

Environmental Product Declaration (EPD)

Short version

Declaration Code: EPD-RLE-33.0



Rodeca GmbH

Transparent building elements

Translucent building elements



Basis:

DIN EN ISO 14025
EN15804

Company EPD
Environmental
Product Declaration

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22.02.2019

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22.02.2024





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Programme operator	ift Rosenheim GmbH Theodor Gietl Straße 7-9 D-83026 Rosenheim		
Practitioner of the LCA	brands & values GmbH Vagtstr. 48/49 28203 Bremen		
Declaration holder	Rodeca GmbH Freiherr-vom-Stein-Straße 165 45473 Mülheim an der Ruhr		
Declaration code	EPD-RLE-33.0		
Designation of declared product	Translucent building elements		
Scope	Rodeca translucent building elements made of polycarbonate are suitable for use in façades and roofs and can also be used as internal partitions in exhibition stand construction and as room dividers in large offices. They are translucent and thermally insulating and are dimensionally and colour-resistant to hail and solar radiation. The translucent building elements are available in 30 mm, 40 mm, 50 mm and 60 mm thicknesses.		
Basis	This EPD was prepared on the basis of EN ISO 14025:2011 and EN 15804:2012+A1:2013. In addition, the "Allgemeiner Leitfaden zur Erstellung von Typ II Umweltproduktdeklarationen" (Guidance on preparing Type III Environmental Product Declarations) applies. The declaration is based on the PCR documents "PCR Part A" PCR-A-0.1:2018 and "Façades and roofs made of glass and plastic" PCR-FA-3.1:2018.		
Validity	Publication date: 22.02.2019	Last revision: 22.02.2019	Next revision: 22.02.2024
	This verified Company Environmental Product Declaration (company EPD) applies solely to the specified products and is valid for a period of 5 years from the date of publication in accordance with DIN EN 15804.		
LCA basis	The LCA was prepared in accordance with DIN EN ISO 14040 and DIN EN ISO 14044. The base data includes both the data collected at the production site of Rodeca GmbH and the generic data derived from the "GaBi 8" database. LCA calculations were carried out for the included "cradle to gate life cycle with options" (cradle to gate with options) including all upstream processes (e.g. raw material extraction, etc.).		
Notes	The "Conditions and Guidance on the Use of ift Test Documents" apply. The declaration holder assumes full liability for the underlying data, certificates and verifications.		
			
Prof. Ulrich Sieberath Director of Institute	Susanne Volz External Verifier		

Note: Use the extended version of the EPD for further information.

