Base Load Power Hub (BLPH)

PAINTING PROCEDURE

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2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
3	MAJOR COMMENTS – REJECTED – DO NOT PROCEED
4	APPROVAL NOT REQUIRED

NOTE: Approval doesn't relieve the supplier from mandatory compliance with contractual documents and specifications. Comments made do not imply acceptance of any cost or delivery impact.

Sign	Date
Michele Sacchi	04/07/2024

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BROOKS INSTRUMENT Beyond Measure

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SH.	DESCRIPTION	REVISIONS							
		00	01						
1	Cover	X	X						
2	Table of Contents	X	X						
3	Revision / Change Log	X	X						
4	PAINTING PROCEDURE	X	X						

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Revision / Change Log

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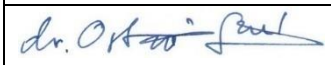
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Painting technology working procedure for surface preconditioning and coating technologies and control processes pertaining to

Brooks Instrument

Acc Spec: *123A90-DDL-MAT-SP-60006_02 Coating and* Painting Specification

made by	***controlled***	***accepted***	***accepted***
dr Ostorházi László	Ostorházi Norbert		
			
Frosio level III. inspector	Ostorházi Bevonattechnika	Client	enginier
2024-05-15	2024-05-15		

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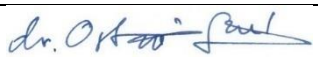
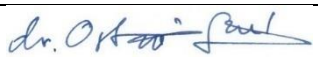
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1. INTRODUCTION

Ostorházi Bevonattechnika Kft. is a family enterprise established in 1991. The Company has three sites and more than 50 employees who perform coating technology tasks in given work areas or factory environment, in a number of industrial fields. The Company has extensive experiences in the corrosion protection of oil industry equipment, pipelines and tanks, as well as in making ceramic coatings of pumps exposed to special wearing conditions. The Company is one of the key suppliers to the aircraft and railway vehicle industries. It has the most modern technologies available in the coating technology field. We have gained major experience in the application of special coatings applicable in the food processing industry. When requested, we make coating systems combined with active metal spraying and passive coating.

With the fleet of mobile assets, the Company can ensure the conditions necessary for high standard coating on the given site. Both individual specimens with special dimensions and items in high number of series are painted and polished in industrial quality, including the various associated surface preparation procedures. For the purposes of moving large pieces a travelling crane with a load bearing capacity of 10t is available.

Surface preparation is made in accordance with the relevant standards, for which a number of different equipment are available. The cleaning process accomplished in the closed system shot blasting cubicles and grit blasting room ensures appropriate cleanliness of the surfaces and a level of roughness fit for the coating system to be applied.

For the purposes of quality assurance, a wide range of measuring instruments and testing equipment are available to conduct the required examinations.

The company operates an ISO9001 quality assurance and ISO 14001 environmental and OHSAS management system certified periodically by an accredited organisation.

Production processes are supported by highly qualified engineers with a wide range of experiences. Complex engineering solutions and procedures are developed for conducting working processes by which the quality expected by Customers and required by the relevant standards can be ensured.

High professional standards are secured with the regular further education of the staff. Changes in technology and procedures are monitored continuously.

2. SCOPE

This document is intended to describe for surface preparation, painting and inspection in accordance with painting specification *123A90-DDL-MAT-SP-60006* **(rev. 02)**

- Technical data sheets of Hempel products
- Painting Quality Controll Plan

Expected amount of items to paint:

7 pieces 3809 instrument body, tube and flanges! (sum:7 pieces)

base material :	**SS**
Operating temperature:	**ambient**
Insulation condition:	**Un-insulated (**
Coating system:	**Acc. To Norsok M 501: 6A**
Color:	**RAL 9002 (white)**

3. BASE DOCUMENTS

1. This Painting technology working procedure has been made on the basis of Client specification No. *123A90-DDL-MAT-SP-60006_02 Coating and* Painting Specification ("client spec.")
2. ASTM D4285-83(2018) (Standard Test Method for Indicating Oil or Water in Compressed Air)
3. SSPC-SP 1-2016, Solvent Cleaning SSPC-SP2 (hand tool cleaning)
4. SSPC-SP 3-2018, Power Tool Cleaning
5. SSPC-SP 10 (WAB)/NACE No. 2 (WAB)-2015, "Near-White Metal Wet Abrasive Blast Cleaning" SSPC-SP 16 Brush-Off Blast Cleaning of Coated and Uncoated Galvanized Steel, Stainless Steels, and Non-Ferrous Metals)
6. ISO 2808:2019 Paints and varnishes — Determination of film thickness
7. ISO 2409:2020 Paints and varnishes — Cross-cut test
8. ISO 4624:2023 Paints and varnishes — Pull-off test for adhesion
9. ISO 8501-1:2007 Preparation of steel substrates before application of paints and related products — Visual assessment of surface cleanliness (Part 1: Rust grades and preparation grades of uncoated steel substrates and of steel substrates after overall removal of previous coatings)
10. ISO 8501-3:2006 Preparation of steel substrates before application of paints and related products — Visual assessment of surface cleanliness (Part 3: Preparation grades of welds, edges and other areas with surface imperfections)
11. ISO 8502-3:2017 Preparation of steel substrates before application of paints and related products — Tests for the assessment of surface cleanliness (Preparation of steel substrates before application of paints and related products — Tests for the assessment of surface cleanliness)
12. ISO 8502-6:2020 Preparation of steel substrates before application of paints and related products — Tests for the assessment of surface cleanliness (Part 6: Extraction of water soluble contaminants for analysis (Bresle method))
13. ISO 8502-9:2020 Preparation of steel substrates before application of paints and related products — Tests for the assessment of surface cleanliness (Part 9: Field method for the conductometric determination of water-soluble salts)
14. ISO 8503-1:2012 Preparation of steel substrates before application of paints and related products — Surface roughness characteristics of blast-cleaned steel substrates (Part 1: Specifications and definitions for ISO surface profile comparators for the assessment of abrasive blast-cleaned surfaces)

15. ISO 8504-2:2019 Preparation of steel substrates before application of paints and related products — Surface preparation methods (Part 2: Abrasive blast-cleaning)
16. ISO 12944-4:2017 Paints and varnishes — Corrosion protection of steel structures by protective paint systems (Part 4: Types of surface and surface preparation)
17. ISO 12944-5:2019 Paints and varnishes — Corrosion protection of steel structures by protective paint systems (Part 5: Protective paint systems)
18. ISO 19840:2012 Paints and varnishes — Corrosion protection of steel structures by protective paint systems — Measurement of, and acceptance criteria for, the thickness of dry films on rough surfaces
19. NORSOK M-001 Materials selection (Edition 5, September 2014)
20. NORSOK M-501 Surface protection and protective coating (2022)
21. NORSOK S-002N:2018+AC:2021 Working environment
22. SFS 8145 Anticorrosive painting. Quality grades of mechanical surface preparations for blast cleaned or blast-cleaned and prefabrication primed steel substrates (2001)

All conflicts between the requirements of this procedure, related contract documents, referenced codes of practice and international standards shall be referred to Brooks Instrument for clarification.

4. SURFACE PRECONDITIONING

Prior to blast cleaning, solvent cleaning shall be performed in accordance with SSPC SP1; SSPC-SP16. Surface preparation shall be made by aluminium oxide (grit) performing **Sweep Blast Cleaning**. The cleaned surface shall be free of residual welding fumes, oil and grease and other adhesive contaminants.

The abrasive material to be used for aluminium oxide (grit) blasting shall be free of iron, iron oxide any contamination from iron.

Any contaminations from processing/machining shall be removed from the surface, when necessary, prior to abrasive blasting by proper detergent using running water and then it shall be dried to be free of damp.

Should there be any welding defect, weld spatter or other surface damage seen/detected on the surface of the work piece, it shall be returned along with the relevant report on deviation found to the site of Brooks Instrument. All structures should be free of sharp edges. Radius needs to be 2mm minimum wherever possible. Any repairs made on the structures shall be recorded in the relevant report in every case.

