Environmental Product Declaration

according to ISO 14025 and EN 15804

MRPI
milieu relevante product informatie

This declaration is for:
Anova™ 1005 Modifier

Provided by:
Cargill B.V.

Cargill®
Helping the world *thrive*

VERVALLEN

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Stichting MRPI®
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ECO PLATFORM
EPD
EN 15804 VERIFIED

COMPANY INFORMATION

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Helping the world *thrive*

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MRPI® REGISTRATION
1.1.00186.2021

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PRODUCT
Anova™ 1005 Modifier

DECLARED UNIT/FUNCTIONAL UNIT
kg

DESCRIPTION OF PRODUCT
Anova 1005 is a modifier for the asphalt industry.

VISUAL PRODUCT

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

SCOPE OF DECLARATION

This MRPI®-EPD certificate is 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-EN15804+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®
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ir. J-P den Hollander, Managing director MRPI®

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

The Anova™ 1005 rheology modifier is typically used to modify the bitumen grade and rheology of bitumen (such as penetration or Performance Grade). It can be used in paving grade bitumen, polymer-modified bitumen (PMB), and both anionic and cationic asphalt emulsions

COMPONENT (> 1%)	[kg / %]
Confidential	

(*) > 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 used 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

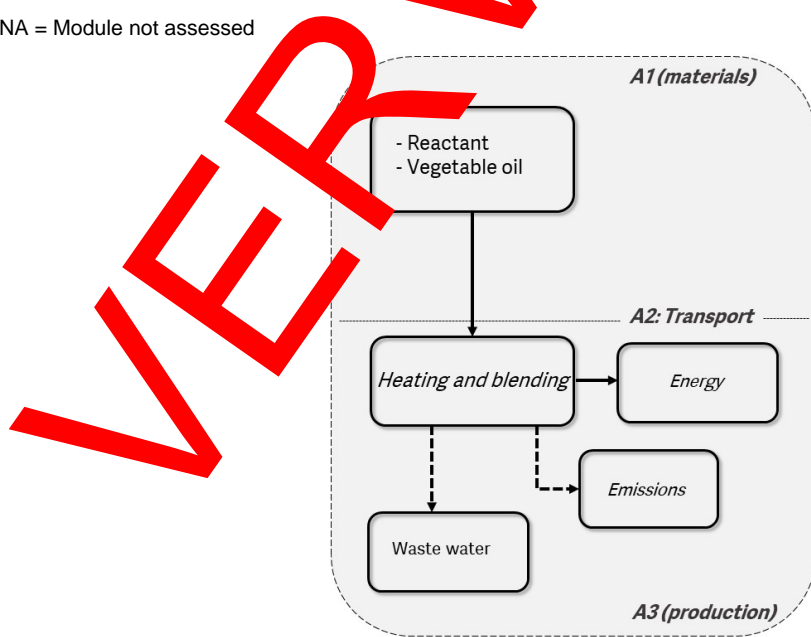X = Module assessed

MNA = Module not assessed

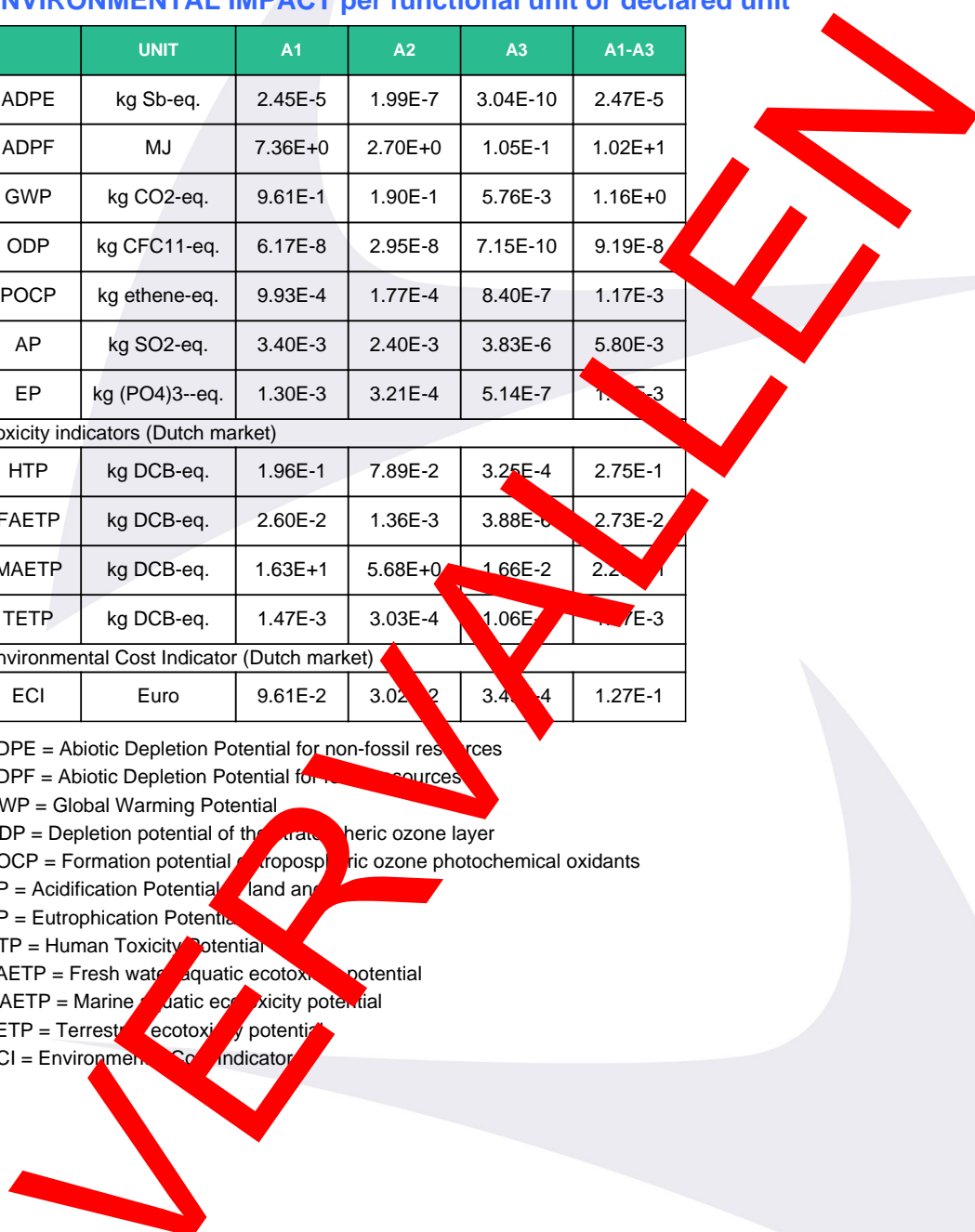*Figure: LCA process diagram according to EN 15804(7.2.1)*