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Results per 1 m ² of Translucent building elements - 30mm (part 1 of 4)										
Environmental impacts	Unit	A1-A3	A4	A5	C2/1	C2/2	C3/1	C3/2	D/1	D/2
Global warming potential	kg CO ₂ -equiv.	14.0	0.028	0.054	0.15	0.028	1.74	9.58	-13.10	-4.41
Depletion potential of stratospheric ozone layer	kg R11-equiv.	6.77E-10	7.62E-16	7.01E-16	4.10E-15	7.43E-16	1.43E-09	1.42E-09	-2.32E-10	-2.33E-10
Acidification potential of soil and water	kg SO ₂ -equiv.	0.023	2.43E-05	4.04E-06	1.18E-04	2.37E-05	4.63E-03	7.56E-04	-0.02	-9.90E-03
Eutrophication potential	kg PO ₄ ³⁻ -equiv.	3.50E-03	5.41E-06	8.43E-07	2.54E-05	5.28E-06	4.34E-04	1.38E-04	-3.06E-03	-8.80E-04
Formation potential of tropospheric ozone	kg C ₂ H ₄ -equiv.	2.08E-03	-7.43E-07	3.80E-07	1.31E-06	-7.25E-07	2.96E-04	7.18E-05	-2.47E-03	-6.96E-04
Depletion of abiotic resources (ADP elements)	kg Sb-equiv.	4.47E-05	3.01E-09	3.74E-10	1.62E-08	2.93E-09	9.64E-07	1.92E-07	-4.25E-05	-2.03E-06
Depletion of abiotic resources (ADP fossil fuels)	MJ	283.0	0.38	6.05E-03	2.04	0.37	18.20	2.60	-270.00	-58.0
Use of resources	Unit	A1-A3	A4	A5	C2/1	C2/2	C3/1	C3/2	D/1	D/2
Renewable primary energy as energy source	MJ	45.50	0.026	0.052	0.14	0.025	10.8	0.26	-30.7	-16.8
Renewable primary energy for material use	MJ	0.05	0.00	-0.05	0.00	0.00	0.00	0.00	0.00	0.00
Total use of renewable primary energy	MJ	45.6	0.026	1.18E-03	0.14	0.025	10.8	0.26	-30.7	-16.8
Non-renewable primary energy as energy source	MJ	214	0.38	0.69	2.04	0.37	31.3	89.7	-285.0	-73.2
Renewable primary energy for material use	MJ	87.4	0.00	-0.68	0.00	0.00	-1.07	-86.7	0.00	0.00
Total use of non-renewable primary energy	MJ	301	0.38	7.27E-03	2.04	0.37	30.3	2.94	-285.0	-73.2
Use of secondary materials	kg	0.62	0.00	0.00	0.00	0.00	0.0E+00	0.00	3.05	0.09
Renewable secondary fuels	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Non-renewable secondary fuels	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Use of fresh water resources	m ³	0.074	2.99E-05	1.21E-04	1.61E-04	2.91E-05	0.015	0.019	-0.054	-0.028
Waste categories and output material flows	Unit	A1-A3	A4	A5	C2/1	C2/2	C3/1	C3/2	D/1	D/2
Disposed hazardous waste	kg	5.31E-07	2.42E-08	5.79E-12	1.30E-07	2.36E-08	1.34E-08	7.09E-10	-2.52E-07	-3.68E-08
Disposed non-hazardous waste	kg	0.37	2.98E-05	1.65E-04	1.60E-04	2.90E-05	0.042	0.031	-0.34	-0.26
Radioactive waste	kg	7.11E-03	5.99E-07	4.85E-07	3.22E-06	5.84E-07	4.79E-03	1.40E-04	-6.23E-03	-6.01E-03
Components for further use	kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Materials for recycling	kg	0.00	0.00	0.00	0.00	0.00	3.61	0.21	0.00	0.00
Materials for energy recovery	kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Exported electrical energy	MJ	0.00	0.00	0.11	0.00	0.00	0.15	15.3	0.00	0.00
Exported thermal energy	MJ	0.00	0.00	0.2	0.00	0.00	0.31	27.4	0.00	0.00

