

EXTERIOR PAINTS KEIM

Product Family

SOLDALIT, SOLDALIT-ME, SOLDALIT-COOLIT,
CONCRETAL-W, CONCRETAL-LASUR,
RESTAURO-LASUR

Silicate exterior paints

EXTERIOR PAINTS

KEIM



Silicate Exterior paints

Product family representative

KEIM EXTERIOR

Description

KEIM exterior paints meet the highest requirements in terms of physical-constructive properties, outdoor resistance, profitability and environmental sustainability. For decades, many building all around the world have proved the exclusive quality of KEIM products.

Contact information

www.keim.es
 Christian.knorr@keim.es
 +34 932 191 319

Emission date: August 2019







Summary table: Environmental parameters in which the material has a specific contribution. Detailed in the sheets of the respective environmental certifications VERDE, LEED and BREEAM

Support documents

Cartificates : EPD, CSR, REACH

Self-declarations

Potential

	Support documents	Cartificates : EPD, CSR, REACH	Self-declarations	Potential
Plot Mobility 	Solar Reflectance Index SRI	Rainfall management	External lighting control.	...
Energy Atmosphere 	Embedded energy	Global warming gases	Energy demand reduction	Equipment efficiency
Materials 	Credited location	Pre-consumer recycling	Post-consumer recycling	Reuse potential
Water 	Consumption < reference	Water management	...	Certified wood
Indoor confort 	Low VOC emmission	Low formaldehyde emmission	Confort control	Lighting control
Innovation 	Innovative Design	...	Work waste	Chemical composition

NOTES:

- The information contained in this document according to the compliment of the credits of the selected environmental certification systems (VERDE, LEED or BREEAM) is based on the information provided by the company. To ensure the possibility of each credit compliment during any of the seal processes it will be necessary to verify the validity of the information provided.
- This document doesn't neither constitute a product certification nor guarantee the compliment of current local regulations.
- The conclusions of this analysis are only applied to the products mentioned on this report and depend on the invariability of the technical conditions of the product.
- The validity of this document is subject to the expiration of the support files or the variation of the regulation and versions of each environmental certification seal.
- This document informs about the possible contribution of the studied products to obtain VERDE, LEED or BREEAM certifications. However, the final decision on whether a product meets or not the requirements of LEED certification is exclusive to the GBCI (Green Business Certification Inc.)

Content index

CREDIT SUMMARY	4
VERDE	4
NATURAL RESOURCES	5
• NR06, Use of materials obtained from sustainable resources	5
NATURAL RESOURCES	7
• NR 09, Construction waste management	7
NATURAL RESOURCES	9
• NR 10, Construction materials impact	9
NATURAL RESOURCES	11
• NR 11, Product Eco-labelling	11
CREDIT SHEET	12
LEED v4	12
MATERIALS & RESOURCES (MR)	13
• MRp2 y MRc5, Construction and Demolition Waste Management Planning	13
MATERIALS & RESOURCES (MR)	15
• MRc1, Building Life-Cycle Impact Reduction	15
MATERIALS & RESOURCES (MR)	17
• MRc2, Building Product Disclosure and Optimization – Environmental Product Declarations (EPD)	17
INNOVATION IN DESIGN (ID)	18
• ID c2, Innovation	18
CREDIT SUMMARY BREEAM	19
MANAGEMENT	20
• GST 3 Construction site impacts	20
MATERIALS	21
• MAT1 – Life cycle impacts	21
• MAT8 – Materials of low environmental impact	21
MATERIALS	23
• MAT3 – Responsible sourcing of materials	23
• MAT9 – Responsible sourcing of materials – basic elements of the building	23
WASTE	25
• RSD1 Construction waste management	25
INNOVATION	27
• INNOVATION	27

CREDIT SUMMARY

VERDE



NATURAL RESOURCES (NR)

- NR 06, Use of materials obtained from sustainable resources
- NR 09, Construction waste management
- NR 10, Construction materials impact
- NR 11, Product eco-labelling

Environmental categories VERDE



Plot and Site



Energy and Atmosphere



Natural Resources



Interior environmental quality



Quality concept



Social and Economic Aspects



Innovation

Certification standards VERDE

Ω Residential
Ω Equipment

Omega Residential
Omega Equipment

DU P

Urban polygon development

CREDIT SHEET

VERDE



CATEGORY

NATURAL RESOURCES

◆ NR06, Use of materials obtained from sustainable resources (VERDE Ω EQUIPMENT - VERDE Ω RES)

Aim To encourage the use of materials obtained from recognized social and environmental standards. To protect forests, avoid childhood exploitation and respect the environment during natural stone extraction.