Prepare also for every coating system at least **one test plate of material 316L SS, 5x140x185/245 mm (net length/total length)** and treat it the same way as the instruments. This part will be used to perform destructive tests acc. to “client spec. Should be at least 3 measure points on the coating system.

All degreased components must meet the requirement cleanliness parameters (salt concentration) as per “client spec.”, use one of the methods assigned. Results shall be recorded.

The maximum chloride level on the blast cleaned surface should not higher than 20 mg / m2 (ISO 8502-6)

On the SS surface have to be measured ferrous contamination according to ASTM A380. Any surface pollution is not accepted.

4.1. ENVIRONMENTAL PARAMETERS

No abrasive blasting is allowed when

- the relative environmental humidity is above 85%
- the steel temperature is less than dew point + 3ºC
- the environmental temperature is not between +10°C and +40°C
- the surface is wet

5. COATING TECHNOLOGY (PAINT APPLICATION)

Proposed procedures for painting work pieces are HVLP blasting, and/or Airless or Airmix blasting, in consideration of the dimensions and geometry of them. Airmix blasting can also be used.

When setting the blasting parameters, even the layer thickness to be applied in a single work phase and uniform blasting shall be considered. The parameters given on the manufacturer's technical data sheet shall be used in every case.

5.1. COATING SYSTEMS:

material: stainless steel (SS)		coating system acc. to "client spec.": **6A**		
specification summary: Paint system shall be suitable for Stainless Steel taking into consideration ambient temperature. Ambient conditions for the coating as per "client spec." between +10°C and +40°C and humidity max 85%. Do not apply coating unless temperature of the substrate is expected to remain 3°C above dew point. Max. DFTs are according to manufacturer's recommendation				
Surface preparation	Sweep Blast Cleaning (ISO 8501-1) Ry_5 30-50µm			
1st layer base coat	EPPH	Hempadur 15570 or 15590	50	µm
2nd layer intermediate coat	EPPH	Hempaprime Multi 500 (different colour from base coat)	100	µm
3rd layer top coat (finish)	EPPH	Hempel's Pro Acrylic 55883 (RAL 9002)	75	µm
Total DFT (NDFT)			225	µm

5.2. LAYER (FILM) THICKNESSES

Wet film thickness shall be continuously inspected during application.

When defining the wet film thickness to be applied, the manufacturer's information (technical data sheet), such as the dry material content of the film and the quantity of dissolvent to be applied in consideration of the application technology shall be considered into account.

The dry thickness gage shall be calibrated prior to measuring the dry film thickness, by using foils in the thickness range required. Such calibration shall be made at least once per day. When defining the zero value of the instrument, a base surface identical with that of the work piece shall be used. Instrument to be used: Byco Test 4500

The dry film thickness shall be measured by each film and documented in a record including the name of the person performing such measurement and identification of the measuring instrument. The measuring report shall be signed by a certified FROSIO III. inspector.

The minimum and maximum values are specified in the EN ISO 12944-5 (5.4)

6. EXECUTIVE SECTION (THE PROCEDURE OF COAT PREPARATION)

6.1. GENERAL SPECIFICATIONS

Work pieces should be readily accessible in each phase during the preparation of the coating system. Make sure the work area and the jobs are properly lit.
Check the following before using any starting materials:

- Does the identification code indicated on the container of the starting material conform with the product identifier specified in the process technology instructions?
- Can you experience any curdling of the material following the opening of the container?
- Can the starting material be readily stirred, is there any excessive settling?
- Does the processing temperature conform with the specifications of the manufacturer?

When you select the application technology, take into account the size, geometry of the work piece, the environmental requirements, and the number of specimen to be painted at the same time.
Ensure that the spraying will be uniform and a homogeneous thickness of the coating layer be formed.
Make attempts to minimise application losses and to reduce the amount sprayed astray
Avoid dry spraying and fogging.
Apply preliminary smearing at the shadowed parts which are difficult to access so that the coating layer to be formed should cover the painted area of the job piece evenly.
Make sure the surfaces to be protected and the coating of which is not desirable be masked out according to the specifications of the Customer.
Make sure the coat thickness to be in accordance with manufacturer requirements.

Drying times between layers need to be observed with due consideration given to the drying parameters and instructions of the manufacturer.
Defects, deficiencies or deviations occurring on the coating layer formed need to be corrected so that the protective capacities and aesthetic appearance of the coat be preserved.
Before packaging, make sure the coating layer is fully hardened and protect the state of the work pieces in the packaging process.

Defects may lead to a reduced level of protection in any layer or coat of paint.

6.2. CONDITIONS OF APPLICATION

In order to provide the appropriate level of quality assurance, environmental parameters shall be checked and documented. The governing instructions are contained in the technical data sheets provided by the manufacturer. Take into account r-painting and drying times with a view to the ambient temperature.

Make sure before starting the application of the coating procedure that no pollutants other than the amount included in the standards is released into the environment during the accomplishment of the activity.

Make sure the required temperature parameters are maintained during processing and drying.

No coat is to be applied when there is a danger of vapour precipitation.

Select the procedures to be applied so that the quality requirements could be met. Supports and hangers must not prevent the application of a homogeneous layer.

6.3. APPLICATION METHODS

6.3.1. BRUSHING

The use of brushes is allowed on surfaces where the application of a homogeneous coat cannot be accomplished using the spraying technology.
Brush application may be used only under the following circumstances:

- When the areas cannot be properly coated by spray,
- For stripe-coat application,
- In case where the spray application may affect equipment or persons of the working area,
- For touch-up or small repairs to damaged areas.

Do not use brushes with plastic and polyamide bristles.
A Stripe coat of epoxy intermediate paint over all welds and sharp edges is required before the spray application of the primer and intermediate coat.

6.3.2. SPRAY

The following spraying methods can be used to apply the coat:

Conventional low pressure HVLP spray

The spraying viscosity shall be adjusted to the method applied so that uniform and continuous coatings are produced.

For coating materials having a tendency to settle, ensure continuous stirring during application.

Select the spraying distance so that no dry spraying, fogging or flowing due to excessive spraying occurred.

6.4 Conditions for spraying

- The relevant Working procedure and its attachments shall be available.
- The Manufacturer's technical data sheet shall be available.
- The Safety data sheet of the raw material to be processed shall be available.
- The process operator shall have sufficient working knowledge and experience.
- The required tools and equipment shall be available for work.
- The work piece to be coated shall be at hand.
- All devices and instruments affecting quality work shall be available for measurements.

7 Supervision of coating (paint work)

7.1 General

The execution of the work and its inspection shall be supervised at all stages by a qualified Frosio/Nace coating inspector.
Coating activities can only be made by properly qualified and experienced staff.
In issues emerging during the execution of the work it is recommended that the manufacturer of the coating material be consulted.
Check all work phases during the coating work.
Record findings of inspections in an inspection report (protocol)
Differently from Annex 1 in this project only DFT-report is needed acc. to Annex 2.

7.2 Instruments of measurements and testing

Carry out the verification of the parameters influencing the quality of the operation using instruments dedicated for the purpose and make sure measured data are genuine and credible.

7.3 Checking layer (film) thickness

The respective data for the inspection of film thickness are included in the Client's specifications, the Manufacturer's data sheet of the coating material to be applied and in the relevant standards.

Visual assessment provides for continuosity and uniformity of the film thickness, as well as for correct colour. Gauge is proposed to be used for checking.

Determine dry thickness of coats using non-destructive methods pursuant to the ISO 2808 standard or SSPC-PA2.
Adhesion testing is accomplished by destructive methods using a sample specimen in accordance with the standards ISO 2409 or ISO 4624.
When checking coat thickness, take into account the deviations arising from the initial unevenness of the surface. The Inspection and test plan defines the location and number of the measuring points.

