

# Building- and Environmental declaration for Prelaq GreenCoat, Prelaq GreenCoat Pro, Prelaq GreenCoat Pro Matt and Prelaq GreenCoat Mica

as per Ecocycle Council guidelines

## 1. BASIC DATA

### 1.1 Product name

Prelaq GreenCoat, Prelaq GreenCoat Pro, Prelaq GreenCoat Pro Matt and Prelaq GreenCoat Mica.

### 1.2 New Declaration/Changed declaration

Changed declaration

Changed sections:

5.5 (New item), 5.6 (New item), 10.3 Waste code

### 1.3 Building- and Environmental declaration issued in January 2012

### 1.4 Building- and Environmental declaration changed Maj 2014

## 2. SUPPLIER INFORMATION

Company name	SSAB
Address	78184 Borlänge
Phone number	0243-70 000
Fax	0243-72 000
E-mail	info@prelaq.com
Company ID No.	556313-7933
Home page	www.ssab.com
Environmental work	The company is certified according to ISO 14001.
Quality work	The company is certified according to ISO 9001 och ISO/TS 16949
Working environment	The company is certified according to OHSAS 18001

## 3. PRODUCT INFORMATION

Prelaq GreenCoat, Prelaq GreenCoat Pro, Prelaq GreenCoat Pro Matt and Prelaq GreenCoat Mica is continuously prepainted sheet steel with a polyester based paint coat. The products are used mainly for roofing and wall cladding.

GreenCoat is a patented concept for organic surface coating. A substantial part of conventional solvents has been replaced by a renewable, reactive solvent produced from natural vegetable oils. The benefit of a reactive solvent such as rape methyl ester, RME, is that it act as a solvent during production, application and until the paint comes into the curing oven. Once there, the role of the RME changes from being a solvent to being a permanent paint component, as it reacts with the polyester resin instead of being evaporated like a conventional solvent. The RME molecule thus becomes part of the finished organic coating. Moreover, the mechanical durability is improved and so is the ability to withstand the elements, since it is another type of polyester binder.

The closely controlled painting process gives the sheet steel better performance than that of sheet steel painted by conventional methods, such as in-situ painting. Better corrosion resistance and improved gloss and color retention provide longer functional and aesthetic service lifetime, which reduces the need for costly and environmental aggressive maintenance and repainting procedures.

GreenCoat® is a registered trademark and a patented concept by SSAB.

### 3.1 Place/country of manufacture

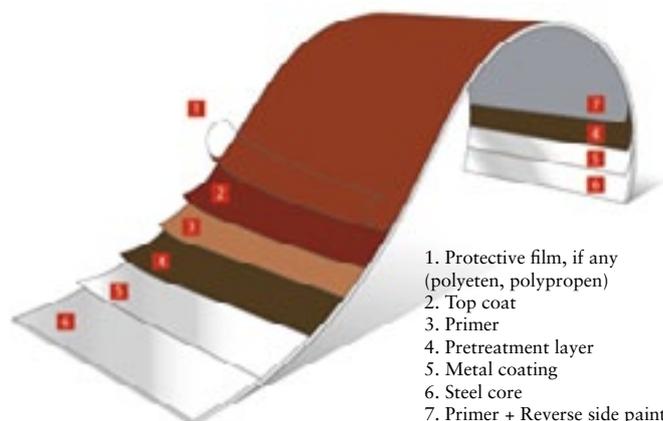
Steel slabs from Luleå and Oxelösund are rolled into sheet in Borlänge and painted in Borlänge or Finspång.

### 3.2 Classification

The product is not classified as hazardous according to the Swedish Chemicals Inspectorate regulations.

### 3.3 Other information

A safety data sheet for the products is available. Prelaq GreenCoat, Prelaq GreenCoat Pro, Prelaq GreenCoat Pro Matt and Prelaq GreenCoat Mica are registered in the BASTA register. BASTA-registration means that we can confirm that these products meets agreed properties criteria regarding properties that are harmful to the environment and health. See [www.bastaonline.se](http://www.bastaonline.se).



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## 4. CONTENTS

Prepainted sheet steel as per SS-EN 10169. The sheet consists of a steel core with a zinc metal coating on each side. Outside this metal coating on the front is a primer and top coat, while the reverse side is coated with reverse side paint.

The sheet is also coated with a chromium-free pre-treatment fluid to protect against corrosion and improve adhesion.

The composition of the paint coat is given in table 1.

