



Environmental Product Declaration

Addendum – Rollforming Data

COLORSTEEL® Environmental Product Declaration: Roll-Forming Data

The scope of New Zealand Steel's Environmental Product Declaration for COLORSTEEL® (registration number S-P-01001) currently excludes the final roll-forming stage. This final stage transforms the flat COLORSTEEL® sheet into a contoured profile for use in roofing and cladding.

The purpose of this supplement is to provide data for the final formed product, as distributed to the customer. This document includes updated EPD results tables for COLORSTEEL® roofing and cladding (Table 1) for EN 15804 modules A1-A3 and a new module (A4) for final distribution to customer. This extends the scope of the results from cradle-to-gate to cradle-to-customer (plus end-of-life).

Transport of COLORSTEEL® to a weighted-average roll-former within New Zealand is included within an updated module A1-A3. Roll-forming is also included in module A1-A3 based on a survey of four roll-formers: two in the North Island and two in the South Island. The final distribution leg (assumed to be 50 km by truck) is included in the newly declared module A4.

As per the EPD, the declared unit is one flat square metre. This supplement adds packaging of 0.006 kg per kg, primarily consisting of a timber pallet. The profile of the finished roofing/cladding product will affect how many flat square metres are needed to cover a given surface area.

This document and supporting data have been reviewed by Rob Rouwette of start2see, the verifier of the COLORSTEEL® EPD. As with the EPD, the results follow PCR 2012:01 of the International EPD System, EN 15804:2012+A1:2013 and ISO 14025:2006. However, this document is not a formal part of the EPD.



Table 1: Specifications of COLORSTEEL® products

	Materials	BMT	Metal Coating	Product mass (kg/m ²)
Roofing & Cladding	COLORSTEEL® ENDURA®	0.4 mm	AZ150	3.36
	COLORSTEEL® ENDURA®	0.55 mm	AZ150	4.52
	COLORSTEEL® MAXX®	0.4 mm	AZ200	3.40
	COLORSTEEL® MAXX®	0.55 mm	AZ200	4.57

Table 2: 1 m² roll-formed product using COLORSTEEL® ENDURA® (AZ150) with BMT of 0.4 mm

Indicator	Unit	A1- A3 COLORSTEEL®	A1-A3 Roll-formed	A4	C3	C4	D
Environmental impact							
Global warming potential (total)	kg CO ₂ -eq.	13.5	13.8	0.0127	0.0261	0.0177	-3.93
Depletion potential of the stratospheric ozone layer	kg CFC11-eq.	3.97E-09	3.97E-09	1.48E-17	6.40E-17	4.68E-15	2.51E-08
Acidification potential of land and water	kg SO ₂ -eq.	0.119	0.120	2.42E-05	8.31E-05	4.91E-05	0.00404
Eutrophication potential	kg PO ₄ ³⁻ - eq.	0.00641	0.00662	4.93E-06	1.07E-05	6.18E-06	6.63E-04
Photochemical ozone creation potential	kg C ₂ H ₄ -eq.	0.00690	0.00694	-6.42E-06	5.90E-06	4.42E-06	-0.00140
Abiotic depletion potential – elements	kg Sb-eq.	1.14E-04	1.14E-04	1.84E-10	1.41E-08	1.91E-09	-1.31E-06
Abiotic depletion potential – fossil fuels	MJ	176	180	0.170	0.322	0.256	-37.9
Resource use							
Renewable primary energy as energy carrier	MJ	30.5	32.2	0.00869	0.978	0.0196	2.94
Renewable primary energy resources as material utilization	MJ	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	30.5	32.2	0.00869	0.978	0.0196	2.94
Non-renewable primary energy as energy carrier	MJ	178	182	0.170	0.322	0.266	-35.4
Non-renewable primary energy as material utilization	MJ	0.845	0.845	0	0	0	0
Total use of non-renewable primary energy resources	MJ	179	183	0.170	0.322	0.266	-35.4
Use of secondary material	kg	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	9.91E-08	9.91E-08	0	0	0	0
Use of non-renewable secondary fuels	MJ	1.18E-06	1.18E-06	0	0	0	0
Use of net fresh water	m ³	0.167	0.171	1.81E-06	0.00255	2.81E-05	0.00630
Waste categories and output flows							
Hazardous waste disposed	kg	2.55E-07	3.23E-07	1.30E-11	2.76E-10	1.42E-09	-2.94E-06
Non-hazardous waste disposed	kg	0.998	1.00	1.21E-06	1.89E-04	0.370	0.636
Radioactive waste disposed	kg	0.00113	0.00113	9.87E-09	9.91E-08	3.70E-06	1.01E-05
Components for re-use	kg	0	0	0	0	0	0
Materials for recycling	kg	0	0	0	2.99	0	0
Materials for energy recovery	kg	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0

