

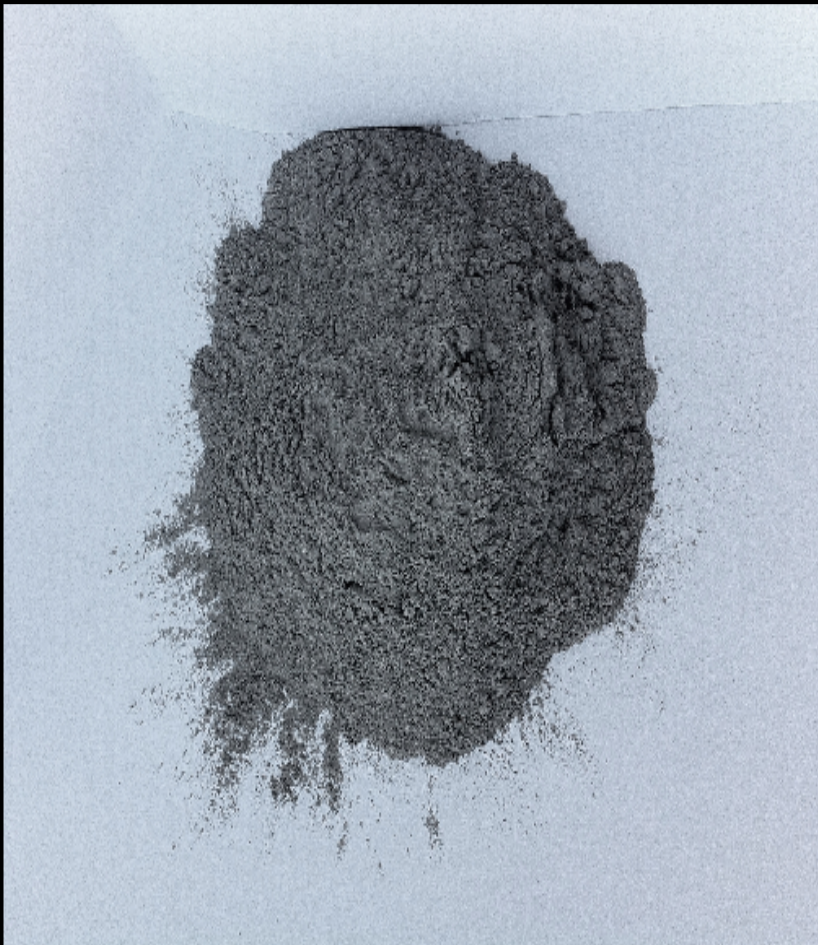
**Environmental  
Product  
Declaration**

*according to ISO 14025 and EN 15804*



This declaration is for:  
**Coal fly ash**

Provided by:  
**Vliegasunie B.V.**



program operator  
**Stichting MRPI®**  
publisher  
**Stichting MRPI®**  
[www.mrpi.nl](http://www.mrpi.nl)

MRPI® registration  
**1.1.00095.2020**  
EPD registration  
**00001104**  
date of first issue  
**28-01-2020**  
date of this issue  
**28-01-2020**  
expiry date  
**28-01-2025**



**PROGRAM OPERATOR**

Stichting MRPI®  
Kingsfordweg 151  
1043GR  
Amsterdam

**COMPANY INFORMATION**

**VLIEGASUNIE**

Vliegasunie B.V.  
Belle van Zuylenlaan 3  
4105 JX  
Culemborg  
0031 (0)345 - 50 99 88  
info@vliegasunie.nl  
<https://www.vliegasunie.nl/>

**SCOPE OF DECLARATION**

Dit MRPI®-EPD certificaat is getoetst door **Harry van Ewijk, SGS**.  
De LCA studie is gedaan door **Pieter Stadhouders, EcoReview**.

Het certificaat is gebaseerd op een LCA-dossier volgens ISO14025 en NEN-EN15804+A1. Het is getoetst aan de hand van het 'EPD-MRPI® verification protocol May 2017.v3.1'. EPD's van bouwproducten zijn niet vergelijkbaar als ze niet voldoen aan NEN-EN15804+A1. Stoffen die voorkomen op de kandidatenlijst van SVHC's van het ECHA worden in dit certificaat gedeclareerd als ze de limiet voor registratie van die stof overschrijden.

**VISUAL PRODUCT**



**PRODUCT**

Coal fly ash

**MRPI® REGISTRATION**

1.1.00095.2020

**EPD REGISTRATION**

00001104

**DATE OF ISSUE**

28-01-2020

**EXPIRY DATE**

28-01-2025

**DECLARED UNIT/FUNCTIONAL UNIT**

ton

**DESCRIPTION OF PRODUCT**

Coal fly ash is a by-product from power generation using coal and biomass as fuels that can be used, among other things, as a cement replacement and asphalt filler.

**MORE INFORMATION**

<https://www.vliegasunie.nl/en/products/pulverise-d-fuel-ash>

**DEMONSTRATION OF VERIFICATION**

CEN standard EN15804 serves as the core PCR[a]

Independent verification of the declaration and data,  
according to EN ISO 14025:2010:  
internal: external: X

(where appropriate[b]) Third party verifier:

Harry van Ewijk, SGS Search

[a] Product Category Rules [b] Optional for B-to-B communication, mandatory for B-to-C communication (see EN ISO 14025:2010, 9.4).

## DETAILED PRODUCT DESCRIPTION

Product name: *Vliegasunie Coal fly ash*

Coal fly ash is a by-product from power generation using coal and biomass as fuels. It can directly be used as an intermediate product for cementitious-bound materials.

