Environmental Product Declaration

In accordance with ISO 14025 for:

Mineral Fertilisers

from

TIMAC AGRO Italia S.p.A.

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P-01960
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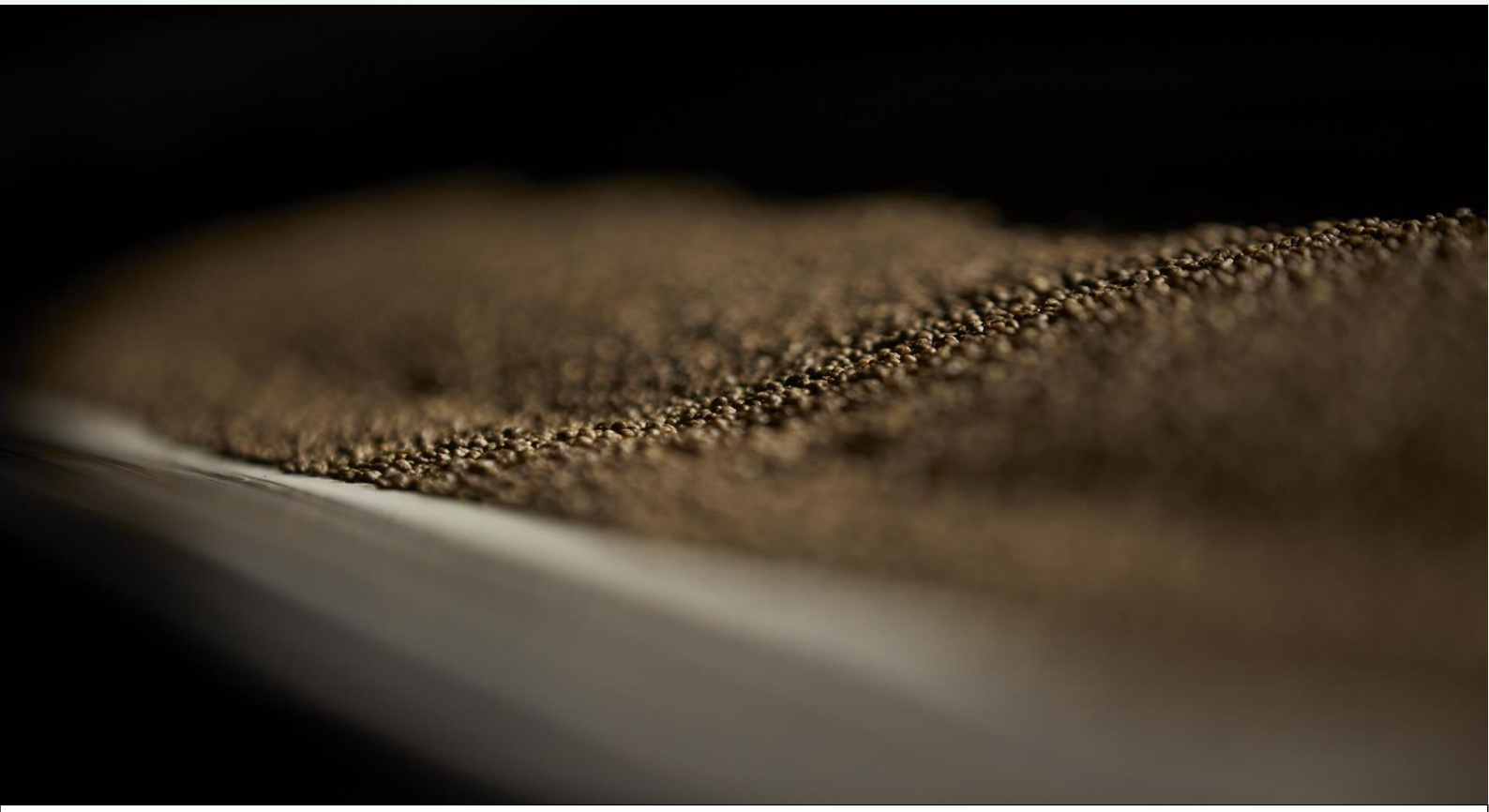

An EPD should provide current information, and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com.