Table 3: 1 m² roll-formed product using COLORSTEEL® ENDURA® (AZ150) with BMT of 0.55 mm

Indicator	Unit	A1- A3 COLORSTEEL®	A1-A3 Roll-formed	A4	C3	C4	D
Environmental impact							
Global warming potential (total)	kg CO ₂ -eq.	17.6	17.9	0.0171	0.0352	0.0238	-5.48
Depletion potential of the stratospheric ozone layer	kg CFC11-eq.	3.94E-09	3.94E-09	1.99E-17	8.62E-17	6.31E-15	3.45E-08
Acidification potential of land and water	kg SO ₂ -eq.	0.160	0.162	3.26E-05	1.12E-04	6.63E-05	0.00519
Eutrophication potential	kg PO ₄ ³⁻ -eq.	0.00844	0.00873	6.64E-06	1.44E-05	8.34E-06	8.74E-04
Photochemical ozone creation potential	kg C ₂ H ₄ -eq.	0.00886	0.00892	-8.66E-06	7.96E-06	5.96E-06	-0.00194
Abiotic depletion potential – elements	kg Sb-eq.	1.14E-04	1.14E-04	2.48E-10	1.90E-08	2.58E-09	-1.80E-06
Abiotic depletion potential – fossil fuels	MJ	227	232	0.229	0.434	0.345	-52.4
Resource use							
Renewable primary energy as energy carrier	MJ	36.6	39.0	0.0117	1.32	0.0265	4.03
Renewable primary energy resources as material utilization	MJ	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	36.6	39.0	0.0117	1.32	0.0265	4.03
Non-renewable primary energy as energy carrier	MJ	229	234	0.229	0.435	0.358	-48.8
Non-renewable primary energy as material utilization	MJ	1.58	1.58	0	0	0	0
Total use of non-renewable primary energy resources	MJ	230	236	0.229	0.435	0.358	-48.8
Use of secondary material	kg	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	9.84E-08	9.84E-08	0	0	0	0
Use of non-renewable secondary fuels	MJ	1.17E-06	1.17E-06	0	0	0	0
Use of net fresh water	m ³	0.211	0.217	2.44E-06	0.00343	3.79E-05	0.00853
Waste categories and output flows							
Hazardous waste disposed	kg	2.77E-07	3.69E-07	1.76E-11	3.72E-10	1.91E-09	-4.04E-06
Non-hazardous waste disposed	kg	1.26	1.27	1.63E-06	2.55E-04	0.499	0.817
Radioactive waste disposed	kg	0.00124	0.00124	1.33E-08	1.34E-07	4.99E-06	1.27E-05
Components for re-use	kg	0	0	0	0	0	0
Materials for recycling	kg	0	0	0	4.03	0	0
Materials for energy recovery	kg	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0

Table 4: 1 m² roll-formed product using COLORSTEEL® MAXX® (AZ200) with BMT of 0.4 mm