The film thickness shall be checked in the case of all coats.

Verify calibration of the instrument used for checking coat thickness and ensure it was properly calibrated.

The specimen serving for destructive tests shall be coated under the same conditions as for those of the original work pieces.

8 Safety precautions

When applying paint materials, the relevant safety precautions shall be followed; Personal Protective Equipment (PPE, such as active carbon coal-filtered mask, overalls, safety shoes, gloves and goggles) shall be used.

9 Clean-up

The applied equipment and tools shall be cleaned after their use. For clean-up, use the cleaning material specified by the Manufacturer.

Flush spray equipment until drained cleaning agent is clear and transparent. After flushing, disassemble and clean the filter unit of the equipment and the parts of the spray gun in contact with any paint and flush them separately as well. Follow the precautionary measures during the clean-up process.

10 Repairs

Repairs of any coatings (films) shall be made by following the instructions for application of the coating system. Surface preparation for repairing shall be performed in accordance with SSPC-SP2 (hand tool cleaning) and SSPC-SP3 (power tool cleaning). Small areas may be brush applied. It used only for tuch up and repair.

11 Inspection and testing

11.1 Report

A daily inspection report shall be made and kept about the details of coating according to the standard measuring and reporting record. It shall contain the identification of the work pieces and the details of the application.

11.2 Quality assurance and sampling (Inspection and test) plan

The Quality Assurance (QA) and Sampling Plan (Attachment I) provides the adequacy of the relevant activities in an inspected and documented manner. It defines the inspection and sampling points, their methods and devices. It designates the persons participating in the process, their tasks and responsibilities.

It contains the set of requirements, permissible deviations and raising verifying methods of the repairs made. It defines the mode of issuing the finished and accepted product, the conditions for delivery and the adequacy of the required packaging.

11.3 Equipment

- Clemco blast cabinet
- Graco president 33:1 airless sprayer
- Jonswill HVLP
- Ambient temperature and humidity meter - Elcometer 319 Top
- Surface roughness meter - Rank Taylor Hobson Surtronic 10
- Dry film thickness gage - Byco Test 4500
- Surface temperature meter - Elcometer 319 Top
- Viscosity meter (DIN 4)

12 Training and education

The training/education of the employees involved in the coating processes (such as blasters, painters, QC/QA personnel and all affected employees) shall be made regarding the contents of this Working procedure. The training shall be managed/supervised by a person who has FROSIO level III / NACE level II certification. The training/education shall address the coating materials used by the Manufacturer's and the Manufacturer's instructions and principles and the relevant standards.

12.1 Quality control

A FROSIO III / NACE II level person shall supervise and countersign all quality control related activities in the project.

13 Coating materials

13.1 Documents

The Manufacturer's specification relating to the components of the coating system, and this Working procedure shall be available in an understandable manner for the employees involved in the process.

13.2 STORAGE

In the course of raw material storage the shelf lives indicated by the Manufacturer shall be taken into account; in the case of several supplies the materials which have a shorter shelf live shall be used as soon as possible.

In the course of storage the relevant Manufacturer's instructions shall be followed, unless specified elsewhere, the storage temperature shall be between +5 and +32 ^{0}C.

The manufacturer's package shall be kept sealed and intact until the contents are prepared for use. Following opening the time period of usability shall be clearly and visibly indicated.

13.3 ENVIRONMENTAL CONFORMITY

For the coating activity see the relevant environmental instructions in the ISO 14001 standard.

ANNEX 1: QUALITY CONTROL PLAN

test type	Method	Frequency	Acceptance criteria	Consequence	OST	Brooks	3rd party
Visual examination	Visual for sharp edges weld spatter slivers, rust grade, etc. ISO 8501-3	100 % of all surfaces	No defects, see specified requirements	Defects to be repaired	M	H	n.a.
Delivered parts control	Visual inspection	every delivery	parts identification, quantity, no damage,	note for Brooks	H		n.a.
Checking abrasive	ASTM D4940	before blasting	max conductivity of 150 µS/cm	change abrasive	H		n.a.
Environmental conditions	ISO 8502-4	Before start of each shift and twice a day.	In accordance with specified requirements	No blasting or coating	H		n.a.
Unblasted surface protection	Masking with special masks	every protected surface	must 100% be protected	No blasting	W	H	n.a.
Cleanliness	a) ISO 8501-1 b) ISO 8502-3	a) 100 % visual of all surfaces b) Spot checks	a) Sa 2,5 b) Maximum quantity and size rating 2	a) Reblasting b) Recleaning and retesting until acceptable	H		n.a.
Ferroxyl Test	ASTM A380	after blast cleaning - spot check	No iron on surface	cleaning, reblast with iron free grit	N.a.	N.a.	n.a.
Salt test	ISO 8502-6 and ISO 8502-9	Spot checks	Maximum conductivity corresponding to 20 mg/m2 NaCl	Repeated washing with potable water and retesting until acceptable	H		n.a.
Roughness	Comparator, stylus instrument or testex tape (see ISO 8503)	Each component or once per 10 m2 As	Ry5 30-50µm	Reblasting	H		n.a.
Examination of primer coat	Visual to determine curing, contamination, solvent retention, pinholes/popping, sagging and surface defects + DFT measurement	every protected surface	No imperfection, DFT 50µm	Repair, additional coats or recoating as appropriate	H	M	n.a.

Examination of intermediate coat	Visual to determine curing, contamination, solvent retention, pinholes/popping, sagging and surface defects + DFT measurement	every protected surface	No imperfection, DFT 100µm	Repair, additional coats or recoating as appropriate	H		n.a.
Examination of top coat	Visual to determine curing, contamination, solvent retention, pinholes/popping, sagging and surface defects + DFT measurement	every protected surface	No imperfection, DFT 75µm	Repair, additional coats or recoating as appropriate	H		n.a.
Examination of total coating system	Visual to determine curing, contamination, solvent retention, pinholes/popping, sagging and surface defects + DFT measurement	every protected surface	No imperfection, DFT 225µm	Repair, additional coats or recoating as appropriate	H	R	n.a.
Adhesion	On test panel ISO 4624, using equipment with an automatic centred pulling force, and carried out when coating system are fully cured	every paint charge No. using	5 Mpa	reblasting, recoating	H	R	n.a.
Prepare transport	All parts packaging in paper and foil	every part separaatly	No damage	repair	H	R	n.a.
Prepare documentation	Data book	after final inspection	According to Norsok M 501		H	M	n.a.

NOTE 1: **H** hold, **W** witness, **M** monitor, **R** rewiew. **Na**. Not aplicable.

ANNEX 2: INSPECTION AND TESTPLAN (SAMPLE)

www.korrozio.com	Title		FROSIO	
	Procedure		Rev	0

Part No./ Termék típus		Serial No./ Széria szám	

Receipt of Goods / Felület előírások

YES	NO	Degreasing Total parts/ Zsírtalanítás
YES	NO	Welds are continuous & no sharp projections, No excessive under cutting, No Spatter, No Pin holes, No Slag/ Hegesztések folytonosak, nincsenek éles sarkok, túlzott bevágás
YES	NO	No Contamination, No Laminations, No sharp edges, No Burrs/ Nincs szennyeződés, rétegesség, éles sarkok, sorja

Blast Process Control/ Szemcseszórás

Start date/ Kezdés dátuma	Start time/ Kezdés óra:perc	Cleanliness/ Tisztaság	Salt Soluble/ Sótartalom	Surface Profile/ Érdesség	Dust level/Szennyezettség	Blast noze pressure (Bar)/ Szemcseszóró nyomás	Abrasive Type Used/Szemcse típusa	Blasting Batch nr/Szemcse az.
			N.a.					

