Environmental Product Declaration

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021.

EPD of multiple products, based on the average results of the product group, covering the following products:

Nullifire SC901 Intumescent Steel Coating, Fast Track, Off-Site
Nullifire SC902 Intumescent Steel Coating, Fast Track

from

Tremco CPG UK Ltd.

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
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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

General information

Programme information

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

Accountabilities for PCR, LCA and independent, third-party verification
Product Category Rules (PCR)
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product Category Rules (PCR): Construction Products – PCR 2019:14 VERSION 1.3.2
PCR review was conducted by: The Technical Committee of the International EPD® System. The review panel may be contacted via info@environdec.com.
Life Cycle Assessment (LCA)
LCA accountability: Nexio Projects NL B.V. Schiekade 10A, 3032 AJ Rotterdam Netherlands info@nexioprojects.com
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☒ EPD verification by individual verifier Third-party verifier: Angela Schindler, Angela Schindler Umweltberatung      Approved by: The International EPD® System
Procedure for follow-up of data during EPD validity involves third party verifier: ☐ Yes ☒ No

Tremco CPG UK Ltd. has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have

equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

Company information

Owner of the EPD: Tremco CPG UK Ltd.
Contact: Richard Barcock, richard.barcock@tremcocpg.com
Description of the organisation: Tremco CPG UK Ltd (Tremco CPG Europe is a part of RPM International Inc) produces an array of high-performance building products for the increasingly complex demands of the construction industry with brands including Nullifire, Flowcrete, Nudura, DryVit, Vandex, Illbruck, and Tremco.
Product-related or management system-related certifications: ISO 9001, 14001 and 45001
Name and location of production site(s): Tremco CPG UK Ltd, Coupland Road, Hindley Green, Wigan WN2 4HT, United Kingdom

Product information

Product name: SC901 and SC902

Product identification:
Nullifire SC901 Intumescent Steel Coating, Fast Track, Off-Site
Nullifire SC902 Intumescent Steel Coating, Fast Track

Product description:
SC901 Intumescent Steel Coating is a two-component, high solids, high build, fire protection coating for structural steel, based on patented hybrid technology. Due to the unique elastomeric properties of SC901, excellent damage resistance is achieved. SC901 is designed to provide up to 120 minutes fire resistance to 'I' section beams and columns, hollow columns, cellular beams, concrete-filled hollow columns and solid steel tension rods. SC901 can be used on steel, cast iron and galvanised steel.

SC902 Intumescent Steel Coating is a two-component, high solids, high build, fire protection coating for structural steel, based on patented hybrid technology. Due to the unique elastomeric properties of SC902, excellent damage resistance is achieved. SC902 is designed to provide up to 120 minutes fire resistance to 'I' section beams and columns, hollow columns, cellular beams, concrete-filled hollow columns and solid steel tension rods. SC902 can be used on steel, cast iron and galvanised steel.

