UNIMARC SMALTO MURALE SEMILUCIDO

LOW V.O.C. WATER SOLUBLE ODORLESS SEMI-GLOSSY FINISH SUITABLE FOR LARGE AREAS PUBLIC SPACES AND SETTINGS IN THE FOOD INDUSTRY

series 337

Colorificio San Marco SpA gives priority to environmental protection and safety in the workplace. For this reason, Colorificio San Marco 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 UNIMARC SMALTO MURALE SEMILUCIDO: LCA, LEED and other information.

UNIMARC SMALTO MURALE SEMILUCIDO is a water-based wall enamel for interiors and exteriors based on acrylic resins. Odorless, free of formaldehyde and low-VOC, specific for the treatment of large surfaces with a high sanitary standard such as hospitals, schools, kindergartens, medical laboratories, settings in the food industry, and in residential areas.

UNIMARC SMALTO MURALE SEMILUCIDO is formulated to provide:

- low dirt retention

- high coverage and whiteness

- good breathability

- excellent resistance to washing, cleaning and disinfection

- quickness in drying with reduced overcoating time

- it complies with the requirements of Reg. EC 852/2004 on the hygiene of foodstuffs.

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 calculation method of San Marco has undergone a critical review by a third part auditor [3].

Goal and scope

The **goal** of this LCA is to provide transparency about the environmental performance of UNIMARC SMALTO MURALE SEMILUCIDO, to create improvement options and support environmental communication. The functional unit is 1 kg of paint including packaging, with a spreading rate of . This LCA is a "from cradle to gate with options" study. The **system boundaries** include raw materials, their transportation, processing, packaging and the product and its packaging disposal. 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 2014 and are collected at the San Marco Group's factories located in Marcon (VE), Latisana (UD), Forlì, Montemarciano (AN) it refers to the type "BIANCO" in the 10 l size (code 3370019/10). The end of use of the product and his packaging refers to the Italian situation. Secondary data originate from the ecoinvent v3.1 database [4]. The LCA calculations are performed with the LCA software SimaPro 8.1 [5].

Impact assessment

Life cycle impact assessment has been done with the method **PCR 2012:01 v2.0. "Construction products and cpc 54 construction services"**[6], as indicated in the EPD programme of the International EPD Consortium. 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.

		Unit	Total	Upstream (A1)	Core (A2-A3)	Downstream (A4-A5-B-D)	Downstream (C2-C3-C4)
Impact categories	Global warming	kg CO_2 eq	2,762	2,527	0,172	n.a.	0,063
	Ozone depletion	mg CFC-11 eq	0,287	0,259	0,027	n.a.	0,002
	Acidification of land and water	g SO_2 eq	19,492	18,734	0,740	n.a.	0,018
	Eutrophication	g PO_4^{3-} eq	7,966	5,279	0,430	n.a.	2,257
	Photochemical ozone creation,	g C_2H_4 eq	1,126	1,091	0,030	n.a.	0,005
	depletion of abiotic resources (elements)	mg Sb eq	35,701	35,324	0,372	n.a.	0,005
	depletion of abiotic resources (fossil)	MJ	40,312	37,953	2,319	n.a.	0,039
Resource consumption	Use of renewable primary energy excluding renewable primary energy resources used as raw materials	MJ	3,454	4,226	0,150	n.a.	-0,922
	Use of renewable primary energy resources used as raw materials	MJ	-	-	-	n.a.	-
	Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	MJ	3,454	4,226	0,150	n.a.	-0,922
	Use of non- renewable primary energy excluding non-renewable primary energy resources used as raw materials	MJ	41,311	38,739	2,522	n.a.	0,049
	Use of non- renewable primary energy resources used as raw materials	MJ	-	-	-	n.a.	-
	Total use of non- renewable primary energy resources (primary energy and primary energy resources used as raw materials)	MJ	41,311	38,739	2,522	n.a.	0,049
	Use of secondary material	kg	0,000	0,000	0,000	n.a.	0,000
	Use of renewable secondary fuels	MJ	0,000	0,000	0,000	n.a.	0,000
	Use of non-renewable secondary fuels	MJ	0,000	0,000	0,000	n.a.	0,000
	Direct and indirect consumption of fresh water	m^3	0,044	0,043	0,001	n.a.	0,000
Waste disposal	Hazardous waste disposed	kg	0,042	0,037	0,005	n.a.	0,000
	Non-hazardous waste disposed	kg	1,274	0,421	0,078	n.a.	0,775
	Radioactive waste disposed	kg	0,000	0,000	0,000	n.a.	0,000

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 UNIMARC SMALTO MURALE SEMILUCIDO is 2.762 kg CO_2 eq and its water consumption is 44 litres. The negative value of renewable energy content is caused by the pallet reuse.

LEED

LEED means Leadership in Energy and Environmental Design. It is a voluntary program that provides third-party verification of green buildings. It provides building owners and operators a tool to understand their building's environmental performance and to create healthy indoor spaces.

In order to obtain LEED certification, projects must satisfy prerequisites and earn points (there is a threshold). The number of points the project earns determines its level of LEED certification.

LEED is a certification system that deals with the environmental performance of buildings based on overall characteristics of the project. Although LEED does not certify products and services of individual companies, products and services do play a role and can help projects with credit achievement.
The table below shows UNIMARC SMALTO MURALE SEMILUCIDO potential contribution to the different **LEED credits** of the LEED 2009 Rating System for New Construction and Major Renovations [7] and 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 2009 Credits	Description	Possible points
MR credit 5	Regional Materials	1-2 points
IEQ credit 3.2	Construction Indoor air quality management plan	1 point
IEQ credit 4.2	Low-Emitting Materials Paints and Coatings	1 point
LEED v4 Credits	**Description**	**Possible points**
MR credit	Building Life-Cycle Impact Reduction	1-5 points
MR credit	Building product disclosure and optimization — Environmental Product Declarations	1-2 points
IEQ credit	Interior Lighting	1-2 points
IEQ credit	Low-Emitting Materials	1–3 points)

Colorificio San Marco 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 [9]

Limit value EU (Dir. 2004/42/EC)
Cat. A: Matt coatings for interior walls and ceilings (gloss <25@60°) (water-base): 30 g/l (2010)
Cat. C: Coatings for exterior walls of mineral substrate (water-base): 40 g/l (2010)
30 g/l VOC

VOC Dir. 2004/42/EC : Actual content [10]

-Volatile organic compound <0,01 mg/kg / – Report No. 3005F2015 Studio A.S.A. Villorba (TV)

Formaldehyde content [11]

-Formaldehye <1 mg/Kg - Report No. 3005F2015 Studio A.S.A. Villorba (TV)

Regulation EU on the topic of "proper hygiene practices in the food industry" [12]

UNIMARC SMALTO MURALE SEMILUCIDO meets HACCP standards
Test report N. 3001F2015 issued by Studio ASA – Treviso, according to standard UNI 11021:2002

ECODESIGN INDEX

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

N°	Activity item	Date
1°	**first issue (Code 307)**	**Aug 2014**
2°	**Odorless, free of formaldehyde and low-VOC. It complies with the requirements of Reg. EC 852/2004 on the hygiene of foodstuffs**	**Mar 2016**

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

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

[6] 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).

[7] USGBC, LEED 2009 Rating System for New Construction and Major Renovations (www.usgbc.org/leed)

[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] Test method ISO 11890-2:2006 (www.iso.org)

[11] Test method EPA 8315A 1996 (www.epa.gov)

[12] REGULATION (EC) No 852/2004 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 29 April 2004 on the hygiene of foodstuffs