Issue date:
Feb 2023

SELEMIX® SUBSTRATE PREPARATION AND PRETREATMENT GUIDE

SELEMIX® paint systems are dedicated to the light industrial coating market.

In order to get the best out of our products, it is essential to understand the correct process for each different substrate. Further detailed guidance on substrate preparation is given on the individual product datasheets.

SUBSTRATES AND PREPARATION

UNCOATED SURFACES

The appropriate pre-treatment procedure varies according to the type of material. Recommendations for the preparation of the various types of material are given below. All surfaces should be thoroughly cleaned prior to painting and should be free of any surface contaminants. Substrates that are dirty should first be jet washed, steam cleaned, or cleaned with a traffic film remover, prior to preparation described below:

Steel
Steel comes in two types: hot-rolled steel and cold-rolled steel.

Hot-rolled steel can be identified by its layer of millscale on the surface which generally tends to be black or blue / grey in appearance. Millscale is a form of iron oxide which generally becomes brittle and can flake off with time. Millscale should be removed before painting.

Cold-rolled steel has a shiny, silvery appearance. It tends to be oily to protect from corrosion.

Blast Cleaning of Steel is the preferred pre-treatment for hot / cold rolled steel chassis constructions, as this offers the most efficient method for the removal of rust and mill scale.
Chilled iron grit or shot are typically used as blast media for steel, but other media can also be used. This process should be carried out to give a cleanliness of SA2.5 according to ISO 8501. The blast profile should not be too coarse, or high film thicknesses of primer will be required to cover the profile to prevent corrosion. Ideally the blast profile should be as low as possible to allow for economic use of primer and to prevent corrosion issues. A surface profile of 30-40 microns is recommended.

After blast cleaning, all remaining contaminants and blast media should be removed by a clean brush and dry compressed air; or by vacuum cleaning.
The blast-cleaned surface should be kept dry and free from contamination, and coated immediately (or as soon as possible), with the relevant *Selemix* Primer or Direct Finish.
As a general rule, blast cleaning is not recommended when the relative humidity exceeds 85%. Care should also be taken not to contaminate the blasted surfaces by excessive handling.

Other Preparation for Steel
Good quality cold rolled steel (with a shiny, silver finish) can be machine sanded rather than blast cleaned. Degrease to remove oil and grease contamination, then machine-sand thoroughly using P120-180 abrasive discs. Finally wipe clean using degreaser.

Various chemical pre-treatments are available for steel. The common ones are Iron Phosphate and Zinc Phosphate. These will not work over millscale which must be removed prior to treatment. Steel treated with iron phosphate or zinc phosphate can normally be coated without further preparation.

Hot Dipped Galvanised Steel (with frost flake pattern)
Thoroughly degrease the surface and then abrade using fine ScotchBrite. Wipe clean with degreaser prior to priming with the relevant *Selemix* Primer or Direct Finish.

Electro-Galvanized Steel (Zintec)
Wash off any dirt, and degrease, and then abrade using fine ScotchBrite. Wipe clean with degreaser prior to coating with the relevant *Selemix* primer or Direct Finish. When abrading, care should be taken not to abrade through the zinc layer.

Hot Zinc Sprayed / Metallized Steel
Metallized steel is typically blast-cleaned steel that has need thermally sprayed with a 85:15 blend of metallic zinc and aluminium. The surface has an open matrix of zinc / aluminium on it. The profile of the coating can be coarse (80-150 microns) and so high builds of primer are required to fill and cover the profile. For best results, coat with a light coat of *Selemix* Primer or Direct Finish and allow to flash off. The surface should then be coated with heavier coats of *Selemix* Primer / Direct Finish.
Air drying is recommended, as baking can cause air bubbles to appear in the paintwork.

Stainless Steel
Degrease and machine sand with P80-120 sanding discs, before cleaning with degreaser.

Aluminium
Degrease, then thoroughly abrade the surface using P240-320 sanding discs. Difficult parts such as rivet heads or irregular sections should be scuffed very thoroughly with fine ScotchBrite. Wipe clean with degreaser.