Programme information

Programme:	The International EPD® System EPD International AB Box 210 60 SE-100 31 Stockholm Sweden www.environdec.com info@environdec.com

Product category rules (PCR): *Mineral or Chemical Fertilisers, n.2010:20 version 2.21, CPC code 3461, 3462, 3463, 3464 e 3465*
PCR review was conducted by: *Technical Committee of the International EPD® System*
Independent third-party verification of the declaration and data, according to ISO 14025:2006: ☐ EPD process certification ☒ EPD verification
Third party verifier: *CERTIQUALITY srl, Via G.Gardino n.4, Milano* *In case of accredited certification bodies:* Accredited by: ACCREDIA, n°003H rev.15
Procedure for follow-up of data during EPD validity involves third party verifier: ☐ Yes ☒ No

The EPD owner has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programmes may not be comparable.

Company Information

Owner of the EPD: TIMAC AGRO Italia, Via Visconti di Modrone, 18, I-20122 – Milano

Description of the organisation: The Roullier Group offers a wide range of products and operates in four business sectors: agro-supplies, agro-chemistry, agro-food and marine technologies.
TIMAC AGRO Italia is mainly involved in the first sector, as it offers end users a complete range of special fertilisers and traditional fertilisers able to satisfy the numerous requests, even of the most demanding farmers.
The Ripalta Arpina plant, in the province of Cremona, is destined for the production of granular mineral fertilisers, organo-minerals, simple superphosphate (SSP) and the new phosphorus-based raw material TOP-PHOS®.

Name and location of production site: SP13, 26010 Località Ca' Nova, Ripalta Arpina (CR)

Product Information

Product name: Mineral fertilisers

Product description: The process involves the production of granular fertilisers based on phosphorus, nitrogen and potassium. The plant works in a continuous cycle.

UN CPC code: 346 - Fertilisers and pesticides

Geographical scope: Europe

LCA Information

Functional unit / declared unit: The declared unit is 1 ton of fertiliser, packaging included.

Time representativeness: Specific data were collected on the plant involved in the process and these refer to the year 2018.

Database(s) and LCA software used: Ecoinvent v.3.3 on SimaPro v.9

System diagram: The life cycle phases included in the system boundaries and the flow diagram are shown in the following figure (**Figure 1**).

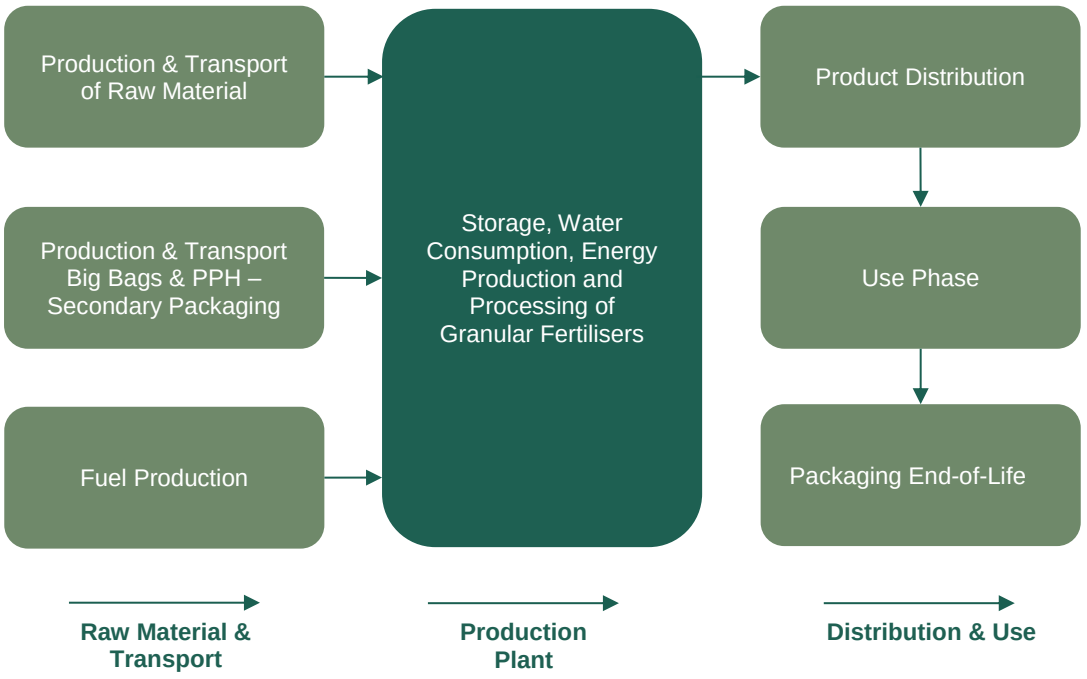

Figure 1: System diagram

Description of system boundaries:
According to the PCR of reference, the system boundaries are divided into the following three phases of the life cycle:

- Upstream processes (from cradle-to-gate);
- Core processes, manufacturing processes (from gate-to-gate);
- Downstream processes (from gate-to-grave).