Finish date / Befejezés dátuma	Finish time / Befejezés óra:perc	Air Temp (°C) / Levegő hőm.	Humidity / Páratartalom	Dew Point / Harmatpont	Surface Temp(°C) / Felületi hőm.	Paint Operative / Szemcseszóró neve	Signature / Aláírása

Comments		Validation		Signature & date	

Paint Process Control / Festés ellenőrzése

		1st Coat/ 1. réteg	2nd Coat/ 2. réteg	3rd Coat/ 3. réteg	4th Coat/ 4. réteg
Paint Manufacturer/ Festék gyártó	Paint Name / Festék				
	Thinners Name / Hígító				
	Hardener Name / Edző				
Paint Batch Numbers / Adagszám	Paint / Festék				
	Thinners / Hígító				
	Hardener / Edző				
Shelf life / Lejárati idő	Paint / Festék				
	Thinners / Hígító				
	Hardener / Edző				
Thinning % / Hígító %-a					
Time and Date starting / Festés kezdete (dátum, óra:perc)					
Time and Date Finish / Befejezés (dátum, óra:perc)					
Drying time between layers / Száradási idő					
Air Temperature / Levegő hőmérséklet					
Humidity / Páratartalom					
Surface Temperature / Felületi hőmérséklet					
Dew Point Temperature / Harmatpont					
ΔT between surface temp. To dew point (>= 3°C)/ ΔT (felületi h. és harmatpont)					
WFT (Wet Film Thickness) / Nedves rétegvastagság					
DFT (Dry Film Thcikness) / Szárazréteg vastagság					
Paint Operative / Festő neve					
Signature / Aláírás					
Comments / Megjegyzés					

Quality Control (Inspection) / Minőség ellenőrzés

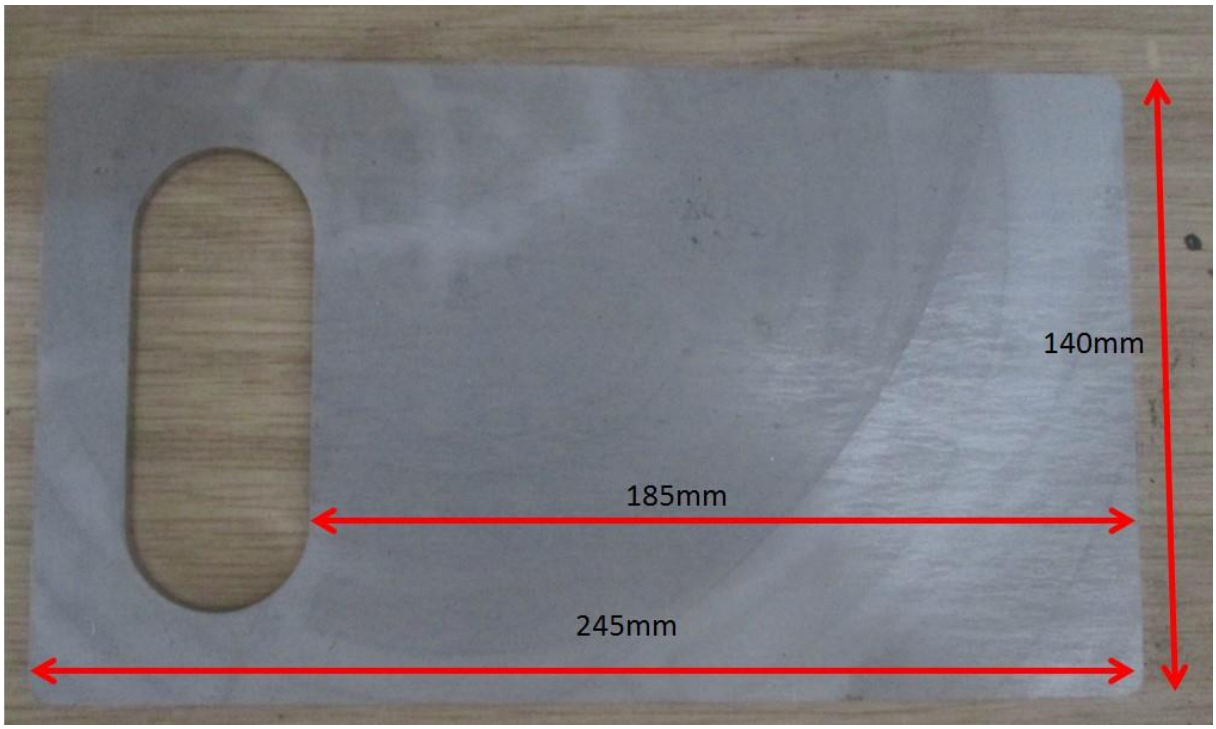
Quality Control verification of completeness and accuracy of paint record sheet including DFT results and Visual inspection / A minőség ellenőrzés hitelesítése a mérési jegyzőkönyv adatai (DFT, vizuális értékelés) alapján.

Date of Verification/ Dátum		Signature of Inspector/ MEO aláírása	

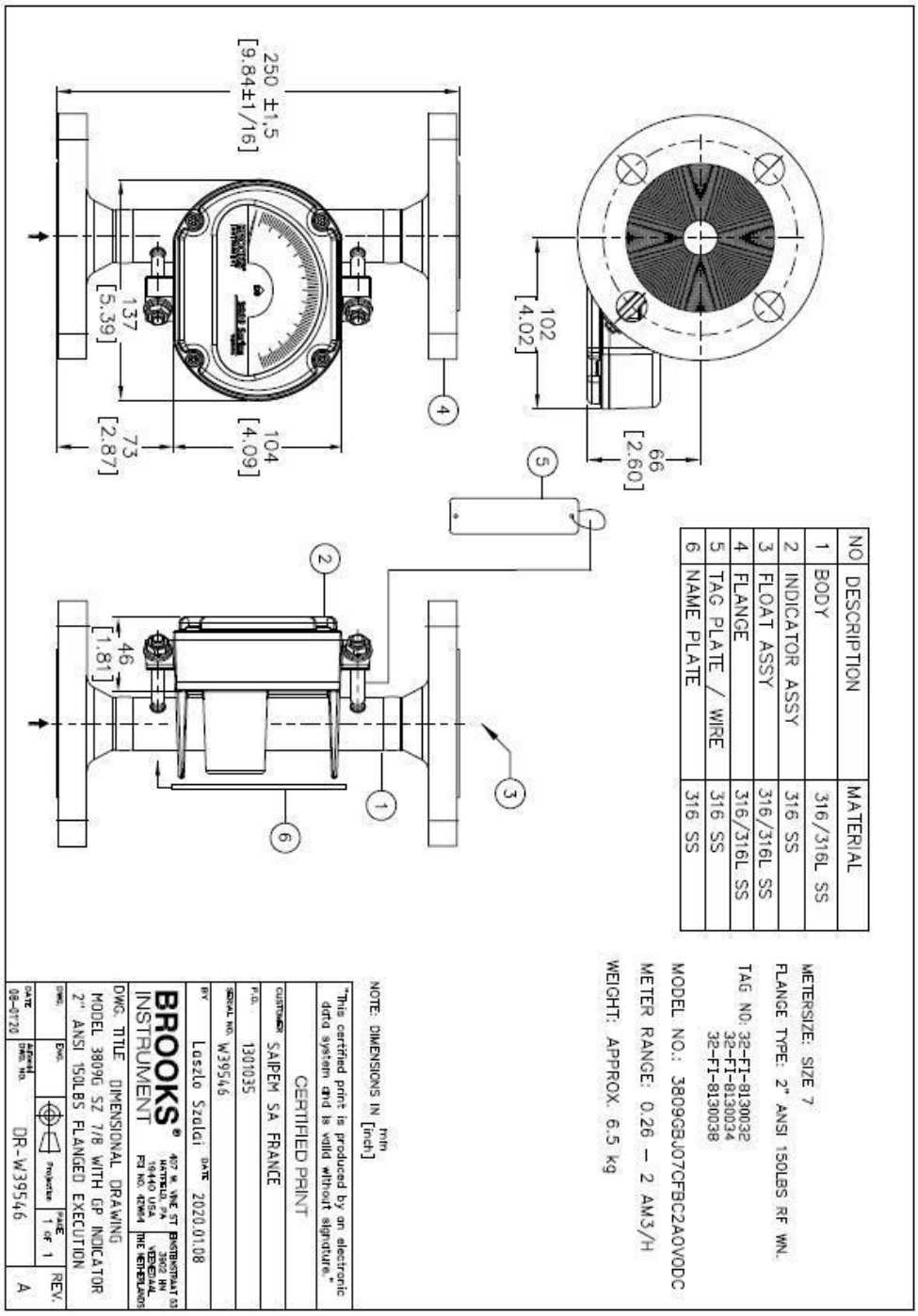
If Required - Adhesion Test completed in accordance with requirements detailed in QP/paint specification (if nothing specified use ISO 4624) / Amennyiben követelmény - tapadás vizsgálat a pelfikációban meghatározottak szerint. (ha nincs erre adat, akkor ISO 4624 szeint)