Indicator	Unit	A1- A3 COLORSTEEL®	A1-A3 Roll-formed	A4	C3	C4	D
Environmental impact							
Global warming potential (total)	kg CO ₂ -eq.	13.8	14.1	0.0129	0.0264	0.0179	-3.93
Depletion potential of the stratospheric ozone layer	kg CFC11-eq.	3.98E-09	3.98E-09	1.50E-17	6.48E-17	4.74E-15	2.51E-08
Acidification potential of land and water	kg SO ₂ -eq.	0.121	0.122	2.45E-05	8.42E-05	4.98E-05	0.00422
Eutrophication potential	kg PO ₄ ³⁻ -eq.	0.00649	0.00671	4.99E-06	1.08E-05	6.27E-06	6.82E-04
Photochemical ozone creation potential	kg C ₂ H ₄ -eq.	0.00704	0.00708	-6.51E-06	5.98E-06	4.48E-06	-0.00139
Abiotic depletion potential – elements	kg Sb-eq.	1.46E-04	1.46E-04	1.86E-10	1.43E-08	1.94E-09	-1.31E-06
Abiotic depletion potential – fossil fuels	MJ	179	183	0.172	0.327	0.260	-37.8
Resource use							
Renewable primary energy as energy carrier	MJ	31.9	33.7	0.00881	0.992	0.0199	2.94
Renewable primary energy resources as material utilization	MJ	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	31.9	33.7	0.00881	0.992	0.0199	2.94
Non-renewable primary energy as energy carrier	MJ	169	173	0.172	0.327	0.269	-35.3
Non-renewable primary energy as material utilization	MJ	13.9	13.9	0	0	0	0
Total use of non-renewable primary energy resources	MJ	183	186	0.172	0.327	0.269	-35.3
Use of secondary material	kg	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	9.94E-08	9.94E-08	0	0	0	0
Use of non-renewable secondary fuels	MJ	1.18E-06	1.18E-06	0	0	0	0
Use of net fresh water	m ³	0.172	0.175	1.84E-06	0.00258	2.85E-05	0.00628
Waste categories and output flows							
Hazardous waste disposed	kg	2.61E-07	3.31E-07	1.32E-11	2.79E-10	1.44E-09	-2.94E-06
Non-hazardous waste disposed	kg	1.07	1.07	1.23E-06	1.92E-04	0.375	0.680
Radioactive waste disposed	kg	0.00136	0.00136	1.00E-08	1.00E-07	3.75E-06	1.06E-05
Components for re-use	kg	0	0	0	0	0	0
Materials for recycling	kg	0	0	0	3.03	0	0
Materials for energy recovery	kg	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0

Table 5: 1 m² roll-formed product using COLORSTEEL® MAXX® (AZ200) with BMT of 0.55 mm

Indicator	Unit	A1- A3 COLORSTEEL®	A1-A3 Roll-formed	A4	C3	C4	D
Environmental impact							
Global warming potential (total)	kg CO ₂ -eq.	17.9	18.3	0.0173	0.0355	0.0240	-5.49
Depletion potential of the stratospheric ozone layer	kg CFC11-eq.	3.95E-09	3.95E-09	2.01E-17	8.70E-17	6.37E-15	3.45E-08
Acidification potential of land and water	kg SO ₂ -eq.	0.162	0.164	3.29E-05	1.13E-04	6.69E-05	0.00535
Eutrophication potential	kg PO ₄ ³⁻ -eq.	0.00856	0.00885	6.70E-06	1.45E-05	8.41E-06	8.90E-04
Photochemical ozone creation potential	kg C ₂ H ₄ -eq.	0.00903	0.00909	-8.74E-06	8.03E-06	6.01E-06	-0.00193
Abiotic depletion potential – elements	kg Sb-eq.	1.46E-04	1.46E-04	2.50E-10	1.92E-08	2.60E-09	-1.80E-06
Abiotic depletion potential – fossil fuels	MJ	231	236	0.231	0.438	0.348	-52.3
Resource use							
Renewable primary energy as energy carrier	MJ	38.1	40.5	0.0118	1.33	0.0267	4.03
Renewable primary energy resources as material utilization	MJ	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	38.1	40.5	0.0118	1.33	0.0267	4.03
Non-renewable primary energy as energy carrier	MJ	224	229	0.231	0.439	0.361	-48.7
Non-renewable primary energy as material utilization	MJ	10.7	10.7	0	0	0	0
Total use of non-renewable primary energy resources	MJ	235	240	0.231	0.439	0.361	-48.7
Use of secondary material	kg	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	9.85E-08	9.85E-08	0	0	0	0
Use of non-renewable secondary fuels	MJ	1.17E-06	1.17E-06	0	0	0	0
Use of net fresh water	m ³	0.216	0.221	2.46E-06	0.00347	3.82E-05	0.00849
Waste categories and output flows							
Hazardous waste disposed	kg	2.84E-07	3.77E-07	1.77E-11	3.75E-10	1.93E-09	-4.04E-06
Non-hazardous waste disposed	kg	1.33	1.34	1.65E-06	2.57E-04	0.503	0.861
Radioactive waste disposed	kg	0.00146	0.00147	1.34E-08	1.35E-07	5.04E-06	1.30E-05
Components for re-use	kg	0	0	0	0	0	0
Materials for recycling	kg	0	0	0	4.06	0	0
Materials for energy recovery	kg	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0



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