

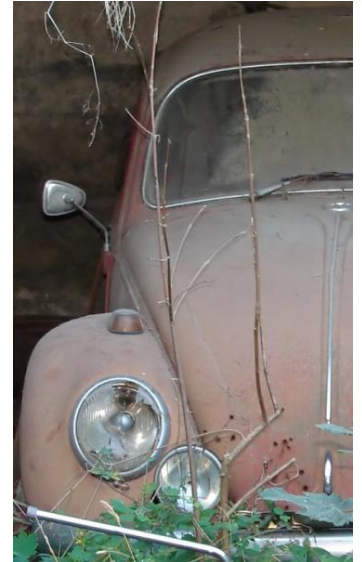
Cleaning and Maintenance of Coatings

4.5

Protective Coatings Don't Need Cleaning, Right?

Wrong! Imagine you bought a car today boasting the most expensive, hardwearing, automotive finish available; how would you expect that car to look if you **never** washed or polished the car? And how would it look if scratches and chips in the coating were left unrepaired? Obviously, the finish would look significantly worse than that of an identical car that had been regularly maintained. The same principle applies to **any** coating system.

Different coating types do deteriorate at different rates, but even **high performance** protective coatings will perform far more effectively for longer if they are regularly maintained. Dirt, grime and airborne salt deposits from the atmosphere can damage the coating surface and must be regularly cleaned off. Also, any mechanical damage to the coating must be promptly repaired to restore the original protection to the substrate. All this must be accomplished in a controlled, planned way. The document which describes regular inspection, cleaning and repair is called a **maintenance schedule**.



Maintenance Guide

It is important that maintenance be done on a regular basis. A maintenance program includes a regular cleaning process, followed by an inspection report and repair and maintenance guidelines based on the inspection report.

The maintenance program should be done routinely at, say, a three monthly interval; six months should be considered maximum. More frequent maintenance should be carried out in marine, polluted, chemical or other corrosive environments.

Suggested Cleaning Process

The following is a guide only; details may vary according to the conditions the surface is subject to and the nature of the coating system. Do not use bore water, as the minerals can stain the coating and may cause long term coating failure.

- *Wash and degrease the surface in accordance with AS1627.1 with a free-rinsing, alkaline detergent (such as Gibson F310B or Gamlen CA No. 1) in strict accordance with the manufacturer's written instructions and all safety warnings. The use of warm water may aid the emulsification of heavy, oily desposits. (Care must be taken not to use excessively hot detergent solution on single pack coatings as this may affect gloss and/or adhesion)*
- *Persistent deposits may be removed with a soft bristle brush. Do not use abrasive tools on the coating.*
- *Rinse with fresh potable water and ensure that all soluble salts are removed in accordance with AS 3894.6 methods A&D. Repeat until the surface is clean.*
- *For deposits resistant to detergents, such as adhesive residues, a solvent can be used effectively to dissolve the deposit. Choice of solvent is critical, however, as certain coatings (particularly single pack coatings) are very sensitive to solvents and will easily lose gloss, or worse still, dissolve. The most benign solvents recommended are methylated spirits, white spirits or Isopropanol. Two-pack coatings, however, are generally resistant to most common solvents, so the choice of cleaning agent is much broader. A small test area should be checked prior to solvent cleaning to ensure that no softening or colour change will occur. Ensure the contact time for the solvent is minimal, and that the solvent and dissolved residues are thoroughly rinsed from the surface.*

All organic finishes are prone to some degradation on outdoor exposure, and after long service some change of colour and gloss or chalking is expected. The integrity of the film and its protective qualities are generally not affected, however, and unless the coating is damaged, and/or shows signs of substrate deterioration, the coating can be left as is. If, however, the coating is in a shopping mall or residential or commercial building façade where aesthetics are important, the coating should be restored to the original appearance.

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Maintenance of powder coatings may require only a “clean and polish” to restore shine and depth of colour. The integrity of very old or degraded powder coatings should be checked to establish whether a new coating system should be applied to the powder coating or whether the powder coating needs to be removed first.

Preparation of Surface for Recoating

Whilst a “clean and polish” certainly can improve aesthetics, would the current coating offer adequate protection of the substrate long term? Only a complete recoat offers long term protection, and given the cost and inconvenience of refurbishing, is the best long term solution in commercial situations. In recoating, the following should be followed:

- *Remove all surface contamination such as oil, grease or dirt by washing with free-rinsing, oil-emulsifying alkaline degreasing detergent (such as Gibson F310B or Gamlen CA No. 1), in strict accordance with the manufacturer’s written instructions and all safety warnings. Rinse with fresh potable water. Repeat until the surface is clean. A clean surface is indicated when the rinsing water wets out the surface instead of beading on the surface. Refer to relevant sections of AS1627.1 2003 Part 2.*
- *Inspect to determine the degree of deterioration of existing coatings and presence of corrosion. Check coating adhesion using the standard cross-hatch test.*
- *Mechanically remove all corrosion products. Chalky deposits, such as white rust (zinc corrosion products), may require the use of abrasive nylon pad. All red rust must be removed by **power tool cleaning** in accordance with AS1627.2 to clean, bright metal. Remove all abrasion products and dust. There are other handy mechanical options available for removing corrosion and deteriorated coatings such as **ultra high pressure water blasting, wet abrasive blasting and bristle blasting**.*
- *Remove all coatings that had failed adhesion test, or that are cracking, peeling, flaking or otherwise unsound by mechanical abrasion or burning off as appropriate. Where coating is removed back to a well-adhered, hard edge, feather edges of the coating to remove visual ridges.*
- *Where existing coating had passed adhesion test, abrade surface using a non-metallic abrasive nylon pad to remove gloss and to provide a uniformly roughened surface for the new coating system to adhere to.*
- *Remove all residual matter resulting from the cleaning and abrading processes.*
- *Spot prime any bare metal if present as soon as practical, before the surface oxidises or becomes re-contaminated.*

Suggested Recoat Specifications

One of the most robust coating specifications widely used on steelwork maintenance in many building and infrastructure sectors is the Dulux Protective Coatings specification below:

- Spot Primer: **Dulux Durebild STE** @ 110 – 210 microns*
First Coat: **Dulux Durebild STE** @ 110 – 210 microns*
Topcoat: **Dulux Weathermax HBR** @ 75 – 100 microns

*Film build depends on substrate and environment

On corrosion-free powder coated aluminium or coil coated metals, a thinner film coating such as the Dulux Protective Coatings specification below is probably more practical:

- First Coat: **Dulux Luxepoxy 4 White Primer** @ 50 microns
Topcoat: **Dulux Weathermax HBR** @ 75 – 100 microns

With brush and roller application, a second coat of **DULUX Weathermax HBR** may be necessary to achieve the minimum DFT and full opacity.

Please note that application must be done in accordance with the relevant product data sheets, available from www.duluxprotectivecoatings.com.au.

For more information, please contact your Dulux Protective Coatings Technical Consultant.