UN CPC code: N/A

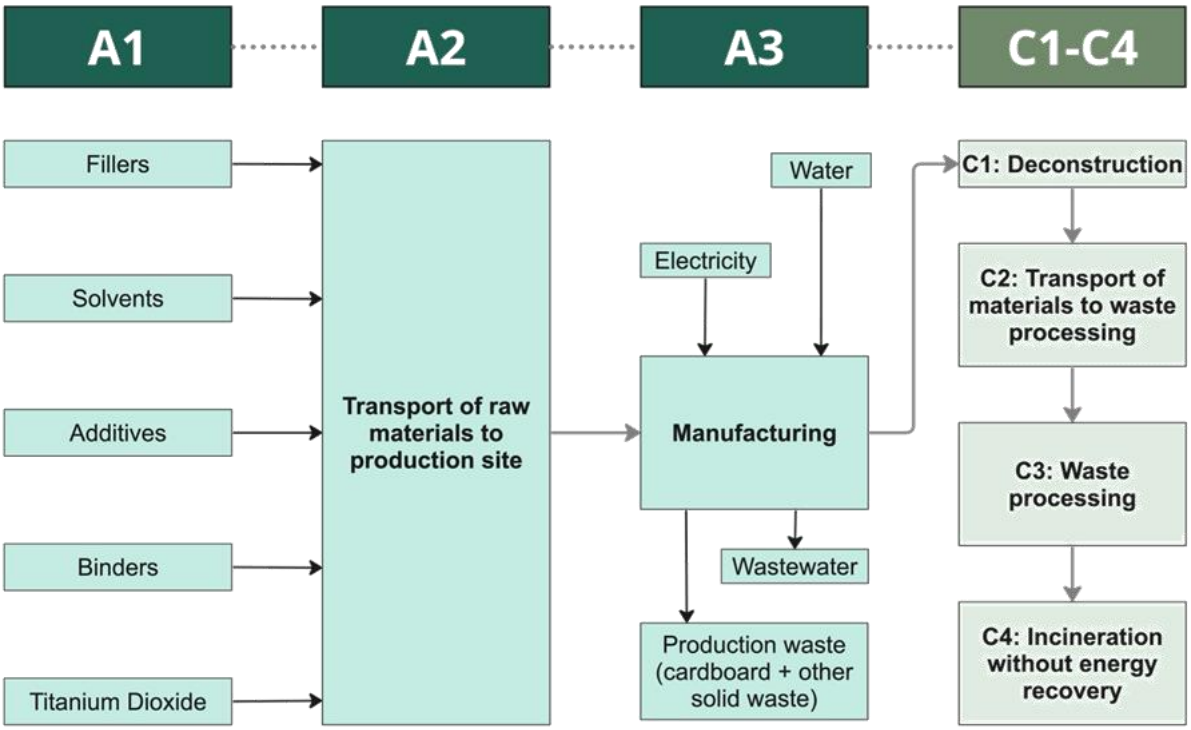
Other codes for product classification:
UFI: 4GY0-U0SX-Q008-NGH1 (for SC802)
UFI: A6WA-U0JQ-E00X-E008 (for SC803)
UFI: 090C-20E0-F00R-88YK (for SC804)

Geographical scope:
Modules A1 (raw material supply) and A2 (transport) have been modelled for a global use case, A3 (manufacturing) to represent the United Kingdom market and modules C1-C4 (end of life stage) and D (resource recovery stage) were modelled for the European market.

LCA information

Declared unit: 1kg of SC901 and SC902
Time representativeness: The activity data used for the LCA calculation covers the year 2022.
Database(s) and LCA software used: Ecoinvent 3.8 and Ecochain Helix 3.2.12
Electricity usage in A3: Electricity, low voltage, residual mix {GB} | electricity, low voltage | Ecoinvent 3.9 Cut-off; Climate impact: 0.45 kgCO2eq/kWh (GWP-GHG)
System boundaries: Cradle to gate with modules C1–C4 and module D (A1–A3 + C + D)

System diagram:



Modules declared, geographical scope, share of specific data (in GWP-GHG results) and data variation (in GWP-GHG results)

(ND - Not Declared, RER – Europe, GLO – Global, UK – United Kingdom)

	Product stage			Construction process stage	Use stage	End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport and construction installation	Use, maintenance, repair, replacement, refurbishment, operational energy and water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	**A1**	**A2**	**A3**	**A4 – A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D**
Modules declared	X	X	X	ND	ND	X	X	X	X	X
Geography	GLO	GLO	UK	ND	ND	RER	RER	RER	RER	RER
Specific data used	> 90%			-	-	-	-	-	-	-
Variation – products	0,06%			-	-	-	-	-	-	-
Variation – sites	Not relevant			-	-	-	-	-	-	-

A3

The manufacturing process for coatings primarily involves the mixing and dispersing of raw materials into a homogeneous mixture. Raw materials, such as fillers, binders, additives, solvents and water, are first weighed out before they are added to the mixing vessel. After the mixing and dispersion of the materials, the coating is filled into the final packaging.

