

# APPLICATION INSTRUCTIONS

For product description refer to the product data

## HEMPADUR\* MULTI-STRENGTH\* 35550

CURING AGENT 95550

**Scope:** These Application Instructions cover surface preparation, application equipment, and application of HEMPADUR MULTI-STRENGTH 3555.

**Surface preparation:** **Steel:** Heavily scaled surfaces may advantageously be descaled mechanically (e.g. hammering) prior to abrasive blasting.

Rough welds and sharp edges should be ground and rounded off prior to abrasive blasting. Weld spatters to be removed.

Prior to blast cleaning the steel, remove oil, grease, and other contamination with suitable detergent followed by (high pressure) fresh water cleaning. Other chemical contamination shall be neutralized and/or flushed.

Alkali deposits on new welding seams to be removed with fresh water.

All steel surfaces to be protected must be abrasive gritblasted to minimum Sa 2 ½, ISO 8501-1:1988, SSPC-SP-10.

For very severe service conditions abrasive blasting to Sa 3, ISO 8501-1:1988, SSPC-SP-5, can be necessary.

The minimum required surface profile is Ra=25 micron, corresponding to Rugotest No 3., BN11a, Keane-Tator Comparator, 5.5 G/S, or ISO Comparator Coarse (G). The profile is obtained with sharp, angular abrasives.

Prior to application of HEMPADUR MULTI-STRENGTH 3555 all blasted surfaces must be cleaned from dust, abrasives, etc.

On old ships' bottoms and similar surfaces, excessive amounts of salt residues may call for wet abrasive blasting followed by dry abrasive blasting. Alternatively, dry abrasive blasting, high pressure fresh water hosing, drying, and finally, dry abrasive blasting again.

**Application equipment:** Spray application is carried out by "dual feed, hot airless spray equipment", e.g. GRACO HYDRA-CAT SYSTEM.

Other brands for the same purpose are available.

Dosing pump: Minimum ratio 45:1.

Proportion: 3 equal displacement cylinders, 2 for the BASE, 1 for the CURING AGENT, giving a volume mixing ratio of 2:1.

Filters: 2 in-line filters on the suction side.

Heating: 2 heating caps for preheating of the paint, and  
3 in-line heaters (2100 W 220 v):  
2 on the BASE-line.  
1 on the CURING AGENT-line

Mixing aggregate: Static mixer 3/8". Min. 27 elements.

**Note:** Depending on conditions double capacity of heating may be necessary.

Supply hoses: 3/8", insulated and heated.  
(from proportion pump to mixer manifold)

Spray hose: 1/4", 5 metres/16 ft., (maximum).  
Spray tip: Reversible type, orifice: .027"-.035"

Fan angle: 40° (preferably)

**Procedure:**

**Heating:** Heating of the material is necessary to reduce the viscosity. If viscosity is too high, mixing will be incorrect. Optimum spray temperature is about 70°C/158°F. It is recommended to store the paint under warm conditions.

Prior to application, preheat the material to approximately 50°C/122°F e.g. by means of heating caps or by heating canons.

**Flushing:** Flush the system with HEMPEL'S TOOL CLEANER 9961. This is done to ensure complete cleanliness as well as to check proper functioning of the flush pump. Output pressure of this pump should be 120 bar/1700 psi.

**Start:** Introduce the two components, BASE and CURING AGENT, into the equipment and empty the system of all foreign material.

**Note:** BASE and CURING AGENT have different colours which, when mixed together in the volume ratio 2:1, give the correct shade.

Circulate the material until the (output) pressures of the three main dosing cylinders are identical - between 160 and 200 bar/2200-2900 psi. Then the material is ready for spraying.

If any or all the cylinders show too low pressures and no leaks are evident, it may indicate that the viscosity of the material is too high. In such case, further heating is necessary. Another check-point will be possible wear of cylinders.

**Note:** The output pressures of the two supply pumps must maximum be: 40 bar/580 psi.

Adjust the heaters until correct temperature is achieved, viz.:

BASE: 70-80°C/158-176°F  
CURING AGENT: 40-50°C/104-122°F

Before application the mixing ratio should be checked. Close the valve to the recirculation hoses. Measure the volumetric material flow of the two components separately at the outlets just after the dosing cylinders.

**Note: As an extra check of correct mixing ratios, evaluate whether the colour of the applied coat is correct and homogeneous.**

**Spraying:** During the first seconds of spraying the paint will often "finger" due to cooling of the material in the hoses and gun.

