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General information:

Almost every surface that needs to be painted is likely to have contamination of some kind. This contamination can be **"inherent residues"** on a surface such as corrosion deposits like mill scale and scale or **"foreign inherent residues"** or abnormalities on the surface, such as waxes, oil, grease, silicones, soiling and so on. The cleaning process to select depends on the paint system on the users shop facilities. The removal of inherent residues layers was described in detail in "TDS TI-P1 Pre-treatment: Metal Substrates". This TDS discusses in more detail the cleaning processes and the available cleaners and options for removal of the **"inherent residues"** and **"foreign inherent residues"** residues on different substrates.
Correct use of personal protective equipment "**PPE"** such as gloves, respirators, safety glasses, etc. is mandatory when executing any cleaning work details. Information provided by employers' liability insurances, regulations on accident prevention and pertinent laws and directives must be observed.

Coated Surfaces:
(Also see TDS TI-P3 Pre-treatment: Sanding)

Old paint – Damaged substrate, restoration, repainting and corrosion etc.
Existing paint surfaces generally have residues of some kind. This, among others, could be oils, bitumen, tree resin, bird droppings, conservation media, salts, etc. To remove mineral residues such as salts use aqueous cleaners or clean water. Solvent-based cleaners such as silicone remover (Degreaser) which evaporate slowly should be used on the stubborn residues such as bitumen, oil, etc.

Note! Water-soluble salts can not be removed with silicone removers.

- Surfaces to be painted must be thoroughly cleaned before starting with a grinding process. If the dust is not automatically extracted and filtered, the ground surface must first be cleaned with compressed air.
- Thereafter, use silicone remover (Degreaser), apply this degreaser onto a cloth and wipe the surface. Use a second (clean) cloth to wipe the surface dry.
- It is Important that the silicone remover must always be wiped until it is dry – do not let it simply evaporate!
- The surface is now fully prepared and ready for painting; apply primer or topcoat.

Iron/Steel surfaces:
(Also refer to – TDS S1 Substrate: Steel)

"Inherent residues" on the surface such as rust, mill scale and scale must be removed.

- To clean the "**foreign inherent residues"** such as oils, grease, etc on the substrates with solvent-based cleaners such as universal thinners or silicone remover it is also possible to use slow evaporating products to achieve longer open cleaning durations.
- The solvent-based cleaners are applied by means of a spray bottle, high pressure sprayer, brush, cloth or other similar application tools.
- After a certain reaction time, the steel surface has to be cleaned. To further improve the adhesion properties, use sanding pads or steel wool to prepare a better surface texture.
- After the first cleaning step and the drying processes are completed the substrates may be ground to increase the surface area for better adhesion properties.
- Clean the surface from dust and wipe again with a solvent-based cleaner.
- Important: If the parts are very dirty and contaminated, repeat the cleaning steps until the cloth appears clean.

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Industrial cleaners such as pickling, degreasing, rust removal agents and special detergents may also be used. These are usually water-based and can be applied undiluted or diluted with spray tools or in tanks using steam jets. After an appropriate reaction time, the surface shall be cleaned with plenty of clean/pure water. Water quality varies from area to area. Therefore, purified water should be used for further cleaning and rinsing (fully de-mineralised).

Untreated Aluminium Surfaces:
(Also see – TDS TI S3 Substrate: Aluminium)

Aluminium surfaces are very sensitive to finger or hand prints, It is imperative to wear gloves. New aluminium substrates always have an oily coat. Older components form a very thin protective layer on the surface. This is called patina.

- Solvent agents like universal thinners with long evaporation rates can be used for cleaning, or use silicone remover (Degreaser).
- To improve the adhesion sanding the surface can be roughened using an abrasive pad.
- After the first cleaning step and drying then the substrate may also be sanded with a sanding machine to increase the surface area. This will achieve excellent adhesion.
- Finally the surface shall be cleaned from dust and wiped again with a solvent-based cleaner with a cloth until all of the black residue is removed from the aluminium.

Warning: Sanded aluminium is highly explosive. Use specially designated electric sanding devices with dust extraction.

Industrial cleaners such as pickling, degreasing, rust removal and special detergents may also be used. These are usually water-based and can be applied undiluted or diluted with spray tools or in tanks with steam cleaners. After an appropriate reaction time, the surface is to be cleaned with plenty of clean/pure water. Water quality varies from area to area. Therefore, fully demineralised water should be used for final rinsing.
The application of a a coating should be executed without any undue delay (within 60-90 minutes). Otherwise, humidity in the air will support the formation of a non-adhesive layer on the aluminium surface.

Galvanised Steel:
(Also see – TDS TI S2 Substrate: Zinc- galv. Steel)

Galvanized steel substrates have oily surfaces. Older substrates are usually covered by white corrosion which forms on the surface. This must be removed.

- To clean the zinc surface use solvent agents such as universal thinners with long evaporation rates in combination with a plastic abrasive pad. Silicone removers are not suitable.
- For the preparation of zinc surfaces the use of an ammonia alkaline wetting agent is recommended. Mix 10 liters of water add 0.5 liters of ammonia (25% ammonium hydroxide) and add 1 tablespoon dishwater detergent. This liquid is applied with a plastic abrasive pad (not steel wool) until a foam is formed.
- Clean with clean/pure water. Water quality varies from area to area. Therefore, purified water should be used for further cleaning and rinsing (fully de-mineralised).

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Water quality varies from area to area. Therefore, purified water should be used for further cleaning and rinsing (fully de-mineralised).

Important! For all substrates: If substrates are going to be coated with water-based technology clean the surface with solvent products such as slow reducer or degreaser, but final cleaning should be with aqueous cleaners.