The mixing of the raw materials as well as the filling line consume electricity. In addition, the production system also uses water which is all turned into wastewater. Lastly, the production process also generates both cardboard and other general waste. Electricity and water consumption as well as waste generation were included in the model.

C1-C4

C1: The de-construction/demolition stage was included in the system boundaries of this assessment. However, due to the nature of the coating, the environmental impact of this lifecycle stage was considered immaterial and is hence declared as “0”. This is because the coating, after its application, is physically integrated with other materials and cannot be physically separated from these at the end of its life.

C2: Due to a lack of solid estimates on average transport distances, the default transport distances to the waste disposal site of the dataset used to model C4, namely *market for hazardous waste, for incineration | hazardous waste, for incineration | Europe without Switzerland - Ecoinvent v3.8 Cut-off*”, were used for C2.

C3: No waste processing options are considered.

C4: It is assumed that 100% of the coating will be incinerated without energy recovery along with the steel structure. The “market for hazardous waste, for incineration | hazardous waste, for incineration | Europe without Switzerland - Ecoinvent v3.8 Cut-off” dataset was considered to be the most representative scenario for this.

D

No benefits and loads beyond the product system boundary were declared since no reuse or recovery occurs for steel coatings in general. In addition, since incineration without energy recovery is assumed to be the waste disposal option in module C4, no “useful energy carrier” is considered leaving the product system. Therefore, no benefit is claimed in module D.

Methodology

Foreground Data: Tremco CPG UK Ltd. has supplied primary data for the amount of raw materials purchased (A1), the transport distance between their suppliers and production site (A2) as well as its manufacturing operations (A3) for the year 2022.

Background Data: Background data (e.g., for raw material extraction and manufacturing) have predominantly been sourced from the Ecoinvent database (v3.8) using Ecochain Helix software v3.2.12.

Allocation: The key production processes that require allocation are:

- Shared electricity and water consumption, wastewater generation and production waste generation at the Wigan production site were allocated on a mass basis, using the respective production volume of the considered products.

No secondary materials (that would require allocation) are used in the product system.

Cut-off criteria: The environmental impact of the product studied has been assessed by considering all significant processes, materials and emissions. Excluded flows are assumed to have a negligible impact, contributing less than 5% to the cumulative impact assessment categories. The following process is excluded:

- A3: Raw materials and processing for the packaging are excluded from the system as well as the end-of-life of packaging.

Key Assumptions: The key choices and assumptions in the LCA are:

- Proxy impact references were used for raw materials for which no Ecoinvent reference existed.
- Primary energy resources used as raw materials (PERM and PENRM indicators) could not be directly quantified due to a lack of data availability. Hence, it was assumed that the energy embedded in the raw materials the product is composed of was equal to the heating value in the “market for hazardous waste, for incineration | hazardous waste, for incineration | Europe without Switzerland - Ecoinvent v3.8 Cut-off” dataset used to model C4. This corresponds to a value of 17MJ/kg of product. Lack of data availability also meant that this energy could not be distributed among renewable and non-renewable primary energy used as raw materials. A worst-case scenario approach was thus taken, and it was assumed that all energy was non-renewable.

The end-of-life scenarios are based on a set of assumptions that may influence the outcome of the assessment. It is important to understand the scenarios before drawing conclusions based on this EPD. A detailed description of the used assumptions for C1-C4 can be found in the LCA information section.

Calculation of Average Results: This EPD is based on two similar products. As per the PCR, the average results of the included products are reported for each indicator, based on the declared unit of 1kg of product. The averages were calculated by taking each product’s value per indicator and averaging them.

Content information

The indicated information in the table below presents the average content of the SC901 and SC902 products. The range of weight based on which the average weight is calculated is also reported.

