

For product description refer to product data sheet 47300

Scope: These Application Instructions cover surface preparation, application equipment and application details for HEMPADUR 47300

Surface preparation: General:
In order to obtain best performance, abrasive blast cleaning is recommended. Abrasive blasting/abrasive sweep blasting: Before blasting any deposits of grease or oil must be removed from the steel surface with a suitable detergent followed by fresh water hosing. Minor spots of oil/grease may be cleaned with thinner and clean rags —avoid smearing out the contamination. Possible alkali weld deposits, chemicals used for testing of welds, soap residues from the pressure testing must be removed by fresh water hosing.

New steel:
When used as intermediate and/or finishing coat, surface preparation according to Product Data Sheet for the preceding primer coat (HEMPADUR primers). When used as a self-priming coat, surface preparation according to specification.

When applied to GALVOSILS:
HEMPADUR 47300 can be applied when the GALVOSIL is cured. Consult APPLICATION INSTRUCTIONS for the relevant GALVOSIL. Remove oil and grease etc. with suitable detergent. Remove salt and other contaminants by high pressure fresh water cleaning. After exposure to high humidity, zinc salts, "white rust", must be removed carefully by high pressure fresh water cleaning, if necessary combined with scrubbing with stiff nylon brushes.

REPAIR AND MAINTENANCE:

Spot-repairs:
Clean damaged areas thoroughly by power tool cleaning to minimum St 2 (spot-repairs) or by abrasive blasting to minimum Sa 2, preferably Sa 2½. Improved surface preparation will improve the performance of HEMPADUR 47300. As an alternative, water jetting to minimum Wa 21/2 (ISO 8501-4:2006)(or according to specification) may be used. A flash-rust degree of maximum M (ISO 8501-4:2006) is acceptable before application. Feather edges to sound and intact areas. Brush off loose material. Touch up to full film thickness.

Compatibility: HEMPADUR 47300 may be used in connection with other generic paint systems than epoxy and polyurethanes.
It is recommended to make a test patch. In any case it is a must that the old paint system is tightly adhering and is properly prepared before the touch-up is performed.

Full coating:

Compatibility with old system: In general full compatibility can be expected with old epoxy systems if some roughness is made on the surface to be painted. Furthermore, very thorough cleaning is a must. Any dirt, chalked surface material, oil and grease should be removed with suitable detergent followed by high pressure fresh water hosing of the entire surface.

Removal of old system:
Full coating after complete mechanical removal of an old paint system is possible too. Yet, it must be considered that mechanical cleaning by disc grinding or by rotating wire brushing may produce a very smooth surface which reduce the adhesive forces of the primer coat

Note: Another risk is remains of a hard black rust scale being cleaned to an apparent brightness without showing any adhesive defects. Yet, the exposure to open air during cleaning may have started a further oxidation of the hard black rust making it mechanically weak and of poor adhesion to the underlying steel surface. Later, during service, the scale plus overlaying paint material may flake off.

Application equipment: HEMPADUR 47300 being a high solids and a relatively high viscosity material, may require special measures to be taken at application.

Recommended airless spray equipment:

Pump ratio:	min.45:1
Pump output:	12 litres/minute (theoretical)
Input pressure:	min. 6 bar/90 psi
Spray hoses:	max. 100 metres/300 feet, ½" internal diameter max. 30 metres/100 feet, ¾" internal diameter max. 6 metres/20 feet, ¼" internal diameter
Regular surfaces:	
Nozzle size:	0.019" - 0.023"
Fan angle:	60°
Complicated surfaces (and touch up):	
Nozzle size:	0.017" - 0.021"
Fan angle:	40°
Airless spray data are indicative and subject to adjustment.	

After finishing the application, clean the equipment immediately with THINNER 08450 or HEMPEL'S TOOL CLEANER 99610.

Note: Increasing hose diameter may increase paint flow, thereby improving the spray fan. If longer hoses are necessary it may be necessary to raise the pump ratio to 60:1, maintaining the high output capacity of the pump.

Alternatively up to approx. 5 % THINNER 08450 may be added, but thinning must be done with care as the anti-sagging properties are drastically reduced by over-thinning.

Induction time: At steel temperatures below 5°C/41°F the paint may advantageously be pre-reacted e.g. 10-20 minutes (depending on paint temperature) before spray application (longer pre-reaction time at lower temperatures).

Spray application: **Film-build/continuity:** With this paint material applied in one/few coat(s) it is of special importance that a continuous, pinhole-free paint film is obtained at application of each coat. An application technique which will ensure good film formation on all surfaces must be adopted. It is very important to use nozzles of the correct size, not too big, and to have a proper, uniform distance of the spray gun to the surface, 30-50cm should be aimed at. Furthermore, great care must be taken to cover edges, openings, rear sides of stiffeners etc. Thus, on these areas application of a stripe coat will therefore be good painting practice. To obtain good and steady atomizing, the viscosity of the paint must be suitable and the spray equipment must be sufficient in output pressure and capacity. At high working temperatures, use of extra thinner may be necessary to avoid dust-spray.