Therefore, the system boundaries are shown in the following figure (**Figure 2**).

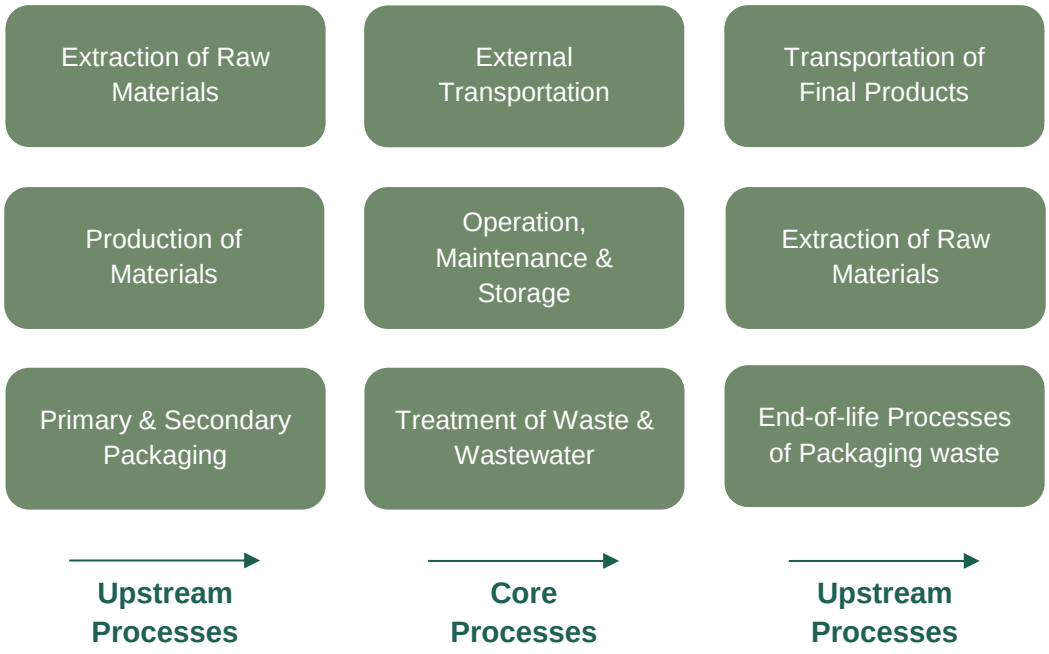

Figure 2: System Boundaries

More information: http://www.timacagro.it/

COMPANY CONTACTS	
Dir. Simona Togni	e-mail: simona.togni@roullier.com
Dr Daniel El Chami	e-mail: daniel.elchami@roullier.com
CONTACTS FOR THE LCA STUDY	
Prof Eng Adriana Del Borghi	e-mail: delborghi@tetisinstitute.it
Prof Dr Michela Gallo	e-mail: gallo@tetisinstitute.it
TETIS Institute s.r.l.	www.tetisinstitute.it

Content declaration

The products analysed are granular mineral fertilisers produced by TIMAC AGRO Italia in the year 2018. The data collected and the certified products refer just to the Ripalta Arpina production plant, whereas the fertilisers produced in the Barletta plant remain excluded from the certification.
With reference to the specific formulation, for all the products listed in the table, the parameters that describe the quality of the organic components used are declared:

- Formulation matrix NPK (%);
- Total Organic Carbon standard TOC (%).

Instead, parameters for Humus acid standard (C HA+FA) and Humus rate (HR) cannot be applied to the products.