Aluminium can be blast cleaned. If blast cleaning, non-metallic blast media such as aluminium oxide is recommended. Never use steel blast media, but stainless steel media can be used. Blasted aluminium is highly reactive and so it should be primed as quickly as possible after blasting.

Various chemical pre-treatments are available for aluminium, which can improve corrosion resistance or remove the need for abrasion. Please consult PPG Technical for information.

Glass reinforced polyester (GRP) / Glasonite / SMC
Where possible refer to the substrate manufacturers recommendations on preparation prior to painting. As a general guide remove any release agent using a detergent wash, or degreaser, then sand carefully using P320-400 dry sanding discs, taking care not to sand through the gel coat.
Wipe clean with a sprit wipe. Allow to dry thoroughly before painting.
Any pores in the gel coat should be filled with liquid filler, or pore filler, then sanded smooth.

Plastic Surfaces
Clean the plastic with a cleaner / degreaser suitable for plastic surfaces to remove traffic film, mould release agents, and other contaminants. Abrade with fine ScotchBrite, then wipe clean with the palastic cleaner / degreaser.
After preparation, certain plastics (PA, PC, ABS, PC/ABS, PMMA, PVC), can be painted directly with *Selemix* Direct 7-53X and *Selemix* Direct Pro 7-15X. Otherwise use *Selemix* 7-502 Plastics Primer.
Please check the relevant *Selemix* datasheets.

COATED SURFACES

Previously Painted Surfaces
Check carefully for any signs of film breakdown. e.g. chalking, cracking, humidity blistering.
Low gloss levels often indicate surface irregularities caused by chalking, or micro blistering and a more thorough investigation with a magnifying glass is needed. Look for evidence of brittleness or poor adhesion often indicated by excessive stone chipping. If in doubt, test the film by scraping with a knife. Defective paint must be removed.
If the existing paint film weight is high, it may be advisable to sand back to a reasonable total film build, before repainting. Excessive paint films impair durability.

Old Finish in Sound Condition / OE Finish / Powder Coating
Thoroughly clean to remove any traces of surface contamination by washing with a traffic film remover. Machine sand using P320-P400 discs. Degrease and tack-off before painting.

Defective Paintwork
Areas of defective paintwork should be removed back to the substrate. This is best carried out by abrasion with P180-240 discs. Clean thoroughly using degreaser. Deep scratches should be “feather edged” with P180. Areas of bare metal should be primed immediately to prevent corrosion.

Wax-Coated Areas
Vehicle components or chassis treated with protective wax or grease based materials should be carefully steam cleaned in accordance with the vehicle manufacturers recommendations. After steam cleaning, remove any residual wax by wiping down with degreaser, and then sand the complete vehicle using P180-240 dry sanding discs.
Following the sanding, remove all dust by blowing off with compressed air and degreased. Any areas of primer or finish not in a sound condition should be sanded back and the unpainted surface pre-treated accordingly.

Filling Dented or Irregular Surfaces
Degrease the area to be filled and sand using P80-120 abrasive discs.
Any deep dents should be filled using polyester filler / putty. Allow to dry for approximately 45 minutes at 20°C and then sand to the correct profile using P80-180 dry abrasive discs. The entire area of repair should then be machine sanded with P240 discs, and the surrounding area (not the filler) sanded with P320-400 discs. Wipe clean using degreaser, then apply primer.

THESE PRODUCTS ARE FOR PROFESSIONAL USE ONLY

The information given in this sheet is for guidance only. Any person using the product without first making further enquiries as to the stability of the product for the intended purpose does so at his own risk and we can accept no liability for the performance of the product or for any loss or damage (other than death or personal injury resulting from our negligence) arising out of such use. The information contained in this sheet is liable to modification from time to time in the light of our experience and our policy of continuous product development. Drying times quoted are average times at 20°C. Film thickness, humidity and shop temperature can all affect drying times.

FOR FURTHER INFORMATION PLEASE CONTACT:
Selemix Customer Service and Sales Group
Needham Road
Stowmarket, Suffolk
IP14 2AD, England
Tel: 01449 771771