Product components	Weight, kg	Average weight, kg	Post-consumer material, weight-%	Biogenic material, average kg C/kg
Fillers	5,47E-01 ~ 5,49E-01	5,48E-01	-	5,06E-04
Additives	1,22E-01 ~ 1,26E-01	1,24E-01	-	2,49E-10
Binders	1,16E-01 ~ 1,18E-01	1,17E-01	-	1,52E-02
Titanium Dioxide	1,16E-01 ~ 1,17E-01	1,17E-01	-	-
Solvents	9,31E-02 ~ 9,49E-02	9,40E-02	-	-
TOTAL	1,00E+00	1,00E+00	0%	1,57E-02

Packaging materials	Weight, kg	Average weight-% (versus the product)	Weight biogenic carbon, kg C/kg
Tin pails	7,16E-02 ~ 1,67E-01	11,93%	0
TOTAL	7,16E-02 ~ 1,67E-01	11,93%	0

Note 1: SC901 is sold in two parts, a 200-litre pail and a 50-litre pail, whereas SC902 is sold in a 20-litre and 2.5-litre pail. This explains the bigger difference in proportional weight. The disclosed weight corresponds to the respective packaging weight for 1kg of product.
Note 2: The environmental impact of packaging was not considered in the calculations and is hence excluded from the results.

Dangerous substances from the candidate list of SVHC for Authorisation	EC No.	CAS No.	Weight-% per functional or declared unit
Melamine	203-615-4	108-78-1	10,41%

Results of the environmental performance indicators

The environmental performance of the assessed products is reported below, using the parameters and units specified in the PCR. Characterisation factors from EN15804 based on EF 3.0 were used. The indicated values correspond to the average between the performance of the declared unit of 1kg of SC901 and SC902, respectively.

The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks.

Mandatory impact category indicators according to EN 15804

Results per declared unit								
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**	**Variation**
GWP-fossil	kg CO_2 eq.	2,84E+00	0,00E+00	3,34E-05	0,00E+00	2,46E+00	0,00E+00	0%
GWP-biogenic	kg CO_2 eq.	-2,55E-02	0,00E+00	7,00E-08	0,00E+00	4,54E-02	0,00E+00	0%
GWP-luluc	kg CO_2 eq.	2,28E-02	0,00E+00	2,18E-08	0,00E+00	5,76E-04	0,00E+00	5%
GWP-total	kg CO_2 eq.	2,84E+00	0,00E+00	3,35E-05	0,00E+00	2,50E+00	0,00E+00	0%
ODP	kg CFC 11 eq.	3,56E-07	0,00E+00	7,15E-12	0,00E+00	2,94E-07	0,00E+00	1%
AP	mol H^+ eq.	1,97E-02	0,00E+00	2,60E-07	0,00E+00	3,89E-03	0,00E+00	1%
EP-freshwater	kg P eq.	4,45E-04	0,00E+00	4,18E-10	0,00E+00	5,22E-05	0,00E+00	4%
EP-marine	kg N eq.	4,46E-03	0,00E+00	8,63E-08	0,00E+00	7,85E-04	0,00E+00	2%
EP-terrestrial	mol N eq.	5,41E-02	0,00E+00	9,52E-07	0,00E+00	8,74E-03	0,00E+00	2%
POCP	kg NMVOC eq.	1,03E-02	0,00E+00	2,64E-07	0,00E+00	2,39E-03	0,00E+00	0%
ADP-minerals&metals*	kg Sb eq.	3,16E-05	0,00E+00	1,15E-10	0,00E+00	4,95E-06	0,00E+00	1%
ADP-fossil**	MJ	5,30E+01	0,00E+00	5,03E-04	0,00E+00	1,19E+01	0,00E+00	0%
WDP*	m^3	2,20E+00	0,00E+00	2,12E-06	0,00E+00	3,25E-01	0,00E+00	1%
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption							

** Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*
*** Disclaimer: The assessment of this indicator contains some unavoidable inconsistencies, and results should be interpreted with caution.*

Variation is defined as the impact indicator results of the worst-case product divided by the best-case product. Variation has been calculated based on the combined impact of modules A1-A3 and C1-C4 of each indicator.

