

**MAINTENANCE
INSTRUCTIONS FOR COLOUR
COATED STEEL SHEET**



RAUTARUUKKI

CARE

Colour coated steel sheets used on the roofs and facades of buildings are exposed to many kinds of impurities and pollution in the air. These include sulphur, chlorine and nitrogen compounds - which cause acid rain, various mineral salts, dirt and soot. These impurities together with water and increasing amounts of UV radiation affect the coating. The effects are worst on those areas of the building where impurities are not washed away by rainwater. Some impurities may also cause internal stress in the coating and even cracking.

From the point of view of the durability of coated sheet the worst things are knocks and scratches, in which the impurities come into direct contact with the zinc below the paint coating. A number of the impurities can form salts with the zinc, which are easily soluble, as a result of which the zinc is rapidly consumed. In addition a number of the impurities absorb water, which keeps the damaged area wet longer and as a consequence rusting is active also longer.

The effect of the impurities in the air is greatest close to polluted industrial areas, and in coastal areas. Emissions containing sulphur or chlorine are especially difficult. These are typically produced e.g. from power stations burning fuels containing sulphur. Impurities stress the coatings and reduce their useful life, so the regular cleaning of wall and roof surfaces is an important part of the servicing and maintenance of coatings.



Removal of litter

Rainwater is usually sufficient to keep colour coatings clean. Leaves from trees and other litter is not always, however, washed away by the rainwater and so should be removed annually, or more often if necessary. The roof valleys and rainwater system should also be cleaned at least annually.

Cleaning

Dirty or soiled places should be washed with a soft brush and water. High-pressure water (< 50 bar) can also be used for cleaning. More stubborn dirt or stains can be removed using a cleaning agent suitable for paint coatings (see table of cleaning agents), which after leaving for a few minutes to take effect should then be carefully

washed off. Difficult dirt spots can be removed with a cloth moistened in white spirit. The

rinsing should be carried out from the top of the roof downwards so that all the cleaning agent is rinsed off. The rainwater collection system should then finally be rinsed down with water. The use of too strong or unsuitable cleaning agents will damage the colour coating.

Removal of snow

Snow will not usually lay on a colour coated roof and the snow load will not exceed the design load of the structure. Matt polyester will, however, retain snow for a longer period than smooth coatings. It is not necessary to regularly remove snow from the roof. If the snow is removed, however, care must be taken that the equipment used does not damage the colour coating.

ANNUAL INSPECTION AND MAINTENANCE

Parts of a building on which colour coated sheets have been used, especially roofs, should be inspected, and if necessary, cleaned regularly. If any defects are found in the coating they should be repaired immediately, in order to ensure long life. The annual inspection should be carried out in accordance with the table below.



Annual inspection of steel roofs

Findings	Action
<p>Loose materials on new roofs Loose fittings, pieces of sheet, drilling swarf and other metal articles are a corrosion danger and may also cause danger through falling.</p>	Remove all loose materials, even small articles, from roofs and rainwater systems.
<p>Cleanliness of roof Litter and dirt form a corrosion danger by keeping the surface of the sheet wet. A dirty roof also looks unsightly.</p>	Remove all litter and clean the roof surfaces if necessary.
<p>Condition of fixings Damaged or loose fixings cause leakage, decay, and corrosion danger.</p>	Change any damaged, and tighten any loose, fixings. If fixing is damaged it and/or the roof batten should be changed for a stronger kind.
<p>Condition of colour coating Peeling of coating, uneven fading, blistering and cracking and local scratching are all signs of the need for repairs to the coating.</p>	Follow the painting instructions given in this document for repairs to the coating.
<p>Edge corrosion Corrosion may appear on eaves and cut edges if they are not taken care of.</p>	Follow the instructions given in this document for treatment of the area to be repaired.
<p>Rainwater systems Blocked, partly blocked and dirty rainwater systems cause icing and moisture damage and corrosion problems.</p>	Remove any possible blockage and litter and flush, and if necessary wash, the whole system. Repair any damage.

PAINTING

Estimating of painting requirements

The condition of the coating must be checked visually before any touch-up painting or complete colour-change repainting is carried out. If the roof is to be completely repainted the adhesion of the colour coating to the zinc coating below must be checked, especially on the south facing side of the roof.