Table 1. Company formulations

Product	NPK (%)	Meso Elements	Micro Elements	TOC (%)	Membrane
EXTREME	10-5-22	MgO, SO_3	–	–	D-Coder, MPPA Duo
PAK	0-10-22	CaO, MgO, SO_3	B	–	D-Coder, MPPA Duo
FOSFONATURE	0-26-0	–	–	–	Pheoflore
LITHOZINC	6-12-16	CaO, SO_3	Zn	–	D-Coder, MPPA Duo
MAGNIFIQUE	14-7-12	CaO, SO_3	Zn	–	D-Coder, MPPA Duo
F1	14-20-0	CaO, SO_3	Zn	–	D-Coder, MPPA Duo
ORGANOSPRINT	12-15-5	CaO, SO_3	Zn	7.5	MPPA Duo

In accordance with EC Regulation 1272/2008:

- Fosfonature does not contain dangerous substances;
- Extreme, Pak, Lithozinc, Magnifique, F1 e Organosprint contain *Single Superphosphate* which could cause serious eye damage.

Information about packaging

TIMAC AGRO Italia products are sold in 25 kg or 40 kg PPH bags made of low density polyethylene or in 600 kg polypropylene Big Bags. For PPH bags, a polyethylene film is used to cover the packages stacked on a pallet.

Agronomic Efficiency Index

The Agronomic Efficiency Index (A.E.I.) expresses the increase of the production of useful dry substance for each given Fertilizing Unit (F.U.). The (A.E.I.) allows, in particular, to evaluate the production/economic aspects of the efficiency of ground/plant systems wherein the yield of the cultivation is the consequence of the different use of technical means or of cultivation techniques. AEI results for Nitrogen and Phosphorous are reported in **Tables 2** and **3**.

Table 2. Agronomic Efficiency Index (Nitrogen)

Product	F.U.	Soil	Crop	Uptake	Yield	A.E.I. [%]
	Kg N/ha			Kg N	Kg/ha	
Witness 1	0	Clayey-silty	Fennel	3.6	22,900.0	
Sulfammo	68			26.3	44,800.0	832.2
Sulfammo	138			34.6	50,700.0	803.2
Witness 2	0	Clayey-silty	Lettuce	40.5	23,300.0	
Sulfammo	50			88.0	34,170.0	123.5
Sulfammo	100			80.8	39,840.0	204.8

Table 3. Agronomic Efficiency Index (Phosphorous)

Product	F.U.	Soil	Crop	Uptake	Yield	A.E.I. [%]
	Kg P_2O_5/ha			Kg P_2O_5	Kg/ha	
Witness 1	0	Acid	Wheat	34.7	8032	
TopPhos	20			35.2	9016	27.9
TopPhos	40			38.1	9560	40.1
TopPhos	80			37.7	9678	43.7
Witness 2	0	Alkaline	Wheat	14.5	6252	
TopPhos	20			16.1	7156	56.0
TopPhos	40			19.1	8768	131.7
TopPhos	80			22.7	9898	160.7
Witness 3	0	Alkaline	Rapeseed	56.8	4360	
TopPhos	20			60.4	4580	3.6
TopPhos	40			59.3	4550	3.2
TopPhos	80			60.5	4570	3.5

Uptake Index

For the use phase, the Nitrogen quantity that is released in the environment has to be calculated considering the average value of UI (Uptake Index).
It is supposed that the Phosphorus and Potassium fraction, released in the environment, remain immobilized in the soil. Therefore they will not be considered as to be release in water or in air.
In accordance with the PCR, for the Nitrogen it is necessary to keep into consideration the following nitrogen cycle: in case of manuring with 100 nitrogen units the 68% of the nitrogen is immobilized in the ground, the 27% is absorbed by the plant and the 5% is dispelled in the environment. The only unstable value is the 27% that has to be replaced with the assimilation range (UI) indicated in the product description. The ratio between immobilized and dispelled nitrogen is kept equal to 68:5, thus evaluating the nitrogen dispelled in the environment.
According to the specific molecular weights, the dispelled nitrogen is equally divided into air under form of NH_3, NO, N_2O and into water under form of N_{org}, NH_4^+, NO_3^-.
The overall Nitrogen dispelled in the environment is reported in **Tables 4** and **5**.