Compy data KEIM offers a Corporate Mission Statement affirming to be world leading specialist in mineral architectural protection systems providing sustainable solutions, paying particular attention to the cost-effectiveness, environmental compatibility and social responsibility of products and services. This document affirms that the company's aim is to provide integrated solutions, focusing on environmental matters, developing processes which save raw materials, make efficient use of energy and so are also economically efficient. Besides, the company provides a document, signed by the high directive confirming that all the mineral raw materials contained in the paints are extracted in Germany in a sustainable way by an open-cast mining process, adopting recultivation measures, reutilizing water, using efficient transportation and other relevant aspects. Facing a possible building certification in which these paints are used, a 95% of the paint mass should be used for the fulfilment of this credit, corresponding to its mineral raw material and water content. The other 5% corresponds to additives and does not contribute to compliance.

Therefore, SOLDALIT exterior paint has a NATUREPLUS seal, which confirms the compliance of a rigid evaluation process regarding the sustainability of its raw material.

Test process The test process of the building through this credit is established by the calculation of the mass percentage of woods and materials containing woods used in the project that provide a chain custody control certification, either PEFC or FCS. All woods used during the construction must be considered, including those used provisionally such as concrete formworks and pallets. Percentage might be between 20% and 50% over the total mass of woods used in the project to be well valued.

Besides, this credit tests the calculation of the mass percentage of materials that have a document that justifies that the origin of the raw materials guarantees basic sustainable requirements.

This percentage might be between 5% and 50% of the total material mass to be well valued.

The following documents are accepted to justify the origin of the raw materials:

- Global Reporting Initiative (GRI) Sustainable Report.
- Self-declaration of the manufacturer including: Place of extraction of raw materials used in the product and responsible environmental procedures during extraction and processing.

- Corporate mission statement approved by the senior manager, including requirements for distributors of raw materials that complies with the basic rights of workers, child labour and environmental respect for protected areas and areas of high ecological value

Analysis example NA

Support Files *Keim-mission-statement.pdf*
FT_Soldalit.pdf
Naureplus-GL600 wall paints.pdf
Natureplus_GL00_criterios generales.pdf
Manufacturer's Confirmation Sustainable Mineral Raw
Materials_exterior.pdf

Baseline NA





CATEGORY NATURAL RESOURCES

◆ NR 09, Construction waste management (VERDE Ω EQUIPMENT - VERDE Ω RES)

Aim To reduce construction waste by using prefabricated and industrial materials and using controlled work processes that minimize waste production. Only waste produced during construction or rehabilitation phase is considered. Mass of the revalued waste might be between 50% and 75% of total construction waste to be well valued.

Comply data All the packaging in which KEIM paints are delivered can be recycled. At the following table, can's weights are specified according to the product and the available size for each of them.

PRODUCT	Format	Can weight (kg)
SOLDALIT	2.5kg	0.153 kg
	5kg	0.271 kg
	18kg	0.662 kg
SOLDALIT-ME	2.5kg	0.153 kg
	5kg	0.271 kg
	18kg	0.662 kg
SOLDALIT-COOLIT	2.5kg	0.153 kg
	5kg	0.271 kg
	18kg	0.662 kg
CONCRETAL-W	5kg	0.271 kg
	25kg	0.649 kg
CONCRETAL-LASUR	1lt	0.075 kg
	5lt	0.271 kg
	15lt	0.649 kg
RESTAURO-LASUR	1lt	0.075 kg
	5lt	0.271 kg
	15lt	0.649 kg

Test process Test process of the building through this credit is specified by the existence, in project instance, of a Construction Waste Management Plan according to current regulations. This plan must be written during the previous phase of the intervention according to the previous study. All the waste produced is considered for rehabilitation works, including possible demolitions. The the revaluation guarantee of the waste between 50% and 75% of its total mass will be valued for this credit.

