

For product description refer to product data sheet VERSILINE CUI 56990

Scope: These application instructions cover surface preparation, application equipment, and application of VERSILINE CUI 56990 to a variety of substrate types and conditions.

The following are general rules, which may be supplemented with more detailed descriptions when needed, for instance for major new-buildings/new constructions or extensive repair jobs.

Surface Preparation:

For New Steel:

Abrasive blasting

Prior to abrasive blast cleaning of the steel, remove oil, grease, salts and other contamination with a suitable detergent followed by high pressure fresh water hosing. Water soluble salts shall be removed by high pressure fresh water hosing if the concentration is above 50 mg/m².

For application on hot surfaces it is impossible to check for salt levels. In these cases, it is necessary to do a very thorough high pressure fresh water cleaning.

For optimum performance, grit blast to Sa 2½, ISO 8501-1:2007. The resulting surface profile must be equivalent to Rugotest No. 3, min. BN 10, or ISO 8503-1, MEDIUM (G).

Use steel grit, aluminium silicate, or similar sharp edged abrasives of a good quality free of foreign matters, soft particles, and the like. Control for contamination according to separate guidelines.

In case steel grit is used this must furthermore be controlled so that a proper grain size distribution is maintained. Steel grit with particle sizes of 0.2-1.2 mm or aluminium silicate of 0.4-1.8 mm will usually create the desired surface profile when the air pressure measured at the nozzle is 6-7 bar/85 -100 psi. The compressed air must be dry and clean. The compressor must be fitted with suitable oil and water traps.

When the abrasive blasting is completed, remove residual grit and dust by vacuum cleaning. Abrasive particles not removed by vacuum cleaning are to be removed by brushing with clean brushes followed by vacuum cleaning.

The importance of systematic working must be stressed when blasting. Poorly blasted areas covered with dust are very difficult to locate during the blast inspection made after the rough cleaning.

For Old Steel:

All shopprimer or existing coating materials are to be completely removed.

Surfaces applied with inorganic zinc-containing coatings such as zinc silicates should be washed thoroughly to remove all residues of zinc salts.

Organic coatings such as epoxies should be removed completely prior to application of VERSILINE CUI 56990.

Abrasive blasting

Cleaning and abrasive blasting of old steel surfaces are to be carried out as described in the section abrasive blasting for new steel.

Even after a very thorough cleaning, pits may typically contain contamination in the form of remnants of chemicals/water soluble salts. For this reason, repeated detergent washing plus abrasive blasting may be necessary. On repair jobs, a rough blasting to remove all loosely adhering materials may be required **before degreasing/washing is carried out.**

Hand and Power Tool Cleaning

For power tool cleaning of the steel surface, methods such as disc grinding, hand sanding and hand wire brushing is recommended. The surface should be prepared mechanically to a minimum of St 2, ISO 8501-1:2007.

Optimal results will be achieved if a surface profile of St3, ISO 8501-1:2007, can be generated.

It is of outmost importance that the surface is free from mill scale, loosely adhering corrosion and/or existing failed coating system.

Furthermore it should be ensured that the surface is not "polished". The appearance of the surface should be rough and mat.

Water jetting

In some cases it may be advantageously to use water jetting as surface preparation for substrates previously coated with a full coating system (DC A, DC B, DC C, ISO 8501-4) or shop primer (DP I, DP Z, ISO 8501-4). Before considering water jetting it is important to check that VERSILINE CUI 56990 is compatible with the existing coating system.

The water jetting should be carried out to a degree of Wa2½ according to ISO 8501-4:2006 as long as the formation of flash rust is low (maximum degree M as per ISO 8501-4:2006).

Note: Surfaces needs to be completely dry at application.

For Stainless Steel:

For all surface preparation methods for stainless steel it is important NOT to use chlorinated or chlorine containing solvents or detergents.

Abrasive blasting

Prior to abrasive blasting of the stainless steel, remove oil, grease, salts and other contamination with an alkaline detergent followed by fresh water hosing.

Abrasive blast cleaning to a surface equal to mild steel blasted to Sa 2½, ISO 8501-1:2007. Abrasive blasting should be carried out using **non-metallic abrasives**. The abrasive blasting shall produce a uniformly matted surface with a sharp and angular dense surface profile without any blank spots

Application equipment:

VERSILINE CUI 56990 is preferably applied by airless spray equipment. Stripe coating and minor repairs can be carried out by brushing.

Airless spray equipment: A large pump is preferred, with a pump capacity of 8-12 litres/minute.

Pump ratio: Min. 45:1

Nozzle orifice: .017"-.021"

Nozzle pressure: 200 bar (2900 psi)

Hoses: To avoid excessive loss of pressure in long hoses, hoses with an internal diameter of up to 0.5" can be used

(Spray data are indicative and subject to adjustment).

Stirring:

VERSILINE CUI 56990 is a single component product and therefore has an unlimited pot life. The product is heavily pigmented and will have a tendency to settle during storage.

In case of settling the paint needs to be mixed properly before use to a uniform consistency. The best way to do this is to shake the product using a mechanical shaker.