Table 4. Uptake Index (Nitrogen)

Product	F.U.	Soil	Crop	Uptake	UI [%]
	Kg N/ha			Kg N	
Witness 1	0			3.6	
Sulfammo	68	Clayey-silty	Fennel	26.3	33.4
Sulfammo	138			34.6	22.5
Witness 2	0			40.5	
Sulfammo	50	Clayey-silty	Lettuce	88.0	95.0
Sulfammo	100			80.8	40.3

Table 5. Uptake Index (Phosphorous)

Product	F.U.	Soil	Crop	Uptake	UI [%]
	Kg P_2O_5/ha			Kg P_2O_5	
Witness 1	0			34.7	
TopPhos	40	Acid	Wheat	38.1	8.4
TopPhos	80			37.7	3.6
Witness 2	0			14.5	
TopPhos	40	Alkaline	Wheat	19.1	11.6
TopPhos	80			22.7	10.3
Witness 3	0			56.8	
TopPhos	20	Alkaline	Rapeseed	60.4	18.5
TopPhos	80			60.5	5.1

Life Cycle Impact Assessment (LCIA)

After carrying out the Inventory Analysis, it is necessary to attribute the consumption and emissions obtained in this phase to specific impact categories, referable to known environmental effects (classification), and to quantify, with appropriate characterization methods, the entity of the overall contribution that the process gives to the effects considered. The impact categories are consistent with the reference PCR.

In the following tables (**Tables 6 → 26**) the potential environmental impacts referred to the declared unit (1 ton of fertiliser) are reported.

FOSFONATURE

Table 6. Environmental impacts – FOSFONATURE

Impact category		Unit	Upstream	Core	Downstream	Total
Climate change	GWP (100a) – Fossil	kg CO_2 eq	376,91	67,72	35,42	480,05
	GWP (100a) – Biogenic	kg CO_2 eq	0,12	0,03	0,01	0,16
	GWP (100a) – Land use	kg CO_2 eq	5,27	0,00	0,01	5,28
	GWP (100a) – Total	kg CO_2 eq	382,31	67,75	35,44	485,49
Acidification (AP)		kg SO_2 eq	2,53	0,06	0,15	2,73
Eutrophication (EP)		kg PO_4^{3-} eq	0,62	0,01	0,03	0,66
Photochemical oxidant formation (POFP)		kg NMVOC eq	1,73	0,07	0,17	1,97
Abiotic depletion, elements		kg Sb eq	0,00	0,00	0,00	0,00
Abiotic depletion, fossil fuels		MJ	5.740,98	69,90	486,50	6.297,38
Water scarcity (WSF)		m^3 H_2O eq	159,05	9,95	2,25	171,26

Table 7. Use of resources – FOSFONATURE

Use of resources		Unit	Upstream	Core	Downstream	Total
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	272,23	17,82	7,40	297,44
	Used as raw materials	MJ, net calorific value	106,12	2,70	1,97	110,78
	TOTAL	MJ, net calorific value	378,34	20,51	9,37	408,22
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	6.149,24	83,37	527,55	6.760,16
	Used as raw materials	MJ, net calorific value	195,17	0,03	1,41	196,61
	TOTAL	MJ, net calorific value	6.344,40	83,40	528,96	6.956,76
Secondary material		kg	-	-	-	-
Renewable secondary fuels		MJ, net calorific value	-	-	-	-
Non-renewable secondary fuels		MJ, net calorific value	-	-	-	-
Net use of fresh water		m^3	2,79	0,22	0,10	3,12

Table 8. Waste production – FOSFONATURE

Parameter	Unit	Upstream	Core	Downstream	Total
Hazardous waste	kg	0,006	0,000	0,000	0,006
Non-hazardous waste	kg	209,87	0,68	24,16	234,70
Radioactive waste	kg	0,014	0,000	0,003	0,017

PAK

Table 9. Environmental impacts – PAK

Impact category		Unit	Upstream	Core	Downstream	Total
Climate change	GWP (100a) – Fossil	kg CO_2 eq	343,65	74,98	35,42	454,05
	GWP (100a) – Biogenic	kg CO_2 eq	0,07	0,03	0,01	0,11
	GWP (100a) – Land use	kg CO_2 eq	2,21	0,00	0,01	2,22
	GWP (100a) – Total	kg CO_2 eq	345,93	75,01	35,44	456,38
Acidification (AP)		kg SO_2 eq	1,80	0,06	0,15	2,00
Eutrophication (EP)		kg PO_4^{3-} eq	0,36	0,01	0,03	0,40
Photochemical oxidant formation (POFP)		kg NMVOC eq	1,47	0,08	0,17	1,72
Abiotic depletion, elements		kg Sb eq	0,00	0,00	0,00	0,00
Abiotic depletion, fossil fuels		MJ	6.655,20	94,91	486,50	7.236,61
Water scarcity (WSF)		m^3 H_2O eq	72,47	14,73	2,25	89,45