Adhesion Test Date / tapadásvizsgálat dátuma		Adhesion Test Value/ mért átlag érték	Mpa
Adhesion Test Comments/ tapadási tulajdonságok			Signature / aláírás

ANNEX 3: TEST PLATE



ANNEX 4: TECHNICAL DRAW



ANNEX 5: TECHNICAL DATASHEETS



System 6A: Stainless steel and aluminium

Pre-qualification is not required

Product	DFT (µm)
Hempadur 15570 or 15590	50
Hempaprime Multi 500	100
Hempel's Pro Acrylic 55883 [2]	75
Total	**225**

Sweep blasting

System 6B: Hot dip galvanized steel

Pre-qualification is not required

Product	DFT (µm)
Hempadur 15553	50
Hempaprime Multi 500	100
Hempel's Pro Acrylic 55883 [2]	75
Total	**225**

No sweep blasting

For advice on regional product availability and additional schemes, please contact your local Hempel representative or email protective@hempel.com

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System 6C: Insulated stainless steel piping and vessels at temperatures < 150°C

Pre-qualification is not required

Product	DFT (µm)
Hempadur 85671	125
Hempadur 85671	125
Total	**250**

Sweep blasting

Note 1: As pre-qualification is not required additional systems may also be recommended. Contact your Hempel representative for further details. This note applies to all of the above systems.

Note 2: Topcoats which have been pre-qualified in System 1 may also be used for Systems 6A and 6B. Commonly used topcoats, which may be substituted for those listed, include:

- Hempaxane Light 55030
- Hempathane HS 55610
- Hempathane 55210
- Hempathane Speed Dry Topcoat 250

Hempadur 15570

Product characteristics

Description
Hempadur 15570 is a two component, polyamide-adduct cured epoxy paint, which cures to a strong and highly corrosion resistant coating, at temperatures down to -10°C/14°F. The Micaceous Iron Oxide pigmented reddish grey 12430 shade is also well suited for application under humid conditions, on damp steel surfaces, and may be applied on moist surfaces. The greyish yellow 21780 and the grey 11320 shades contains zinc phosphate.
Complies with EU Directive 2004/42/EC, The Paints Directive on the limitation of volatile organic compounds: subcategory j.

Recommended use
As a maintenance and repair primer, intermediate, and/or finishing coat in Hempadur systems in severely corrosive environment. As a finishing coat where a cosmetic appearance is of less importance. As a low temperature curing epoxy primer, intermediate, and/or finishing coat in paint systems according to specification. Well suited as a (blast) primer in epoxy systems.
Mist coat on Galvosil.

Service temperature:
- Maximum, dry exposure only: 140°C [284°F].

Certificates / Approvals
- EC-type examined as a low flame spread material when used as part of a predefined paint system. Please refer to “Declaration of Conformity” on hempel.com for further details.
- Reaction to fire tested (as part of a coating system with approved primer and topcoat) according to EN13501-1 B-s1, d0.

Product safety

Flash point 25°C [77°F]

VOC content mixed product

Legislation	Value	15% thinning, by volume	Limit value, phase II (2010)[a]
EU	412 g/L [3.44 lb/US gal]	478 g/L [3.99 lb/US gal]	500 g/L [4.17 lb/US gal]
US (coatings)	412 g/L [3.44 lb/US gal]	-	-
US (regulatory)	412 g/L [3.44 lb/US gal]	-	-
China	412 g/L [3.44 lb/US gal]	-	-

According to specific legislation, see details in the Explanatory Notes available at Hempel website, hempel.com or at your local Hempel website. VOC values may vary with shade, please consult the Safety Data Sheet, section 9. [a]EU Directive 2004/42/CE.

Handling
Handle with care. Before and during use, observe safety labels on packaging and paint containers and follow all local and national safety regulations. Always consult Hempel’s Safety Data Sheet for this product along with the Product Data Sheet.

For professional use only.

Product data

Product code
15570

Product components
Base 15579
Curing Agent 95570

Standard shade* / code
Brownish red 50630

Gloss
Flat

* Other shades are available, please contact your local Hempel representative.

Hempadur 15570

Volume solids
54 ± 2%

Specific gravity
1.3 kg/L [11 lb/US gal]

Reference dry film thickness
100 micron [4.0 mils]

Micaceous iron oxide (MIO) shade / code
Metallic grey 12430

Gloss
Flat

Volume solids
54 ± 2%

Specific gravity
1.4 kg/L [12 lb/US gal]

Reference dry film thickness
100 micron [4.0 mils]

Surface preparation

Cleanliness
- Remove oil, grease and other contaminants by suitable detergent cleaning.
- Remove salts, detergents and other contaminants by high pressure fresh water cleaning.
- All damage of shopprimer and contamination from storage and fabrication should be thoroughly mechanically/chemically cleaned prior to final painting.

New build:
- Abrasive blasting to min. Sa 2½ (ISO 8501-1) / SP 10 (SSPC).
- Stainless steel, aluminium and other non ferric metals and alloys: use non-metallic blast media (corundum, garnet, etc.). Sweep blasting to a uniform dense sharp profile, without blank spots.
- Remove dust, blast media and loose materials.

Maintenance and Repair
- Abrasive blasting to min. Sa 2 (ISO 8501-1) / SP 6 (SSPC).
- Water jetting to min. Wa 2 (ISO 8501-4).
- Flash rust degree of maximum FR M (ISO 8501-4).
- Minor areas can be cleaned by power tool to St 3 provided the surface is roughened and not polished.
- Stainless steel, aluminium and other non ferric metals and alloys: use non-metallic blast media (corundum, garnet, etc.). Sweep blasting to a uniform dense sharp profile, without blank spots.
- Remove dust, blast media and loose materials.

Roughness
- Surface profile Medium (G) (ISO 8503-2).

Consult Hempel's separate Surface Preparation Guidelines for more details.

Application

Mixing ratio
Base 15579 : Curing Agent 95570
(3 : 1 by volume)

Stir well before use.

Hempadur 15570

Thinner
Hempel's Thinner 08450

Cleaner
Hempel's Tool Cleaner 99610

Pot life

Product temperature	20°C [68°F]
Pot life	2 hours

Application method

Tool	Thinning max vol.	Application parameters
Airless spray	5%	Nozzle pressure: 175 bar [2500 psi] Nozzle orifice: 0.019-0.021"
Air spray	15%	Not Applicable.
Brush	5%	Not Applicable.

If brush or roller application is used, more coats will be necessary to achieve the specified dry film thickness. Spray data are indicative and subject to adjustment. Pressure is for a material temperature of 20°C [68°F].

Film thickness

Specification range	Low	High	Recommended
Dry film thickness	50 micron [2.0 mils]	125 micron [5.0 mils]	100 micron [4.0 mils]
Wet film thickness	90 micron [3.6 mils]	230 micron [9.2 mils]	190 micron [7.6 mils]
Theoretical spreading rate	11 m²/L [448 sq ft/US gal]	4.3 m²/L [175 sq ft/US gal]	5.4 m²/L [220 sq ft/US gal]

For best performance, avoid excessive film thickness. Product may be specified in another film thickness than indicated depending on purpose and area of use. This will alter spreading rate, drying and curing time and overcoating interval.

