ACRYLOSILOX

OPAQUE SILOXANE FINISH FOR INTERIORS - HIGH BREATHABILITY - ZERO VOC

Series 362

San Marco Group SpA gives priority to environmental protection and safety in the workplace. For this reason, San Marco Group constantly seeks to improve the quality of its products and their production cycles in order to reduce the overall impact on the environment and ensure quality and safety for customers.

This environmental data sheet shows the environmental information of ACRYLOSILOX: LCA, LEED and other information.

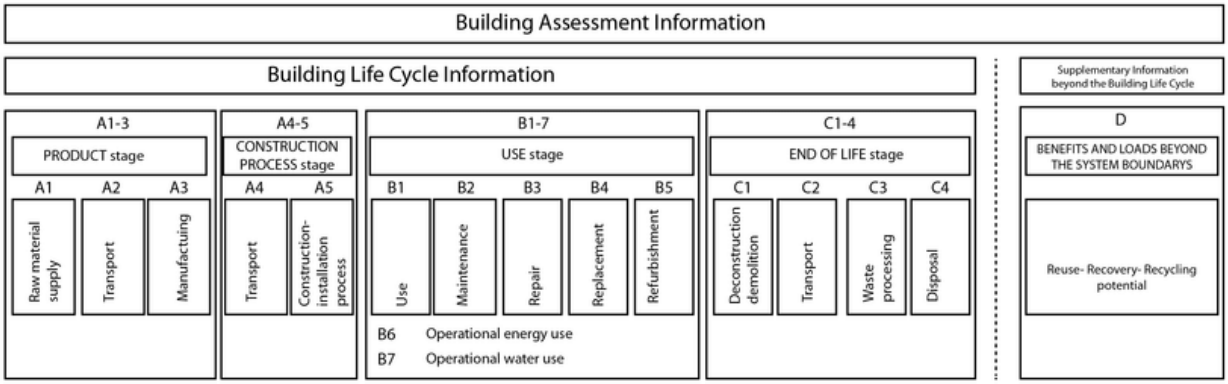
ACRYLOSILOX is a high-quality water paint based on modified siloxanicpolymers and special additives that give the product excellentbreathability and high water repellency.
Recommended for walls and ceilings, it creates matt finishes with highwhiteness.
Excellent coverage. Formulated respecting Kuenzle's theory. It has a capillary waterabsorption, W, of less than 0.5 kg/m²h^0.5 and a vapour diffusionresistance, Sd, of less than 2 m.

LIFE CYCLE ASSESSMENT

Life Cycle Assessment (LCA) is a tool to quantify the environmental impact of a product or service throughout its entire life cycle. The LCA methodology, as defined by ISO 14040/44 [1-2], consists of four phases:

- goal and scope definition
- inventory analysis
- impact assessment
- interpretation

The LCA, as defined by EN 15804 [3], consists of several stages:



The LCA calculation method of San Marco Group has undergone an EPD Process Certification in conformity with the prescriptive references GPI for EPD v3.01 for the PCR 2019:14 Contruction products v1.11 EN15804:2012+A2:2019 [4][5].

Goal and scope

The goal of this LCA is to provide transparency about the environmental performance of ACRYLOSILOX, to create improvement options and support environmental communication. The functional unit is 1 kg of paint including packaging, with a spreading rate of 6 l/sqm. (considering 2 coats) and density 1.50 kg/l.

This LCA is a “from cradle to gate” study. The system boundaries include raw materials, their transportation, processing, packaging. Distribution, application, use phase and demolition are excluded because these phases are highly variable.

Inventory analysis

Primary data are used to the most significant processes, like the paint recipe, packaging and factory consumptions and emissions. Data refer to 2021 and are collected at the San Marco Group's factories located in Marcon (VE), Latisana (UD), Forlì, Montemarciano (AN). Secondary data originate from the ecoinvent v3.8 database [6]. The LCA calculations are performed with the LCA software SimaPro 9.4 [7].

Impact assessment

Life cycle impact assessment has been done with the standard EN15804. This method consists of different environmental indicators including the Carbon Footprint, energy content, material resource consumption, water consumption and waste. Table 1 shows the LCA results.

Table1: LCA results.

Impact categories	Unità	A1	A2	A3
Climate change	kg CO2 eq	1,100	0,081	0,005
Climate change - Fossil	kg CO2 eq	1,112	0,081	0,005
Climate change - Biogenic	kg CO2 eq	-1,25E-02	7,22E-05	2,02E-04
Climate change - Land use and LU change	kg CO2 eq	9,12E-04	3,26E-05	1,61E-06
Ozone depletion	kg CFC11 eq	1,67E-05	1,87E-08	5,38E-10
Acidification	mol H+ eq	1,32E-02	3,75E-04	1,05E-05
Eutrophication, freshwater	kg P eq	3,87E-04	5,21E-06	5,06E-07
Eutrophication, marine	kg N eq	1,25E-03	1,10E-04	2,28E-06
Eutrophication, terrestrial	mol N eq	1,21E-02	1,20E-03	2,49E-05
Photochemical ozone formation	kg NMVOC eq	4,26E-03	3,63E-04	7,19E-06
Resource use, minerals and metals	kg Sb eq	4,11E-05	2,78E-07	2,57E-08
Resource use, fossils	MJ	16,241	1,222	0,029
Water use (AWARE)	m3	0,917	0,004	0,013
Particulate matter	disease inc.	8,74E-08	7,00E-09	1,27E-10
Ionising radiation	kBq U-235 eq	0,097	0,006	0,000
Ecotoxicity, freshwater	CTUe	86,217	0,953	0,039
Human toxicity, cancer	CTUh	3,27E-09	3,14E-11	4,96E-12
Human toxicity, non-cancer	CTUh	2,91E-08	9,95E-10	4,22E-11
Land use	Pt	8,447	0,858	0,016
Total use of non-renew primar energy res	MJ	16,241	1,222	0,029
Total use of renewable primar energy res	MJ	1,915	0,017	0,002
Use of secondary material	kg	0,00E+00	0,00E+00	0,00E+00
Use of renewable secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00
Use of non-renewable secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00
Net use of fresh water (from AWARE)	m3	2,45E-02	1,37E-04	3,83E-05
Hazardous waste disposed	kg	2,63E-05	3,15E-06	1,73E-06
Non-hazardous waste disposed	kg	6,09E-01	6,46E-02	4,95E-03
Radioactive waste disposed	kg	4,26E-05	8,26E-06	1,46E-07
Materials for recycling	kg	4,87E-05	0,00E+00	3,32E-02
Materials for energy recovery	kg	0,00E+00	0,00E+00	0,00E+00