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Results per 1 m ² of Translucent building elements - 40mm (part 2 of 4)										
Environmental impacts	Unit	A1-A3	A4	A5	C2/1	C2/2	C3/1	C3/2	D/1	D/2
Global warming potential	kg CO ₂ -equiv.	17.4	0.035	0.054	0.19	0.035	2.16	12.10	-16.30	-5.35
Depletion potential of stratospheric ozone layer	kg R11-equiv.	6.79E-10	9.45E-16	7.01E-16	5.18E-15	9.26E-16	1.43E-09	1.42E-09	-2.34E-10	-2.35E-10
Acidification potential of soil and water	kg SO ₂ -equiv.	0.027	3.01E-05	4.04E-06	1.49E-04	2.95E-05	5.81E-03	9.06E-04	-0.025	-0.012
Eutrophication potential	kg PO ₄ ³⁻ -equiv.	4.32E-03	6.71E-06	8.43E-07	3.20E-05	6.58E-06	5.44E-04	1.70E-04	-3.81E-03	-1.05E-03
Formation potential of tropospheric ozone	kg C ₂ H ₄ -equiv.	2.56E-03	-9.22E-07	3.80E-07	1.67E-06	-9.04E-07	3.70E-04	8.60E-05	-3.06E-03	-8.20E-04
Depletion of abiotic resources (ADP elements)	kg Sb-equiv.	5.59E-05	3.73E-09	3.74E-10	2.04E-08	3.65E-09	1.18E-06	2.07E-07	-5.35E-05	-2.30E-06
Depletion of abiotic resources (ADP fossil fuels)	MJ	354.0	0.47	6.05E-03	2.57	0.46	22.60	2.87	-339.0	-71.0
Use of resources	Unit	A1-A3	A4	A5	C2/1	C2/2	C3/1	C3/2	D/1	D/2
Renewable primary energy as energy source	MJ	56.30	0.032	0.052	0.18	0.032	13.6	0.32	-37.6	-20.0
Renewable primary energy for material use	MJ	0.05	0.00	-0.05	0.00	0.00	0.00	0.00	0.00	0.00
Total use of renewable primary energy	MJ	56.4	0.032	1.18E-03	0.18	0.032	13.6	0.32	-37.6	-20.0
Non-renewable primary energy as energy source	MJ	266.0	0.47	0.69	2.58	0.46	38.9	113.0	-358.0	-89.6
Renewable primary energy for material use	MJ	110.0	0.00	-0.68	0.00	0.00	-1.07	-109.0	0,000E+00	0.00
Total use of non-renewable primary energy	MJ	376	0.47	7.27E-03	2.58	0.46	37.8	3.28	-358.0	-89.6
Use of secondary materials	kg	0.76	0.00	0.00	0.00	0.00	0,0E+00	0.00	3.83	0.09
Renewable secondary fuels	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Non-renewable secondary fuels	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Use of fresh water resources	m ³	0.09	3.71E-05	1.21E-04	2.03E-04	3.63E-05	0.019	0.024	-0.066	-0.032
Waste categories and output material flows	Unit	A1-A3	A4	A5	C2/1	C2/2	C3/1	C3/2	D/1	D/2
Disposed hazardous waste	kg	6.61E-07	3.00E-08	5.79E-12	1.64E-07	2.94E-08	1.70E-08	8.95E-10	-3.16E-07	-4.35E-08
Disposed non-hazardous waste	kg	0.40	3.69E-05	1.65E-04	2.02E-04	3.62E-05	0.048	0.033	-0.38	-0.26
Radioactive waste	kg	8.67E-03	7.42E-07	4.85E-07	4.07E-06	7.28E-07	6.04E-03	1.63E-04	-7.69E-03	-7.42E-03
Components for further use	kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Materials for recycling	kg	0.00	0.00	0.00	0.00	0.00	4.51	0.21	0.00	0.00
Materials for energy recovery	kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Exported electrical energy	MJ	0.00	0.00	0.11	0.00	0.00	0.15	19.4	0.00	0.00
Exported thermal energy	MJ	0.00	0.00	0.2	0.00	0.00	0.31	34.5	0.00	0.00