Analysis example NA

Support files *DAP_exterior_EN.pdf*
FT_Soldalit.pdf
FT_Soldalit-ME.pdf
FT_Soldalit-coolit.pdf
FT_Concretal-W.pdf
FT_Concretal_lausr.pdf
FT_Restauro-Lasur.pdf
FT_Soldalit-Coolit.pdf
Peso envases.pdf

Baseline NA



CATEGORY NATURAL RESOURCES

◆ NR 10, Construction materials impact (VERDE Ω EQUIPMENT - VERDE Ω RES)

Aim To reduce impacts associated to material production by using low impact materials during product stage together with reused and recycled materials.

Comply data KEIM provides a EPD for their exterior silicate paints. Impacts associated to the production of the products, which can be used for the calculation of the LCA of the building, are reflected in the following table. Results respond to a unit of 1kg of paint.

IIMPACT FROM CRADLE TO GATE	Total use of non-renewable primary energy	Global warming potential	Hazardous waste disposed	Non-hazardous waste disposed
Material (A1-A3)	MJ/uf	Kg CO2-uf	Kg/uf	Kg/uf
Exterior silicate paint KEIM	2.45E+1	1.20E+0	4.63E-3	1.97E-1

To be able to compare with VERDE's baseline, values are transferred to m2 painted according to the following performance data based of two paint layers over a smooth surface.

Paint	Density (kg/m2)
Soldalit	0.45
Concretal-W	0.35
Contretal-Lasur	0.25
Restauero-Lasur	0.17

In this way, LCA of the products presented at the EPD delivers the following results:

IIMPACT FROM CRADLE TO GATE	Total use of non-renewable primary energy	Global warming potential	Hazardous waste disposed	Non-hazardous waste disposed
	Mj/m2	Kg Co2/m2	Kg/m2	Kg/m2
Soldalit	11.02	0.54	2.08E-3	8.87E-2
Concretal-W	8.58	0.42	1.62E-3	6.9E-2
Concretal-Lasur	6.13	0.3	1.16E-3	4.93E-2
Restauero-Lasur	4.17	0.2	7.87E-4	3.35E-2

Test process Test process of the building through this credit is established by the comparison of impacts associated to construction materials with an established baseline.

The scope of study of this credit is limited to materials used for the enclosure and interior partitions considering as such the following constructive elements: roof, facade, interior, horizontal and vertical partitions, floors in contact with the ground, basement walls and dividing walls.

It has been decided not to include the structure for the credit calculation, however, it could be included if the definition of a baseline structure for the particular case is justified.

Analysis example NA

Support files *DAP_exterior_EN.pdf*

Baseline *Reference building based on BEDEC*

IMPACT FROM CRADLE TO GATE	Total use of energy	C02 emissions	Non-Hazardous waste disposed
Indicator	MJ/m2	Kg/m2	Kg/m2
Exterior paints	6.12	0.90	0.03

Reference building based on CYPE

IMPACT FROM CRADLE TO GATE	Total use of energy	C02 emissions	Non-hazardous waste disposal	Non-hazardous waste disposal	Kg material
Indicator	kWh/m2	Kg/m2	Kg/m2	M3	kg
Exterior paints	12.11	3.098	0.045	0.000045	0.825



CATEGORY NATURAL RESOURCES

➤ NR 11, Product Eco-labelling (VERDE Ω EQUIPMENT - VERDE Ω RES)

Aim	To encourage the use of products with eco-labels Type I or Type III.
Comply data	KEIM provides a EPD for their exterior silicate paints. This EPD applies to all the products analysed on this sheet: KEIM Soldalit, KEIM Soldalit-ME, KEIM Soldalit-Coolit, KEIM Concretal-W, KEIM Concretal-Lasur and KEIM Restauro Lasur
Test process	<p>The test process of the building through this credit is established by a list of materials that have an eco-label type I or Type III (EPD)</p> <p>To obtain the maximum score:</p> <ul style="list-style-type: none"> • Mass percentage of materials with eco-label type I should range between 10% and 20%. • Mass percentage of materials with EDP should range between 10% and 20% and include at least the following families: Structural elements, insulation and coatings.
Analysis example	NA
Support files	<i>DAP_exterior_EN.pdf</i>
Baseline	NA

CREDIT SHEET

LEED v4



MATERIALS AND RESOURCES (MR)

- MR p2-c5, Construction and Demolition Waste Management Planning
- MR c1, Building Life-Cycle Impact Reduction
- MR c2, Building Product Disclosure and Optimization – Environmental Product Declarations (EPD)
- MR c4, Building Product Disclosure and Optimization – Material Ingredients



INNOVATION IN DESIGN (ID)

