

# Environmental Profile

This LCA is calculated according to: ISO 14044, ISO 14040 and EN 15804

Ecochain v4.3.1



Product: CEM I 52.5 R  
 Unit: 1 ton  
 Manufacturer: Cemminerals - update 2023

LCA standard: NMD Bepalingsmethode 1.1 (2022)  
 Standard database: Dutch - Nationale Milieudatabase v3.8 (obv Ecoinvent 3.6)  
 Externally verified: Yes  
 Issue date: 03-12-2024  
 End of validity: 03-12-2029  
 Verifier: Ulbert Hofstra - SGS Intron

De getoetste LCA's van Cemmineralsvoldoen aan het gestelde in NMD Bepalingsmethode 'Milieuprestatie Bouwwerken', versie 1.1, maart 2022 en amendementen (zonder NL-PCR cement).

The LCA background information and project dossier have been registered in the online Ecochain application in the account Cemminerals - update 2023 (2023). (☑ = module declared, MND = module not declared).

A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
☑	☑	☑	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

## Product stage

A1 Raw material supply A2 Transport A3 Manufacturing

## Construction process stage

A4 Transport gate to site  
 A5 Assembly / Construction installation process

## Use stage

B1 Use B2 Maintenance B3 Repair B4 Replacement B5 Refurbishment  
 B6 Operational energy use B7 Operational water use

## End-of-Life stage

C1 De-construction demolition C2 Transport C3 Waste processing  
 C4 Disposal

## Benefits and loads beyond the system boundaries

D Reuse- Recovery- Recycling- potential

## Environmental impacts and parameters

**ECI** = Environmental Costs Indicator [euro]; **ADPE** = Abiotic depletion potential for non-fossil resources [kg Sb-eq]; **ADPF** = Abiotic depletion potential for fossil resources [kg Sb-eq]; **GWP** = Global warming potential [kg CO2-eq]; **ODP** = Depletion potential of the stratospheric ozone layer [kg CFC-11-eq]; **POCP** = Formation potential of tropospheric ozone photochemical oxidants [kg ethene-eq]; **AP** = Acidification potential of land and water [kg SO2-eq]; **EP** = Eutrophication potential [kg PO4 3--eq]; **HTP** = Human toxicity potential [kg 1,4-DB-eq]; **FAETP** = Freshwater aquatic ecotoxicity potential [kg 1,4-DB-eq]; **MAETP** = Marine aquatic ecotoxicity potential [kg 1,4-DB-eq]; **TETP** = Terrestrial ecotoxicity potential [kg 1,4-DB-eq]; **GWP-total** = EF EN15804+A2 Climate Change [kg CO2 eq]; **GWP-f** = EF Climate change - Fossil [kg CO2 eq]; **GWP-b** = EF EN15804+A2 Climate Change - Biogenic [kg CO2 eq]; **GWP-luluc** = EF EN15804+A2 Climate Change - Land use and LU change [kg CO2 eq]; **ODP** = EF Ozone depletion [kg CFC11 eq]; **AP** = EF Acidification [mol H+ eq]; **EP-fw** = EF Eutrophication, freshwater [kg P eq]; **EP-m** = EF Eutrophication, marine [kg N eq]; **EP-T** = EF Eutrophication, terrestrial [mol N eq]; **POCP** = EF Photochemical ozone formation [kg NMVOC eq]; **ADP-mm** = EF Resource use, minerals and metals [kg Sb eq]; **ADP-f** = EF Resource use, fossils [MJ]; **WDP** = EF Water use [m3 depriv.]; **PM** = EF Particulate matter [disease inc.]; **IR** = EF Ionising radiation [kBq U-235 eq]; **ETP-fw** = EF Ecotoxicity, freshwater [CTUe]; **HTP-c** = EF Human toxicity, cancer [CTUh]; **HTP-nc** = EF Human toxicity, non-cancer [CTUh]; **SQP** = EF Land use [Pt]; **PERE** = Use of renewable primary energy excluding renewable primary energy resources used as raw materials [MJ]; **PERM** = Use of renewable primary energy resources used as raw materials [MJ]; **PERT** = Total use of renewable primary energy resources [MJ]; **PENRE** = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials [MJ]; **PENRM** = Use of non-renewable primary energy resources used as raw materials [MJ]; **PENRT** = Total use of non-renewable primary energy resources [MJ]; **PET** = Total energy [MJ]; **SM** = Use of secondary material [kg]; **RSF** = Use of renewable secondary fuels [MJ]; **NRSF** = Use of non-renewable secondary fuels [MJ]; **FW** = Use of net fresh water [m3]; **HWD** = Hazardous waste disposed [kg]; **NHWD** = Non-hazardous waste disposed [kg]; **RWD** = Radioactive waste disposed [kg]; **CRU** = Components for re-use [kg]; **MFR** = Materials for recycling [kg]; **MER** = Materials for energy recovery [kg]; **EE** = Exported energy [MJ]; **EET** = Exported energy thermic [MJ]; **EEE** = Exported energy electric [MJ]

