

OFFICE OF THE PROJECT DIRECTOR ORR RIVER PROJECT MANAGEMENT UNIT

कार्यालय परियोजना संचालक और नदी परियोजना प्रबंधन इकाई

BAMORE KALAN, DIST. - SHIVPURI (M.P.)

बामोरकला, जिला शिवपुरी (म.प्र.)

Pin : 473781

Email : pdorpmu@gmail.com

Memo No.:-

Bamore Kalan Dated:-

To,
The ANS-Sarathi(J.V),
Chanderi Micro Irrigation Project,
Chanderi, Ashoknagar (M.P.)-473446

Reference: - Letter No. ANS-SARTHI(JV)/CMIP/09 dated 25.04.2019

Subject: - Vender Registration with Micro Irrigation Project, Chanderi (M.P) for Food Grade Epoxy (CORROPOXY-FGE400) for Internal Lining & Polyurethane Coating(CORROTHANE-PU1000) for External Coating for MS pipes.

This is with reference to your above letter under reference requesting for approval of M/s CORRO PROTECTION ENGINEERING , Kolkata as a vender for supply of Food Grade Epoxy & Polyurethane Coatings for the above project ,

After verifying Technical data sheet, Literature , Test Reports from Govt. Test labs ,and PQT done at our project site at Chanderi, Ashoknagar , M.P.for Food Grade Epoxy & Polyurethane Coatings, we found all the Technical documents & PQT done at our Chanderi Project site, are in line with our Tender Document and also meets the requirements of the specification of IS-16676-2017 & AWWA C-210-15 for Food Grade Epoxy & IS-16719-2018 & AWWA -C-222-2018 for Polyurethane Coatings.

So, the Firm, M/s Corro Protection Engineering, Kolkata, the manufacturer & supplier of Food Grade Epoxy (CORROPOXY-FGE400) & Polyurethane Coatings (CORROTHANE-PU1000) has been approved by the undersigned for supply of the above paints for the above Project.

Enclosures:

Letter from ANS-Sarathi (J.V) Vide Letter No. ANS-SARTHI(JV)/CMIP/09 dated 25.04.2019.

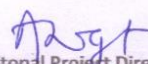

Additional Project Director
O.R.P.M.U. Bamore Kalan
Dist. Shivpuri (M.P.)
ORR River P.M.U. Bamore Kalan
Dist. Shivpuri (M.P.)

Memo No.:- 497

Bamore Kalan Dated:- 14/5/19

Copy to:

1. ANS-Sarathi (J.V), CMIP Project
2. Corro Protection Engineering, CMIP Project


Additional Project Director
O.R.P.M.U. Bamore Kalan
Dist. Shivpuri (M.P.)
ADD. PROJECT DIRECTOR
ORR River P.M.U. Bamore Kalan
Dist. Shivpuri (M.P.)



PRODUCT DATA SHEET

PRODUCT: POLYURETHANE COATING (CORROTHANE-PU1000)

100% Solid / Solvent Less Polyurethane Coatings suitable for outside or inside of MS pipe lines.

It is a two component elastomeric, solvent less Polyurethane coatings suitable for application on metal & concrete structures. It is used as a protective coating for internal & external corrosion protection of mild steel pipelines. The product is capable to be applied where resistance to all types of mild chemicals, Oils, Lubricants spillage.

USES:

Recommended for use for MS tanks and pipelines. It is also used in MS pipes, structural and tank exteriors of fertilizers plants, chemical units, refineries, petrochemicals. It is specially formulated to withstand on Sea water, DM water & acidic water. Its resistance to cathodic disbondment gives long life to the pipelines.