Application conditions
- To avoid condensation, apply on a clean and dry surface with a temperature that is at least 3°C [5°F] above the dew point.
- Surface temperature must be above -10°C [14°F] during application and curing.
- Beware of ice on the surface at low temperatures.
- Temperature of product must be above 15°C [59°F] during application.

Relative Humidity:
- Relative humidity must be below 85% during application.
- Relative humidity must be below 85% during curing.

Application remarks
- Metallised surfaces should be overcoated before exposure to open air conditions.
- Flash-coat technique is recommended when overcoating porous substrates.

Drying and overcoating

Product compatibility
- Previous coat: None or according to Hempel's specification.
- Subsequent coat: According to Hempel's Specification. Recommended products are: Hempadur, Hempathane, Hempatex

Drying time

Surface temperature		20°C [68°F]
Touch dry	min	60
Hard dry	hours	5
Fully cured	days	7

Determined for dry film thickness 100 micron [4.0 mils] at standard conditions, see Hempel's Explanatory Notes for details.

Hempadur 15570

Overcoating

Hempel's specification supersedes any guidelines indicated in the overcoating table

Quality name		0°C [32°F]	10°C [50°F]	20°C [68°F]	30°C [86°F]
Atmospheric medium					
Hempadur 15570	Min Max	18 h Ext	8 h Ext	4 h Ext	3 h Ext
Hempathane HS 55610	Min Max	18 h Ext	8 h Ext	4 h Ext	3 h Ext
Hempatex Enamel 56360	Min Max	9 h 36 h	4 h 16 h	2 h 8 h	90 min 6 h
Immersion					
Hempadur 15570	Min Max	36 h Ext	16 h Ext	8 h Ext	6 h Ext

Overcoating times are indicative for products of the same generic chemistry. Consult Hempel's specification for more information.

Drying conditions

- To obtain the drying time stated, it is important to maintain sufficient ventilation during application, drying and curing.

Overcoating details

- If the maximum overcoating interval is exceeded, roughening of the surface is necessary to ensure intercoat adhesion.
- The surface must be clean before overcoating.

Other remarks

- Epoxy coats have an inherent tendency of chalking in outdoor exposure. This does not affect the performance of the coating.
- Hempel's Specification supersedes any recommendations given in the Product Data Sheets.

Storage

Shelf life

Ambient temperature	25°C [77°F]
Base	36 months
Curing Agent	36 months

Shelf life from date of production, when stored in original, unopened containers. Thereafter, the product quality must be re-inspected. Storage at elevated temperatures may reduce shelf life. For advice, please consult Hempel.

Storage conditions

- Product must be stored according to local legislation, at maximum 40°C [104°F], without direct sunlight and protected from rain and snow.

Carbon Footprint

Dry film thickness	1 µm	1 mil
GWP (Global Warming Potential)	9.1 g CO_2e/m^2	0.047 lb CO_2e/ft^2

The carbon footprint is for 1 square meter / square foot of surface area with a dry film thickness of 1 micron / mil.

The scope includes raw materials, in-bound transport to the Hempel factory, Hempel manufacturing processes, and any Volatile Organic Compounds emitted during and after the application of the product.

It is calculated based on the standard shade defined in this PDS. Values may vary with shade.

Hempadur 15570

Additional documents

Additional information is available at the Hempel website
https://www.hempel.com/service-and-support/technical-guidelines
or at your local Hempel website:

- Explanatory Notes for Product Data Sheet.
- Application methods.
- General Application Guidelines

This Product Data Sheet ("**PDS**") relates to the supplied product ("**Product**") and is subject to updating from time-to-time. Accordingly, the buyer/applicator should have regard to the PDS supplied together with the relevant batch of the Product (and not an earlier version). In addition to the PDS, the buyer/applicator may receive some or all of the following specifications, statements and/or guidelines as listed below or as are available from the Hempel website under 'Products' at www.hempel.com (the "**Additional documents**"):

No.	Document description	Location/comments
1.	Technical Statement	One-off specific advice provided on request for specific projects
2.	Specification	Only issued for specific projects
3.	PDS	This document
4.	Explanatory Notes to the PDS	Available at www.hempel.com and contain relevant information about the Product testing parameters
5.	Application Instruction	Where available, at www.hempel.com
6.	Generic technical guidelines (e.g. on application and surface preparation)	Where available, at www.hempel.com

In the event of a conflict of information between the PDS and the Additional documents, the order of priority of information shall be in the order as set out above. In such event you should also contact your representative at Hempel for clarification. Furthermore, the buyer/applicator must have full regard to the relevant Safety Data Sheet provided with each Product and which can also be downloaded from www.hempel.com.

Hempel shall not be liable for defects where the application of the Product has not been made fully in accordance with the recommendations and requirements set out in the relevant PDS and the Additional Documents. The information and terms of this disclaimer apply to this PDS, the Additional documents and any other documents supplied by Hempel in respect of the Product. In addition, the Product is supplied and all technical assistance is given subject to Hempel's General Conditions of Sale, Delivery and Service, unless otherwise expressly agreed in writing.

Hempaprime Multi 500

Product characteristics

Description
Hempaprime Multi 500 is a fast drying, high solids epoxy paint. It provides hard wearing and long lasting barrier protection in coating systems for severe corrosive environments. The product meets the requirements of ISO 12944 Part 5, 2019 when used as part of a predefined paint system.

Recommended use
Hempaprime Multi 500 is recommended as a high-build, intermediate coat in high performance coating systems where fast handling and short overcoating times are required. Due to its fast drying - up to twice as fast as comparable products - the product is excellent for projects where fast throughput is key. The product can also be used as a self-priming, surface tolerant coat and a finishing coat in heavy-duty coating systems. Suited for application down to 10°C [50°F]. The product is available in several MIO shades such as 18021 and 18061; both with 80% MIO content. The volume solids % for MIO shades is 82 ± 2.

Service temperature:
- Maximum, dry exposure only: 120°C [248°F].

Certificates / Approvals
- Meets requirements to ISO 12944 when used as part of a predefined paint system. Part 6, Im2; Part 9, CX.
- Meets requirements to NORSOK M-501 when used as part of a predefined paint system. Edition 6, System 1. Edition 7, System 1A, 1B.

Features
- Fast overcoating.
- Crack resistant in high film thickness.
- Low VOC.
- Ready to use - optimised application properties.
- Surface tolerant.

DRAFT

Product safety

Flash point 25°C [77°F]

VOC content mixed product

Legislation	Value
EU	196 g/L [1.64 lb/US gal]
US (coatings)	196 g/L [1.64 lb/US gal]
US (regulatory)	196 g/L [1.64 lb/US gal]
China	196 g/L [1.64 lb/US gal]

According to specific legislation, see details in the Explanatory Notes available at Hempel website, hempel.com or at your local Hempel website. VOC values may vary with shade, please consult the Safety Data Sheet, section 9.

Handling
Handle with care. Before and during use, observe safety labels on packaging and paint containers and follow all local and national safety regulations. Always consult Hempel's Safety Data Sheet for this product along with the Product Data Sheet.

For professional use only.

Product data

Product code
45950

Product components
Base 45959
Curing Agent 95090

Standard shade / code
Brownish red 50630 *

Wide range of colours is available via Hempel's tinting system.

Gloss
Semi-gloss

* Slight discolouration may occur. This does not affect the performance of the coating.

Hempaprime Multi 500

Volume solids
85 ± 2%

Specific gravity
1.4 kg/L [12 lb/US gal]

Reference dry film thickness
150 micron [6.0 mils]

Aluminium shade / code
Aluminium grey 19002

Gloss
Please consult Hempel's Guideline on aluminium pigmented coatings.