COMPONENT (> 1%)	[kg / %]
Si O <sub>2</sub> + Al <sub>2</sub> O <sub>3</sub> + Fe <sub>2</sub> O <sub>3</sub>	70-100%
CaO	0-10%
P <sub>2</sub> O <sub>5</sub>	0-5%

(\*) > 1% of total mass

## SCOPE AND TYPE

This product is produced in the Netherlands. It is applied as an intermediate product for cementitious-bound materials.

Ecoinvent V3.4 was used for the analysis.

It is an intermediate product and therefore end-of-life scenarios are not clear. The specific EPD only covers A1-A3.

PRODUCT STAGE			CONSTRUCTION					USE STAGE					END OF LIFE				BENEFITS AND
			PROCESS										STAGE				LOADS BEYOND THE
			STAGE														SYSTEM BOUNDARIES
Raw material 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	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	

X = Module assessed

MNA = Module not assessed

## REPRESENTATIVENESS

Not applicable as this is a specific product from a specific manufacturer.

**ENVIRONMENTAL IMPACT per functional unit or declared unit**

	UNIT	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
ADPE	kg Sb-eq.	0.00	7.34 E -7	5.21 E -7	1.26 E -6	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
ADPF	MJ	0.00	8.35 E -3	4.64 E -5	8.40 E -3	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
GWP	kg CO2-eq.	0.00	1.31 E +0	1.30 E -2	1.33 E +0	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
ODP	kg CFC11-eq.	0.00	1.94 E -7	5.39 E -10	1.94 E -7	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
POCP	kg ethene-eq.	0.00	7.63 E -4	9.28 E -6	7.72 E -4	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
AP	kg SO2-eq.	0.00	9.46 E -3	1.15 E -4	9.57 E -3	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
EP	kg (PO4)3--eq.	0.00	2.08 E -3	3.08 E -5	2.11 E -3	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Toxicity indicators (Dutch market)																			
HTP	kg DCB-eq.	0.00	2.91 E -1	4.92 E -2	3.40 E -1	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
FAETP	kg DCB-eq.	0.00	7.51 E -3	4.69 E -4	7.98 E -3	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
MAETP	kg DCB-eq.	0.00	2.33 E +1	1.53 E +0	2.48 E +1	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
TETP	kg DCB-eq.	0.00	1.50 E -3	3.63 E -3	5.13 E -3	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Environmental Cost Indicator (Dutch market)																			
ECI	Euro	0.00	1.54 E -1	6.23 E -3	1.60 E -1	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA

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

### RESOURCE USE per functional unit or declared unit

	UNIT	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
PERM	MJ	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
PERT	MJ	0.00	3.67 E -1	4.51 E +0	4.88 E +0	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
PENRE	MJ	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
PENRM	MJ	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
PENRT	MJ	0.00	1.83 E +1	8.95 E -2	1.84 E +1	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
SM	kg	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
RSF	MJ	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
NRSF	MJ	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
FW	m3	0.00	3.80 E -3	9.24 E -5	3.90 E -3	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA

INA = Indicator Not Assessed

PERE = Use of renewable energy excluding renewable primary energy resources

PERM = Use of renewable energy resources used as raw materials

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

SM = Use of secondary materials

NRSF = Use of non renewable secondary fuels

PERT = Total use of renewable primary energy resources

PENRT = Total use of non-renewable primary energy resources

RSF = Use of renewable secondary fuels

FW = Use of net fresh water

### OUTPUT FLOWS AND WASTE CATEGORIES per functional unit or declared unit

	UNIT	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
HWD	kg	0.00	1.25 E -4	5.18 E -7	1.25 E -4	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
NHWD	kg	0.00	5.27 E -2	1.84 E -2	7.11 E -2	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
RWD	kg	0.00	1.11 E -4	2.93 E -7	1.11 E -4	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
CRU	kg	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
MFR	kg	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
MER	kg	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
EEE	MJ	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
ETE	MJ	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA

INA = Indicator Not Assessed

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



## **CALCULATION RULES**

### *Data quality*

Data flows have been modeled as realistically as possible. Data quality assessment is based on the principle that the primary data used for processes occurring at the production site is selected in the first instance. Where this is not available, other reference data is selected from appropriate sources.

### *Data collection period*

The dataset is representative for the production processes used in 2018.

### *Methodology and reproducibility*

The process descriptions and quantities in this study are reproducible in accordance to the reference standards that have been used. The references of all sources, both primary and public sources and literature, have been documented.

## **SCENARIOS AND ADDITIONAL TECHNICAL INFORMATION**

### *A1. Raw materials supply*

The input material is free of burden. No emissions from the electricity production are allocated onto the fly ash. This approach is in accordance with CEN/TC 51 PCR for cement and building lime, 2015.

### *A2. Transport of raw materials to manufacturer*

All incoming transports of the sourced material are done by barge. The material is moved from power plants RWE Eemshaven, Engie Rotterdam, Hemweg Nuon Amsterdam and Amercentrale Geertruienberg to SMZ at the Maasvlakte Rotterdam.

### *A3. Manufacturing*

No manufacturing is needed for this product. However, some electricity is used for internal transport and mixing to achieve a constant quality. This is allocated to A3.

## **DECLARATION OF SVHC**

None of the substances contained in the product are listed in the "Candidate List of Substances of Very High Concern for authorisation", or they do not exceed the threshold with the European Chemicals Agency.

## **REFERENCES**

- EN 15804:2012+A1:2013 Sustainability of construction works. Environmental product declarations. Core rules for the product category of construction products, of 11/2013.
- ISO 14040/14044 on Life Cycle Assessments.
- CEN/TC 51 PCR for cement and building lime, 2015

## **REMARKS**

None