Use and Land Use Change	kg CO ₂ éq.	7,40E-02
Ozone Depletion	kg CFC 11 éq.	7,53E-07
Acidification	mol H ⁺ éq.	1,85E+00
Freshwater Eutrophication	kg PO ₄ éq.	2,09E-02
Marine Eutrophication	kg N éq.	1,62E-01
Terrestrial Eutrophication	mol N éq.	4,79E+00
Photochemical Ozone Formation	kg NMVOC éq.	1,20E+00
Abiotic Resource Depletion (Minerals and Metals)*	kg Sb éq.	1,47E-04
Abiotic Resource Depletion (Fossil Fuels)*	MJ	2,64E+03
Water Scarcity	m ³ world deprived equivalent	3,19E+01

* Results for this environmental impact indicator should be used with caution because the associated uncertainties are high or because experience with the indicator is limited.

Additional Environmental Impact Indicators

Environmental Impact	Unit per tonne	Production Stage (A1-A3)
Fine Particulate Matter Emissions	Disease Incidence	1,49E-05
Ionising Radiation (Human Health)	kBq U235 eq.	4,76E+01
Freshwater Ecotoxicity	CTUe	4,89E+02
Human Toxicity, Cancer Effects	CTUh	7,16E-07
Human Toxicity, Non-Cancer Effects	CTUh	2,85E-05
Land Use Impacts / Soil Quality	[-]	3,15E+03

Resource Use Indicators

Resource Use	Unit per tonne	Production Stage (A1-A3)
Use of Renewable Primary Energy Excluding Renewable Primary Energy Resources Used as Raw Materials	MJ	2,70E+02
Use of Renewable Primary Energy Resources Used as Raw Materials	MJ	3,54E+02
Total Use of Renewable Primary Energy Resources	MJ	6,24E+02
Use of Non-Renewable Primary Energy Excluding Non-Renewable Primary Energy Resources Used as Raw Materials	MJ	2,57E+03
Use of Non-Renewable Primary Energy Resources Used as Raw Materials	MJ	6,10E+01
Total Use of Non-Renewable Primary Energy Resources	MJ	2,64E+03
Use of Secondary Materials	kg	0,00E+00
Use of Renewable Secondary Fuels	MJ	0,00E+00
Use of Non-Renewable Secondary Fuels	MJ	0,00E+00
Net Freshwater Use	m ³	7,55E-01

Waste Category Indicators

Waste category	Unit per tonne	Production Stage (A1-A3)
Hazardous Waste Disposed	kg	0,00E+00
Non-Hazardous Waste Disposed	kg	0,00E+00
Radioactive Waste Disposed	kg	1,07-02

Output Flow Indicators

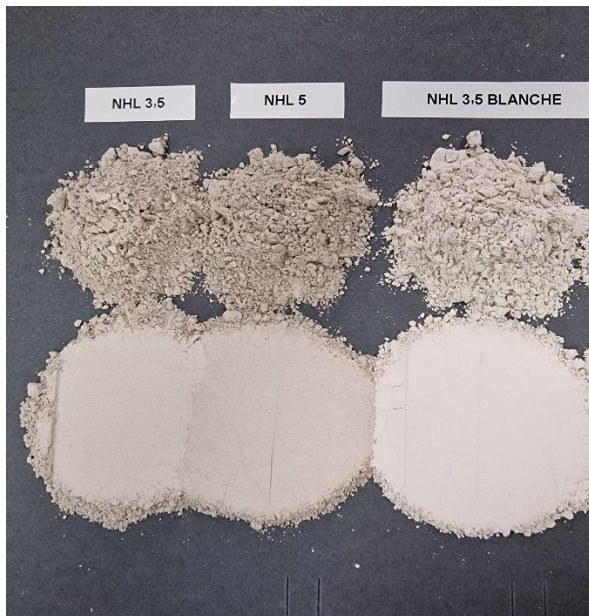
Output flow	Unit per tonne	Production Stage (A1-A3)
Components for Reuse	kg	0,00E+00
Materials for Recycling	kg	0,00E+00
Materials for Energy Recovery	kg	0,00E+00
Exported Energy	MJ	0,00E+00



Product Environmental Assessment

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SOCLI NHL Limes manufactured at the Izaourt plant (65),
France, sold in bulk



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Production Site Represented by the LCI

HMF Socli, Izaourt plant (65), France

LCI Type

Cradle-to-gate LCI, covering modules A1-A3.