PROPERTIES	
COLOUR	BLUE / GREY / OFF WHITE
GLOSS	SEMI GLOSSY
DFT	800 – 1000 MICRONS
POT LIFE	5 TO 7 MINUTES
CURING TIME	7 DAYS
MIXING RATIO (BASE : HARDENER)	3 : 1 By. Vol.
DRYING TIME TOUCH DRY HARD DRY	10 -15 MINUTES. 24 HOURS.
VOLUME SOLIDS	100%
THEORITICAL COVERAGE	1 M ² /LITRE AT 1000 MICRONS DFT AT STATED VOL. SOLID
PRACTICAL COVERAGE	ALLOW APPROPRIATE LOSS
FLASH POINT – A) BASE B) HARDENER	250°C 110°C
ABRASION RESISTANCE	0.020 Gm WEIGHT LOSS
CHEMICAL RESISTANCE	PASSES
SALT SPRAY	2000 HOURS PASSES
CATHODIC DISBONDMENT	PASSES (NO DISBONDMENT)
HOLIDAY TESTS	PASSES



Codes & Standards: our Polyurethane Coatings conforms to the American Standard AWWA C 222-18 & Indian Standard IS – 16719-2018.

SURFACE PREPARATION:

- **Cleaning:** The performance of this product will depend upon the degree of surface preparation. The surface to be coated must be cleaned, dry and free from contamination. Only solvents that do not leave a residue shall be used for cleaning. Surface imperfections such as burrs, gouges and weld spatter shall be removed before abrasive blast cleaning by filling or grinding to prevent holidays in the applied Polyurethane coatings.
- **Abrasive Blast Cleaning:** Pipe surfaces shall be abrasive blast cleaned with mineral abrasives or still grit in accordance with SSPC-SP-10/ NACE No-2 or ISO-8501-1 with an angular profile. A surface profile of 50 -65 microns (1.5 -2 mils) is recommended.

APPLICATIONS:

- **Mixing:** material is supplied in two components as a unit. Always mix a complete unit in the proportions supplied. Once the unit has been mixed, it must be used within the pot life specified.
- **Mixing Ratio:** 3.0 Part Base: 1.00 Part Hardener.
- **Air less spray:** Tip ranges 0.076- 0.8 mm. Tip pressure – 250- 350 Kg/Sq.Cm.
- **Cleaner :** Thinner
- **Clean up:** Clean up all equipment & machine Pipe line immediately after use. Use thinner to clean up the machine.

APPLICATION TEMPERATURE:

Coating shall be applied when the metal temperature is more than 3°C above the dew point temperature. The temperature of mix coating material and the pipe at the time of application shall be within 15 to 50°C.

SAFETY PRECAUTIONS:

This product is intended to use only by professional applicators in industrial situations. All work involving the application and use of this product should be performed in compliance with all relevant national health, safety and environmental standards and regulations.

PACK SIZE: 100 Liters, & 200 Liters containers

REPAIR OF DAMAGED COATINGS: Damaged, Flawed areas shall be repaired with same two pack Polyurethane coatings which is applied in the main coating and made by the same manufacturer.

INSPECTION & TESTING OF POLYURETHANE COATINGS:

- a) Adhesion test /Pull of test as per ASTM D 4541.
- b) Wet Film Thickness to be checked as per ASTM D 4414.
- c) Holiday test to be checked as per NACE SP0188 or NACE SP0274.

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Telephone: 033 2425 7420, **E-mail –** corroeng@gmail.com ,corroengineering@yahoo.co.in, corroengg@gmail.com



CORRO PROTECTION ENGINEERING

Manufacturer & Supplier of Anticorrosive pipe coating Materials

Application Procedures of High Build Polyurethane Coating of DFT 600 micron $\pm$ 20 % (as per SSPC – PA2).

Project : Augmentation of Storage Capacity & Transmission Main Under Jai Hind W.T.P Clear Water Reservoir.
Service Main and Electro Mechanical Work.

Surface Preparation: Steel Surfaces

Steel surfaces shall be abrasive blasted to NACE No2/ SSPC-SP10 near white metal, ISO 8501:1 Grade Sa2½. Slivers, rough welds, or other defects in the steel shall be ground out prior to abrasive blasting. The blast profile is generally specified by the client, a typical profile of 50 -65 microns (1.5 -2 mils) is recommended.

Application Procedures

Our High build Polyurethane Coating shall not be applied when the relative humidity exceeds 85% or surface to be coated is $< 3^{\circ}\text{C}$ above the dew point.

Our High build Polyurethane Coating shall be applied in two coats. Second coat is to be carried out when the first coat is hard dry.