## 5. PRODUCTION PHASE

### 5.1 Energy consumption

The energy consumption (electrical energy and fuels) for producing 1 tonne of steel in the Swedish SSAB steel operations is an average around 780 kWh, or around 3.1 kWh/m<sup>2</sup> of finished sheet steel. The need for oil and electrical energy is minimized mainly by the process gases being recycled. In addition to reducing the in-house needs at SSAB, this also benefits the outside community by supplying heat for district heating.

0.1-0.3 kWh/litre is needed for producing the wet paint, which amounts to less than 0.05 kWh/m<sup>2</sup> of painted steel surface.

### 5.2 Raw materials

Steel core to EN 10346:2009. Thickness of 0.4-1.5 mm gives a weight of 3 100-11 700 g/m<sup>2</sup>.

The metal layer nearest to the steel core contains 99.6% zinc and 0.4% aluminium. The quantity of zinc depends on the coat thickness and is given as weight/m<sup>2</sup>.

Table 1

Contents in the cured paint coat:					
Type	Substance	CAS-nr	Classification according to KIFS 2005:7	Classification according to (EG) nr 1272/2008 "CLP"	Max weight % in finished product
Binder	Polyester resin		-	-	1.24
	Melamin resin		-	-	0.28
	Organic binder		-	-	0.26
	RME*		-	-	0.13
Pigment/filler	Titanium dioxide	13463-67-7	-	-	0.73
	Soot	1333-86-4	-	-	0.07
	Silica ion exchange pigment	7631-86-9 1344-95-2	-	-	0.09

**Comments:** The requirements concerning dangerous substances in REACH, BASTA and the Swedish building product evaluation are fulfilled for all dimensions.

\*Alkyl fatty acid ester, e.g. RME

Zinc weight 275 g/m<sup>2</sup> alt 350 g/m<sup>2</sup>  
(total on both sides)

Density steel: 7,85 g/cm<sup>3</sup>

Density zinc: 7,14 g/cm<sup>3</sup>

### The sheet is coated with:

Thickness of paint coat, including reverse side:

Prelaq GreenCoat 36 µm

Prelaq GreenCoat Mica 40 µm

Prelaq GreenCoat Pro 46 µm

Prelaq GreenCoat Pro Matt 46 µm

### 5.3 Emissions to water, air and ground

Emissions to the surroundings and management of waste from extraction and refining of raw materials and input goods are governed by the conditions specified in the permission decisions for each activity.

Large-scale industrial strip painting is virtually an enclosed painting process in which the sheet steel is cleaned, pretreated and painted with primer and top coat under controlled conditions, which substantially reduces the environmental impact compared to conventional painting methods, such as in-situ painting.

The stated emissions to water and air relate to the entire production chain: metallurgy, rolling and coating.

### Emissions to water:

Suspended matter 0,02 kg/tonne < 0,2 g/m<sup>2</sup>

Oxygen depleting substances 0,051 kg/tonne < 0,6 g/m<sup>2</sup>

Oils and greases 0,004 kg/tonne < 0,05 g/m<sup>2</sup>

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The metal coated steel strip is washed in special cleaning systems before painting. Special treatment plants are installed for cleaning the washing liquids. These collect substances such as metals and solid particles.

#### Emissions to air:\*

Dust	0,28 kg/tonne	< 2 g/m <sup>2</sup>
Sulphur dioxide (SO <sub>2</sub> )	0,57 kg/tonne	< 3 g/m <sup>2</sup>
Nitrogen oxides (NO <sub>x</sub> )	0,52 kg/tonne	< 3 g/m <sup>2</sup>
Total hydrocarbons (THC)**	0,40 kg/tonne	< 2 g/m <sup>2</sup>
Carbon dioxide (CO <sub>2</sub> )***	920 kg/tonne	< 5 kg/m <sup>2</sup>

- \* Declared values per m<sup>2</sup> refers to a sheet with a thickness of 0.6 mm.
- \*\* Refers only to the emissions from the painting line, curing and paint.
- \*\*\* The calculations do not include carbon dioxide emissions derived from SSABs process gases which are burned in the power and heating plant at Lulekraft AB and SSABs power and heating plant in Oxelösund.

Solvents are released when metal coated sheet is painted. The emissions are cleaned to more than 99% by incineration at above 700°C. The energy liberated during incineration is used for heating furnaces and degreasing baths. The residual energy is recycled through distribution to the municipal district heating network.

#### 5.4 Recycled materials

Around 20% of the steel consists of recycled steel (average figure for SSAB steel production in Sweden). Waste material goes to steel recycling.

#### 5.5 Transportation at production

Transportation within each production facility takes place by electric and diesel trucks.