## Statement of Confidentiality

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# Results

Environmental impact SBK set 1	Unit	A1	A2	A3	A1-A3	Total
ECI	euro	55.648	2.856	1.359	59.862	59.862
ADPE	kg Sb-eq	1.104E-3	1.194E-4	1.295E-4	1.353E-3	1.353E-3
ADPF	kg Sb-eq	1.618E+0	8.011E-2	1.273E-1	1.825E+0	1.825E+0
GWP	kg CO2-eq	8.111E+2	1.309E+1	1.754E+1	8.417E+2	8.417E+2
ODP	kg CFC-11-eq	1.982E-5	2.063E-6	4.189E-6	2.607E-5	2.607E-5
POCP	kg ethene-eq	6.823E-2	1.631E-2	3.751E-3	8.829E-2	8.829E-2
AP	kg SO2-eq	1.371E+0	2.926E-1	2.951E-2	1.693E+0	1.693E+0
EP	kg PO4 3--eq	2.687E-1	3.039E-2	4.848E-3	3.039E-1	3.039E-1
HTP	kg 1,4-DB-eq	5.629E+1	7.244E+0	2.846E+0	6.638E+1	6.638E+1
FAETP	kg 1,4-DB-eq	1.569E+1	1.194E-1	7.850E-2	1.588E+1	1.588E+1
MAETP	kg 1,4-DB-eq	8.577E+3	5.491E+2	2.551E+2	9.382E+3	9.382E+3
TETP	kg 1,4-DB-eq	6.689E+0	2.242E-2	1.367E-1	6.848E+0	6.848E+0
Environmental impact	Unit	A1	A2	A3	A1-A3	Total
GWP-total	kg CO2 eq	8.379E+2	1.318E+1	1.793E+1	8.691E+2	8.691E+2
GWP-f	kg CO2 eq	8.138E+2	1.318E+1	1.774E+1	8.447E+2	8.447E+2
GWP-b	kg CO2 eq	2.387E+1	-4.193E-3	1.643E-1	2.403E+1	2.403E+1
GWP-luluc	kg CO2 eq	2.514E-1	1.236E-2	2.641E-2	2.901E-1	2.901E-1
ODP	kg CFC11 eq	2.413E-5	2.595E-6	3.285E-6	3.001E-5	3.001E-5
AP	mol H+ eq	1.849E+0	3.629E-1	3.784E-2	2.250E+0	2.250E+0
EP-fw	kg P eq	7.360E-3	7.024E-5	3.030E-4	7.734E-3	7.734E-3
EP-m	kg N eq	6.759E-1	8.380E-2	9.404E-3	7.691E-1	7.691E-1
EP-T	mol N eq	7.500E+0	9.340E-1	1.106E-1	8.545E+0	8.545E+0
POCP	kg NMVOC eq	1.846E+0	2.459E-1	3.018E-2	2.122E+0	2.122E+0
ADP-mm	kg Sb eq	1.104E-3	1.194E-4	1.295E-4	1.353E-3	1.353E-3
ADP-f	MJ	2.899E+3	1.679E+2	5.441E+2	3.611E+3	3.611E+3
WDP	m3 depriv.	1.175E+2	3.396E-1	4.256E+0	1.221E+2	1.221E+2
PM	disease inc.	6.772E-6	3.948E-7	2.949E-7	7.462E-6	7.462E-6
IR	kBq U-235 eq	8.378E+0	7.183E-1	5.027E+0	1.412E+1	1.412E+1
ETP-fw	CTUe	5.363E+3	1.159E+2	2.017E+2	5.681E+3	5.681E+3
HTP-c	CTUh	5.372E-8	8.479E-9	5.158E-9	6.736E-8	6.736E-8
HTP-nc	CTUh	1.698E-6	9.462E-8	1.330E-7	1.925E-6	1.925E-6
SQP	Pt	7.005E+2	3.173E+1	1.181E+2	8.503E+2	8.503E+2

Resource use	Unit	A1	A2	A3	A1-A3	Total
PERE	MJ	2.228E+0	1.521E+0	4.891E+1	5.266E+1	5.266E+1
PERM	MJ	0	0	0	0	0
PERT	MJ	2.228E+0	1.521E+0	4.891E+1	5.266E+1	5.266E+1
PENRE	MJ	4.815E+1	1.783E+2	5.670E+2	7.935E+2	7.935E+2
PENRM	MJ	0	0	0	0	0
PENRT	MJ	4.815E+1	1.783E+2	5.670E+2	7.935E+2	7.935E+2
PET	MJ	5.038E+1	1.798E+2	6.160E+2	8.461E+2	8.461E+2
SM	kg	0	0	0	0	0
RSF	MJ	0	0	0	0	0
NRSF	MJ	0	0	0	0	0
FW	m3	3.017E+0	1.206E-2	1.333E-1	3.162E+0	3.162E+0
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	Total
HWD	kg	1.982E-3	1.850E-4	4.834E-4	2.650E-3	2.650E-3
NHWD	kg	1.262E+1	4.899E-1	8.146E-1	1.393E+1	1.393E+1
RWD	kg	1.174E-2	1.154E-3	4.329E-3	1.722E-2	1.722E-2
CRU	kg	0	0	0	0	0
MFR	kg	0	0	0	0	0
MER	kg	0	0	0	0	0
EE	MJ	0	0	0	0	0
EET	MJ	0	0	0	0	0
EEE	MJ	0	0	0	0	0



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