Issued on 30th of August 2018
Valid till 30th of August 2023

COOL·R
cooling & waterproofing

ENVIRONMENTAL PRODUCT DECLARATION
TYPE III, ITB-EPD NO 075/2018

REFLECTIVE WATERPROOFING
ROOF COATING COOL-R

Cooling | Waterproofing | Reflection | Non spreading fire | Durability

SELENA®
GLOBAL EXPERIENCE

EPD Program Operator:
Instytut Techniki Budowlanej (ITB)
Address: Filtrowa 1, 00-611 Warsaw, Poland
Website: www.itb.pl
Contact: Justyna Tomaszewska
j.tomaszewska@itb.pl
energia@itb.pl

Owner of the EPD:
Selena FM S.A.
Address: Strzegmoska 2-4, 53-611 Wroclaw, Poland
Website: www.selena.com/pl/
Tel.: (+48) 71 78 38 290
Fax.: (+48) 71 78 38 291
Contact: office@selena.pl

ITB is the verified member of The European Platform for EPD program operators and LCA practitioner
www.eco-platform.org

Basic information

This declaration is the type III Environmental Product Declaration (EPD) based on EN 15804 and verified according to ISO 14025 by an external auditor. It contains the information on the impacts of the declared construction materials on the environment. Their aspects were verified by the independent body according to ISO 14025. Basically, a comparison or evaluation of EPD data is possible only if all the compared data were created according to EN 15804 (see point 5.3 of the standard).

Life cycle analysis (LCA): A1-A3 modules in accordance with EN 15804 (Cradle to Gate)
The year of preparing the EPD: 2018
Product standard: ETAG 005
Service Life: 10 years for a standard product
PCR: ITB-PCR A (PCR based on EN 15804)
Declared unit: 1 ton
Reasons for performing LCA: B2B
Representativeness: Polish product

Manufacturer and product information

Selena Group is a global manufacturer and distributor of a wide range of construction chemicals for professional contractors and home users. The Group comprises 30 subsidiary companies and manufacturing plants which produce polyurethane foams, sealants, adhesives, ETICS components and waterproofing materials.
Established in 1992, Selena was offering modern construction chemicals on the Polish market. Today, Selena Group employs more than 1700 people and is among the manufacturers of one-component polyurethane foam in the world. Our effective distribution network covering Europe, Asia, North & South America reaches 42 000 customers and millions of end-users all over the world. Thanks to an integrated research & development function with laboratories in Poland, Spain, Turkey and China, Selena invests in innovative solutions that change the way we build for the better, and continuously expands its product portfolio.

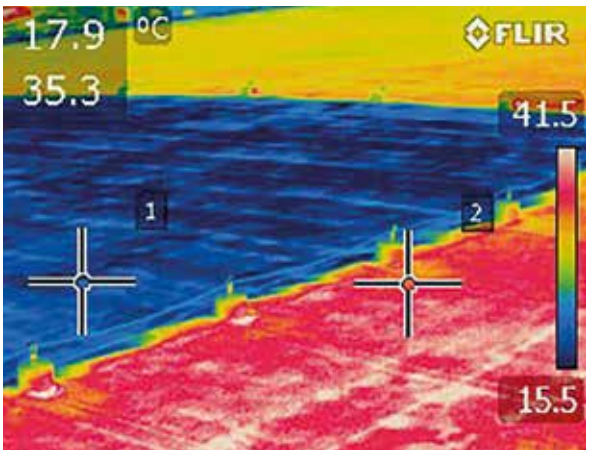
Fig. 1. The view of Selena FM S.A. in Wrocław.

The global experience gained in diverse local markets allows the Selena Group to develop fast and to create solutions tailored to the needs of the users. Manufacturing plants located in Poland, Spain, China, South Korea, Brazil, Turkey, Romania and Kazakhstan cater to the growing demand for Selena products.

Product description

COOL-R is a reflective roof coating which ensures the joined benefits of reduced temperature inside the building and the waterproofing coating of the roof surface.

The COOL-R coating is characterized by Solar Reflectance Index = 107.