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Results per 1 m ² of Translucent building elements - 50mm (part 3 of 4)										
Environmental impacts	Unit	A1-A3	A4	A5	C2/1	C2/2	C3/1	C3/2	D/1	D/2
Global warming potential	kg CO ₂ -equiv.	20.0	0.041	0.054	0.22	0.04	2.48	14.0	-18.80	-6.08
Depletion potential of stratospheric ozone layer	kg R11-equiv.	6.80E-10	1.09E-15	7.01E-16	6.01E-15	1.07E-15	1.43E-09	1.42E-09	-2.35E-10	-2.37E-10
Acidification potential of soil and water	kg SO ₂ -equiv.	0.03	3.47E-05	4.04E-06	1.73E-04	3.41E-05	6.72E-03	1.02E-03	-0.028	-0.013
Eutrophication potential	kg PO ₄ ³⁻ -equiv.	4.97E-03	7.72E-06	8.43E-07	3.72E-05	7.59E-06	6.30E-04	1.95E-04	-4.39E-03	-1.18E-03
Formation potential of tropospheric ozone	kg C ₂ H ₄ -equiv.	2.93E-03	-1.06E-06	3.80E-07	1.95E-06	-1.04E-06	4.27E-04	9.71E-05	-3.52E-03	-9.17E-04
Depletion of abiotic resources (ADP elements)	kg Sb-equiv.	6.46E-05	4.29E-09	3.74E-10	2.37E-08	4.22E-09	1.36E-06	2.19E-07	-6.21E-05	-2.51E-06
Depletion of abiotic resources (ADP fossil fuels)	MJ	409.0	0.54	6.05E-03	2.98	0.53	26.0	3.09	-392.0	-81.0
Use of resources	Unit	A1-A3	A4	A5	C2/1	C2/2	C3/1	C3/2	D/1	D/2
Renewable primary energy as energy source	MJ	64.70	0.037	0.052	0.21	0.037	15.8	0.36	-43.0	-22.4
Renewable primary energy for material use	MJ	0.05	0.00	-0.05	0.00	0.00	0.00	0.00	0.00	0.00
Total use of renewable primary energy	MJ	64.8	0.037	1.18E-03	0.21	0.037	15.8	0.36	-43.0	-22.4
Non-renewable primary energy as energy source	MJ	306.0	0.54	0.69	3.0	0.53	44.8	131.0	-414.0	-102.0
Renewable primary energy for material use	MJ	128.0	0.00	-0.68	0.00	0.00	-1.07	-127.0	0.00	0.00
Total use of non-renewable primary energy	MJ	434.0	0.54	7.27E-03	3.0	0.53	43.7	3.54	-414.0	-102.0
Use of secondary materials	kg	0.87	0.00	0.00	0.00	0.00	0.00	0.00	4.44	0.09
Renewable secondary fuels	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Non-renewable secondary fuels	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Use of fresh water resources	m ³	0.10	4.26E-05	1.21E-04	2.36E-04	4.19E-05	0.022	0.028	-0.074	-0.035
Waste categories and output material flows	Unit	A1-A3	A4	A5	C2/1	C2/2	C3/1	C3/2	D/1	D/2
Disposed hazardous waste	kg	7.62E-07	3.45E-08	5.79E-12	1.91E-07	3.40E-08	1.97E-08	1.04E-09	-3.66E-07	-4.87E-08
Disposed non-hazardous waste	kg	0.42	4.25E-05	1.65E-04	2.35E-04	4.18E-05	0.052	0.035	-0.40	-0.27
Radioactive waste	kg	9.89E-03	8.54E-07	4.85E-07	4.72E-06	8.40E-07	7.01E-03	1.80E-04	-8.83E-03	-8.51E-03
Components for further use	kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Materials for recycling	kg	0.00	0.00	0.00	0.00	0.00	5.21	0.21	0.00	0.00
Materials for energy recovery	kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Exported electrical energy	MJ	0.00	0.00	0.11	0.00	0.00	0.15	22.5	0.00	0.00
Exported thermal energy	MJ	0.00	0.00	0.2	0.00	0.00	0.31	40.2	0.00	0.00

