



Application Instructions

FIBRE MATTS

For product description refer to product data sheet

HEMPADUR 35760

BASE 35769 with CURING AGENT 98760

Scope:

These Application Instructions covers the Working Procedure – including surface preparation, coating application, and coating inspection requirements for the internal lining of tank bottoms with HEMPADUR 35760 reinforced with glass fibre. Recommended repair procedures for various defects encountered are also outlined. Please also consult the general Application Instructions for HEMPADUR 35760.

Before any job in a tank initiates, it is important that the tank is certified to be “gas free”.

Steel work:

Surfaces shall be free of weld spatters. Edges shall be ground to a 3-mm (1/8 in.) radius. All welds shall be continuous; skip welds are not permitted. All surfaces shall be accessible for surface preparation and coating application.

Surface preparation:

Before abrasive blasting, all surfaces to be coated shall be cleaned to remove all oil, grease, cutting oils, dirt, salts and other contaminants by washing with a suitable detergent and fresh water 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. If the tank has been in service, clean the tank sufficiently to ensure that the surface to be coated is completely free of contaminants and that no new contaminants from above fall onto the surface to be coated.

The tank surfaces to be coated shall be abrasive blast cleaned. Blast air shall be free of oil and water. Blotter tests (ASTM D 4285) shall be performed at the beginning of each shift to verify the purity of the air. It is important that traps, separators, dehumidifiers or other equipment required to maintain the required air quality is in place. Blast air pressure shall be enough to provide the required cleanliness:

Example:

Pressure - 580 to 690 kPa (85 to 100 psi) at the nozzle.

Nozzle size and type : 11 mm (7/16 Inch) Venturi carbide.

Abrasive blasting shall not be performed when the air or steel temperature is below 10°C (50°F), when the relative humidity exceeds 80%, or when the steel temperature is less than 3°C (5°F) above the dew-point. It may be required to install insulation, dehumidification, and /or temperature control in order to meet these conditions. If necessary shades can be erected to block the sun in order to prevent excessive steel temperatures.

Cleanliness shall meet the requirements of ISO 8501-1:2007 Sa 2½. Anchor profile shall be 75 to 100 microns (3 to 4 mils) measured by replication (ASTM D 4417, Method C) or similar. The final surface shall have a dense, sharp anchor pattern free from peening.

If non coatable defects such as slivers, laminations, or pits are discovered in welds or in the tank wall after abrasive blasting, their repair shall be delayed until after application of the primer.

Remove **ALL** blasting residues from the tank by means of vacuum cleaning plus, as appropriate, using brooms/shovels and compressed air. Blasting residues shall be removed from **ALL** tank internal surfaces, even from surfaces that will not be coated. Vacuum cleaning is required only for surfaces to be coated.

After the tank has been cleaned, no contamination is permitted. All people entering the tank shall wear gloves, sweat bands, and clean shoes or shoe covers. Street shoes are not permitted. Shoes or shoe covers worn during coating must not cause contamination to the tank surface and must not be affected by the coating solvents. A clean area shall be maintained at the tank entry (outside). There shall be no eating, drinking, or smoking in the tank or in the area.

HEMPEL

Application Instructions



Application Instructions

FIBRE MATTS

Recommended Materials/Equipment

Holding Primer: **HEMPADUR 15590**

Tank coating: **HEMPADUR 35760**

Caulking material: **Mixture of HEMPADUR 35760 and Treated Silica Sand.**

Glassfibre: **450g/m²**

Surfacing Tissue: **30g/m²**

Short pile rollers and brushes of good quality for application of the tank coating.

Serrated or split-washer aluminium or stainless steel rollers for compacting the applied glassfibre mats in the tank coating.

Stainless steel trowels or spatulas for caulk (sand-filled tank coating) application.

Inspection equipment

Inspection equipment includes profile replica tape for measurement of the profile depth (provide the correct tape for the specified 75 - 100 microns profile) or Rugotest Comparator No. 3 or Keane - Tator Comparator; SSPC-VIS-1 Cleanliness Comparators or ISO 8501-1:2007; steel surface thermometer, wet film comb 25 - 3000 micron range, sling psychrometer, dew point tables for determination of relative humidity and dew point and blast hypodermic pressure gauge.

Coating Application

Coating materials shall be stored indoors, out of the sun, away from ignition sources. The Manufacturer's label shall be readable on each container of material. Each material shall be used within its shelf life, as defined by the Manufacturer. Thinners and Curing Agent shall be specified on the Manufacturer's data sheet. No substitution of materials or thinners is permitted.

Product data sheets and material safety data sheets for every material used must be available at the job site.

Do not apply coatings when the air or steel temperature is below 10°C (50°F), when the relative humidity exceeds 80%, or when the steel is less than 3°C (5°F) above the dew point. It is important that eventual insulation, dehumidification, and/or temperature control as necessary to meet these conditions are installed. If necessary shades can be erected to block the sun in order to prevent excessive steel temperatures.

Throughout the coating application and curing process, maintain sufficient air flow through the tank to keep vapours below 20% of the lower explosive limit (LEL) at all times. Use explosion-proof air movers.

Application of holding primer: The holding primer (HEMPADUR 15590) is used to extend the life of the blasted surface. THERE SHOULD BE NO SIGN OF OXIDATION OF THE BLASTED SURFACE (colour change, darkening, rust bloom) WHEN THE FIRST COAT IS APPLIED.

