Environmental Product Declaration

according to ISO 14025 and EN 15804

MRPI
milieu relevante product informatie

This declaration is for:
Anova™ 1817 rejuvenator

Provided by:
Cargill B.V.

Cargill®
Helping the world *thrive*

program operator
Stichting MRPI®
publisher
Stichting MRPI®
www.mrpi.nl

MRPI® registration
1.1.00156.2020
EPD registration
00001331
date of first issue
28-08-2020
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28-08-2020
expiry date
28-08-2025

ECO PLATFORM
EPD
EN 15804 VERIFIED

COMPANY INFORMATION

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MRPI® REGISTRATION
1.1.00156.2020

EPD REGISTRATION
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SCOPE OF DECLARATION
This MRPI®-EPD certificate verified by **Pieter Stadhouders, EcoReview V.O.F..**
The LCA study has been done by **Saro Campisano, Ecochain Technologies B.V..**
The certificate is based on an LCA dossier according to ISO14025 and NEN-EN15804+A1. It is verified according to the 'EPD-MRPI® verification protocol May 2017.v3.1'. EPDs of construction products may not be comparable if they do not comply with NEN-EN 15804+A1. 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
1043GR
Amsterdam

ir. J-P den Hollander, Managing director MRPI®

PRODUCT
Anova™ 1817 rejuvenator

DECLARED UNIT/FUNCTIONAL UNIT
kg

DESCRIPTION OF PRODUCT
Anova 1817 is a rejuvenator for the asphalt industry.

VISUAL PRODUCT


MORE INFORMATION
https://www.cargill.com/bioindustrial/anova-asphalt

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
Third party verifier: Pieter Stadhouders, Ecoreview
[a] PCR = Product Category Rules

DETAILED PRODUCT DESCRIPTION

Cargill has developed an asphalt concrete rejuvenator for the asphalt industry. This product, named Anova 1817, allows asphalt plants to replace virgin bitumen for recycled asphalt concrete in which the bitumen is rejuvenated by the Anova 1817.

COMPONENT (> 1%)	[kg / %]
Composition classified	----

(*) > 1% of total mass

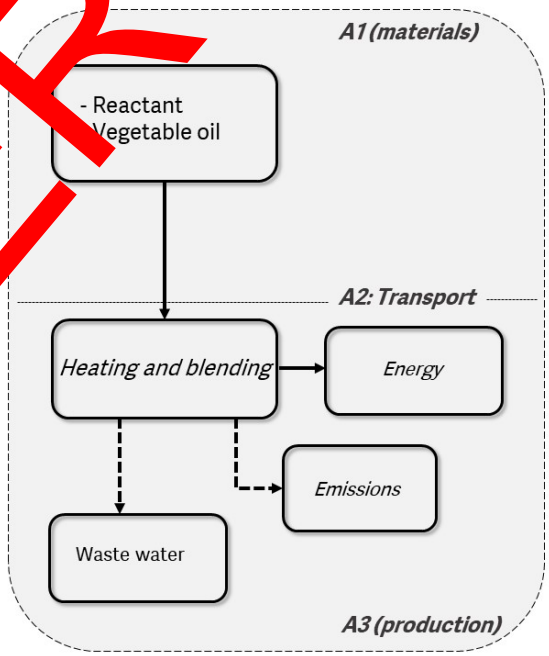
SCOPE AND TYPE

Ecochain is used as a LCA software. Ecoinvent v3.4 and Nationale Milieudatabase 3.0 are used for this analysis. The study covers phases A1-A3 (from materials use to the production).

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE								END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE 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



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REPRESENTATIVENESS

The data in this EPD is representative for Anova 1817 produced by Cargill B.V.

ENVIRONMENTAL IMPACT per functional unit or declared unit

	UNIT	A1	A2	A3	A1-A3
ADPE	kg Sb-eq.	8.64E-5	1.99E-7	4.08E-5	1.27E-4
ADPF	MJ	1.07E+1	2.70E+0	8.33E-2	1.35E+1
GWP	kg CO2-eq.	1.20E+0	1.89E-1	4.60E-3	1.40E+0
ODP	kg CFC11-eq.	7.53E-8	2.95E-8	5.93E-10	1.05E-7
POCP	kg ethene-eq.	1.11E-3	1.77E-4	2.93E-7	1.28E-3
AP	kg SO2-eq.	4.45E-3	2.40E-3	3.29E-6	6.85E-3
EP	kg (PO4)3--eq.	2.58E-3	3.22E-4	4.49E-7	2.9[illegible]3
Toxicity indicators (Dutch market)					
HTP	kg DCB-eq.	2.98E-1	7.90E-2	7.59E-4	3.78E-1
FAETP	kg DCB-eq.	2.84E-2	1.37E-3	4.45E-6	2.97E-2
MAETP	kg DCB-eq.	2.89E+1	5.68E+0	2.97E-1	3.[illegible]
TETP	kg DCB-eq.	2.52E-3	3.03E-4	1.09E-[illegible]	[illegible]E-3
Environmental Cost Indicator (Dutch market)					
ECI	Euro	1.35E-1	2.57[illegible]2	3.8[illegible]-4	1.61E-1