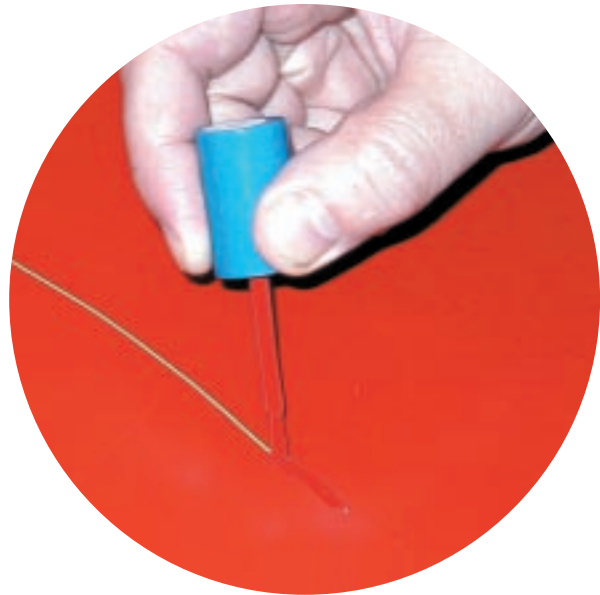
Damage such as scratching, dents, abrasions or flaking can occur to colour coatings for numerous reasons. Causes may be e.g. incorrect use of tools, dirt on shoe soles, packaging and transportation, lifting of sheets or cutting of sheet edges. If the coating is damaged impurities will collect in the damaged area and this will remain moist for considerable periods. Surface damage which is not repaired will reduce the useful life of the product. Visible damage will also spoil the appearance of the surface.

Touch-up painting

• Clean the damaged area using white spirit	
• Paint the damaged area, 1...2 coats	
• PVDF	Plaston or Repco
• Pural	Repco or Plaston
• Matt polyester	Repco or Plaston
• Polyester	Repco or Plaston
• Plastisol	Repco or Kirjo Aqua

It is always worthwhile repairing any damage which occurs to the coating. Touch-up painting of scratches while they are still fresh means that the area to be repaired is usually small and the repair is quick and simple. After years of use damage is much more difficult to repair and the result may not be so good, as the touch-up paint may no longer be of exactly the same shade.

Only paints suitable for maintenance painting of colour coatings should be used. The damaged area should be cleaned with white spirit before

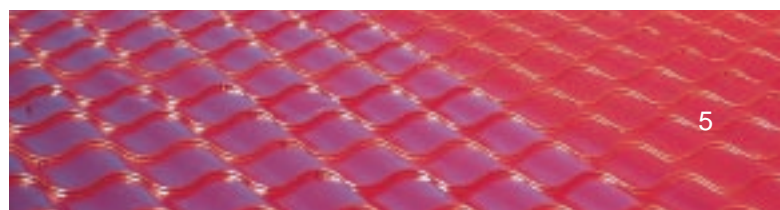


repainting. After drying, the area should be touch-up painted using as small a brush as possible. If the damage reaches down to the primer coat only, one coat of paint is sufficient. If, however, the damage reaches down to the zinc coating it is recommended that a second coat of paint is applied after the first coat is dry. Spray-paints must not be used.

Changing the colour of a new coating

• Wash the surface with a cleaning agent, Peltipesu or Panssaripesu	
• Rinse thoroughly	
• Paint, 1...2 coats	
• PVDF	Plaston or Temakeep + Repco
• Pural	Repco or Plaston
• Matt polyester	Repco or Plaston
• Polyester	Repco or Plaston
• Plastisol	Repco or Kirjo Aqua

The colour coating should be washed, using only cleaning agents suitable for colour coatings (see table of cleaning agents). After leaving for a few minutes to take effect the cleaning agent should be rinsed off thoroughly, starting from the highest



point in order to ensure that no cleaning agent remains on the surface. The rainwater system should finally be rinsed out with water. Cleaning agents which are too strong or which are unsuitable will damage the colour coating. Repainting can be carried out after the surface has dried.

The number of coats of paint required depends on the cover achieved with the first coat. If the original colour is still visible through the new paint a second coat will need to be applied after the first coat is dry. Two coats of paint are usually required when changing the colour of a roof.

Repair painting of damaged eaves

- Remove any peeling or flaking coating
- Remove any rust
- Paint the metal surfaces
 - Rostex Super + Reppo or
 - Galvex + Kirjo Aqua

So called edge corrosion, in which the cut eaves' edge of the sheet begins to rust, can occur sometimes, particularly on low-pitch roofs using Plastisol roofing sheets. This can be prevented by painting the eaves' edges after the roof covering has been installed.



