



PREPAINTED SUPPORTS: REFURBISHING AND MAINTENANCE



REFURBISHING PREPAINTED SUPPORTS

PAINTING ON GALVANISED STRUCTURES

- » Clean the structure with the proper solvent (e.g. nitro, paint thinner, etc.)
- » Mechanically remove oxidations, if any.
- » Blow away any residuals, if existing.
- » Apply a thick undercoat with air-spraying or with roller or brush as per the product's technical sheet.
- » Wait the time required for the cross-linking as per the product's technical sheet.
- » Apply the finishing enamel layers (e.g. bicomponent polyurethane) with air-spraying, roller or brush as per the product's technical sheet.

SUPPORTING REPAINTING ON A "CHALKING" PAINT

- » · Clean the structure with the proper solvent (e.g. nitro, paint thinner, etc.)¹, taking care to remove as much non-cohesive powder material as possible.
- » · Apply a thick epoxy-catalyzed undercoat with air-spraying or with roller or brush as per the product's technical sheet if the chalking has reached the parent metal.
- » · Wait the time required for the cross-linking as per the product's technical sheet.
- » · Apply the finishing enamel layers (e.g. catalyzed polyurethane) with air-spraying, roller or brush as per the product's technical sheet.

Note: in this cases we recommend using catalyzed enamel only.

SUPPORTING REPAINTING ON AN "EXFOLIATING" PAINT

- » Mechanically remove non-cohesive paint.
- » Clean the structure with the proper solvent (e.g. nitro, paint thinner, etc.)¹.
- » Apply a thick epoxy-catalyzed undercoat with air-spraying or with a roller or a brush dedicated for these applications (one or two layers as per product's technical sheet).
- » Wait the time required for the cross-linking as per the product's technical sheet.
- » Apply the finishing enamel layers (e.g. catalyzed polyurethane) with air-spraying, roller or brush as per the product's technical sheet

Note: in this cases we recommend using catalyzed enamel only.

CHANGING PAINT FOR AESTHETIC PURPOSES

- » Remove the peeling polyethylene, if any.
- » Polish the surface lightly with thin sandpaper or steel wool.
- » Wash the structure with the proper solvent (e.g. nitro, paint thinner, etc.)¹.
- » Apply the finishing enamel layers (e.g. catalyzed polyurethane) with air-spraying, roller or brush as per the product's technical sheet.

Note: in this cases we recommend using catalyzed enamel only.

SMALL ADJUSTMENTS (SCRATCHES, MARKS, SCRAPINGS, PEELING, ETC.)

- » Carefully wash the part to adjust with the proper solvent (e.g. nitro, paint thinner, etc.)¹ or with a mild detergent (e.g. car shampoo) carefully rinsing afterwards.
- » Perform the adjustments with an air-drying product (e.g. synthetic, acrylic, vinylic, etc.) with a brush and no pretreatment.

REMOVING COLD-DEPOSITED FILINGS

These deposits are caused in the construction site by cuts made with tools which do not produce sparks, e.g. jigsaw.

- » · Gently brush the surface with a rigid sponge or cloth, on which a mild abrasive paste is applied, or soaked with the proper solvent (e.g. synthetic, white spirit, nitro, etc.)^{1,2}

REMOVING HOT-DEPOSITED FILINGS

These deposits usually deteriorate the paint, provoking tiny holes down to the parent metal; they are caused in the construction site by cuts made with tools which produce sparks, e.g. angle grinder.

- » · Strongly brush the surface with a rigid, non-abrasive sponge or cloth, soaked with the proper solvent (e.g. synthetic, nitro, white spirit, etc.) taking care not to remove the paint^{1,2}.
- » Adjust the spots where the paint has reached the parent metal.

THICKNESS

- » · Primer: usually 25 ÷ 30 µm (only one layer), 15 ÷ 20 µm (for each layer) if done with air-spraying.
- » · Enamel: usually 25 ÷ 30 µm (only one layer), 15 ÷ 20 µm (for each layer) if done with air-spraying.

