SSAB SWEDISH STEEL

PRELAQ®

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Prelaq Energy

Prepainted sheet steel for buildings with energy saving properties

Applications

Prelaq Energy suitable for external and internal building products, such as profiled sheet for roofing and wall cladding, composite panels and sheet steel roofing tiles.

Product description

Prelaq Energy is a prepainted sheet steel material that can be used for walls, ceilings and roofs, both inside and outside. The material enables the energy consumption for both heating and cooling to be reduced, and also offers better thermal comfort than traditional prepainted sheet steel. Just how much energy can be saved depends on several factors, including the geographical location of the building, geometry of the building, and how the building is used.

Prelaq Energy is of two different types: Prelaq energy Exterior and Prelaq Energy Interior. They can be specified separately with a standard backing coat or combined for maximum energy savings.

Prelaq Energy Exterior

The principle of thermal coatings intended for external walls and roofing, i.e. Prelaq Energy Exterior, is based on the incident solar energy being reflected and on the energy that is nevertheless absorbed by the building being later emitted.

The thermal properties of the exterior coating are determined principally by the proportion of the solar NIR (NIR = Near Infra Red) radiation that is reflected by the sheet surface.

A part of the absorbed solar energy is emitted as IR (infra-red) radiation. This IR radiation is similar for all type of paints except from paints with metallic appearance.

The largest difference in surface temperature between Prelaq Energy Exterior and standard coatings during summer is achieved for dark colours.
In the table below, typical values are given for some colours.

Prelaq Energy Exterior has a coating with a total thickness of 40 µm. The thickness of the paint is optimized for wear resistance, weathering resistance and consumption of resources. It has greater durability than standard polyester when exposed to people walking on the roof and other stresses occurring on roofs. The topcoat includes polymer grains that account for the surface being scratch resistant. The coating has excellent gloss retention and colourfastness, and also provides good protection against corrosion.

The reverse side of the sheet is painted as standard with grey epoxy-type paint, and is marked with particulars of product name and production date.

Table. Thermal properties of Prelaq Energy Exterior

Colour	Total solar reflectance [1]		Exterior thermal IR emittance [2]	
	Prelaq Energy Exterior	Standard colour	Prelaq Energy Exterior	Standard colour
Black, 015	0,22	0,05	0,91	0,91
Antracite grey, 087	0,30	0,10	0,91	0,91
Goosewing grey, 461	0,48	0,31	0,92	0,90
Dark grey, 454	0,25	-	0,91	-
Juniper green, 859	0,27	0,07	0,91	0,92
Dark grey, 036	0,24	0,08	0,91	0,91

1) Measurements were taken by an accredited independent test laboratory according to ASTM E903-96

2) Measurements were taken by an accredited independent test laboratory according to ASTM EC1371-98

Prelaq Energy Interior

The principle of thermal coatings intended for interior walls and ceilings, i.e. Prelaq Energy Interior, is based on the heat from various heat sources, such as the occupants, machines or equipment, being reflected back into the building.Prelaq Energy Interior is suitable if you wish to heat a building to a lower air temperature, but keep a comfortable temperature for long as the building is occupied. Energy can be saved, whilst a comfortable temperature is maintained in the premises. Examples of such buildings are shopping centres, sports halls and a variety of public premises.

As the paint has low emittance in the IR spectra, Prelaq Energy Interior gives an advantage if it is warm outside as the product emitts less energy towards the inside of the building. Prelaq Energy Interior has a coating with a total thickness of 20 µm.

The reverse side of the sheet is painted as standard with grey epoxy-type paint, and is marked with particulars of product name and production date.

Table. Thermal properties of Prelaq Energy Interior

Thermal reflection [1]		Thermal emittance	
Prelaq Energy Interior	Standard Interior coating	Prelaq Energy Interior	Standard Interior coating
0,70	0,10	0,30	0,90

1) Measurements were taken by an accredited independent test lavoratory according to ASTM E903-96

Substrate material

Prelaq Energy is supplied on hot-dip galvanized sheet to EN 10326 or EN 10327, with zinc weight class Z 275 or Z 350

Colours

The standard colours are shown in a special colour chart. Prelaq Energy Exterior should not be combined with Prelaq Nova standard coatings with the same colour number. There might be a difference in colour.