Our High build Polyurethane Coating is intended for application by plural feed airless spray. Base component shall be preheated to $35 - 45^{\circ}\text{C}$ while being agitated. Heating may not be required if the ambient temperature is more than 35°C .

A transfer pump at a minimum fluid to air ratio of 5:1 is recommended to feed the plural component pump. Activator component shall be transferred to the plural component pump with a minimum 2:1 ratio pump and must be a minimum temperature of 20°C . condensation of moisture and contact with water.

- Airless Spray Minimum 45:1 pump ratio
- Tip Size 19–27 Thou orifice;
- Tip pressure typically 3000 - 4000 psi

Note: When airless spray is being used, excessively high tip spraying pressures should be avoided. The minimum pressure at the pump conducive with good atomization should be used. Clean all equipment immediately after use with Thinners.

Repair Procedure

Small areas of damage in the coating up to 1000 cm² may be fixed by grinding out the defective area using an angle grinder or equal fitted with an abrasive disc. The area may then be coated using same product. Larger repairs shall be performed by spray application.

Storage, Handling and Safety Precautions

Store in original sealed containers under shed at temperatures between 5°C and 35°C .

This product is intended to use only by professional applicators in industrial situations. All work involving the application and use of this product should be performed in compliance with all relevant national health, safety and environmental standards and regulations.

Inspection & Testing of Poly urethane Coatings :

All the coated pipes shall be visually checked for finish & uniformity. The below testings shall be carried out at site.

- a) Dry Film Thickness to be checked as per SSPC – PA-2.
- b) Holiday test to be checked as per NACE SP0188 or NACE SP0274, (Randomly)
- c) Adhesion test Pull of test as per ASTM D 4541, (1No. in 100 Nos pipes.)



PRODUCT DATA SHEET

PRODUCT: FOOD GRADE EPOXY (CORROPOXY-FGE400)

100% Solid High build Epoxy coating suitable for drinking water lines.

It is 100% solid, high build amine cured epoxy coating suitable for application on MS pipelines for portable water carriage. It is specially formulated to resistant to acids, alkali, chemical and salt water.

Uses: Recommended for use of potable water, tanks and pipelines. It is also used in MS pipes, structural and tank exteriors of fertilizers plants, chemical units, refineries, petrochemicals. It is specially formulated to withstand on Sea water, DM water & Acidic water. Its resistance to cathodic disbandment gives long life to the pipelines.

PROPERTIES	
COLOUR	GREY / RED
GLOSS	SEMI GLOSSY
VOLUME SOLIDS	100% SOLID
DFT PER COAT	400 – 500 MICRONS
<u>DRYING TIME</u>	
TOUCH DRY	4 HRS.
HARD DRY	16 HRS.
OVER COATING	MIN 5 HRS, MAX 6 DAYS.
POT LIFE	45 MINUTES Min
CURING TIME (Full)	7 DAYS Max.
ADHESION TEST	Passes As Per ASTM D 4541
HOLIDAY TEST	Passes As Per NACE SP-0188
CATHODIC DISBONDMENT	Passes As Per ASTM G-8
ABRASION RESISTANCE	Passes As Per IS-16676-2017.
DRINKING WATER TEST	Passes As Per IS-16676-2017.



ADVANTAGES :

Suitable for potable water applications.

NO VOC.

High Performance Epoxy Coating used to protect concrete and steel.

Excellent Wetting properties to bare steel-Exceptional adhesion.

Cathodic disbondment and soil stress resistance on bare steel.

Excellent resistance to abrasion and mechanical damage.

Codes & Standards: Our 100% Solid Food Grade Epoxy Coatings conforms to the American Standard **AWWA-C-210-15** & Indian Standard **IS – 16676-2017**.

SURFACE PREPARATION:

- **Cleaning:** The performance of this product will depend upon the degree of surface preparation. The surface to be coated must be cleaned, dry and free from contamination. Only solvents that do not leave a residue shall be used for cleaning. Surface imperfections such as burrs, gouges and weld spatter shall be removed before abrasive blast cleaning by filing or grinding to prevent holidays in the applied Epoxy coatings.
- **Abrasive Blast Cleaning:** Pipe surfaces shall be abrasive blast cleaned with mineral abrasives or still grit in accordance with SSPC-SP-10/ NACE No-2 or ISO-8501-1 with an angular profile. A surface profile of 50 -65 microns (1.5 -2 mils) is recommended.