Volume solids
78 ± 2%

Specific gravity
1.3 kg/L [11 lb/US gal]

Reference dry film thickness
150 micron [6.0 mils]

DRAFT

Surface preparation

Cleanliness
- Remove oil, grease and other contaminants by suitable detergent cleaning.
- Remove salts, detergents and other contaminants by high pressure fresh water cleaning.

New build:
- Abrasive blasting to min. Sa 2½ (ISO 8501-1) / SP 10 (SSPC).
- Stainless steel, aluminium and other non ferric metals and alloys: use non-metallic blast media (corundum, garnet, etc.). Sweep blasting to a uniform dense sharp profile, without blank spots.
- Remove dust, blast media and loose materials.

Maintenance and Repair
- Spot abrasive blasting to min. PSa 2 (ISO 8501-2) / SP 6 (SSPC).
- Minor areas may be hand or power tool cleaned instead of abrasive blasting.
- Water jetting to min. Wa 2 (ISO 8501-4).
- Flash rust degree of maximum FR M (ISO 8501-4).
- Stainless steel, aluminium and other non ferric metals and alloys: use non-metallic blast media (corundum, garnet, etc.). Sweep blasting to a uniform dense sharp profile, without blank spots.
- Feather edges to sound surrounding coating.
- Remove dust, blast media and loose materials.

Roughness
- Surface profile Medium (G) (ISO 8503-2).

Consult Hempel's separate Surface Preparation Guidelines for more details.

Application

Mixing ratio
Base 45959 : Curing Agent 95090
(4 : 1 by volume)

Stir well before use.

Thinner
Hempel's Thinner 08450

Hempaprime Multi 500

Cleaner
Hempel's Tool Cleaner 99610
Hempel's Thinner 08450

Pot life

Product temperature	10°C [50°F]	20°C [68°F]	30°C [86°F]	40°C [104°F]
Pot life	2½ hours	1 hour	¾ hours	½ hours
Pot life (brush)	-	60 min	-	-

Application method

Tool	Thinning max vol.	Application parameters
Airless spray	5%	Nozzle pressure: 225 bar [3300 psi] Nozzle orifice: 0.019-0.023"
Brush/Roller	5%	Not Applicable.

If brush or roller application is used, more coats will be necessary to achieve the specified dry film thickness. Spray data are indicative and subject to adjustment. Pressure is for a material temperature of 20°C [68°F].

Film thickness

Specification range	Low	High	Recommended
Dry film thickness	100 micron [4.0 mils]	250 micron [10 mils]	150 micron [6.0 mils]
Wet film thickness	118 micron [4.7 mils]	295 micron [12 mils]	177 micron [7.1 mils]
Theoretical spreading rate	3.4 m²/L [139 sq ft/US gal]	8.5 m²/L [346 sq ft/US gal]	5.6 m²/L [228 sq ft/US gal]

Product may be specified in another film thickness than indicated depending on purpose and area of use. This will alter spreading rate, drying and curing time and overcoating interval. For best performance, avoid excessive film thickness.

Application conditions
- Optimal paint temperature for proper mixing, pumping and spraying is: 20°C [68°F].
- To avoid condensation, apply on a clean and dry surface with a temperature that is at least 3°C [5°F] above the dew point.
- Surface temperature must be above 10°C [50°F] during application and curing.

Relative Humidity:
- Relative humidity must be below 85% during application.
- Relative humidity must be below 85% during curing.

Application remarks
- Product requires heavy duty spray equipment; spray hoses shall be as short as possible.
- Metallised surfaces should be overcoated before exposure to open air conditions.
- Flash-coat technique is recommended when overcoating porous substrates.

DRAFT

Drying and overcoating

Product compatibility
- Previous coat: None or according to Hempel's specification.
- Subsequent coat: None or according to Hempel's specification. Recommended products are: Hempadur, Hempaprime, Hempathane

Drying time

Surface temperature		10°C [50°F]	20°C [68°F]	30°C [86°F]	40°C [104°F]
Touch dry	hours	2½	1	⅔	⅓
Surface dry	hours	5½	2½	1	½
Hard dry	hours	8	3½	1½	¾
Fully cured	days	-	7	-	-

Determined for dry film thickness 150 micron [6.0 mils] at standard conditions, see Hempel's Explanatory Notes for details.

Hempaprime Multi 500

Overcoating

Hempel's specification supersedes any guidelines indicated in the overcoating table

Quality name		10°C [50°F]	20°C [68°F]	30°C [86°F]	40°C [104°F]
Atmospheric medium					
Hempaprime Multi 500	Min	7 h	3 h	2 h	90 min
	Max	Ext*	Ext	Ext	Ext
Hempathane HS 55610	Min	7 h	3 h	2 h	90 min
	Max	Ext*	Ext	Ext	Ext

Overcoating times are indicative for products of the same generic chemistry. Consult Hempel's specification for more information.

Drying conditions

- To obtain the drying time stated, it is important to maintain sufficient ventilation during application, drying and curing.
- According to Hempel's Specification.

Overcoating details

- If the maximum overcoating interval is exceeded, roughening of the surface is necessary to ensure intercoat adhesion.
- The surface must be dry and clean prior to application.

Other remarks

- Epoxy coats have an inherent tendency of chalking in outdoor exposure. This does not affect the performance of the coating.
- Hempel's Specification supersedes any recommendations given in the Product Data Sheets.

Storage

Shelf life

Ambient temperature	25°C [77°F]
Base	24 months
Curing Agent	24 months

Shelf life from date of production, when stored in original, unopened containers. Thereafter, the product quality must be re-inspected. Storage at elevated temperatures may reduce shelf life. For advice, please consult Hempel.

Storage conditions

- Product must be stored according to local legislation, at maximum 40°C [104°F], without direct sunlight and protected from rain and snow.

Carbon Footprint

Dry film thickness	1 µm	1 mil
GWP (Global Warming Potential)	5.5 g CO_2e/m^2	0.028 lb CO_2e/ft^2

The carbon footprint is for 1 square meter / square foot of surface area with a dry film thickness of 1 micron / mil.

The scope includes raw materials, in-bound transport to the Hempel factory, Hempel manufacturing processes, and any Volatile Organic Compounds emitted during and after the application of the product.

It is calculated based on the standard shade defined in this PDS. Values may vary with shade.

DRAFT

Hempaprime Multi 500

Additional documents

Additional information is available at the Hempel website
https://www.hempel.com/service-and-support/technical-guidelines
or at your local Hempel website:

- Explanatory Notes for Product Data Sheet.
- Application methods.
- Substrates.
- Surface Preparation.
- Application Instruction for this product.
- Repair & maintenance.
- Inspection & quality control.

DRAFT

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No.	Document description	Location/comments
1.	Technical Statement	One-off specific advice provided on request for specific projects
2.	Specification	Only issued for specific projects
3.	PDS	This document
4.	Explanatory Notes to the PDS	Available at www.hempel.com and contain relevant information about the Product testing parameters
5.	Application Instruction	Where available, at www.hempel.com
6.	Generic technical guidelines (e.g. on application and surface preparation)	Where available, at www.hempel.com

In the event of a conflict of information between the PDS and the Additional documents, the order of priority of information shall be in the order as set out above. In such event you should also contact your representative at Hempel for clarification. Furthermore, the buyer/applicator must have full regard to the relevant Safety Data Sheet provided with each Product and which can also be downloaded from www.hempel.com.

Hempel shall not be liable for defects where the application of the Product has not been made fully in accordance with the recommendations and requirements set out in the relevant PDS and the Additional Documents. The information and terms of this disclaimer apply to this PDS, the Additional documents and any other documents supplied by Hempel in respect of the Product. In addition, the Product is supplied and all technical assistance is given subject to Hempel's General Conditions of Sale, Delivery and Service, unless otherwise expressly agreed in writing.