The repair of damaged eaves' edges begins with the removal of any flaking coating and the grinding away of any loose rust. One of the paint combinations given in the table above should be used for the repair painting.

Repair painting of an old colour coating

- Check the adhesion of the coating
- Remove any peeling or flaking coating
- Remove any rust
- Wash the surface using either Peltipesu or Panssaripesu
- Rinse thoroughly
- Prime coat any areas from which peeling coating or rust has been removed, using either Rostex Super or Galvex
- Paint, 1...2 coats

• PVDF	Plaston or Temakeep + Reppo
• Pural	Reppo* or Plaston
• Matt polyester	Reppo* or Plaston
• Polyester	Reppo* or Plaston
• Plastisol	Reppo or Kirjo Aqua

* Temakeep primer is recommended if the surface is strongly faded.

Before any decision is made regarding the complete repainting of whole surfaces it must be checked that there is no significant damage (deep scratches, dents etc.) in which rust has formed. If there is no such damage and the adhesion of the coating to the base is good then repainting can be carried out. The adhesion of the coating can easily be checked using a knife. The adhesion of Plastisol coating should be checked very carefully, and it must be very good, in order that repainting can

be carried out. If significant localised damage is found or the coating has faded unevenly it is best that an expert (Tikkurila, Teknos or Rautaruukki customer services) be consulted regarding the painting.

It is difficult to give an exact time for the carrying out of maintenance painting as the useful life of colour coatings is dependent on many factors. These are location, slope of roof, building method, installation method, and colour and type of coating. The stress on a coating is at its greatest on the south facing side of a roof, when the colour of the coating is dark and the air circulation below the roof sheets is restricted. The surface temperature of a dark-coloured coating may rise to as high as 80°C on a south facing roof, on a hot summer day, and to 55°C on a light coloured roof. As a result of this heat load the durability of a dark-coloured coating may be slightly shorter than that of a lighter one. In addition, it must be taken into account that light-coloured coatings darken as they become dirty.



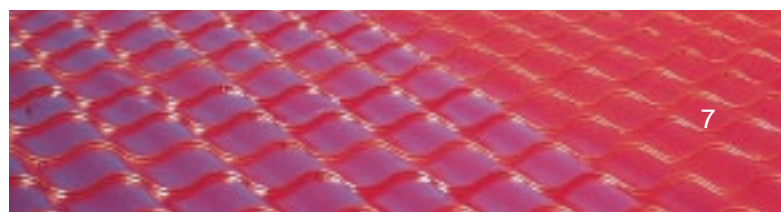
The most general reasons for repainting are damage to the coating, or a significant change in the colour or gloss. The appearance of the coating will change to some extent over the years and decades as a result of dirtying, or change in gloss or colour. Impurities in the air and the sun's UV and heat radiation have the greatest effect on coatings. Fading on some coatings is significant after 10 to 15 years and for others the change even after 15 years is very slight. It is recommended that Plastisol be repainted 12 to 20 years after installation, Polyester and Matt

polyester 15 to 20 years, Pural 15 to 25 years and PVDF (PVF2) 20 to 30 years after installation. As a general rule it can be said that dark colours should be repainted earlier than light. A colour coated surface which is repainted in good time is almost the same looking as a new one and it can be again repainted in 10 to 25 years. In this way extremely long useful lives can be achieved (in excess of 50 years). The lifetime of an undamaged original colour coating without repainting is on average 25 to 40 years, depending on the type of coating, building method and climatic conditions. Even when the protection given by the colour coating ends the steel sheet is still protected by the zinc coating.

Before repainting, the old coating must be washed using a suitable cleaning agent (see table for cleaning agents). All peeling areas of old coating and any possible rust must be removed before painting. All areas from which rust and peeling coating has been removed must be primed using a rust preventive primer. The painting proper must be carried out using a paint or paint combination suitable for the coating in question.

Cleaning agents and maintenance paints

Cleaning agents	Paints	Manufacturer
PELTIPESU	PLASTON KIRJO AQUA GALVEX	Teknos www.teknos-group.com
PANSSARIPESU	REPCO TEMAKEEP ROSTEX SUPER	Tikkurila www.tikkurila.com





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