APPLICATIONS:

- **Mixing:** material is supplied in two components as a unit. Always mix a complete unit in the proportions supplied. Once the unit has been mixed, it must be used within the pot life specified.
- **Mixing Ratio:** 3.0 Part Base: 1.00 Part Hardener.
- **Air less spray:** Tip ranges 0.076- 0.8 mm. Tip pressure – 160- 180 Kg/Sq.Cm.
- **Cleaner :** Epoxy Thinner
- **Clean up:** Clean up all equipment immediately after use. Use Epoxy Thinner to clean up the machine.

APPLICATION TEMPERATURE:

Application shall be performed when the metal temperature is 3°C or more above the dew point. The temp. of the mixed epoxy material shall not be less than 10°C. Preheating of the epoxy, the use of in-line heaters to heat the epoxy or heating of the pipe, fittings or pipe connections or appurtenances and dehumidification equipment may be used to facilitate the applications as per manufacturer recommendations. This is as per **AWWA C 210-15** standards.

SAFETY PRECAUTIONS:

This product is intended to use only by professional applicators in industrial situations. All work involving the application and use of this product should be performed in compliance with all relevant national health, safety and environmental standards and regulations.

PACK SIZE: 100 Liters & 200 Liters containers

REPAIR OF DAMAGED COATINGS: Damaged, Flawed areas shall be repaired with same two pack Epoxy coatings which is applied in the main coating and made by the same manufacturer.

INSPECTION & TESTING OF EPOXY COATINGS:

- a) Adhesion test /Pull of test as per ASTM D 4541.
- b) Wet Film Thickness to be checked as per ASTM D 4414.
- c) Holiday test to be checked as per NACE SP0188 or NACE SP0274.

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CORRO PROTECTION ENGINEERING

Manufacturer & Supplier of Anticorrosive pipe coating Materials

Application Procedures of Food Grade Epoxy of DFT 430 micron $\pm$ 20% (as per SSPC-PA2)

Project : Augmentation of Storage Capacity & Transmission Main Under Jai Hind W.T.P Clear Water Reservoir. Service Main and Electro Mechanical Work.

Surface Preparation: Steel Surfaces

Steel surfaces shall be abrasive blasted to NACE No2/ SSPC-SP10 near white metal, ISO 8501:1 Grade Sa2½. Slivers, rough welds, or other defects in the steel shall be ground out prior to abrasive blasting.

The blast profile is generally specified by the client, a typical profile of 50 -65 microns (1.5 -2 mils) is recommended.

Application Procedures

Our Food Grade Epoxy shall not be applied when the relative humidity exceeds 85% or surface to be coated is $< 3^{\circ}\text{C}$ above the dew point.

Our Food Grade Epoxy shall be applied in single coat.

Our Food Grade Epoxy is intended for application by plural feed airless spray.

A transfer pump at a minimum fluid to air ratio of 5:1 is recommended to feed the plural component pump. Activator component shall be transferred to the plural component pump with a minimum 2:1 ratio pump and must be a minimum temperature of 20°C . Avoid condensation of moisture and contact with water.

- Airless Spray Minimum 45:1 pump ratio
- Tip Size 19–27 Thou orifice;
- Tip pressure typically 3000 - 4000 psi

Note: When airless spray is being used, excessively high tip spraying pressures should be avoided. The minimum pressure at the pump conducive with good atomization should be used. Clean all equipment immediately after use with Thinners.

Repair Procedure

Small areas of damage in the coating may be fixed by grinding out the defective area using an angle grinder or equal fitted with an abrasive disc. The area may then be coated using same material by brush application. Larger repairs shall be performed by spray application.

Storage, Handling and Safety Precautions

Store in original sealed containers under shed at temperatures between 5°C and 35°C .

This product is intended to use only by professional applicators in industrial situations. All work involving the application and use of this product should be performed in compliance with all relevant national health, safety and environmental standards and regulations.