Note: when using a roller or a brush the resulting thickness is greater (within 40 µm if vertically applied) but it cannot be set from the start.

⁽¹⁾ Avoid using washing solvents (usually with acetone or other ketones), which could “soften” the original paint compromising the adhesion during the repainting cycle.

⁽²⁾ Avoid using acid or alkaline products, which could melt the oxidized filings and could also damage the paint. Should the previous precaution be insufficient, resort to appropriate products available on the market.

These technical advices are extracted from the AIPPEG Information Note on repainting of Insulated Metal Panels and Ribbed Elements.

MAINTENANCE

CLEANING

Rain water is often enough to keep the external surfaces clean and shiny. Nevertheless, in order to maximize the duration of organic-coated products, it is important to remove with proper cleaning operations all the dust and dirt that are not removed by rain water. This action reduces the risk of corrosion due to accumulation of dirt, debris, water and aggressive chemicals.

The cleaning can be done with cold running water, using a rubber brush or soft bristles. The areas where heavy industrial deposits are present can be cleaned with running water and domestic detergent mixed in a 10% solution. Rinse again with running water and follow the manufacturer manual.

PRECAUTIONS

When cleaning, the following details must be taken into account:

- » If the detergent concentration is higher than recommended it can damage the coating surface.
- » After cleaning, rinse abundantly with running water to remove every trace of detergent.
- » Don't use organic solvents and abrasive detergents to clean coated metallic surfaces. Accumulation of shavings, tar and similar materials must be removed with mineral white spirit, taking care to abundantly rinse the surface with clean, cold water.
- » Always clean the surfaces from top to bottom and immediately rinse with abundant clean, cold water.
- » Avoid excessive cleaning and brushing.

GRAFFITI

In order to remove graffiti, special detergents can be used or an application system to apply protective paint can be employed. There are three ways to remove graffiti:

- » Special products for etchings removal, like solvents or gels, can be used.
- » On prepainted steel an anti-graffiti wax treatment can be applied. The graffiti and the applied treatment can be both removed with a water jet. This solution, though, requires another application of the anti-graffiti treatment.
- » A permanent protective coating can be applied. It simplifies graffiti removal with hot water or detergent solutions and, after the graffiti have been removed, it does not require a second application.

MOULD GROWTH

Mould growth happens in particular environmental conditions, for example in humid, swampy or not very sunny areas. In these areas mould grows even on inert materials like glass.

Mould can be removed with a surface treatment, a solution of the below listed ingredients (quantity %) that should be available in local stores. Before using the first three listed ingredients, we strongly advice consulting the safety and health sheets.

Good quality house detergents	00,5
Trisodium phosphate	3,00
Sodium hypochlorite 5% solution	25,0
Running water	71,5
	100,0

Before using these products, wash the organic coating as detailed in the “Cleaning” section; apply the products on all the surfaces using a low-pressure spray or brushes. Every treated surface must be rinsed with clean, running water. The organic coating has been designed to resist mould growth and, thanks to that, across most of Europe this problem should not occur.

ADJUSTMENTS

During the inspection some flaws on the organic coating can be found. If the damage is minor, for example scratches on the coating paint that are less thick than the overall paint thickness, no action is required. If the damage is more severe, for example a deep scratch on the coating paint, then it is required to perform an adjustment. It is important to ensure that the new paint is not applied outside of the area that was damaged by the scratches; for this reason we recommend using a medium/thin brush. Adjustment paints are air-drying, while the original coating is oven-dried; therefore the adjusted areas might show a different hue than the original. We recommend adjusting only limited areas.

PROTECTIVE FILM

If the protective film is not removed for a long period of time after the installation, the solar UV rays can cause an increase of the adhesiveness and viscosity of the film, making its removal more difficult, if not impossible. The film or adhesive residuals can be then removed using WD40 oil or mineral white spirit; after the removal rinse abundantly with water as recommended for the removal of dirt and debris. In order to remove the protective film we recommend to conform to the manufacturer’s guide.