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Results per 1 m ² of Translucent building elements - 60mm (part 4 of 4)										
Environmental impacts	Unit	A1-A3	A4	A5	C2/1	C2/2	C3/1	C3/2	D/1	D/2
Global warming potential	kg CO ₂ -equiv.	23.0	0.047	0.054	0.26	0.046	2.85	16.2	-21.70	-6.91
Depletion potential of stratospheric ozone layer	kg R11-equiv.	6.82E-10	1.25E-15	7.01E-16	6.96E-15	1.23E-15	1.43E-09	1.42E-09	-2.36E-10	-2.39E-10
Acidification potential of soil and water	kg SO ₂ -equiv.	0.035	3.99E-05	4.04E-06	2.00E-04	3.93E-05	7.77E-03	1.16E-03	-0.032	-0.014
Eutrophication potential	kg PO ₄ ³⁻ -equiv.	5.71E-03	8.87E-06	8.43E-07	4.31E-05	8.74E-06	7.27E-04	2.23E-04	-5.06E-03	-1.34E-03
Formation potential of tropospheric ozone	kg C ₂ H ₄ -equiv.	3.36E-03	-1.22E-06	3.80E-07	2.27E-06	-1.20E-06	4.92E-04	1.10E-04	-4.05E-03	-1.03E-03
Depletion of abiotic resources (ADP elements)	kg Sb-equiv.	7.45E-05	4.93E-09	3.74E-10	2.75E-08	4.86E-09	1.55E-06	2.33E-07	-7.18E-05	-2.74E-06
Depletion of abiotic resources (ADP fossil fuels)	MJ	471.0	0.62	6.05E-03	3.46	0.61	30.0	3.33	-453.0	-92.50
Use of resources	Unit	A1-A3	A4	A5	C2/1	C2/2	C3/1	C3/2	D/1	D/2
Renewable primary energy as energy source	MJ	74.30	0.043	0.052	0.24	0.042	18.4	0.41	-49.1	-25.3
Renewable primary energy for material use	MJ	0.05	0.00	-0.05	0.00	0.00	0.00	0.00	0.00	0.00
Total use of renewable primary energy	MJ	74.4	0.043	1.18E-03	0.24	0.042	18.4	0.41	-49.1	-25.3
Non-renewable primary energy as energy source	MJ	352.0	0.62	0.69	3.47	0.61	51.5	151.0	-479.0	-117.0
Renewable primary energy for material use	MJ	148.0	0.00	-0.68	0.00	0.00	-1.07	-147.0	0.00	0.00
Total use of non-renewable primary energy	MJ	500.0	0.62	7.27E-03	3.47	0.61	50.4	3.83	-479.0	-117.0
Use of secondary materials	kg	0.99	0.00	0.00	0.00	0.00	0.00	0.00	5.14	0.09
Renewable secondary fuels	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Non-renewable secondary fuels	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Use of fresh water resources	m ³	0.12	4.90E-05	1.21E-04	2.73E-04	4.83E-05	0.025	0.032	-0.085	-0.039
Waste categories and output material flows	Unit	A1-A3	A4	A5	C2/1	C2/2	C3/1	C3/2	D/1	D/2
Disposed hazardous waste	kg	8.77E-07	3.97E-08	5.79E-12	2.21E-07	3.91E-08	2.29E-08	1.21E-09	-4.22E-07	-5.47E-08
Disposed non-hazardous waste	kg	0.45	4.88E-05	1.65E-04	2.72E-04	4.81E-05	0.056	0.037	-0.43	-0.27
Radioactive waste	kg	1.13E-02	9.82E-07	4.85E-07	5.47E-06	9.67E-07	8.13E-03	2.00E-04	-1.01E-02	-9.76E-03
Components for further use	kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Materials for recycling	kg	0.00	0.00	0.00	0.00	0.00	6.01	0.21	0.00	0.00
Materials for energy recovery	kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Exported electrical energy	MJ	0.00	0.00	0.11	0.00	0.00	0.15	26.1	0.00	0.00
Exported thermal energy	MJ	0.00	0.00	0.2	0.00	0.00	0.31	46.6	0.00	0.00

Imprint

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Notes

This EPD is mainly based on the work and findings of the Institut für Fenstertechnik e.V., Rosenheim (ift Rosenheim) and specifically on the ift-Richtlinie NA-01/3 Allgemeiner Leitfaden zur Erstellung von Typ III Umweltproduktdeklarationen. (Guideline NA.01/3 - Guidance on preparing Type III Environmental Product Declarations)
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Layout

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Photographs (front page)

Rodeca GmbH

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