Inspection & Testing of Food Grade Epoxy :

All the coated pipes shall be visually checked first for finish & uniformity. The below testings shall be carried out at site.

- a) Dry Film Thickness to be checked as per SSPC – PA-2.
- b) Holiday test to be checked as per NACE SP0188 or NACE SP0274, (Randomly)
- c) Adhesion test Pull of test as per ASTM D 4541, (1No. in 100 Nos pipes.)



PRODUCT DATA SHEET

PRODUCT: COAL TAR EPOXY (CORROPOXY-CTE400)

Solvent less Coal Tar Epoxy coating.

Description:

It is a two component 100% Anti Corrosive Coal Tar Epoxy Coating. Epoxy resin modified with refined tar pitch. The combination of epoxy resin with refined tar pitch gives excellent adhesion & chemical resistance to the metal surface.

Uses / applications:

- ❖ Marine structures
- ❖ Storage tanks.
- ❖ Petroleum Refineries.
- ❖ Inside & outside coating for pipelines.
- ❖ Waste water & sewage treatment plants,
- ❖ Fuel oil tanks, Ballast water tanks. Etc

Features :

- ❖ Excellent Chemical Resistance
- ❖ Excellent in all waterproofing applications.
- ❖ Excellent adhesion & flexibility
- ❖ Good abrasion resistance.

Physical Properties :

Colour	: Black
Finish	: Mat/Semi glossy
Dry Film Thickness	: 400 - 500 micron in single coat.
Flash Point	: 36 °c
Theoretical Coverage	: 2 SqM / Lt/ Coat
Volume Solids	: 100 %.
Mixing Ratio	: 4: 1 by vol.
Method of application	: by Airless spray machine.
Drying Time (Surface dry)	: Max 2 hours at 30°C.
Drying Time (hard Dry)	: Max 12 hours at 30°C.

Packing : 200 Kg & 100 Kg Drums.

Shelf Life : 12 months

Storage : Cool and dry place.

Method of Application :

Surface Preparation: New Steel: Abrasive blasting to Sa 2½. For temporary protection. If required use a suitable shop primer. All damages to shop primer and contamination from storage and fabrication should be thoroughly cleaned prior to final painting. For repair and touch-up use CORROPOXY-CTE400

Repair & Maintenance: Remove salt and other contaminants by high pressure fresh Water hosing. Clean damaged areas thoroughly by abrasive blasting or power tool cleaning. Feather the edges to sound and intact. Touch up to full film thickness.

Application & Mixing: Material is supplied in two containers as a unit. Always mix a complete unit in the proportions supplied. Use slow speed electric drill stirrer for proper mixing. Once the unit has been mixed it must be used within the working pot life specified.

Application Temperature: Coating shall be applied when the metal temperature is more than 3°C above the dew point temperature. The temperature of mix coating material and the pipe at the time of application shall be with 15 to 50°C.

- ❖ **Working Pot Life** : Max.
- ❖ **Airless Spray Recommended -**
 - Tip range 19-23 thou
 - Total output fluid pressure at spray tip not
 - Less than 176 kg/cm² (2,900 p.s.i)
- ❖ **Thinner** : Epoxy thinner.

Clean Up: Clean up all equipment immediately after use with epoxy thinner. It is good working practice to periodically flush out spray equipment during the course of the working day. Frequency of cleaning will depend upon amount sprayed, temperature and elapsed time, including any delays. All surplus materials and empty containers should be disposed of in accordance with appropriate regional regulations / legislation.

Safety Precaution: This product is intended for use only by professional applicators in industrial situations. Avoid contact with eyes & skin. Wear suitable protective clothing such as overalls, goggles, mask and suitable gloves.

PACK SIZE: 20 Liters, 100 Liters & 200 Liters containers

REPAIR OF DAMAGED COATINGS: Damaged, Flawed areas shall be repaired with same two pack Epoxy coatings which is applied in the main coating and made by the same manufacturer.

INSPECTION & TESTING OF EPOXY COATINGS:

- ❖ Adhesion test /Pull of test as per ASTM D 4541.
- ❖ DRY Film Thickness to be checked as per ASTM D 4414.
- ❖ Holiday test to be checked as per NACE SP0188 or NACE SP0274.

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