Table 10. Use of resources – PAK

Use of resources		Unit	Upstream	Core	Downstream	Total
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	200,68	24,65	7,40	232,73
	Used as raw materials	MJ, net calorific value	72,87	3,72	1,97	78,56
	TOTAL	MJ, net calorific value	273,54	28,38	9,37	311,29
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	7.070,69	113,39	527,55	7.711,64
	Used as raw materials	MJ, net calorific value	192,67	0,03	1,41	194,11
	TOTAL	MJ, net calorific value	7.263,36	113,42	528,96	7.905,74
Secondary material		kg	–	–	–	–
Renewable secondary fuels		MJ, net calorific value	–	–	–	–
Non-renewable secondary fuels		MJ, net calorific value	–	–	–	–
Net use of fresh water		m^3	1,36	0,33	0,10	1,79

Table 11. Waste production – PAK

Parameter	Unit	Upstream	Core	Downstream	Total
Hazardous waste	kg	0,006	0,000	0,000	0,006
Non-hazardous waste	kg	21,11	0,76	24,16	46,02
Radioactive waste	kg	0,008	0,000	0,003	0,011

LITHOZINC

Table 12. Environmental impacts – LITHOZINC

Impact category		Unit	Upstream	Core	Downstream	Total
Climate change	GWP (100a) – Fossil	kg CO_2 eq	432,67	73,81	360,81	867,29
	GWP (100a) – Biogenic	kg CO_2 eq	0,06	0,03	0,01	0,10
	GWP (100a) – Land use	kg CO_2 eq	1,85	0,00	0,01	1,86
	GWP (100a) – Total	kg CO_2 eq	434,59	73,84	360,83	869,26
Acidification (AP)		kg SO_2 eq	1,92	0,06	1,93	3,91
Eutrophication (EP)		kg PO_4^{3-} eq	0,43	0,01	1,04	1,49
Photochemical oxidant formation (POFP)		kg NMVOC eq	1,62	0,08	0,17	1,87
Abiotic depletion, elements		kg Sb eq	0,00	0,00	0,00	0,00
Abiotic depletion, fossil fuels		MJ	10.229,75	90,90	486,50	10.807,15
Water scarcity (WSF)		m^3 H_2O eq	66,85	13,96	2,25	83,06

Table 13. Use of resources – LITHOZINC

Use of resources		Unit	Upstream	Core	Downstream	Total
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	189,45	23,56	7,40	220,40
	Used as raw materials	MJ, net calorific value	67,18	3,56	1,97	72,70
	TOTAL	MJ, net calorific value	256,62	27,12	9,37	293,10
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	10.627,20	108,57	527,55	11.263,32
	Used as raw materials	MJ, net calorific value	192,56	0,03	1,41	194,00
	TOTAL	MJ, net calorific value	10.819,76	108,61	528,96	11.457,32
Secondary material		kg	–	–	–	–
Renewable secondary fuels		MJ, net calorific value	–	–	–	–
Non-renewable secondary fuels		MJ, net calorific value	–	–	–	–
Net use of fresh water		m^3	1,27	0,31	0,10	1,69

Table 14. Waste production – LITHOZINC

Parameter	Unit	Upstream	Core	Downstream	Total
Hazardous waste	kg	0,006	0,000	0,000	0,006
Non-hazardous waste	kg	18,69	0,74	24,16	43,59
Radioactive waste	kg	0,007	0,000	0,003	0,010

EXTREME NPK

Table 15. Environmental impacts – EXTREME NPK

Impact category		Unit	Upstream	Core	Downstream	Total
Climate change	GWP (100a) – Fossil	kg CO_2 eq	563,03	69,04	577,23	1.209,30
	GWP (100a) – Biogenic	kg CO_2 eq	0,30	0,03	0,01	0,34
	GWP (100a) – Land use	kg CO_2 eq	0,48	0,00	0,01	0,50
	GWP (100a) – Total	kg CO_2 eq	563,81	69,08	577,25	1.210,14
Acidification (AP)		kg SO_2 eq	1,91	0,06	3,11	5,08
Eutrophication (EP)		kg PO_4^{3-} eq	0,42	0,01	1,71	2,14
Photochemical oxidant formation (POFP)		kg NMVOC eq	1,62	0,07	0,17	1,86
Abiotic depletion, elements		kg Sb eq	0,00	0,00	0,00	0,00
Abiotic depletion, fossil fuels		MJ	11.995,20	74,47	486,50	12.556,17
Water scarcity (WSF)		m^3 H_2O eq	70,50	10,83	2,25	83,58