DEBRIS FROM THE CONSTRUCTION PROCESS

Metal debris, like shavings, nails and other residuals remaining after the construction of a building, can suffer from corrosion and produce unpleasant stains on the coating. In order to avoid any damage to the coating it will suffice to remove the debris as soon as possible and, with proper care, the corrosion stains can be removed with a 5% hydrochloric acid solution. After this operation, wash and rinse the surface as per the normal cleaning. For some resistant stains the employment of specific cleaning products could be needed. Other kind of debris might include expanded foam, bitumen, tar and glues, which require the employment of special detergents. Other debris, like concrete, cement and gypsum, can be removed with a 5% phosphoric acid solution. After this operation, wash and rinse the surface as per the normal cleaning.

TREATING EDGES' CORROSION

The "cut edge" is the area that remains exposed after cutting a prepainted steel panel. The corrosion affecting the edges of profiled steel coatings must be treated as follows:

- » Cut and remove, or mill any loss of organic coating down to the parent metal.
- » Mill until any trace of corrosion has been removed. Clean carefully and dry the surfaces before applying any specific material, which must be recommended by the paint manufacturer.
- » Re-coat the cleaned areas with an anti-corrosion primer, as recommended by the supplier.
- » When the primer has dried, apply a second coating with the primer on a clean area next to the area cleaned before, in order to have the primer covering up to the original surface
- » Apply the top coat on the prepared, dried area.

Edges' corrosion can be limited or prevented by employing the proper protection treatment during the cutting phase; it is required to apply the proper water-paint or bitumen products on the exposed borders.

CAVITIES

Perform a check of the existing cavities, like water pipes and skylights, where it's most likely for the panels to get damaged. These cavities have extended cut edges; they can be protected by applying flashings on them or by adopting one of the suggested solution in the "treating edges' corrosion" paragraph. These areas will be exposed to corrosion and water stagnation, which must be avoided by adopting the proper weather protection.

RE-PAINTING

Surface preparation and painting must be performed by qualified personnel and by using specific maintenance paints.

Cleaning, adjustments, edges' corrosion treatments and repainting activities can be performed by proven qualified painters. ISOPAN technical office is available for any additional information that might be required.

ANNUAL INSPECTION

During the building's lifespan a scheduled inspection plan must be planned in advance. Establishing the inspection frequency is difficult, as the required maintenance may change depending on the building's location and structure.

ISOPAN recommends inspecting the building every year.

Asterisk-marked activities should be checked as soon as the construction is finished, in addition to the annual inspection.

It is also required to perform a visual check of the coating conditions, particularly when the time to repaint the building is approaching; the "minimum period to decide a repaint" (PRD) is the minimum period of time that must pass before taking that decision on a given prepainted steel product.

CHECKLIST

INSPECTION RESULTS		ACTION
Obstructed drainpipe	The obstruction can cause the water to overflow or stagnate in the drainpipe	Clean the drainpipe and remove the cause of obstruction
Debris accumulation	The accumulation can cause paint corrosion	Remove the debris
Dust accumulation where the coatings are not cleaned by rain water	Accumulated dusts alter the building's aesthetics and, if not removed, may cause structure to crack	Cleaning, as recommended in the "Cleaning paragraph"
Mould growth	This event seldom occurs, and only in particular conditions; it alters the building's aesthetics	Carefully clean and perform the treatment as per the "Mould growth" paragraph
Coating physical and natural damage *	If the damage broke the structure's protective paint, the parent metal can suffer from corrosion	"Evaluate the damage extent and type. Possible action: 1. Adjust the damaged area, as per the "Adjustment" paragraph 2. Repaint the damaged area, as per the "Repainting" paragraph 3. Change the damaged plate. Contact the supplier "
Waste and dusts caused by fastener tools and rivets *	They can cause dusts and damage	Remove the dusts
Flawed fastener tools *	Flawed or unsuitable fastener tools can damage the coating surface	Change the fastener tool
Cut edge corrosion	Edges' corrosion, if ignored, can spread on the whole product's surface	Perform the proper treatment, as per the "Treating edges' corrosion" paragraph



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