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This appendix refers to the EPD MD-25011-EN. Results in the appendix communicates LCA results in the format described in EN15804+A1:2013, in order to accommodate a need in the transition period between the two standard revisions. The appendix cannot stand alone, as the reference EPD describes the basis of the assessment.

RT491

ENVIRONMENTAL IMPACTS PER TONNES RT491										
Parameter	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
GWP	[kg CO <sub>2</sub> eq.]	8,06E+01	5,29E+00	8,17E+00	0,00E+00	0,00E+00	7,60E+00	3,47E+00	5,64E-02	-5,36E+00
OPD	[kg CFC 11 eq.]	1,39E-06	8,80E-08	1,26E-08	0,00E+00	0,00E+00	1,20E-07	4,22E-08	1,68E-09	-6,77E-08
AP	[kg SO <sub>2</sub> eq.]	4,10E-01	1,08E-02	2,89E-03	0,00E+00	0,00E+00	2,12E-02	2,92E-02	3,26E-04	-3,28E-02
EP	[kg SO <sub>4</sub> <sup>3-</sup> eq.]	6,59E-02	2,68E-03	6,75E-04	0,00E+00	0,00E+00	4,82E-03	5,24E-03	5,98E-05	-9,82E-03
POCP	[kg ethene-eq.]	1,33E-02	7,82E-04	1,23E-04	0,00E+00	0,00E+00	1,16E-03	6,12E-04	1,45E-05	-2,27E-03
ADPE	[kg Sb-eq.]	3,11E-04	1,48E-05	1,69E-06	0,00E+00	0,00E+00	2,43E-05	1,22E-06	7,12E-08	-5,67E-05
ADPF	[MJ]	5,36E+02	7,79E+01	1,07E+01	0,00E+00	0,00E+00	1,04E+02	4,54E+01	1,40E+00	-5,67E+01
Caption	GWP = Global warming potential; OPD = Ozone depletion potential; AP = Acidification potential of soil and water; EP = Eutrophication potential; POCP = Photochemical ozone creation potential; ADPE = Abiotic depletion potential for non fossil resources; ADPF = Abiotic depletion potential for fossil resources									
	The numbers are declared in scientific notation, e.g. 1,95E+02. This number can also be written as: 1,95*10 <sup>2</sup> or 195, while 1,12E-11 is the same as 1,12*10 <sup>-11</sup> or 0,0000000000112.									

RESOURCE USE PER TONNES RT491										
Parameter	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
PERE	[MJ]	3,06E+02	1,26E+00	2,94E-01	0,00E+00	0,00E+00	1,81E+00	2,79E-01	2,91E-02	-4,44E+01
PERM	[MJ]	4,59E+01	0,00E+00	-4,59E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	[MJ]	3,52E+02	1,26E+00	-4,56E+01	0,00E+00	0,00E+00	1,81E+00	2,79E-01	2,91E-02	-4,44E+01
PENRE	[MJ]	6,16E+02	7,95E+01	1,10E+01	0,00E+00	0,00E+00	1,07E+02	4,57E+01	1,42E+00	-6,49E+01
PENRM	[MJ]	2,88E+01	0,00E+00	-2,88E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	[MJ]	6,45E+02	7,95E+01	-1,77E+01	0,00E+00	0,00E+00	1,07E+02	4,57E+01	1,42E+00	-6,49E+01
SM	[kg]	4,62E+02	3,44E-02	4,88E-03	0,00E+00	0,00E+00	4,88E-02	1,90E-02	3,38E-04	-1,31E-01
RSF	[MJ]	2,35E+02	4,33E-04	6,68E-05	0,00E+00	0,00E+00	6,16E-04	4,96E-05	8,47E-06	-9,28E-04
NRSF	[MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	[m <sup>3</sup> ]	6,70E-01	1,19E-02	7,83E-03	0,00E+00	0,00E+00	1,46E-02	3,27E-03	1,62E-03	-3,85E-01
Caption	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non renewable primary energy excluding non renewable primary 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 material; RSF = Use of renewable secondary fuels; NRSF = Use of non renewable secondary fuels; FW = Net use of fresh water									
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10 <sup>2</sup> or 195, while 1,12E-11 is the same as 1,12*10 <sup>-11</sup> or 0,0000000000112.									

WASTE CATEGORIES AND OUTPUT FLOWS PER TONNES RT491										
Parameter	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
HWD	[kg]	1,79E+00	1,16E-01	4,44E-02	0,00E+00	0,00E+00	1,53E-01	5,10E-02	1,08E-03	-5,14E-01
NHWD	[kg]	1,05E+02	2,32E+00	3,34E+01	0,00E+00	0,00E+00	3,24E+00	9,61E+02	9,73E+00	-1,05E+01
RWD	[kg]	1,59E-03	2,39E-05	5,64E-06	0,00E+00	0,00E+00	3,40E-05	5,01E-06	2,86E-07	-1,28E-04