- ID c2, Innovation

Environmental categories LEED



(LT)
Locations & Transportation



(SS)
Sustainable Sites



(WE)
Water Efficiency



(EA)
Energy and Atmosphere



(MR)
Materials & Resources



(IEQ)
Indoor Environmental Quality



(ID)
Innovation



(RP)
Regional Priority

LEED certification standards (v4)

EB Existing Building	RNC Retail New Construction	DCNC Data Center NC
NC New Construction	REB Retail Existing Building	DCEB Data Center EB
CI Commercial Interiors	RCI Retail Commercial Interiors	WNC Warehouse NC
CS Core & Shell	HC Healthcare	WEB Warehouse EB
SNC School New Construction	HNC Hospitality-New Constr.	NDP Neighborhood Devel. Plan
SEB School Existing Building	HEB Hospitality-Existing Building	ND Neighborhood Develop.
MRB Mid Rise Buildings	HCI Hospitality-Commercial Int.	HO Homes

CREDIT SHEET

LEED v4



CATEGORY

MATERIALS & RESOURCES (MR)

MRp2 y MRc5, Construction and Demolition Waste Management Planning (NC, CS, SNC, RNC, HC, HNC, DCNC, WNC, CI, RCI, HCI, EB, SEB, REB, HEB, WEB)

Aim To reduce construction and demolition waste disposed of in landfills and incineration facilities by recovering, reusing and recycling materials.

Comply data All the packaging in which KEIM paints are delivered can be recycled. At the following table, can's weights are specified according to the product and the available size for each of them.

PRODUCTO	Formato	Peso de envase (kg)
SOLDALIT	2.5kg	0.153 kg
	5kg	0.271 kg
	18kg	0.662 kg
SOLDALIT-ME	2.5kg	0.153 kg
	5kg	0.271 kg
	18kg	0.662 kg
SOLDALIT-COOLIT	2.5kg	0.153 kg
	5kg	0.271 kg
	18kg	0.662 kg
CONCRETAL-W	5kg	0.271 kg
	25kg	0.649 kg
CONCRETAL-LASUR	1lt	0.075 kg
	5lt	0.271 kg
	15lt	0.649 kg
RESTAURO-LASUR	1lt	0.075 kg
	5lt	0.271 kg
	15lt	0.649 kg

Test process Implement and follow up a Waste Management Plan where % recovery and /

or recycling are incorporated.

Detail the place and procedure of management and revaluation of each material.

Option 1. (BDC, CI)

Divert at least 50% or 75% of the total construction and demolition material (at least 3 and 4 material streams).

Option 1. (EB)

Divert at least 70% of the total construction and demolition material.

Option 2.

Reduce the total amount of waste generated in the construction work, below 12,2 kg/m².

(HO-Homes, MRB-Mid Rise Buildings)

To reduce total construction waste or prevent waste from ending up in landfill or incinerators.

The baseline of generated waste (in Kg) is determined according to table 1 (number of rooms and conditioned surface).

In multi-family buildings, use the waste / surface table and add the associated waste to spaces not considered as housing.

Project construction waste = Total waste - (recycled waste * 0.25)

Depending on the percentage of reduction (between 10-60%) a specific score will be associated.

Analysis example

NA

Support files

DAP_exterior_EN.pdf
FT_Soldalit.pdf
FT_Soldalit-ME.pdf
FT_Soldalit-coolit.pdf
FT_Concretal-W.pdf
FT_Concretal_lausr.pdf
FT_Restauro-Lasur.pdf
Peso envases.pdf

Baseline

NA



CATEGORY MATERIALS & RESOURCES (MR)

MRc1, Building Life-Cycle Impact Reduction (NC, CS, SNC, RNC, HC, HNC, DCNC, WNC, CI, RCI, HCI, EB, SEB, REB, HEB, WEB)

Aim To encourage adaptive reuse and optimize the environmental performance of products and materials.
Extend the lifespan of the building, preserve resources and cultural heritage.
Reduce waste and environmental impacts of the construction process.

Comply data KEIM provides a EPD for their exterior silicate paints.
The same EPD is used to justify the following products: *KEIM Soldalit*, *KEIM Soldalit-ME*, *KEIM Soldalit-Coolit*, *KEIM Concretal-W*, *KEIM Concretal-Lasur* and *KEIM Restauro Lasur*.