Table 16. Use of resources – EXTREME NPK

Use of resources		Unit	Upstream	Core	Downstream	Total
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	251,42	19,07	7,40	277,88
	Used as raw materials	MJ, net calorific value	83,02	2,88	1,97	87,87
	TOTAL	MJ, net calorific value	334,44	21,95	9,37	365,76
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	12.617,77	88,85	527,55	13.234,17
	Used as raw materials	MJ, net calorific value	192,62	0,03	1,41	194,06
	TOTAL	MJ, net calorific value	12.810,39	88,88	528,96	13.428,23
Secondary material		kg	–	–	–	–
Renewable secondary fuels		MJ, net calorific value	–	–	–	–
Non-renewable secondary fuels		MJ, net calorific value	–	–	–	–
Net use of fresh water		m^3	2,00	0,24	0,10	2,34

Table 17. Waste production – EXTREME NPK

Parameter	Unit	Upstream	Core	Downstream	Total
Hazardous waste	kg	0,005	0,000	0,000	0,006
Non-hazardous waste	kg	13,64	0,69	24,16	38,49
Radioactive waste	kg	0,009	0,000	0,003	0,012

ORGANOSPRINT

Table 18. Environmental impacts – ORGANOSPRINT

Impact category		Unit	Upstream	Core	Downstream	Total
Climate change	GWP (100a) – Fossil	kg CO_2 eq	653,84	70,65	684,69	1.409,18
	GWP (100a) – Biogenic	kg CO_2 eq	0,46	0,03	0,01	0,49
	GWP (100a) – Land use	kg CO_2 eq	1,00	0,00	0,01	1,01
	GWP (100a) – Total	kg CO_2 eq	655,29	70,68	684,70	1.410,68
Acidification (AP)		kg SO_2 eq	2,35	0,06	3,70	6,12
Eutrophication (EP)		kg PO_4^{3-} eq	0,70	0,01	2,04	2,75
Photochemical oxidant formation (POFP)		kg NMVOC eq	1,87	0,07	0,17	2,11
Abiotic depletion, elements		kg Sb eq	0,00	0,00	0,00	0,00
Abiotic depletion, fossil fuels		MJ	14.103,47	80,00	486,50	14.669,97
Water scarcity (WSF)		m^3 H_2O eq	117,79	11,88	2,25	131,93

Table 19. Use of resources – ORGANOSPRINT

Use of resources		Unit	Upstream	Core	Downstream	Total
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	305,35	20,58	7,40	333,32
	Used as raw materials	MJ, net calorific value	98,55	3,11	1,97	103,63
	TOTAL	MJ, net calorific value	403,90	23,69	9,37	436,95
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	14.824,36	95,49	527,55	15.447,40
	Used as raw materials	MJ, net calorific value	193,21	0,03	1,41	194,64
	TOTAL	MJ, net calorific value	15.017,56	95,52	528,96	15.642,04
Secondary material		kg	–	–	–	–
Renewable secondary fuels		MJ, net calorific value	–	–	–	–
Non-renewable secondary fuels		MJ, net calorific value	–	–	–	–
Net use of fresh water		m^3	3,30	0,27	0,10	3,67

Table 20. Waste production – ORGANOSPRINT

Parameter	Unit	Upstream	Core	Downstream	Total
Hazardous waste	kg	0,007	0,000	0,000	0,008
Non-hazardous waste	kg	22,59	0,71	24,16	47,46
Radioactive waste	kg	0,012	0,000	0,003	0,015

MAGNIFIQUE

Table 21. Environmental impacts – MAGNIFIQUE

Impact category		Unit	Upstream	Core	Downstream	Total
Climate change	GWP (100a) – Fossil	kg CO_2 eq	575,01	70,83	793,66	1.439,50
	GWP (100a) – Biogenic	kg CO_2 eq	0,44	0,03	0,01	0,48
	GWP (100a) – Land use	kg CO_2 eq	1,04	0,00	0,01	1,05
	GWP (100a) – Total	kg CO_2 eq	576,49	70,87	793,67	1.441,03
Acidification (AP)		kg SO_2 eq	2,04	0,06	4,30	6,40
Eutrophication (EP)		kg PO_4^{3-} eq	0,46	0,01	2,38	2,86
Photochemical oxidant formation (POFP)		kg NMVOC eq	1,61	0,07	0,17	1,86
Abiotic depletion, elements		kg Sb eq	0,00	0,00	0,00	0,00
Abiotic depletion, fossil fuels		MJ	13.864,53	80,63	486,50	14.431,66
Water scarcity (WSF)		m^3 H_2O eq	89,48	12,00	2,25	103,73