CRU	[kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MFR	[kg]	2,00E+01	6,03E-04	1,09E+00	0,00E+00	0,00E+00	8,00E-04	9,60E+02	5,37E-06	-6,80E-03
MER	[kg]	1,58E-01	3,48E-06	2,95E+00	0,00E+00	0,00E+00	6,75E-06	6,26E-07	2,12E-08	-8,38E-06
EE	[MJ]	1,02E+00	1,19E-02	1,26E+01	0,00E+00	0,00E+00	1,81E-02	2,06E-03	1,59E-04	-2,66E-01
Caption	HWD = Hazardous waste disposed; NHWD = Non hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy									
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RT490

ENVIRONMENTAL IMPACTS PER TONNES RT490										
Parameter	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
GWP	[kg CO <sub>2</sub> eq.]	5,83E+01	5,29E+00	8,20E+00	0,00E+00	0,00E+00	7,60E+00	3,47E+00	5,64E-02	-5,37E+00
OPD	[kg CFC 11 eq.]	1,13E-06	8,80E-08	1,26E-08	0,00E+00	0,00E+00	1,20E-07	4,22E-08	1,68E-09	-6,77E-08
AP	[kg SO <sub>2</sub> eq.]	3,44E-01	1,08E-02	2,89E-03	0,00E+00	0,00E+00	2,12E-02	2,92E-02	3,26E-04	-3,28E-02
EP	[kg SO <sub>4</sub> <sup>3-</sup> eq.]	3,41E-02	2,69E-03	6,76E-04	0,00E+00	0,00E+00	4,82E-03	5,24E-03	5,98E-05	-9,83E-03
POCP	[kg ethene-eq.]	1,03E-02	7,83E-04	1,23E-04	0,00E+00	0,00E+00	1,16E-03	6,12E-04	1,45E-05	-2,27E-03
ADPE	[kg Sb-eq.]	1,55E-04	1,48E-05	1,69E-06	0,00E+00	0,00E+00	2,43E-05	1,22E-06	7,12E-08	-5,67E-05
ADPF	[MJ]	3,41E+02	7,79E+01	1,07E+01	0,00E+00	0,00E+00	1,04E+02	4,54E+01	1,40E+00	-5,67E+01
Caption	GWP = Global warming potential; OPD = Ozone depletion potential; AP = Acidification potential of soil and water; EP = Eutrophication potential; POCP = Photochemical ozone creation potential; ADPE = Abiotic depletion potential for non fossil resources; ADPF = Abiotic depletion potential for fossil resources									
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RESOURCE USE PER TONNES RT490										
Parameter	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
PERE	[MJ]	2,57E+02	1,26E+00	2,95E-01	0,00E+00	0,00E+00	1,81E+00	2,79E-01	2,91E-02	-4,45E+01
PERM	[MJ]	4,62E+01	0,00E+00	-4,62E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	[MJ]	3,03E+02	1,26E+00	-4,59E+01	0,00E+00	0,00E+00	1,81E+00	2,79E-01	2,91E-02	-4,45E+01
PENRE	[MJ]	3,25E+02	7,95E+01	1,11E+01	0,00E+00	0,00E+00	1,07E+02	4,57E+01	1,42E+00	-6,49E+01
PENRM	[MJ]	2,88E+01	0,00E+00	-2,88E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	[MJ]	3,53E+02	7,95E+01	-1,77E+01	0,00E+00	0,00E+00	1,07E+02	4,57E+01	1,42E+00	-6,49E+01
SM	[kg]	4,66E+02	3,44E-02	4,88E-03	0,00E+00	0,00E+00	4,88E-02	1,90E-02	3,38E-04	-1,31E-01
RSF	[MJ]	2,37E+02	4,33E-04	6,69E-05	0,00E+00	0,00E+00	6,16E-04	4,96E-05	8,47E-06	-9,28E-04
NRSF	[MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	[m <sup>3</sup> ]	1,23E-01	1,19E-02	7,83E-03	0,00E+00	0,00E+00	1,46E-02	3,27E-03	1,62E-03	-3,85E-01
Caption	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non renewable primary energy excluding non renewable primary 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 material; RSF = Use of renewable secondary fuels; NRSF = Use of non renewable secondary fuels; FW = Net use of fresh water									
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WASTE CATEGORIES AND OUTPUT FLOWS PER TONNES RT490										
Parameter	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
HWD	[kg]	9,92E-01	1,16E-01	4,44E-02	0,00E+00	0,00E+00	1,53E-01	5,10E-02	1,08E-03	-5,14E-01
NHWD	[kg]	5,02E+01	2,32E+00	3,34E+01	0,00E+00	0,00E+00	3,24E+00	9,61E+02	9,73E+00	-1,05E+01
RWD	[kg]	1,80E-04	2,39E-05	5,66E-06	0,00E+00	0,00E+00	3,40E-05	5,01E-06	2,86E-07	-1,28E-04

CRU	[kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MFR	[kg]	2,00E+01	6,04E-04	1,10E+00	0,00E+00	0,00E+00	8,00E-04	9,60E+02	5,37E-06	-6,81E-03
MER	[kg]	1,58E-01	3,48E-06	2,96E+00	0,00E+00	0,00E+00	6,75E-06	6,26E-07	2,12E-08	-8,39E-06
EE	[MJ]	1,28E-01	1,19E-02	1,26E+01	0,00E+00	0,00E+00	1,81E-02	2,06E-03	1,59E-04	-2,66E-01
Caption	HWD = Hazardous waste disposed; NHWD = Non hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy									
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RT489