ADPE = Abiotic Depletion Potential f[illegible]on-fossil re[illegible]urces
ADPF = Abiotic Depletion Potential for foss[illegible]urce
GWP = Global Warming Poten[illegible]
ODP = Depletion potential o[illegible]e strat[illegible]pheric ozone layer
POCP = Formation poten[illegible] of tropo[illegible]heric ozone photochemical oxidants
AP = Acidification Potenti[illegible]f land[illegible]d wate
EP = Eutrophicatio[illegible]Potentia

HTP = Human[illegible]oxicity Po[illegible]ntial
FAETP = F[illegible] water [illegible]uatic ecotoxicity potential
MAETP = Mari[illegible]c[illegible]tic ecotox[illegible]y potential
TETP = T[illegible]restrial [illegible]toxicity [illegible]otential
ECI = Envi[illegible]mental C[illegible]dicator

RESOURCE USE per functional unit or declared unit

	UNIT	A1	A2	A3	A1-A3
PERE	MJ	9.71E-3	6.04E-2	1.81E-4	7.03E-2
PERM	MJ	0.00	0.00	0.00	0.00
PERT	MJ	9.71E-3	6.04E-2	1.81E-4	7.03E-2
PENRE	MJ	8.01E-1	2.84E+0	8.37E-2	3.73E+0
PENRM	MJ	0.00	0.00	0.00	0.00
PENRT	MJ	8.01E-1	2.84E+0	8.37E-2	3.73E+0
SM	kg	0.00	0.00	0.00	0.00
RSF	MJ	0.00	0.00	0.00	0.00
NRSF	MJ	0.00	0.00	0.00	0
FW	m3	7.02E-5	4.70E-4	2.88E-6	5.43E-4

PERE = Use of renewable energy excluding renewable prima energy resources
PERM = Use of renewable energy resources used as raw mater
PERT = Total use of renewable primary energy resources
PENRE = Use of non-renewable primary energy reso excluding no wable energy resources used as raw materials
PENRM = Use of non-renewable primary energy reso ces u raw materials
PENRT = Total use of non-renewable primary energy re urce
SM = Use of secondary materials
RSF = Use of renewable secondary fuels
NRSF = Use of non renewable secondary fuels
FW = Use of net fresh water

OUTPUT FLOWS A D W STE CATEGORIES per functional unit or declared unit

	UNIT	A		A3	A1-A3
HWD		6E-6	1.91E-5	1.42E-7	2.15E-5
NHWD	kg	2.58E	3.21E-2	2.73E-5	3.48E-2
RWD	k	1 E-6	1.70E-5	4.58E-8	1.83E-5
CRU	kg	0.00	0.00	0.00	0.00
MFR	kg	0.00	0.00	0.00	0.00
MER	kg	0.00	0.00	0.00	0.00
EEE	MJ	0.00	0.00	0.00	0.00
ETE	MJ	0.00	0.00	0.00	0.00

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

CALCULATION RULES

Data quality:

In this study the data flows have been modelled as realistic as possible within the practical feasibility of the LCA practitioner. The data quality is based on the principle that the primary data used for processes, occurring at the production site, must be of higher quality than background data of other processes. The processes used in the production of Anova 1817 are geographically representative, meaning that the production location of Anova 1817 lies within the region for which the relevant Ecoinvent environmental records have been selected. All environmental impacts and economic flows – from sources such as resources, energy, emissions and waste – were quantified and classified in environmental effects. There is no presumption that relevant inputs or outputs have been omitted.

SCENARIOS AND ADDITIONAL TECHNICAL INFORMATION

The Anova products are manufactured through a combination of vegetable oil formulation and chemical modification to modify the chemical compatibilities and functionality for enhanced solubility and performance in bituminous products.

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+A1 and SBK Bepalingsmethode 3.0

REMARKS

None