Paint coat

	Type and thickness			
	Prelaq Energy Exterior		Prelaq Energy Interior	
Front side paint	Nova type	40 µm	Akrylic	20 µm
Reverse side paint (grey)	Epoxy	10 µm	Epoxy	10 µm

Properties frontside

	Test method	Data	
		Prelaq Energy Exterior	Prelaq Energy Interior
Paint thickness	ISO 2808	40 µm	20 µm
Gloss	EN 13523-2	40	20
Minimum inner bending radius	EN 13523-7	1 T[1] (dark colours) 2 T[1] (light colours)	-
Adhesion	EN 13523-6	Satisfactory	Satisfactory
Scratch resistance	EN 13523-12	35 N min.	9 N min.
Maximum service temperature		100° C	-

[1] T is the sheet thickness.

Inspection and maintenance

Regular maintenance extends the useful life of the paint coat and thus also the intervals between repainting. See the brochure entitled "Inspection and maintenance of prepainted steel sheet". Take care to avoid damage to the coating during production and installation. To repair scratches and handling damage, clean and touch up with Abratex Lackstift (touch-up crayon) or equivalent product. Several makes and systems of repainting paints are available on the market. If the surface is entirely over painted on Prelaq Energy Exterior and Prelaq Energy Interior the energy saving properties are lost unless special paint is used.

Intervals between repainting

A suitable time for repainting can be determined by regular inspection of the paint coat.

An expert should make an assessment of when it is appropriate to repaint the sheet. The normal time before repainting Prelaq Energy Exterior is considered to be at least 20 years, provided that regular maintenance is done.

Resistance to corrosion

The corrosion resistance of Prelaq Energy Exterior is continuously tested by exposure of test pieces outdoors in corrosive marine and industrial environments.

Prelaq Energy belongs to corrosion protection category RC4 as per EN 10169-2.

For indoor use, Prelaq Energy Interior conforms to moisture category CP15 and environmental category A4 as per EN 10169-3:2004.

The material should not be stored or installed close to damp and corrosive materials or in areas in which the sheet is subjected to strong cleaning agents or in premises in which animals are kept.

Resistance to UV-light

Prelaq Energy Exterior can be used in UV resistance category not exceeding R_{uv3} as per EN 10169-2, Table 4. This means that Prelaq Energy can be used in regions located north of latitude 37°N (southern Europe). For latitudes between 45°N and 37°N the altitudes must not exceed 900 meters above sea level

Resistance to chemicals

The coating generally has good resistance to chemicals. However, there are exceptions, e.g. certain organic solvents such as aromatics, ketones and chlorinated hydrocarbons.

Fire classification

Prelaq Energy fulfils the following requirements:

Classification		Standard
Prelaq Energy Exterior	Prelaq Energy Interior	
A2	A1	EN 13501
Klasse B2	Klasse B2	DIN 4702 Teil 1
Class 1	Class 1	BS476 Part 7

Industrial safety

Special measures should be taken to prevent personnel being exposed to the air pollutants formed during grinding, welding and cutting of the sheet material. For further information, refer to your national industrial safety regulations concerning paints and thermosetting plastics.

Prelaq Energy has non-slip properties that are equivalent to those of other roofing sheet materials

Working

If the material is used for producing pressed or bent parts with tight radii, check that no cracking has occurred in the paint coat. See the minimum bending radius in the table of properties. Working should be avoided at sheet temperatures below 15°C. Cracking of the paint coat may occur at lower temperatures.

Cut edges

Edge corrosion may occur if the sheet is used in corrosive environments and if the cut edges of the sheet are exposed. Protective painting can be applied to avoid edge corrosion.

Environment

Environmental work has long been an established part of the operations at SSAB Tunnplåt. Developments are reported in an annual environmental report to the authorities. SSAB Tunnplåt devotes active work to the development of its processes, and develops products that are beneficial from the environmental aspect and from a life cycle perspective. SSAB Tunnplåt has gained environmental certification in accordance with ISO 14001.

Steel is 100% recyclable.

Miscellaneous

Storage of the material outdoors should be avoided. If this is unavoidable, the material should be satisfactorily covered and should be stored so that good air circulation will be obtained, in order to avoid moisture.

For particulars of tolerances and properties in general, refer to European Standard EN 10169-1.

Technical service and information

Business Area Building will be pleased to provide additional information on this product and other prepainted products from SSAB Tunnplåt.

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.

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