If this is not available another way of stirring the product is to pour the paint into a larger mixing bucket. Be sure that all paint, both the liquid part and the heavy settled part is poured/scraped from the VERSILINE CUI 56990 cans into the mixing bucket. Use mechanical agitation to stir the paint.

Avoid incorporating of air into the paint by over-agitation.

During application, mixing should be carried out from time to time to secure a uniform consistency of the paint.

Leaving the can open for longer time does not influence the curing properties of VERSILINE CUI 56990, however in order to avoid solvent evaporation it is recommendable to cover the can or mixing bucket.

Thinning:

Thinning is not required for VERSILINE CUI 56990. However, the product can be thinned max. 5% with HEMPEL'S THINNER 08080.

Never use more thinner than required to avoid possible risk of solvent entrapment.

Cleaning of equipment:

The whole equipment should be cleaned thoroughly with HEMPEL'S TOOL CLEANER 99610 after use.

Application procedure:

It is very important to use nozzles of the correct size, i.e. not too big. Select small nozzles for spray application of complicated structures, while bigger nozzles may be used for regular surfaces.

A proper, uniform distance of the spray gun to the surface, 30-50 cm, should be aimed at.

The paint layer must be applied homogeneously and as close to the specification as possible. The consumption of paint must be controlled and heavy layers must be avoided because of the risk of sagging, cracking and solvent retention.

Furthermore, great care must be taken to cover edges, bolt-holes, brackets, pipe hangers and other fittings etc. Thus, on these areas a stripe coat will usually be necessary.

The finished coating must appear as a homogeneous film with a smooth surface and irregularities such as dust, dry spray, abrasives, must be remedied.

Note: In case of old, pit corroded steel; application of a diluted, extra first coat is recommended to obtain better "penetration" in the fine pits. For this purpose, it is relevant to dilute 5-10%. Application by brush is recommended and film thickness so low that the surface is only "saturated".

Hot surface application:

VERSILINE CUI 56990 is a solvent borne paint and care must be taken during application on hot surfaces. VERSILINE CUI 56990 can be applied on hot surfaces up to 200°C/392°F by spray application only.

For hot surface applications it is not necessary to thin VERSILINE CUI 56990.

Secure that there are no ignition sources and that all application equipment is protected against static electricity charges.

To avoid solvent entrapment use additional spray passes to achieve the right WFT. Build up each coat of 3-4 or more thinner layers. Use an overcoating interval of 15-20 minutes between each coat.

Since VERSILINE CUI 56990 will have a shorter drying time at higher temperatures it can be difficult to measure the right WFT. In these cases it can be necessary to test on steel substrates at ambient temperatures to get a feeling of the speed, distance and number of strokes needed to achieve the right WFT.

VERSILINE CUI 56990 can be soft after application on hot substrates and susceptible to mechanical damages. Within short period of time the coating will harden.

Stripe coating

All places difficult to cover properly by spray application should be stripe coated twice by brushing immediately before the spray application. The first stripe coat is applied before the first full coat and second stripe coat before second full coat.

The second stripe coat with brush can be replaced with spray application with a small narrow nozzle, but any imperfections within the steel will still require brush application.

For very hot surfaces, stripe coating by brushing is to be avoided.

Film thickness:

For insulated service - two coats shall be applied to a minimum /nominal dft of 150 micron / 6 mils per coat.

For uninsulated service - two coats shall be applied to a minimum / nominal dft of 225 micron / 9 mils per coat

Corresponding to 150 micron/6 mils dry film thickness, the wet film thickness must be 200 micron/8 mils and must be measured regularly. Corresponding to 225 micron/9 mils dry film thickness, the wet film thickness must be 300 micron/12 mils and must be measured regularly

Dry film thickness control can be carried out as soon as the surface is sufficiently hard and this may depend upon climatic conditions. The measurement must be carried out using a suitable electromagnetic dry film thickness gauge calibrated with shims placed on a smooth steel substrate appropriate to the gauge probe type being used.

Microclimate

Optimum application conditions are as follows:

The minimum surface temperature until fully cured is 10°C/50°F.

The substrate temperature shall be a minimum of 3°C/5°F above the dew point to avoid surface condensation.

The relative humidity should preferably be 40-60%, maximum 80%.

Drying and curing:

In a dry film thickness of 150 micron/6 mils, with a steel temperature of 20°C/68°F, a

relative air humidity of maximum 80% and adequate ventilation, VERSILINE CUI 56990 will be dry to touch after 2 hours.

Overcoating intervals

Under the above conditions the following overcoating intervals shall apply:

Steel temperature	20 °C/68 °F	200 °C/392 °F
Minimum	6 hours	15 minutes
Maximum*	Extended	Not recommended

* Applicable when the system has not been exposed to heat

As near as is practicable the conditions referred to under 'Microclimate' shall also be maintained between coats.

Safety:

Handle with care. Before and during use, observe all safety labels on packaging and paint containers, consult HEMPEL Material Safety Data Sheets and follow all local or national safety regulations. Avoid inhalation, avoid contact with skin and eyes, and do not swallow. Take precautions against possible risks of fire or explosions as well as protection of the environment. Apply only in well ventilated areas.

ISSUED BY:

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