#### 5.6 Residual products at production

Residual products arising in the production lines for organic coating are presented below. For a full report of residual products from the entire chain of production, please see the Annual Environmental Report submitted to the County Administrative Board from each business.

Scrap steel (code* 160117):	0,25 kg/m <sup>2</sup>
Percentage recycled:	100%
Paints and solvents (code* 080111):	0,01 kg/ m <sup>2</sup>
Percentage of energy recycled:	100%

\* Waste code in accordance with the Waste Regulations (2011:927).

## 6. DISTRIBUTION OF FINISHED PRODUCT

### 6.1 Method of transport

Deliveries are transported mainly by rail, but also by road.

### 6.2 Distribution forms

Sheet steel is normally delivered in coils weighing 5-8 tonnes, directly to customers.

### 6.3 Packaging

Only steel straps and steel rings are normally used for transport to customers in Sweden. Board, LDPE plastic and steel edge protection are added for export shipments. The amount of packaging material varies between 5 and 15 kg per tonne of finished product.

The packaging, more than 70% of which consists of plastic, must be sorted out and handed over for recycling.

## 7. CONSTRUCTION PHASE

The environmental impact is considered to be insignificant. Pneumatic or electric hand tools are used for installing the sheets. Fasteners (screws) are used for securing. The sheets are cut to size mainly before delivery, which minimizes material wastage. Hazardous waste do not arise.

Note that care should be taken during the following machining of the sheet, although this is very rare. During grinding of the sheet, inhalation of the dust should be avoided. If the sheet is heated by welding or fire, zinc oxide, smoke from the paint, etc. will be emitted, and it is therefore important to avoid inhaling the fumes.

Care should be taken to avoid injury caused by products delivered as stacked cut-to-length sheet or in the form of coils that may have sharp edges. Certain products are strapped with steel straps. The straps must not be used for lifting the products. Coils or bundled products may whip out and cause injuries when the strap is removed or if it should fail. The outer turn of a coil may be loose, which increases the risk of the straps failing. Suitable protective equipment, e.g. gloves and goggles should be used and working routines should be introduced which take into account the risks that may arise if the straps should fail or when the strapping is removed.

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## 7.1 Requirements during storage

Store away from acids.

## 7.2 Requirements for adjacent building products

Not relevant.

## 8. USAGE PHASE

No known environmental impact. A long useful life can be expected if the prepainted sheet is regularly inspected and maintained. There are examples of strip painted sheet steel on buildings, which is more than 40 years old and still meets current standard requirements. The sheet surface should be inspected at least once a year. In most cases, maintenance is confined to washing the sheet with a mild detergent solution in water a few times during its useful life. If the sheet needs to be repainted, washing with a 5% alkaline water solution is sufficient as pretreatment.

### 8.1. Operation and maintenance

From an environmental point of view it is not relevant to specify requirements for intermediate goods regarding operation and maintenance.

## 9. DEMOLITION

If secured with fasteners, prepainted sheet steel can be removed and reused in many cases.

### 9.1 Special measures to protect health and environment during demolition/disassembly

The product does not require any special measures to protect health and environment during demolition/disassembly.

The information in this document is valid at the date of publication and is intended to serve as general guidance for the use of the product. The latest version of this document is published on our web site. We reserve the right to introduce changes resulting from our continual product development work. The information and data given must not be regarded as binding, unless specially confirmed in writing

SSAB EMEA AB  
SE-781 84 Borlänge  
Sweden

Tel +46 243 700 00  
Fax +46 243 720 00

prelaqinfo@ssab.com

## 10. WASTE MANAGEMENT

### 10.1 Recommendations for reuse and material recycling

Undamaged sheet from demolition should be reused. All waste material from construction work, repair and demolition should be resorted and returned to the steel industry through well-established scrap trade, where it is an important raw material for the production of new steel. The emissions from metal and paint coats are removed during remelting. Zinc, for example, is recovered from the collected dust.

### 10.2 Energy recovery

The energy content in the paint coat is utilized in the remelting process and is thus recovered. The energy recovery does not give rise to hazardous waste.

### 10.3 Waste code

The steel sheet is sorted from miscellaneous building and demolition waste and classified as below.

Scrap steel (code\* 160117)

\* Waste code in accordance with the Waste Regulations (2011:927).

### 10.4 Hazardous waste

Not classified as hazardous waste.

## 11. INDOR ENVIRONMENT

### 11.1 Contents of hygienically hazardous substances

Contact with the sheet during normal handling is harmless.

### 11.2 Inherent emissions and odours

The cured paint coat causes no emissions.

### 11.3 Sound level and electrical/magnetic fields

The product does not give rise to noise or electrical/magnetic fields.