Specially designed for:

- Buildings without / with air conditioning
- Large- scale supermarkets
- Livestock farms
- Production plants
- Special-purpose warehouses

Special features:

- Cooling
- Waterproofing
- Reflection
- Non spreading fire
- Durability

Fig. 2. The view of reflective waterproofing roof coating COOL-R produced by Libra Sp. z o.o

Table 1. Range of products belonging to the group of reflective waterproofing roof coating COOL-R

Product Name	Application	Packaging	Colour
COOL-R Protective Roof Coating	Top Layer	Plastic Pail 15kg	White
COOL-R Protective Roof Coating	Undercoat Layer	Plastic Pail 15kg	Grey

LIFE CYCLE ASSESSMENT (LCA) – general rules applied

Allocation
The allocation rules used for this EPD are based on general ITB PCR A. Production of the reflective waterproofing roof coating COOL-R is a line process in one factory of in Libra Sp. z o. o. in Dzierżoniów (Poland). Allocation was done on product mass basis. All impacts from raw materials extraction are allocated in A1 module of the EPD. 3.7% of impacts from line production of Libra Sp. z o. o. were inventoried and allocated to reflective waterproofing roof coating COOL-R production. Municipal waste and waste water of whole factory were allocated to module A3. Energy supply was inventoried for whole production process. Emissions in the factory are measured and were allocated to module A3.

System limits
The life cycle analysis of the declared products covers "Product Stage", A1-A3 modules (Cradle to Gate) in accordance with EN 15804+A1 and ITB PCR A. The details of systems limits are provided in product technical report. All materials and energy consumption inventoried in factory were included in calculation. Office impacts were also taken into consideration. In the assessment, all significant parameters from gathered production data are considered, i.e. all material used per formulation, utilised thermal energy, internal fuel and electric power consumption, direct production waste, and all available emission measurements. It can be assumed that the total sum of omitted processes does not exceed 5% of all impact categories. In accordance with EN 15804+A1, machines and facilities (capital goods) required for and during production are excluded, as is transportation of employees.

A1 and A2 Modules: Raw materials supply and transport
Raw materials such as acrylic dispersion, filler calcium carbonate, titanium white, additives (biocide, thickner) and packaging materials (LDPE foil, pallets) come from Polish and German suppliers. Data on transport of the different products to the manufacturing plants is collected and modelled for factory by assessor. Means of transport include trucks and Polish and European fuel averages are applied.

A3: Production
The production scheme is presented in Fig. 3.

Data collection period
The data for manufacture of the declared products refer to period between 01.1.2016 – 31.12.2016 (1 year). The life cycle assessments were prepared for Poland as reference area.

Data quality
The values determined to calculate the LCA originate from verified Libra Sp. z o. o. inventory data.

Assumptions and estimates
The impacts of the representative of the reflective waterproofing roof coating COOL-R were aggregated using weighted average. Impacts were inventoried and calculated for all products of the reflective waterproofing roof coating COOL-R.

Calculation rules
LCA was done in accordance with ITB PCR A document.

Databases
The data for the processes come from the following databases: Ecoinvent, specific EPDs, Ullmann's, ITB-Data. Specific data quality analysis was a part of external ISO 14001 audit. Characterization factors are CML ver. 4.2 based on EN 15804:2013+A1 version (PN-EN 15804+A1:2014-04).