REPRESENTATIVENESS

The data in this EPD is representative for Anova 1005 produced by Cargill B.V.

ENVIRONMENTAL IMPACT per functional unit or declared unit

	UNIT	A1	A2	A3	A1-A3
ADPE	kg Sb-eq.	2.45E-5	1.99E-7	3.04E-10	2.47E-5
ADPF	MJ	7.36E+0	2.70E+0	1.05E-1	1.02E+1
GWP	kg CO2-eq.	9.61E-1	1.90E-1	5.76E-3	1.16E+0
ODP	kg CFC11-eq.	6.17E-8	2.95E-8	7.15E-10	9.19E-8
POCP	kg ethene-eq.	9.93E-4	1.77E-4	8.40E-7	1.17E-3
AP	kg SO2-eq.	3.40E-3	2.40E-3	3.83E-6	5.80E-3
EP	kg (PO4)3--eq.	1.30E-3	3.21E-4	5.14E-7	1.__E-3
Toxicity indicators (Dutch market)					
HTP	kg DCB-eq.	1.96E-1	7.89E-2	3.25E-4	2.75E-1
FAETP	kg DCB-eq.	2.60E-2	1.36E-3	3.88E-_	2.73E-2
MAETP	kg DCB-eq.	1.63E+1	5.68E+0	1.66E-2	2.2__
TETP	kg DCB-eq.	1.47E-3	3.03E-4	1.06E-_	1._7E-3
Environmental Cost Indicator (Dutch market)					
ECI	Euro	9.61E-2	3.02__2	3.4__-4	1.27E-1

ADPE = Abiotic Depletion Potential for non-fossil resources
ADPF = Abiotic Depletion Potential for __ __ sources
GWP = Global Warming Potential
ODP = Depletion potential of the strat__ __heric ozone layer
POCP = Formation potential __ tropospheric ozone photochemical oxidants
AP = Acidification Potential __ land an__
EP = Eutrophication Potentia__
HTP = Human Toxicity Potential
FAETP = Fresh water aquatic ecotox__ potential
MAETP = Marine aquatic ec__ __xicity potential
TETP = Terrestr__ ecotoxi__ y potenti__
ECI = Environment__ Co__ indicator

RESOURCE USE per functional unit or declared unit

	UNIT	A1	A2	A3	A1-A3
PERE	MJ	3.94E+1	6.13E-2	2.41E-4	3.95E+1
PERM	MJ	3.66E+1	0.00	0.00	3.66E+1
PERT	MJ	7.61E+1	6.13E-2	2.41E-4	7.61E+1
PENRE	MJ	7.28E+0	2.84E+0	1.09E-1	1.02E+1
PENRM	MJ	0.00	0.00	0.00	0.00
PENRT	MJ	7.28E+0	2.84E+0	1.09E-1	1.02E+1
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	0.00
FW	m3	9.93E-2	4.76E-4	1.04E-6	9.98E-2

PERE = Use of renewable energy excluding renewable primary energy resources
PERM = Use of renewable energy resources used as raw material
PERT = Total use of renewable primary energy resources
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
PENRT = Total use of non-renewable primary energy resources
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 AND WASTE CATEGORIES per functional unit or declared unit

	UNIT	A1	A2	A3	A1-A3
HWD	kg	3.26E-5	1.91E-5	1.77E-7	5.19E-5
NHWD	kg	1.14E-1	3.22E-2	3.28E-5	1.46E-1
RWD	kg	2.38E-5	1.70E-5	6.01E-8	4.09E-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 1005 are geographically representative, meaning that the production location of Anova 1005 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, are quantified and qualified 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