LCI Type

Individual

Product identification

SOCLI NHL limes in bulk, including: NHL 3.5 White Lime, NHL 3.5 Lime, NHL 5 Lime

Validity Framework : N/A

External Independent verification of the declaration and data according to EN ISO 14025: (version august 2010) by :

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Validity period : ☒ 5 years ☐ 2 years from the date of first publication.

Commercial References

Socli NHL in Bulk (NHL5, NHL3,5, NHL3,5 White

Place production

Metropolitan France

2 Description of the Declared Unit and Product

Declared Unit (DU)

One tonne of Natural Hydraulic Lime (NHL) produced at the SOCLI Izaourt plant (65), France, in bulk and ready for shipment.

Main Performance of the Declared Unit

The product complies with the mechanical requirements of NF EN 459-1 for its strength class:

Mechanical Requirements (NF EN 459-1)		Lime type NHL 3,5	Lime type NHL 5
Compressive Strength	à 7 days	-	≥ 2 MPa
	à 28 days	≥ 3,5 à ≤10 MPa	≥ 5 à ≤15 MPa

Product and Packaging Description

NHL lime supplied in Bulk (without packaging), complying with NF EN 459-1.

Hydraulic lime is a construction lime consisting mainly of: Calcium hydroxide, Calcium silicates and Calcium aluminates

It sets and hardens when mixed with water and/or under water. The reaction with atmospheric carbon dioxide also contributes to hardening.

Intended Use

NHL is an intermediate product used in the manufacture of: Concrete, Mortars, Grouts, Renders and plasters. Other construction mixtures and building products

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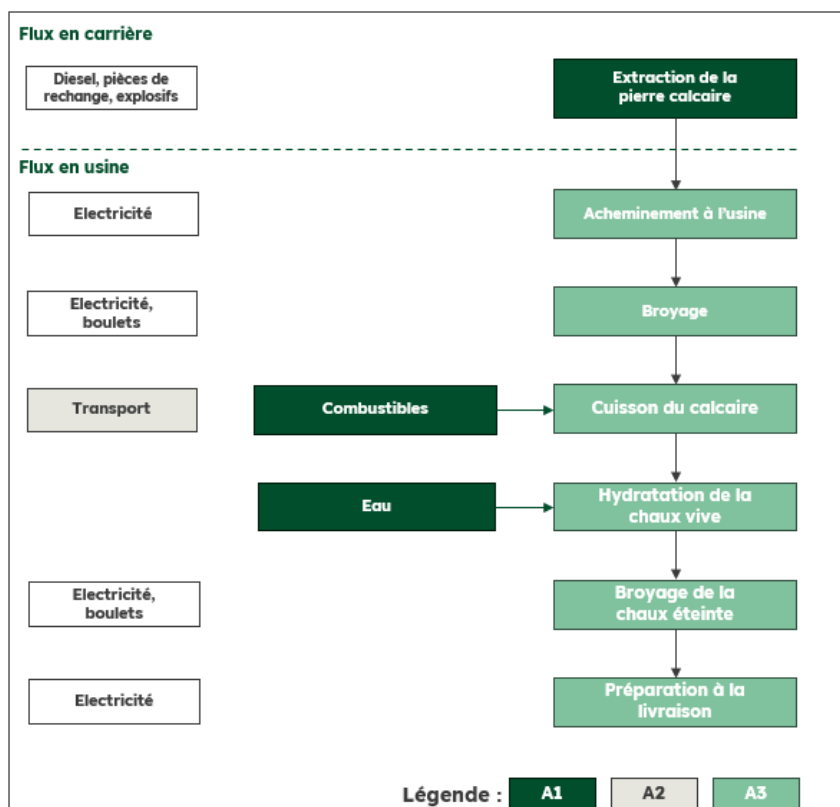
B-to-B