The impacts associated with the production of these products that can be used to calculate the building's LCA are reflected below.
The ACV includes the stages A1-A3 (Product Phase), A4 (Transport) and A5 (Assembly) and D (Benefits and loads beyond the useful life).

Below are the values of phases A1-A3, A4 and A5, which can be used in the overall analysis of the building.

IMPACT	Exterior silicate paints – KEIM EPD exp. 09.10.2017 – valid till 03.04.2019		
	A1-A3	A4	A5
Global warming potential (<i>kg CO₂</i>)	1,20E+0	2,46E-2	1,59E-1
Depletion of the stratospheric ozone layer (<i>kg CFC 11</i>)	4,30E-10	5,14E-13	1,00E-12
Acidification (<i>kg SO₂</i>)	1,25E-2	1,62E-4	1,68E-5
Eutrophication (<i>kg (PO₄)₃₋</i>)	4,04E-4	4,03E-5	3,44E-6
Use of non-renewable primary energy (<i>MJ/UF</i>)	2,25E+1	3,37E-1	2,87E-2

Test Process Option 4. Analysis of the life cycle of the building

Carry out an analysis of the life cycle of the building (structure and envelope) that demonstrates a minimum of 10% reduction in the impact of the life cycle with respect to the reference building. Any category can't have an impact greater than 5% of the baseline.

The baseline and the project must consider a life cycle of 60 years, with the same use.

Select at least three of the following impact categories for reduction:

- global warming potential (greenhouse gases) en CO₂ e
- depletion of the stratospheric ozone layer, in kg CFC-11
- acidification of land and water sources, in moles H+ o kg SO₂
- eutrophication, in kg nitrogen or kg phosphate
- formation of tropospheric ozone, in kg NO_x, kg O₃ eq, or kg ethene
- depletion of nonrenewable energy resources, in MJ

Analysis example NA

Support Files *DAP_exterior_EN.pdf*

Baseline

LEED allows you to use local reference standards.

The most widespread are:

- *Database of the BEDEC (ITEC)*
- *CYPE database*

Both databases do not include all of the impacts required by LEED, so they should be complemented with additional and contrasted information.



CATEGORY MATERIALS & RESOURCES (MR)

MRc2, Building Product Disclosure and Optimization – Environmental Product Declarations (EPD) (NC, CS, SNC, RNC, HC, HNC, DCNC, WNC, CI, RCI, HCI, EB, SEB, REB, HEB, WEB)

Aim	To encourage the use of products and materials for which life-cycle information is available and that have environmentally, economically, and socially preferable life-cycle impacts.
Comply data	<p>KEIM provides a EPD for their exterior silicate paints:</p> <p><i>KEIM Soldalit, KEIM Soldalit-ME, KEIM Soldalit-Coolit, KEIM Concretal-W, KEIM Concretal-Lasur and KEIM Restauro Lasur.</i></p>
Test process	<p>Option 1: Environmental Product Declaration (EPD)</p> <p>Provide Environmental Product Declarations (EPD) of a minimum of 20 products, from 5 different suppliers, that meet any of the following criteria:</p> <ul style="list-style-type: none"> – Products with a publicly available, critically reviewed life-cycle assessment conforming to ISO 14044, that have at least a cradle to gate scope (Valued ¼) – EPD which conform to ISO 14025, 14040, 14044 y EN 15804 o ISO 21930, and have at least a cradle to gate scope. <ul style="list-style-type: none"> – EPD, industry-wide (generic) (Valued ½) – EPD, product-specific Type III (Valued 1)
Analysis example	NA
Support files	<i>DAP_exterior_EN.pdf</i>
Baseline	<ul style="list-style-type: none"> – <i>International Standard ISO 14021–1999, Environmental labels and declarations—Self Declared Claims (Type II Environmental Labeling): iso.org</i> – <i>International Standard ISO 14025–2006, Environmental labels and declarations (Type III Environmental Declarations—Principles and Procedures): iso.org</i> – <i>International Standard ISO 14040–2006, Environmental management, Life cycle assessment principles, and frameworks: iso.org</i> – <i>International Standard ISO 14044–2006, Environmental management, Life cycle assessment requirements, and guidelines: iso.org</i> – <i>CEN Comité Européen de Normalisation (European Committee for Standardization) EN 15804—2012 Sustainability of construction works, Environmental product declarations, Core rules for the product category of construction products: cen.eu</i> – <i>International Standard ISO 21930–2007 Sustainability in building construction—Environmental declaration of building products: iso.org</i> – <i>Federal Trade Commission, Guides for the Use of Environmental Marketing Claims, 16 CFR 260.7 (e): ftc.gov/bcp/grnrule/guides980427.htm</i>