Interpretation

The LCA results indicate that the largest contributions come from upstream processes (i.e. raw materials). The global warming potential of 1 kg of ACRYLOSILOX is 1.187 kg CO_2 eq and its water consumption is 25 litres.

LEED

LEED, or Leadership in Energy and Environmental Design, is the most widely used green building rating system in the world. Available for virtually all building, community and home project types, LEED provides a framework to create healthy, highly efficient and cost-saving green buildings. LEED certification is a globally recognized symbol of sustainability achievement. LEED is for all building types and all building phases including new construction, interior fit outs, operations and maintenance, and core and shell. There's a LEED for every type of building project.
Projects pursuing LEED certification earn points across several categories: Location & Transportation, Sustainable Sites, Water Efficiency, Energy & Atmosphere, Materials & Resources, Indoor Environmental Quality, Innovation and more. Based on the number of points achieved, a project then earns one of four LEED rating levels: Certified, Silver, Gold or Platinum. The process is designed to inspire project teams to seek innovative solutions that support public health and our environment, while saving building owners money over a project's life cycle.
Although LEED does not certify products and services of individual companies, products that meet the LEED performance criteria can contribute toward earning points needed for LEED certification.
The table below shows ACRYLOSILOX potential contribution to the different LEED credits of LEED v4 Building Design and Construction [8]. Table 2 shows the possible contribution of the paint to potential credits, if used properly.

Table 2: Potential LEED credits.

LEED BD+C: NC v4 credits	Title	Description	Possible points
MR credit 4	Building product disclosure and optimization - material ingredients	On request	1 - 2
MR credit 5	Construction and Demolition Waste Management	Packaging steel	1 - 2
IEQ credit 2	Low emitting materials	Indoor Air Comfort Gold	1 - 3
IEQ credit 4	Interior Lighting	Depending on the color	1 - 2

San Marco Group does not guarantee that credits will be obtained by projects pursuing LEED certification. The designer or engineer will need to evaluate and verify if the project complies with the LEED requirements.

OTHER INFORMATION

VOC DIR. 2004/42/EC LABEL

Limit value EU (Dir. 2004/42/EC) [9]

Limit value EU (Dir. 2004/42/EC)
Cat. A/a: Matt coatings for interior walls and ceilings(gloss≤25@60°) WB: 30 g/l (2010)

EUROPEAN CLASS OF REACTION TO FIRE

According to the criteria reported in EN 13501-1:2009 [10]

CLASSIFICATION of REACTION TO FIRE

Behavior in the fire	Smoke production	Inflames particle/drops	
A2	s 1	d	0

The classification refers to the product applied on a non-combustible surface according to the technical data sheet with consumption of 250 g/m2.

INDOOR AIR QUALITY – FRENCH LABELING

[11]

INDOOR AIR COMFORT GOLD

Certificate IACG-01-01-2021 Eurofins [12]

ECODESIGN INDEX

Counter of ecodesign activities affecting the coating, accomplished by the company.

N°	Activity item	Date
1°	first issue	Nov 2022

References

[1] ISO 14040, 2006: Environmental management, Life cycle assessment, Principles and framework. CEN, EN ISO 14040:2006 (www.iso.org).

[2] ISO 14044, 2006: Environmental management, Life cycle assessment, Requirements and guidelines. CEN, EN ISO 14044:2006 (www.iso.org).

[3] EN 15804, 2014: Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products (www.cen.eu)

[4] CSQA Certificazioni srl – Thiene (VI) Italy www.csqa.it / Certificate n. 70312 – First emission 04th June 2021

[5] PCR 2012:01 v2.0 "Construction products and cpc 54 construction services". Product Category Rules (PCR) for preparing an environmental product declaration (EPD) for construction products and construction services, the Swedish Environmental Management Council (www.environdec.com).

[6] Ecoinvent, 2014: Database ecoinvent v3.1. Swiss Centre for Life Cycle Assessment, (www.ecoinvent.ch).

[7] PRé, 2015: LCA software SimaPro 8.1.0 PRé Consultants, the Netherlands (www.pre-sustainability.com).

[8] USGBC, LEED v4 Building Design and Construction (www.usgbc.org/leed)

[9] Directive 2004/42/CE of the European Parliament and of the Council on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain paints and varnishes and vehicle refinishing products and amending Directive 1999/13/EC (21 april 2004)

[10] EN 13501-1:2019: Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests (www.cencenelec.eu)

[11] classification according to Decree No. 2011-321 of 23 March 2011 (French Republic)

[12] EUROFINS product certification, https://www.eurofins.com/consumer-product-testing/industries/construction-building/indoor-air-comfort/