

# RECOMMENDATIONS FOR THE SELECTION OF COLOUR COATINGS



**RAUTARUUKKI**

# PROPERTIES OF COATINGS

Various factors influence handling properties and durability of colour coatings in different weather conditions. Such factors include the thickness of the coating, paint type, as well as the use of additives (pigments and stabilisers). The thickness of the colour coating usually affects mechanical properties; formability, scratch and abrasion resistance, and corrosion resistance. A thicker coating is able to resist mechanical strain better than a thin one. However, with thick coatings (Plastisol) edge corrosion may take place much earlier. Painting the cut edges after installation can prevent this.

There are differences in the heat and UV resistance between the colour coatings. The PVDF coating has the best heat and UV radiation resistance. The gloss of the PVDF coating changes only very slightly due to the influence of UV radiation. Also Pural coating has a very good resistance to UV radiation, whereas Polyester and Plastisol coatings fade over time due to the influence of UV radiation.



The corrosion resistance of coatings impairs, if they are damaged during manufacture, transport or installation. Special attention must be paid to the handling of sheets during the installation in order to prevent scratching. With the progress of time, scratches cause corrosion at the damaged area. After installation, scratches should be touch-up painted so that only the damaged area is painted (see Maintenance instruction).

The PVDF coating has excellent resistance against sulphur dioxide and many other impurities. Polyester and Plastisol coatings pick up dirt rather easily, if the air contains a large amount of impurities.

Property	Colour Coating					
	PVDF	PVDF HB	Pural	Matt Polyester	Polyester	Plastisol
Coating thickness (µm)	27	40	50	35	25	200
Surface	smooth	smooth	structured	matt	smooth	embossed
Gloss (Gardner 60°)*	35	35	40	< 5	35	35
Minimum permitted bending radius	1 t	1 t	1 t	2 t	4 t	0 t
Minimum forming temperature (°C)	-10	-10	-15	0	0	+10
Maximum ambient temperature (°C)	110	110	100	90	90	60
UV radiation resistance	excellent	excellent	very good	good	fair	good
Corrosion resistance	good	excellent	excellent	good	good	excellent
Scratch resistance	good	very good	very good	fair	fair	excellent
Dirt pick-up resistance	excellent	excellent	very good	good	fair	fair
Solvent resistance**						
White spirit	good	good	good	good	good	good
* EN 10169-1      ** cleaning with a wet cloth						





# GEOGRAPHICAL RECOMMENDATIONS FOR COATINGS

The amount of UV radiation, air temperature and climatic conditions must always be taken into account when selecting of a coating for different areas and applications. In Northern Europe, the amount of UV radiation, as well as air temperatures are lower than in Southern Europe. Well maintained, the life-time of colour coatings in Northern and Central Europe is rather long, between 25 to 40 years. In marine, industrial and urban environments, the cut edges of Plastisol coating should be protected by painting in order to prevent edge corrosion. If the PVDF coating is applied in marine or/and heavy industry climate, PVDF HB or a multi-layer coating should be used to obtain better corrosion resistance.

On roofs in Southern Europe, we recommend the use of the PVDF and Pural coatings because of their high resistance against UV radiation. Polyester coatings can be applied for external walls. Scratches formed during transport and installation must be touch-up painted (see Maintenance instruction).

## GEOGRAPHICAL RECOMMENDATIONS

Location	Climate	PVDF			PVDF HB			Pural			Matt Polyester			Polyester			Plastisol 200 µm		
		Roof	Facade	Wall	Roof	Facade	Wall	Roof	Facade	Wall	Roof	Facade	Wall	Roof	Facade	Wall	Roof	Facade	Wall
Northern Europe	Rural																		
	City or /and light industrial																		
	Marine or/and heavy industrial																		
Central Europe	Rural																		
	City or /and light industrial																		
	Marine or/and heavy industrial																		
Southern Europe	Rural																		
	City or /and light industrial																		
	Marine or/and heavy industrial																		

Facade = residential, commercial and public buildings (cassettes, panels etc.)

Wall = industrial and warehouse buildings (corrugated sheets)



# PRODUCT-SPECIFIC RECOMMENDATIONS

## Seamed roofs

For traditional seamed roofs the formability (bending resistance) and life-time requirements are very strict and it is recommended that either the PVDF or Pural coating is used.

## Profile sheet roofs

Pural is recommended for tile and corrugated sheet roofs because of its good formability, very good weather resistance and easy maintenance. If the building is located in the marine or heavy industry climate, it might be advisable to paint the cut edges after installation.

## Cladding sheets

For corrugated wall sheets, all coatings except the Matt Polyester are recommended. PVDF has better dirt pick-up resistance than other coatings. This is important, especially when selecting light coloured façade sheets for city or/and industry climate. Only PVDF coating is recommended for demanding facades.



## PRODUCT-SPECIFIC RECOMMENDATIONS FOR COLOUR COATINGS

Product	Colour Coating					
	PVDF	PVDF HB	Pural	Matt polyester	Polyester	Plastisol
Seamed roofs						
Profile sheet roofs						
External walls						200 µm
Facades						
Rainwater systems		*				100 µm
Indoor walls						

 Recommended coating type

\* For PVDF facades

**In addition to the product-specific recommendations, the climatic conditions and the designed service life of the building must be taken into consideration.**

### Rainwater systems

Plastisol coatings have excellent mechanical durability and they are therefore recommended for rainwater systems. Pural and PVDF coatings can be used, if better dirt pick-up resistance is required or the rainwater system is connected directly to a facade made of these coatings. In order to prevent the coating from

scratching, special attention must be paid in manufacturing, storage and transportation of products made from these materials, as well as their handling on the installation site.





**RAUTARUUKKI**

Harvialantie 420  
FIN-13300 Hämeenlinna  
FINLAND  
Tel. +358 3 52 860  
Fax +358 3 528 5355  
[www.rautaruukki.com](http://www.rautaruukki.com)