CATEGORY INNOVATION IN DESIGN (ID)

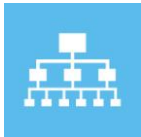
◆ ID c2, Innovation

(NC, CS, SNC, RNC, HC, HNC, DCNC, WNC, CI, RCI, HCI, EB, SEB, REB, HEB, WEB)

Aim	Reward projects that achieve exceptional or innovative performance in meeting LEED requirements.
Comply data	It is considered that the photocatalytic paint KEIM Soldalit-ME could fall into this category, since the disintegration of nitrogen oxide particles from the air (NO, NO ₂ , NO _x) has a health benefit. However, acceptance of such interpretation must be confirmed by the GBCI.
Test process	Option 1. Innovation Achieve significant and measurable environmental benefits, using strategies not included in the LEED certification standards. Innovation credits must be approved in each case by the GBCI.
Analysis example	NA
Support files	<i>Soldalit-ME_Ensayo efectividad fotocatalítica.pdf</i>
Baseline	NA

CREDIT SUMMARY

BREEAM



MANAGEMENT

- GST 3 Construction site impacts. Criteria 6, 7 and 8 (BREEAM ES New Construction 2015). Criteria 4 and item b (BREEAM ES Home 2011)



MATERIALS











- MAT 1 Life cycle impacts (BREEAM ES New Construction 2015)
- MAT 8 Materials of low environmental impact (BREEAM ES Home 2011)
- MAT 3 Responsible sourcing of materials (BREEAM ES New Construction 2015)
- MAT 9 Responsible sourcing of materials – basic elements of the building (BREEAM ES Home 2011)



WASTE

- RSD 1, Construction waste management (BREEAM ES New Construction 2015 and BREEAM ES Home 2011)

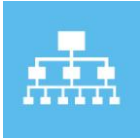
Environmental categories BREEAM ES

									
Management	Health and Wellbeing	Energy	Transport	Water	Materials	Waste	Land Use and Ecology	Pollution	Innovation

Certification Standards BREEAM ES

UR	BREEAM ES town planning	VIV	BREEAM ES Home	USO	BREEAM ES In Use
NC	BREEAM ES New Construction				

FICHA DE CRÉDITOS BREAM ES



CATEGORY MANAGEMENT

➤ GST 3 Construction site impacts (BREEAM ES NEW CONSTRUCTION 2015 y BREEAM ES HOMES 2011)

Aim	To recognize and encourage construction sites managed in an environmentally sound manner in terms of resource use, energy consumption and pollution. Criteria that affect; - Transport of construction materials and waste - Timber procurement
Comply data	In relation to transportation, KEIM paints are manufactured in Germany, at the KEIMFARBEN GMBH factory located at Keimstrasse 16, D - 86420 Diedorf. The paintings are transported by road to the Delegation KEIM Ecopaint Ibérica S.L. located in Spain in c / Octavio Lacante, 55 E - 08100 Mollet del Vallès. The transport of merchandise, both from the factory in Germany to the Spanish Delegation, as well as from the Delegation to the customer, is always done by road.
Test process	<u>Transport of construction materials and waste (one point)</u> The evaluation of the building through this criteria is established by stating in a report separately, the total fuel consumption (liters), the total carbon dioxide emissions (kgCO2 eq) associated to the transport and the total distance traveled (km) to the building.
Analysis example	The calculation of the transport criterion should be carried out in each case according to the location of the building, intermediate storage and its distribution.
Support files	<i>Localización.pdf</i>
Baseline	<ul style="list-style-type: none"> • National Inventory of Atmospheric Emissions (Netcen, 2005) based on DTI data combined with TRL factors as functions of the average speed of the vehicles, derived from data from tests carried out in real test cycles. • UK Energy Statistics Summary DTI 2004 and carbon factors for UKPIA fuels (2004). • Guidelines for Corporate Information on Emissions of Greenhouse Gases, DEFRA, Continuous Survey of Transportation of Goods by Road 2001.