Table 22. Use of resources – MAGNIFIQUE

Use of resources		Unit	Upstream	Core	Downstream	Total
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	284,39	20,75	7,40	312,54
	Used as raw materials	MJ, net calorific value	96,58	3,14	1,97	101,68
	TOTAL	MJ, net calorific value	380,97	23,89	9,37	414,22
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	14.522,79	96,25	527,55	15.146,59
	Used as raw materials	MJ, net calorific value	193,12	0,03	1,41	194,56
	TOTAL	MJ, net calorific value	14.715,91	96,28	528,96	15.341,15
Secondary material		kg	–	–	–	–
Renewable secondary fuels		MJ, net calorific value	–	–	–	–
Non-renewable secondary fuels		MJ, net calorific value	–	–	–	–
Net use of fresh water		m^3	2,39	0,27	0,10	2,76

Table 23. Waste production – MAGNIFIQUE

Parameter	Unit	Upstream	Core	Downstream	Total
Hazardous waste	kg	0,006	0,000	0,000	0,007
Non-hazardous waste	kg	20,43	0,71	24,16	45,30
Radioactive waste	kg	0,011	0,000	0,003	0,015

F1

Table 24. Environmental impacts – F1

Impact category		Unit	Upstream	Core	Downstream	Total
Climate change	GWP (100a) – Fossil	kg CO_2 eq	615,73	73,14	793,66	1.482,52
	GWP (100a) – Biogenic	kg CO_2 eq	0,06	0,03	0,01	0,10
	GWP (100a) – Land use	kg CO_2 eq	1,65	0,00	0,01	1,66
	GWP (100a) – Total	kg CO_2 eq	617,44	73,17	793,67	1.484,28
Acidification (AP)		kg SO_2 eq	2,32	0,06	4,30	6,68
Eutrophication (EP)		kg PO_4^{3-} eq	0,67	0,01	2,38	3,07
Photochemical oxidant formation (POFP)		kg NMVOC eq	1,99	0,08	0,17	2,24
Abiotic depletion, elements		kg Sb eq	0,00	0,00	0,00	0,00
Abiotic depletion, fossil fuels		MJ	15.719,40	88,57	486,50	16.294,47
Water scarcity (WSF)		m^3 H_2O eq	67,83	13,52	2,25	83,60

Table 25. Use of resources – F1

Use of resources		Unit	Upstream	Core	Downstream	Total
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	192,22	22,92	7,40	222,54
	Used as raw materials	MJ, net calorific value	65,14	3,46	1,97	70,57
	TOTAL	MJ, net calorific value	257,36	26,38	9,37	293,11
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	16.119,18	105,78	527,55	16.752,51
	Used as raw materials	MJ, net calorific value	192,47	0,03	1,41	193,91
	TOTAL	MJ, net calorific value	16.311,65	105,81	528,96	16.946,43
Secondary material		kg	–	–	–	–
Renewable secondary fuels		MJ, net calorific value	–	–	–	–
Non-renewable secondary fuels		MJ, net calorific value	–	–	–	–
Net use of fresh water		m^3	1,33	0,30	0,10	1,74

Table 26. Waste production – F1

Parameter	Unit	Upstream	Core	Downstream	Total
Hazardous waste	kg	0,006	0,000	0,000	0,006
Non-hazardous waste	kg	17,96	0,74	24,16	42,86
Radioactive waste	kg	0,006	0,000	0,003	0,010

The output flows are the same for each of the certified products and are shown in the following table (**Table 27**).

Table 27. Output flows

Parameter	Unit	Upstream	Core	Downstream	Total
Components for reuse	kg	-	-	-	-
Material for recycling	kg	-	-	-	-
Materials for energy recovery	kg	-	-	-	-
Exported energy, electricity	MJ	-	4,81	-	4,81
Exported energy, thermal	MJ	-	-	-	-

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