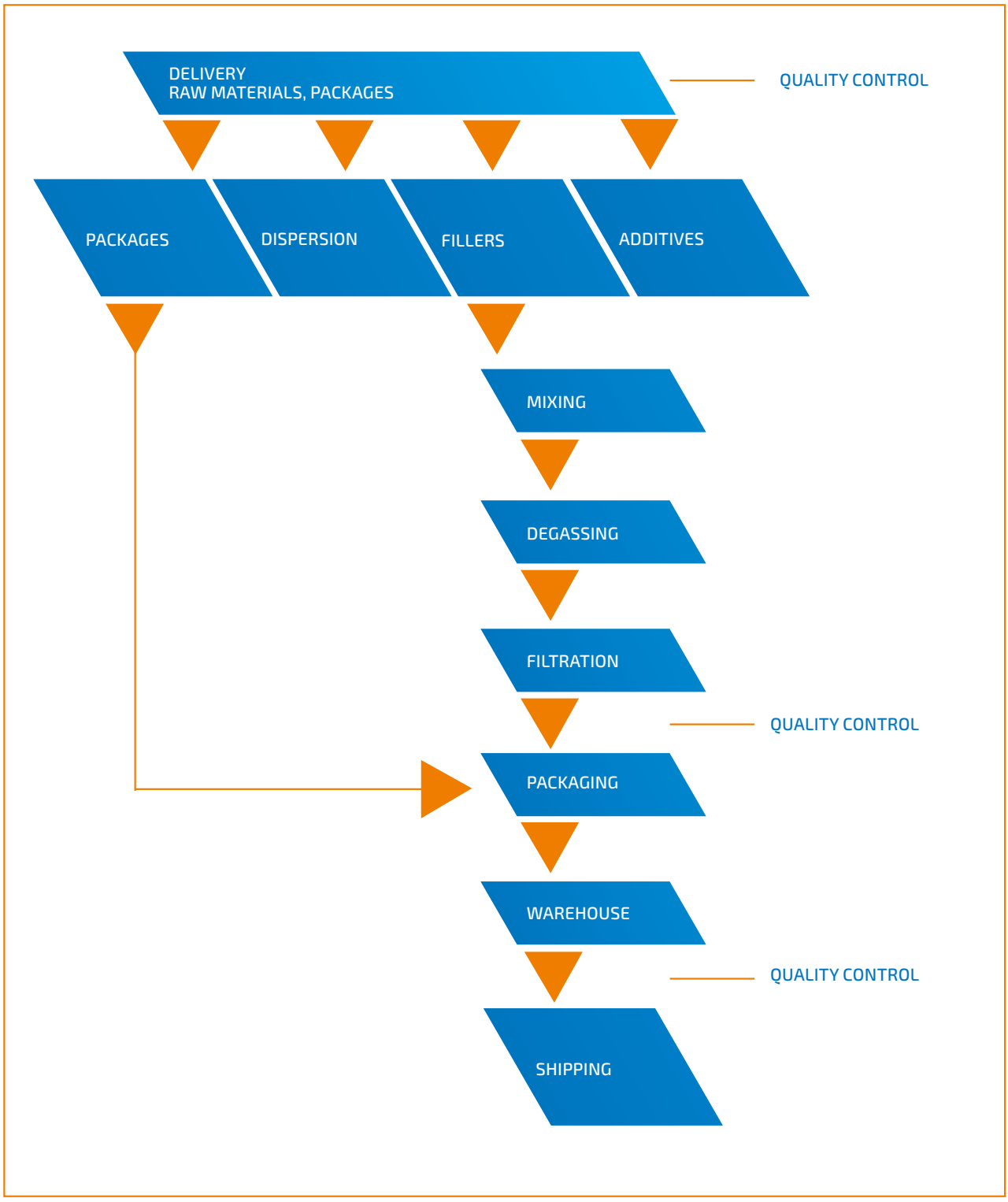


Fig. 3. A production scheme of reflective waterproofing roof coating COOL-R in Libra Sp. z o.o. factory in Dzierżoniów.

LIFE CYCLE ASSESSMENT (LCA) – general rules applied

Declared unit
The declaration refers to functional unit (FU) – 1 ton of the reflective waterproofing roof coating COOL-R produced by Libra Sp. z o.o.

Table 2. System boundaries for environmental characteristic of the reflective waterproofing roof coating COOL-R produced by Libra Sp. z o.o.

Environmental assessment information (MNA – Module not assessed, MD – Module Declared, INA – Indicator Not Assessed)																
Product stage			Construction process		Use stage							End of life				Benefits and loads beyond the system boundary
Raw material supply	Transport	Manufacturing	Transport to construction site	Construction -installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction dem-olition	Transport	Waste processing	Disposal	Reuse-recovery-recycling potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
MD	MD	MD	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA

Reflective waterproofing roof coating COOL-R

Environmental impacts: (FU) 1 ton					
Indicator	Unit	A1	A2	A3	A1-A3
Global warming potential	[kg CO_2 eq.]	8.47E+02	2.21E+01	2.52E+02	1.12E+03
Depletion potential of the stratospheric ozone layer	[kg CFC 11 eq.]	7.55E-05	0.00E+00	0.00E+00	7.55E-05
Acidification potential of soil and water	[kg SO_2 eq.]	9.01E+00	4.60E-02	0.00E+00	9.06E+00
Formation potential of tropospheric ozone	[kg Ethene eq.]	1.86E+00	9.62E-03	1.69E-01	2.04E+00
Eutrophication potential	[kg $(PO_4)^3$- eq.]	7.86E-01	7.53E-03	0.00E+00	7.94E-01
Abiotic depletion potential (ADP-elements) for non-fossil resources	[kg Sb eq.]	3.62E+00	0.00E+00	9.35E-04	3.62E+00
Abiotic depletion potential (ADP-fossil fuels) for fossil resources	[MJ]	8.96E+03	1.58E+03	1.04E+02	1.06E+04