Additional mandatory and voluntary impact category indicators

Results per declared unit								
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**	**Variation**
GWP-GHG[1]	kg CO_2 eq.	2,86E+00	0,00E+00	3,34E-05	0,00E+00	2,46E+00	0,00E+00	0%
PM	disease incident	1,61E-07	0,00E+00	3,31E-12	0,00E+00	3,72E-08	0,00E+00	0%
IRP	kBq U-235 eq	1,16E-01	0,00E+00	2,29E-06	0,00E+00	5,10E-02	0,00E+00	0%
ETP-freshwater	CTUe	5,73E+01	0,00E+00	4,10E-04	0,00E+00	4,74E+01	0,00E+00	14%
HTP-cancer	CTUh	3,47E-09	0,00E+00	1,96E-14	0,00E+00	1,53E-09	0,00E+00	0%
HTP-non-cancer	CTUh	1,51E-07	0,00E+00	4,40E-13	0,00E+00	1,80E-08	0,00E+00	2%
SQP	Pt	4,29E+01	0,00E+00	3,96E-04	0,00E+00	2,83E+00	0,00E+00	3%
Acronyms	PM = Particulate matter; IRP = Ionising radiation, human health; ETP-freshwater = Ecotoxicity, freshwater; HTP-cancer = Human toxicity, cancer effects; HTP-non-cancer = Human toxicity, non-cancer effects; SQP = Land use related impacts.							

Resource use indicators

Results per declared unit								
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**	**Variation**
PERE	MJ	2,97E+00	0,00E+00	1,29E-05	0,00E+00	4,91E-01	0,00E+00	1%
PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0%
PERT	MJ	2,97E+00	0,00E+00	1,29E-05	0,00E+00	4,91E-01	0,00E+00	1%
PENRE	MJ	5,72E+01	0,00E+00	5,34E-04	0,00E+00	1,27E+01	0,00E+00	0%
PENRM	MJ	1,70E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0%
PENRT	MJ	7,42E+01	0,00E+00	5,34E-04	0,00E+00	1,27E+01	0,00E+00	0%
SM	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0%
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0%

[1] This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO_2 is set to zero.

NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0%
FW	m^3	5,89E-02	0,00E+00	8,86E-08	0,00E+00	8,60E-03	0,00E+00	1%
Acronyms	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 re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water							

Waste indicators

Results per declared unit								
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**	**Variation**
Hazardous waste disposed	kg	5,17E-05	0,00E+00	1,20E-09	0,00E+00	4,23E-05	0,00E+00	0%
Non-hazardous waste disposed	kg	5,24E-01	0,00E+00	2,72E-05	0,00E+00	4,72E-01	0,00E+00	1%
Radioactive waste disposed	kg	1,13E-04	0,00E+00	3,35E-09	0,00E+00	7,04E-05	0,00E+00	0%

Output flow indicators

Results per declared unit								
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**	**Variation**
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0%
Material for recycling	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0%
Materials for energy recovery	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0%
Exported energy, electricity	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0%
Exported energy, thermal	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0%

References

EN 15804:2012+A2:2019/AC 2021 Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products.

International EPD® System, General Programme Instructions for the International EPD System, Version 4.0.

International EPD® System, PCR 2019:14 Construction Products, Version 1.3.2.

ISO 14025:2011-10. Environmental labels and declarations – Type III environmental declarations – Principles and procedures.

ISO 14044:2021. Environmental management – Life cycle assessment – Requirements and guidelines.

Ecoinvent. Swiss Centre for Life Cycle Assessment, supplier of Ecoinvent v3.8 database (https://ecoinvent.org/).

EPD®

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