Hempel's Pro Acrylic

Product characteristics

Description
Hempel's Pro Acrylic 55883 is a two-component, isocyanate-free, acrylic finishing coat with good gloss and colour retention. It is resistant to water and spillage of aliphatic hydrocarbons.
Minimum curing temperature is 0°C/32°F.

Recommended use
Hempel's Pro Acrylic is recommended as a finishing coat for protection of structural steel in severely corrosive environment, where light-fastness and gloss retention are required.
The product may be specified as a one-coat direct-to-metal system in corrosive environments classified as C2 and C3.

Service temperature:
- Maximum, dry exposure only: 120°C [248°F].

Certificates / Approvals
- Meets requirements to NORSOK M-501 when used as part of a predefined paint system. Edition 6, System 1.

Product safety

Flash point 32°C [90°F]

VOC content mixed product

Legislation	Value
EU	362 g/L [3.02 lb/US gal]
US (coatings)	432 g/L [3.61 lb/US gal]
US (regulatory)	432 g/L [3.61 lb/US gal]
China	432 g/L [3.61 lb/US gal]

According to specific legislation, see details in the Explanatory Notes available at Hempel website, hempel.com or at your local Hempel website. VOC values may vary with shade, please consult the Safety Data Sheet, section 9.

Handling
Handle with care. Before and during use, observe safety labels on packaging and paint containers and follow all local and national safety regulations. Always consult Hempel's Safety Data Sheet for this product along with the Product Data Sheet.

For professional use only.

Product data

Product code
55883

Product components
Base 55889
Curing Agent 97883

Standard shade* / code
White 10000 **

Gloss
Glossy

Volume solids
58 ± 2%

Specific gravity
1.3 kg/L [11 lb/US gal]

Reference dry film thickness
50 micron [2.0 mils]

Aluminium shade* / code**
Aluminium grey 19000 ****

Gloss
Please consult Hempel's Guideline on aluminium pigmented coatings.

* Wide range of colours is available via Hempel's Multi-Tint® system.
** Colour stability may be affected by exposure to chemicals, elevated temperatures, low light conditions and/ or inadequate ventilation.
*** Other shades are available, please contact your local Hempel representative.
**** Appearance of the aluminium pigmented coats will depend on application method, drying conditions, handling etc. Please see the Guideline on Aluminium pigmented coatings at hempel.com or at your local Hempel website.

Hempel's Pro Acrylic

Volume solids
52 ± 2%

Specific gravity
1.1 kg/L [9 lb/US gal]

Reference dry film thickness
50 micron [2.0 mils]

Surface preparation

Cleanliness
- According to Hempel's Specification.

Consult Hempel's separate Surface Preparation Guidelines for more details.

Application

Mixing ratio
Base 55889 : Curing Agent 97883
(7 : 1 by volume)

Stir well before use.

Thinner
Hempel's Thinner 08450

Cleaner
Hempel's Thinner 08450

Pot life

Product temperature	20°C [68°F]
Pot life	4 hours

Application method

Tool	Thinning max vol.	Application parameters
Airless spray	5%	Nozzle pressure: 150 bar [2200 psi] Nozzle orifice: 0.017-0.019"

If brush or roller application is used, more coats will be necessary to achieve the specified dry film thickness. Spray data are indicative and subject to adjustment. Pressure is for a material temperature of 20°C [68°F].

Film thickness

Specification range	Low	High	Recommended
Dry film thickness	50 micron [2.0 mils]	120 micron [4.7 mils]	50 micron [2.0 mils]
Wet film thickness	90 micron [3.5 mils]	210 micron [8 mils]	90 micron [3.5 mils]
Theoretical spreading rate	12 m²/L [490 sq ft/US gal]	4.8 m²/L [200 sq ft/US gal]	12 m²/L [490 sq ft/US gal]

For best performance, avoid excessive film thickness.

Application conditions
- To avoid condensation, apply on a clean and dry surface with a temperature that is at least 3°C [5°F] above the dew point.
- Surface temperature must be above 0°C [32°F] during application and curing.

Application remarks
- Two coats of the topcoat may be necessary to obtain full hiding power.

Drying and overcoating

Product compatibility
- Previous coat: According to Hempel's Specification. Recommended products are: Hempadur Mastic 4588W, Hempadur 45141/45143
- Subsequent coat: None.

Hempel's Pro Acrylic

Drying time

Surface temperature		20°C [68°F]
Surface dry	hours	4½
Hard dry	hours	10
Fully cured	days	7

Determined for dry film thickness 50 micron [2.0 mils] at standard conditions, see Hempel's Explanatory Notes for details.

Overcoating

Hempel's specification supersedes any guidelines indicated in the overcoating table

Quality name		0°C [32°F]	10°C [50°F]	20°C [68°F]
Atmospheric medium				
Hempel's Pro Acrylic	Min	18 h	9 h	6 h
	Max	Ext*	Ext	Ext

Overcoating times are indicative for products of the same generic chemistry. Consult Hempel's specification for more information.

Drying conditions

- To obtain the drying time stated, it is important to maintain sufficient ventilation during application, drying and curing.
- Condensation on the freshly applied coating should be avoided.

Overcoating details

- The surface must be dry and clean prior to application.

Other remarks

- Hempel's Specification supersedes any recommendations given in the Product Data Sheets.

Storage

Shelf life

Ambient temperature	25°C [77°F]
Base	36 months
Curing Agent	18 months

Shelf life from date of production, when stored in original, unopened containers. Thereafter, the product quality must be re-inspected. Storage at elevated temperatures may reduce shelf life. For advice, please consult Hempel.

Storage conditions

- The curing agent is sensitive to moisture. Store in a dry place and keep the can tightly closed until use.

Carbon Footprint

Dry film thickness	1 µm	1 mil
GWP (Global Warming Potential)	11.4 g CO_2e/m^2	0.059 lb CO_2e/ft^2

The carbon footprint is for 1 square meter / square foot of surface area with a dry film thickness of 1 micron / mil.

The scope includes raw materials, in-bound transport to the Hempel factory, Hempel manufacturing processes, and any Volatile Organic Compounds emitted during and after the application of the product.

It is calculated based on the standard shade defined in this PDS. Values may vary with shade.

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Additional documents

Additional information is available at the Hempel website
https://www.hempel.com/service-and-support/technical-guidelines
or at your local Hempel website:

- Explanatory Notes for Product Data Sheet.
- Application methods.
- General Application Guidelines

This Product Data Sheet ("**PDS**") relates to the supplied product ("**Product**") and is subject to updating from time-to-time. Accordingly, the buyer/applicator should have regard to the PDS supplied together with the relevant batch of the Product (and not an earlier version). In addition to the PDS, the buyer/applicator may receive some or all of the following specifications, statements and/or guidelines as listed below or as are available from the Hempel website under 'Products' at www.hempel.com (the "**Additional documents**"):

No.	Document description	Location/comments
1.	Technical Statement	One-off specific advice provided on request for specific projects
2.	Specification	Only issued for specific projects
3.	PDS	This document
4.	Explanatory Notes to the PDS	Available at www.hempel.com and contain relevant information about the Product testing parameters
5.	Application Instruction	Where available, at www.hempel.com
6.	Generic technical guidelines (e.g. on application and surface preparation)	Where available, at www.hempel.com

In the event of a conflict of information between the PDS and the Additional documents, the order of priority of information shall be in the order as set out above. In such event you should also contact your representative at Hempel for clarification. Furthermore, the buyer/applicator must have full regard to the relevant Safety Data Sheet provided with each Product and which can also be downloaded from www.hempel.com.

Hempel shall not be liable for defects where the application of the Product has not been made fully in accordance with the recommendations and requirements set out in the relevant PDS and the Additional Documents. The information and terms of this disclaimer apply to this PDS, the Additional documents and any other documents supplied by Hempel in respect of the Product. In addition, the Product is supplied and all technical assistance is given subject to Hempel's General Conditions of Sale, Delivery and Service, unless otherwise expressly agreed in writing.