ENVIRONMENTAL IMPACTS PER TONNES RT489										
Parameter	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
GWP	[kg CO <sub>2</sub> eq.]	5,84E+01	5,29E+00	8,13E+00	0,00E+00	0,00E+00	7,60E+00	3,47E+00	5,64E-02	-5,36E+00
OPD	[kg CFC 11 eq.]	1,11E-06	8,79E-08	1,26E-08	0,00E+00	0,00E+00	1,20E-07	4,22E-08	1,68E-09	-6,76E-08
AP	[kg SO <sub>2</sub> eq.]	3,43E-01	1,08E-02	2,89E-03	0,00E+00	0,00E+00	2,12E-02	2,92E-02	3,26E-04	-3,28E-02
EP	[kg SO <sub>4</sub> <sup>3-</sup> eq.]	3,41E-02	2,68E-03	6,74E-04	0,00E+00	0,00E+00	4,82E-03	5,24E-03	5,98E-05	-9,81E-03
POCP	[kg ethene-eq.]	1,02E-02	7,82E-04	1,23E-04	0,00E+00	0,00E+00	1,16E-03	6,12E-04	1,45E-05	-2,27E-03
ADPE	[kg Sb-eq.]	1,54E-04	1,48E-05	1,69E-06	0,00E+00	0,00E+00	2,43E-05	1,22E-06	7,12E-08	-5,66E-05
ADPF	[MJ]	3,37E+02	7,79E+01	1,07E+01	0,00E+00	0,00E+00	1,04E+02	4,54E+01	1,40E+00	-5,67E+01
Caption	GWP = Global warming potential; OPD = Ozone depletion potential; AP = Acidification potential of soil and water; EP = Eutrophication potential; POCP = Photochemical ozone creation potential; ADPE = Abiotic depletion potential for non fossil resources; ADPF = Abiotic depletion potential for fossil resources									
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RESOURCE USE PER TONNES RT489										
Parameter	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
PERE	[MJ]	2,57E+02	1,26E+00	2,93E-01	0,00E+00	0,00E+00	1,81E+00	2,79E-01	2,91E-02	-4,43E+01
PERM	[MJ]	4,57E+01	0,00E+00	-4,57E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	[MJ]	3,02E+02	1,26E+00	-4,54E+01	0,00E+00	0,00E+00	1,81E+00	2,79E-01	2,91E-02	-4,43E+01
PENRE	[MJ]	3,21E+02	7,95E+01	1,10E+01	0,00E+00	0,00E+00	1,07E+02	4,57E+01	1,42E+00	-6,48E+01
PENRM	[MJ]	2,88E+01	0,00E+00	-2,88E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	[MJ]	3,50E+02	7,95E+01	-1,77E+01	0,00E+00	0,00E+00	1,07E+02	4,57E+01	1,42E+00	-6,48E+01
SM	[kg]	4,58E+02	3,44E-02	4,87E-03	0,00E+00	0,00E+00	4,88E-02	1,90E-02	3,38E-04	-1,31E-01
RSF	[MJ]	2,33E+02	4,33E-04	6,68E-05	0,00E+00	0,00E+00	6,16E-04	4,96E-05	8,47E-06	-9,28E-04
NRSF	[MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	[m <sup>3</sup> ]	1,27E-01	1,19E-02	7,82E-03	0,00E+00	0,00E+00	1,46E-02	3,27E-03	1,62E-03	-3,85E-01
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WASTE CATEGORIES AND OUTPUT FLOWS PER TONNES RT489										
Parameter	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
HWD	[kg]	9,93E-01	1,16E-01	4,43E-02	0,00E+00	0,00E+00	1,53E-01	5,10E-02	1,08E-03	-5,14E-01
NHWD	[kg]	5,05E+01	2,32E+00	3,34E+01	0,00E+00	0,00E+00	3,24E+00	9,61E+02	9,73E+00	-1,05E+01
RWD	[kg]	1,94E-04	2,39E-05	5,61E-06	0,00E+00	0,00E+00	3,40E-05	5,01E-06	2,86E-07	-1,28E-04

CRU	[kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MFR	[kg]	2,00E+01	6,03E-04	1,08E+00	0,00E+00	0,00E+00	8,00E-04	9,60E+02	5,37E-06	-6,79E-03
MER	[kg]	1,58E-01	3,48E-06	2,94E+00	0,00E+00	0,00E+00	6,75E-06	6,26E-07	2,12E-08	-8,38E-06
EE	[MJ]	1,37E-01	1,19E-02	1,26E+01	0,00E+00	0,00E+00	1,81E-02	2,06E-03	1,59E-04	-2,65E-01
Caption	HWD = Hazardous waste disposed; NHWD = Non hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy									
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Checked and approved by



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Mirko Miseljic, LCA Specialists

*Third party verifier of MD-25011-EN*



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