Spray apply a coat of primer HEMPADUR 15590 thinned as required to achieve the required dry film thickness of 40 microns.

Air dry at 10°C (50°F) minimum. The temperature shall be maintained as a minimum throughout the drying period. Maintain continuous air flow through the tank during drying to prevent settling of solvent vapours.

Weld or shell defects such as laminations, slivers or pits visible after priming shall be repaired and reblasted. Protect coated areas from damage. Apply a coat of primer HEMPADUR 15590 to the reblasted areas at the specified dry film thickness.

Caulk (putty) application

Prepare the caulking compound by mixing HEMPADUR 35760 with treated silica sand to achieve the required consistency.

Apply caulk to provide a smooth contour across bolts, chime, channels, etc. Do not apply more than a 6 mm (1/4 in.) thick section in one pass. If greater thickness is required, apply in multiple passes, allowing the caulk to harden between passes.

Allow caulk to dry hard /cure before proceeding with laminate application.

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

HEMPEL

Application Instructions



Application Instructions

FIBRE MATTS

Laminate Application

Use airless spray (min 45:1 Pump Ratio) spray to apply a full coat of HEMPADUR 35760 to the primed steel surface. Then carefully lay woven mats (i.e. 450g/m² fibreglass mat) in the wet paint. Use a (metal serrated) ribbed roller to work out all wrinkles, folds, and entrapped air. Work with the roller to ensure that the fibreglass mat is fully saturated and that all air is worked out. Inspect the application closely as work proceeds to ensure that all fibreglass mat is fully saturated and that pooling of excess coating on top of fibreglass mat is prevented.

Total thickness of the first laminate layer (HEMPADUR 35760 and fibreglass mat) shall be 1200 microns DFT.

Note that it is important that the metal rib rolling exercise is carried out with adequate pressure for a sufficient period to expel air entrapment and to saturate the fibreglass mat prior to application of additional coatings.

Apply a second coat of HEMPADUR 35760 and lay the surfacing tissue (30g/m²) onto the wet fully saturated laminate system. Use a ribbed roller (preferably aluminium) to work out all wrinkles, folds and entrapped air. Work with the roller to ensure that all Surfacing Tissue is fully saturated and that pooling of excess resin on the top is prevented.

Total thickness of the second laminate layer (HEMPADUR 35760 and fibreglass mat) shall be 300 microns DFT.

Inspection after application of the laminate layers

Note: Allow the laminate to cure sufficiently to support foot traffic before inspection starts.

Examine surface closely to locate any folds, wrinkles, tufts of glassfibre, contaminants, dry patches or entrapped air pockets. Grind out such defects and repair.

Remove voids, holidays, folds, wrinkles, and other defects by grinding. Repair by spot application of tank coating HEMPADUR 35760, glassfibre mat, and additional coating HEMPADUR 35760. Work with a ribbed roller to saturate the glassfibre mat and work out folds and wrinkles. Apply one or two layers of glassfibre mat. Allow resin to cure between applications. After curing, inspect the repairs for holidays. Repeat the repair if holidays are found.

Correct low DFT by application of additional material. Do not allow coating to pool on top of the glassfibre mat. Remove excess DFT by sanding or grinding to the correct range.

Random check for adhesion by "ringing" (lightly tapping the laminate to ensure there is no hollow between the laminate and substrate indicating a disbondment)

Application of the final coat of tank coating HEMPADUR 35760

Allow to dry for at least 24 hours then apply a full coat of HEMPADUR 35760 at 250 microns DFT.

Use airless spray equipment (min 45:1 Pump Ratio) to apply a full wet coat of resin to the surface.

The total DFT must be a minimum of 1750 microns. Please refer to the paint specification for further details.

Note:

The type and number of fibreglass mat mentioned above is an example only. Alternative specifications may contain 1, 2 or 3 layers of fibreglass mats (450 g/m²) and may be used without the surfacing tissue layer.

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Application Instructions



Application Instructions

FIBRE MATTS

Inspection and repair after application of the final coat of tank coating HEMPADUR 35760

Measure the DFT in accordance with SSPC-PA-2/ISO 19840. Correct low areas by application of additional HEMPADUR 35760. Correct high areas by sanding into the required range. Seal sanded areas with a thin layer of HEMPADUR 35760.

Any defect found shall be repaired immediately in accordance with the specification:

Inspect for holidays. Use a high-voltage holiday detector.
Grind holidays to bare steel. Inspect the repair for holidays after laminate application(s) and repeat the repair if new holidays are found.

Glass Protruding to laminate (Wicking) - fibreglass tufts or protrusions, shall be trimmed to the surface of the laminate and the surrounding area abraded approximately 150 mm (6 inches) in diameter, prior to application of HEMPADUR 35760.

Air Bubbles/Blistering - These shall be chipped out by means of a sharp chisel and the hole filled with HEMPADUR 35760. After allowing the epoxy to dry (24 hrs.), the surrounding area is abraded and a complete laminating system patch shall be applied ensuring it overlaps the edges of the repair by a minimum of 75 mm (3 inches).

ISSUED BY:

HEMPEL A/S – 35760

This Product Data Sheet supersedes those previously issued.

For explanations, definitions and scope, see "Explanatory Notes" in the HEMPEL Book.

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