Biogenic Carbon Content

Biogenic Carbon Content	Amount per Declared Unit
Product (at factory gate)	0 kg C
Associated packaging (at factory gate)	0 kg C

3 Life Cycle Stages

This LCI covers the production stage, corresponding to aggregated module A1-A3.



Production Stage (A1-A3):

The production of NHL lime includes:

- Extraction of limestone and primary fuels
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Climate Change – Fossil Fuels	kg CO ₂ éq.	6,12E+02
Climate Change – Biogenic	kg CO ₂ éq.	9,48E-02
Climate Change – Land Use and Land Use Change	kg CO ₂ éq.	3,68E-02
Ozone Depletion	kg CFC 11 éq.	4,44E-07
Acidification	mol H ⁺ éq.	1,79E+00
Freshwater Eutrophication	kg PO ₄ éq.	1,83E-02
Marine Eutrophication	kg N éq.	1,43E-01
Terrestrial Eutrophication	mol N éq.	4,60E+00
Photochemical Ozone Formation	kg NMVOC éq.	1,11E+00
Abiotic Resource Depletion (Minerals and Metals)*	kg Sb éq.	7,40E-05
Abiotic Resource Depletion (Fossil Fuels)*	MJ	2,34E+03
Water Scarcity	m ³ world deprived equivalent	2,40E+01

* Results for this environmental impact indicator should be used with caution because the associated uncertainties are high or because experience with the indicator is limited.

Additional Environmental Impact Indicators

Environmental Impact	Unit per tonne	Production Stage (A1-A3)
Fine Particulate Matter Emissions	Disease Incidence	1,40E-05
Ionising Radiation (Human Health)	kBq U235 eq.	4,37E+01
Freshwater Ecotoxicity	CTUe	3,95E+02
Human Toxicity, Cancer Effects	CTUh	5,98E-07
Human Toxicity, Non-Cancer Effects	CTUh	2,84E-05
Land Use Impacts / Soil Quality	[-]	4,01E+02

Resource Use Indicators

Resource Use	Unit per tonne	Production Stage (A1-A3)
Use of Renewable Primary Energy Excluding Renewable Primary Energy Resources Used as Raw Materials	MJ	1,11E+02
Use of Renewable Primary Energy Resources Used as Raw Materials	MJ	0,00E+00
Total Use of Renewable Primary Energy Resources	MJ	1,11E+02
Use of Non-Renewable Primary Energy Excluding Non-Renewable Primary Energy Resources Used as Raw Materials	MJ	2,34E+03
Use of Non-Renewable Primary Energy Resources Used as Raw Materials	MJ	0,00E+00
Total Use of Non-Renewable Primary Energy Resources	MJ	2,34E+03
Use of Secondary Materials	kg	0,00E+00
Use of Renewable Secondary Fuels	MJ	0,00E+00
Use of Non-Renewable Secondary Fuels	MJ	0,00E+00
Net Freshwater Use	m ³	5,63E-01

Waste Category Indicators

Waste category	Unit per tonne	Production Stage (A1-A3)
Hazardous Waste Disposed	kg	0,00E+00
Non-Hazardous Waste Disposed	kg	0,00E+00
Radioactive Waste Disposed	kg	9,76E-03

Output Flow Indicators

Output flow	Unit per tonne	Production Stage (A1-A3)
Components for Reuse	kg	0,00E+00
Materials for Recycling	kg	0,00E+00
Materials for Energy Recovery	kg	0,00E+00
Exported Energy	MJ	0,00E+00