**Note:** In order to minimize this problem keep spraying breaks and hose lengths at a minimum. Furthermore, it is recommended to start by emptying the spray gun, hose and static mixer of cold paint by spraying down into a bucket or drum.

The optimum distance between spray gun and steel surface is approx. 30 cm/1 ft. The distance may vary depending on prevailing conditions and size/form of object.

Applied thickness must be checked immediately after application with a wet film thickness gauge suitable for this range of thicknesses (0-1000 micron/0-40 mils). Additional material must be applied in case thickness is insufficient.

**Note: The rough surface of pitted steel will usually need extra thickness of paint applied to secure a correct film formation without pinholes.**

**Equipment cleaning:**

Proper equipment cleaning is essential for a successful operation.

Immediately after finishing the application, the pump, hose, and spray gun must be flushed with plenty of HEMPEL'S TOOL CLEANER 9961 until the cleaner is no more contaminated.

**Note:** The pot life of HEMPADUR MULTI-STRENGTH 3555 is only 3 minutes at the spraying temperature of 70°C/158°F after which gelatination starts.

After all material has been removed from pump and hoses, the surge valve must be flushed and the suction pipes cleaned.

**Topcoating:**

**If colour retention (light stability) is important** and the surface is exposed to sunshine during service, it is necessary to topcoat HEMPADUR MULTI-STRENGTH 3555 with a suitable topcoat according to specification. Alternatively refer to HEMPADUR MULTI-STRENGTH 4575 (consult the product data sheet).

**Recoating interval:**

Recoating intervals (d = days, h = hours, NR = not relevant)									
Steel temperature, °C/°F		5/41	10/50	15/59	20/68	25/77	30/86	35/95	40/104
HEMPANYL TAR 1628	Min	24 h	13 h	9 h	6 h	5 h	4 h	3 h	2½ h
	Max	48 h	22 h	15 h	10 h	8 h	6½ h	5 h	4 h
HEMPADUR qualities	Min	4 d	22 h	15 h	10 h	8 h	6½ h	5 h	4 h
	Max	5 d	4 d	3 d	2 d	38 h	32 h	24 h	19 h
HEMPATHANE qualities	Min	48 h	22 h	15 h	10 h	8 h	6½ h	5 h	4 h
	Max	5 d	3 d	36 h	24 h	18 h	16 h	12 h	10 h

**Stripe coating:**

Edges, corners, welding seams, and places difficult to cover properly by spray should be stripe coated (touched up) either before or after the spray application.

For brush application HEMPADUR MULTI-STRENGTH 3555 may be diluted with 5-15% acetone.

Pot life of the diluted material is approx. 1 hour at 20°C/68°F.

For preparation of smaller quantities take care to mix (and stir) the two components in the correct proportions.

To obtain adequate film thickness on such areas apply an extra coat while the applied paint is still tacky.

**Minimum out-docking interval:**

When the painted surface will be exposed to abrasion shortly after out-docking, the minimum time before un-docking is:

Steel temperature °C/°F	5/41	10/50	15/59	20/68	25/77	30/86	35/95	40/104
Minimum, d = days, h = hours	10 d	7 d	4 d	3 d	58 h	48 h	36 h	28 h

When out-docking takes place into water with a temperature at or above 5°C/41°F, and sufficient time afterwards is allowed for full cure before the coating is exposed to abrasion, the minimum time before un-docking is:

Steel temperature °C/°F	5/41	10/50	15/59	20/68	25/77	30/86	35/95	40/104
Minimum, d = days, h = hours	4½ d	3 d	2 d	32 h	26 h	21 h	16 h	12 h

**Note:**

- The temperature in the tables above are mean values, but the temperature during curing should at no time come below 5°C/41°F.
- Curing will proceed under water when the water temperature is above 5°C/41°F.

**Note:**

The above is offered as a supplement to the equipment supplier's service manual, which should be consulted.

**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. Harmful or fatal if swallowed; immediately seek medical assistance if swallowed. Avoid inhalation of possible solvent vapours or paint mist, as well as paint contact with skin and eyes. Apply only in well ventilated areas and ensure that adequate forced ventilation exists when applying paint in confined spaces or when the air is stagnant. Always take precautions against the risks of fire and explosions.

This Product Data Sheet supersedes those previously issued. For definition and scope, see explanatory notes to applicable Product Data Sheets.

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