CATEGORY MATERIALS

- ◆ **MAT1 – Life cycle impacts
(BREEAM ES NEW CONSTRUCTION 2015)**
- ◆ **MAT8 – Materials of low environmental impact
(BREEAM ES HOME 2011)**

Aim To recognize and encourage the use of robust and adequate tools for the Life Cycle Analysis and, therefore, the specification of construction materials with a low environmental impact (also in terms of carbon incorporated) throughout the life cycle of the building

Comply data **Environmental labels Type I, II and III:**
KEIM delivers an EPD (label Type III) for its silicate interior paints. This EPD is applicable for all the products analyzed in this file: KEIM Soldalit, KEIM Soldalit-ME, KEIM Soldalit-Coolit, KEIM Concretal-Lasur, KEIM Concretal-W and KEIM Restauro-Lasur. All the data of the DAPs comply with the UNE EN ISO 14025 and are verified according to the UNE EN 15804.

Life Cycle Analysis:

Impacts reflected in the EPD can be used for the LCA, contributing to the fulfillment of option 2. The impacts reflected in the EPDs of each product that can be used to calculate the LCA of the building are reflected below.

IMPACT FROM CRADLE TO GATE	Total use of non-renewable primary energy resources	Global warming potential	Hazardous waste disposed	Non-hazardous waste disposed
Material (A1-A3)	MJ/uf	Kg CO ₂ -uf	Kg/uf	Kg/uf
Exterior Paints KEIM	2.45E+1	1.20E+0	4.63E-3	1.97E-1

Test process **Environmental labels Type I, II and III:**

- BREEAM ES Home: specify products with ecological labels Type I, II or III.
- BREEAM ES New Construction: specify products with Environmental Product Declarations (EPD) (Type III Label).

Life Cycle Analysis (LCA):

The project uses a life cycle analysis (LCA) tool that complies with the BREEAM specifications, to measure the environmental impact of the life cycle of the building elements.

Exemplary level criteria (1 extra point):

- BREEAM ES Home: as a result of the LCA, materials with less environmental impacts have been chosen in at least 6 elements of the building.
- BREEAM ES New Construction: rigorous LCAs have been carried out in which most of the elements of the building are included.

Analysis example NA

Support files *DAP_exterior_EN.pdf*

Baseline

- *UNE-EN ISO 14025:2010. Environmental labels and declarations. Environmental declarations type III. Principles and procedures. (ISO 14025: 2006)*
- *UNE-EN 15804:2012. Sustainability in construction. Environmental product declarations. Basic product category rules for construction products.*
- *UNE-EN 15978:2012. Sustainability of the construction. Evaluation of the environmental behavior of buildings. Calculation methods.*





CATEGORY MATERIALS

- ◆ **MAT3 – Responsible sourcing of materials (BREEAM ES NEW CONSTRUCTION 2015)**
- ◆ **MAT9 – Responsible sourcing of materials – basic elements of the building (BREEAM ES HOME 2011)**

Aim To recognize and encourage the specification of responsibly sourced materials for key building elements, whose provisioning has been made responsibly.

Comply data The production plant of all KEIM paints is located in Germany, in the KEIMFARBEN GMBH factory, located in Keimstrasse 16, D - 86420 Diedorf and has an environmental management system (EMS) certified by a third party for the manufacture of the products (Environmental Management System certified for the key process phase).

In **BREEAM EN New Construction 2015** the Environmental Management System certificate (EMS) for the key process phase corresponds to 3rd level of responsible procurement certification.

In **BREEAM ES Home 2011** the Environmental Management System certificate (EMS) for the key process phase corresponds to 4th level certification of responsible procurement certification.

Test process **Pre-requirement only in BREEAM ES New Construction:** Confirmation that all timber used on the project is "legally harvested and commercialized timber".

Requirement:

The number of BREEAM points achieved is determined with compliance with the requirements of responsible procurement by the main construction elements. To justify compliance, each product must be certified in accordance with any of the responsible supply systems approved by BREEAM.

Each of the materials is assigned to the level of certification of responsible provisioning with its corresponding score. The certification level is determined based on the rigor of the responsible supply that has been made to the suppliers / suppliers of each material / element (through the responsible supply certification systems). The responsible supply certification systems are those that are detailed below;

- BRE Global, BES6001 Product certification (or equivalent)
- Canadian Standards Association (CSA) Chain of Custody Schema (CoC) (endorsed by the PEFC) for chain of custody (CoC) certification
- Environmental management system (EMS) (certified) for the key process and supply chain extraction process
- Environmental management system (EMS) (certified) for the key process
- Wood with FLEGT license
- Forest Stewardship Council (FSC)

- Recycled materials with Certified EMS for key process.
- Re-used materials
- Malaysian Timber Certification Council (MTCC) with chain of custody certification (CoC)
- Program for the Endorsement of Forest Certification (PEFC) with chain of custody certification (CoC)
- Sustainable Forest Initiative (SFI) (endorsed by the PEFC) with chain of custody certification (CoC) with a declaration of 70% certified material.