Environmental aspects on resource use: (FU) 1 ton					
Indicator	Unit	A1	A2	A3	A1-A3
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	[MJ]	6.98E+02	1.10E+02	1.69E+02	9.78E+02
Use of renewable primary energy resources used as raw materials	[MJ]	6.40E+02	0.00E+00	0.00E+00	6.40E+02
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	[MJ]	1.34E+03	1.10E+02	1.69E+02	1.62E+03
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Use of non-renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)	[MJ]	9.43E+03	1.65E+03	1.10E+02	1.12E+04
Use of secondary material	[kg]	5.90E+00	0.00E+00	0.00E+00	5.90E+00
Use of renewable secondary fuels	[MJ]	1.22E-03	0.00E+00	1.00E+05	1.00E+05
Use of non-renewable secondary fuels	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Net use of fresh water	[dm^3]	1.10E+01	5.14E-02	2.42E+02	2.53E+02

Other environmental information describing waste categories: (FU) 1 ton					
Indicator	Unit	A1	A2	A3	A1-A3
Hazardous waste disposed	[kg]	8.58E-01	2.40E-05	5.29E-03	8.63E-01
Non-hazardous waste disposed	[kg]	3.83E+01	2.23E-02	2.56E-01	3.86E+01
Radioactive waste disposed	[kg]	9.28E-02	0.00E+00	0.00E+00	9.28E-02
Components for re-use	[kg]	2.95E+00	0.00E+00	0.00E+00	2.95E+00
Materials for recycling	[kg]	8.62E-01	0.00E+00	0.00E+00	8.62E-01
Materials for energy recover	[kg]	2.96E-01	0.00E+00	0.00E+00	2.96E-01
Exported energy	[MJ per energy carrier]	INA	INA	INA	INA

Verification
The process of verification of this EPD is in accordance with ISO 14025 and ISO 21930. After verification, this EPD is valid for a 5-year-period. EPD does not have to be recalculated after 5 years, if the underlying data have not changed significantly.

The basis for LCA analysis was EN 15804 and ITB PCR A	
Independent verification corresponding to ISO 14025 (subclause 8.1.3.)	
☑ external	☐ internal
External verification of EPD: Ph.D. Eng. Halina Prejzner LCA, LCI audit and input data verification: Ph.D. Eng. Justyna Tomaszewska, j.tomaszewska@itb.pl Verification of LCA: Ph.D. Eng. Michał Piasecki, m.piasecki@itb.pl	

Normative references:

- ITB PCR A General Product Category Rules for Construction Products
- ISO 14025:2006, Environmental labels and declarations – Type III environmental declarations – Principles and procedure
- ISO 21930:2017 Sustainability in buildings and civil engineering works – Core rules for environmental product declarations of construction products and servicesn
- ISO 14044:2006 Environmental management – Life cycle assessment – Requirements and guidelines
- ISO 15686-1:2011, Buildings and constructed assets – Service life planning – Part 1: General principles and framework
- ISO 15686-8:2008 Buildings and constructed assets – Service life planning – Part 8: Reference service life and service-life estimation

- EN 15804:2012+A1:2013 Sustainability in construction works – Environmental product declarations – Core rules for the product category of construction products
- PN-EN 15942:2012 Sustainability of construction works – Environmental product declarations – Communication format business-to-business
- KOBiZE Wskaźniki emisyjności CO_2, SO_2, NO_x, CO i pyłu całkowitego dla energii elektrycznej, grudzień 2017

Instytut Techniki Budowlanej
00-611 Warsaw, Filtrowa 1

Instytut Techniki Budowlanej
00-611 Warsaw, Filtrowa 1

Thermal Physics, Acoustics and Environment Department
02-656 Warsaw, Ksawerów 21

CERTIFICATE № 075/2018
of TYPE III ENVIRONMENTAL DECLARATION

Product:

Reflective waterproofing roof coating COOL-R

Manufacturer:

Selena FM S.A.
Strzegomska 2-4, 53-611 Wrocław, Poland

confirms the correctness of the data included in the development of
Type III Environmental Declaration and accordance with the requirements of the standard

PN-EN 15804+A1:2014-04

Sustainability of construction works.
Environmental product declarations.
Core rules for the product category of construction products.

This certificate, issued for the first time on 30th August 2018 is valid for 5 years
or until amendment of mentioned Environmental Declaration

Head of the Thermal Physic, Acoustics
and Environment Department
Michał Piasecki, PhD

INSTYTUT TECHNIKI BUDOWLANEJ

Deputy Director
for Research and Innovation
Krzysztof Kuczyński, PhD

Warsaw, August 2018

COOL·R

cooling & waterproofing

SELENA®

GLOBAL EXPERIENCE

32895V03