The paint layer must be applied homogeneously and as close to the specification as possible. Avoid exaggerated film thickness due to the risk of sagging, cracks and solvent retention. The paint consumption must be controlled.

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

Brush and roller application: At application with hand tools, brush, but especially by roller the natural tendency to a more uneven paint film obtained by these methods, is to be counteracted by more coats applied. If at all possible – each coat is to be applied across the preceding one – in general follow good painting practice.

On **poorly prepared surfaces** it is always recommended to apply the first coat by brush. Extra thinning will facilitate the penetration of the paint material, but will also require an extra layer to be applied.

Wet/dry film thickness: Please note that the thixotropic nature of HEMPADUR 47300 may give a rather "wavy" surface of the paint just after application. This smoothens at drying, but can make it necessary to let the wet film readings be of a higher value than indicated. In many cases the wet film thickness, reading should be 25-50 micron/1-2 mils higher than calculated. As the wavy surface becomes smoother during drying, these extra wet film thickness readings will not cause higher paint consumption than otherwise stipulated.

Film thickness/thinning: HEMPADUR 47300 is normally specified in 150-250 micron/6-10 mils. Depending on ambient conditions, usually maximum 5% thinning with THINNER 08450 is relevant, however, increasing at high temperatures to ensure proper film formation and avoid dust spray.

Physical data versus temperature (optional): Drying time and recoating interval vary with film thickness, temperature and later exposure conditions:

HEMPADUR 47300 in a dry film thickness of 150 micron/6 mils)

Surface temperature	-10°C/14°F	0°C/32°F	10°C/50°F	20°C/68°F	30°C/86°F	40°C/104°F
Drying time	35 hours	14 hours	7 hours	3 hours	2.5 hours	2 hours
Curing time	56 days	28 days	14 days	7 days	3.5 days	40 hours

Surface temperature:		-10°C/14°F		0°C/32°F		10°C/50°F		20°C/68°F		30°C/86°F		40°C/104°F	
Overcoat with Quality type:	Environment	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
HEMPADUR	Medium	18 h	90 d	9 h	90 d	4 h	60 d	2 h	30 d	1.5 h	22.5 d	1 h	15 d
	Severe	36 h	90 d	18 h	90 d	8 h	60 d	4 h	30 d	3 h	22.5 d	2 h	15 d
HEMPATHANE	Medium	27 h	90 d	14 h	90 d	6 h	40 d	3 h	20 d	2 h	15 d	N/R	N/R
	Severe	36 h	54 d	18 h	27 d	8 h	12 d	4 h	6 d	3 h	4.5 d	N/R	N/R

d=days; h=hours

Maximum overcoating intervals:

If the maximum overcoating interval is exceeded, whatever the subsequent coat, roughening of the surface is necessary to ensure optimum intercoat adhesion or in the case of overcoating with coatings other than HEMPADUR, apply a (thin) additional coat of HEMPADUR 47300 within the following directions for overcoating:

- **Long overcoating intervals:**
A completely clean surface is mandatory to ensure intercoat adhesion, especially in the case of long overcoating intervals. Any dirt, oil and grease have to be removed with e.g. suitable detergent followed by high pressure fresh water cleaning. Salts are to be removed by fresh water hosing.
- **Any degraded surface layer, as a result of a long exposure period, must be removed as well.**
Water jetting may be relevant to remove any degraded surface layer and may also replace the above-mentioned cleaning methods when properly executed. Consult HEMPEL for specific advice if in doubt. To check whether the quality of the surface cleaning is adequate, a test patch may be relevant.

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.

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These Application Instructions supersede those previously issued.
For explanations, definitions and scope see "Explanatory Notes" available on www.hempel.com. Data, specifications, directions and recommendations given in this data sheet represent only test results or experience obtained under controlled or specially defined circumstances. Their accuracy, completeness or appropriateness under the actual conditions of any intended use of the Products herein must be determined exclusively by the Buyer and/or User. The Products are supplied and all technical assistance is given subject to Hempel's general conditions of sales, delivery and service, unless otherwise expressly agreed in writing. The Manufacturer and Seller disclaim, and Buyer and/or User waive all claims involving, any liability, including but not limited to negligence, except as expressed in said general conditions for all results, injury or direct or consequential losses or damages arising from the use of the Products as recommended above, on the overleaf or otherwise. Product data are subject to change without notice and become void five years from the date of issue.