Exemplary level criteria only in en BREEAM ES New Construction:

Where 70% of the available responsible sourcing points have been achieved.

Analysis example

NA

Support files

ISO_9001+14001.pdf

Baseline

- To consult a list of products approved under the BES6001 standard, as well as for additional information, visit: www.greenbooklive.com/
- Document to determine the validity of the FSC and PEFC certificates. <http://www.pefc.org/index.php/certification-services/find-certified>
- Databases to search certificate holders obtained in accordance with individual certification systems: <http://info.fsc.org/> <http://www.pefc.es>
- UNE-EN ISO 14006: 2011. Environmental management systems. Guidelines for the incorporation of eco-design.
- ISO 14001 standard



CATEGORY WASTE

◆ RSD1 Construction waste management (BREEAM ES NEW CONSTRUCTION 2015 and BREEAM ES HOME 2011)

Aim To promote resource efficiency via the effective management and reduction of construction waste.

Comply data All the packaging in which KEIM paints are delivered can be recycled. At the following table, can's weights are specified according to the product and the available size for each of them.

PRODUCT	Format	Can weight (kg)
SOLDALIT	2.5kg	0.153 kg
	5kg	0.271 kg
	18kg	0.662 kg
SOLDALIT-ME	2.5kg	0.153 kg
	5kg	0.271 kg
	18kg	0.662 kg
SOLDALIT-COOLIT	2.5kg	0.153 kg
	5kg	0.271 kg
	18kg	0.662 kg
CONCRETAL-W	5kg	0.271 kg
	25kg	0.649 kg
CONCRETAL-LASUR	1lt	0.075 kg
	5lt	0.271 kg
	15lt	0.649 kg
RESTAURO-LASUR	1lt	0.075 kg
	5lt	0.271 kg
	15lt	0.649 kg

Test process Compliance with this criterion is justified by means of a Site Waste Management of Construction or Demolition Study (SWMS) that meets certain requirements that ensure the minimization of hazardous and non-hazardous waste produced and complies with current regulations. Prior to the execution of the work, a Site Waste Management Plan for Construction or Demolition (SWMP) must be drawn up in accordance with the previous Study carried out. Obtaining points is based on the % of waste diverted from landfill.

Exemplary level criteria (1 extra point):

- BREEAM ES Home: when you have achieved the 3 points, in addition, 95%

of the waste has been diverted from landfill.

• BREEAM ES New Construction: when the other criteria have been met, 95% of the waste has been diverted from landfill (a 25% improvement from the national rate).

Analysis example

NA

Support files

DAP_exterior_EN.pdf
FT_Soldalit.pdf
FT_Soldalit-ME.pdf
FT_Soldalit-coolit.pdf
FT_Concretal-W.pdf
FT_Concretal_lausr.pdf
FT_Restauro-Lasur.pdf
Peso envases.pdf

Baseline

NA



CATEGORY INNOVATION



INNOVATION

(BREEAM ES NEW CONSTRUCTION 2015, BREEAM ES HOME 2011)

Aim	To support innovation within the construction industry through the recognition of sustainability related benefits which are not rewarded by standard BREEAM issues.
Comply data	<p>KEIM interior paints can contribute to the fulfillment criteria of exemplary performance in the next requirements:</p> <ul style="list-style-type: none"> • MAT1, Life cycle impacts • MAT3, Responsible sourcing of materials • MAT8, Materials of low environmental impact • RSD1, Construction waste management
Test process	<p>Up to 10 innovation points can be obtained by a combination of the following options:</p> <p>Exemplary performance in existing Requirements Some BREEAM credits give the option to obtain extra score for demonstrating an exemplary efficiency through the achievement of the exemplary performance criteria defined there.</p> <p>Approved innovations An extraordinary point may be obtained for each Request for Innovation Approved by BREEAM ES provided that the criteria defined in an approved innovation application form are met.</p>
Analysis example	NA
Support files	<i>See corresponding requirements</i>
Baseline	<i>See corresponding requirements</i>