

W-POXI GFD 402

PRODUCT DESCRIPTION: High-solids and high thickness two-component novolac epoxy direct to metal. It has extremely low content of volatile organic compound (Low VOC). It contains glass flakes that provide excellent barrier protection. Due to the glass flakes in its composition, the W-POXI GFD 402 provides unmatched corrosion protection, excellent surface hardness and impermeability.

RECOMMENDED USES: Especially developed for application on oil and formation water tanks, crude oil, fuel oil and light products (fuels and solvents) tanks, ballast tanks, ships in general and marine structures. Offshore, it can be used on decks, oil and gas extraction platforms, on-board machinery, pipelines, etc. Also suitable for industrial applications such as pulp and chemical, bridges, overhead or submerged metal structures (on request) and various kinds of machinery. Also developed for application in containment areas, dams and concrete pits in the chemical, pulp and petrochemical industry. Resistant to a wide range of solvents, oils and acids (except hydrofluoric acid), also resistant to 98% sulfuric acid.

CERTIFICATIONS AND APPROVAL: This product, when supplied to comply with the RoHs Directive (Restriction of Certain Hazardous Substances) has the letter R in its description.

PACKAGING:	Component	Content	Package	Unit of measurement
	Component A	3,08 17,15	3,6 20	L
	Component B	0,52 2,85	0,9 4	L

CHARACTERISTICS:

Color: Ral, Munsell or as per customer standard.

VOC content: 60 g/l

Volume solid: 96 ± 1% (ISO 3233).

Shelf-Life: 24 months at 25°C.

Thickness per coat (dry): 400 µm –800 µm

Theoretical coverage: 1,6 m²/l without dilution in the thickness of 600 µm dry. Without considering loss factors in application.

Resistance to dry heat: Maximum temperature 120 °C . The product retains its physical and chemical properties up to the temperature of 120 °C however, variations in the coating color and gloss may occur from 60 °C.

Drying:

	10°C	25°C	35°C
Touch:	14 hours	6 hours	4 hours
Handling:	30 hours	16 hours	8 hours
Final:	288 hours	288 hours	240 hours
Pot Life	90 minutes	35 minutes	20 minutes

Overcoating Drying:

	10°C	25°C	35°C
Min	10 hours	6 hours	3 hours
Max	30 hours	24 hours	20 hours

SURFACE PREPARATION The performance of this product depends on the degree of surface preparation.

The surface must be clean, dry and free of any contaminants. Completely remove oils, greases and fats, as described in the SSPC-SP 1 standard.

The accumulated dirt must be removed using a dry brush, clean and dry cloth, compressed air blow, vacuum cleaner and/or with the combination of such items, and the soluble salts must be removed

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through wash with a great quantity of fresh water, preferably with low pressure (up to 5,000 psi) according to SSPC-SP 12/NACE No. 5.

Surface treatment through Abrasive Blasting process

Execute the abrasive blasting to near white metal, Sa 2 ½ grade of the ISO 8501-1 visual standard (A Sa 2 ½, B Sa 2 ½, C Sa 2 ½ and D Sa 2 ½) or according to SSPC-SP 10/NACE No. 2, SSPC-VIS 1 visual standard (A SP 10, B SP 10, C SP 10, D SP 10, G1 SP 10, G2 SP 10, G3 SP 10).

It is recommended a roughness profile between 50 and 100 µm.

Inspect the newly blasted surface observing the presence of surface flaws that could become apparent after this stage, adopting appropriate actions to mitigate such defects through grinding, weld filling and/or epoxy putty.

In case of oxidation on the substrate from the end of the abrasive blasting to the beginning of the coating application, the surface must be blasted again until reaching the specified visual standard.

For areas close to sea air, it is necessary to wash the surface with fresh water at low pressure (minimum 3,000 psi) before the abrasive blasting. And in some cases it is necessary to repeat the washing procedure after the abrasive blasting to remove possible soluble contaminants settled on the surface proceeding with a new abrasive blasting.

The maximum content of soluble impurities on the blasted surface according to the test described in ISO 8502-6 and distilled water must not exceed a measured conductivity according to ISO 8502-9 corresponding to a maximum content of 20 mg/cm² (2 µg/cm²) in immersed or buried areas.

Surface treatment through the manual mechanical cleaning process

Execute manual mechanical cleaning for carbon steel surfaces that present the oxidation grades C or D, according to the SSPC-VIS 3 visual standard. For surfaces previously painted that present grades E, F or G according to standard SSPC-VIS 3.

NOTE: The manual mechanical cleaning process is only recommended for small areas.

NOTE: If it is not possible to execute the manual mechanical cleaning process, as an alternative the surface can be prepared with commercial abrasive blasting, grade Sa 2 of the ISO 8501-1 visual standard (C Sa 2 and D Sa 2) or according to SSPC-SP 6/NACE No. 3, SSPC-VIS 1 visual standard (C SP 6, D SP 6).

Treat the surface mechanically until obtaining at least grade St 3 of the ISO 8501-1 visual standard or according to SSPC-SP 11; the SSPC-VIS 3 visual standard can be used as an aid.

Application over primer

NOTE: Observe the product overcoating interval to apply the next coat. In case the maximum overcoating interval has been exceeded, it is necessary to manually/mechanically sand the surface to break the gloss of the previous coat and clean the sanding residues so as to provide better adhesion between the coats.

Treatment of Steel Carbon Surfaces

Hard superficial layers (for example, layers resulting from flame cut) must be removed by grinding it before beginning the abrasive blasting.

All the welds must be inspected e, if necessary, be repaired before the ending of the abrasive blasting. Porosity, cavities, weld splashes, etc. must be repaired by means of proper mechanical treatment or weld repair; in the other areas, round the sharp edges ($r \geq 2$ mm, ISO 8501-3).

Concrete Surface Treatment

For further information, refer to the Concrete Surfaces Preparation and Application Manual.

Observe the overcoating interval between the coats of the sealer or primer for the application of the product. If the overcoating time is exceeded, sand as described in the sealer or primer data sheet.

This product should be directly applied to a sealer or primer recommended for concrete surfaces, in order to compose a suitable coating system. For the correct application of the sealer/primer, refer to its data sheet.

The performance of this product is related to the degree of surface preparation. The surface must be clean, solid, free of any kind of contaminants, totally dry and rough enough to allow adhesion of the protection system.

No coating of any kind can be directly applied to the concrete floor or subfloor with curing accelerator additives, unless representative tests indicate the possibility of satisfactory adhesion of the coating system.

No type of coating or painting must be applied, without the concrete (or subfloor of sand and cement

mortar) being totally dry and cured for at least 28 days in normal climatic conditio.

Coatings should not be directly applied to floors contaminated with oil or aggressive products. The floor must be effectively cleaned. In case the application is done over residues of such contaminants, the coating film may come off, and other flaws and defects may occur.

Coating over old concrete only with recommendation of WEG Technical Department.

The application of the product must be carried out as directed by our technical department in order to obtain the best performance. The assessment of factors such as surface conditions, roughness, quantity of contaminants and other characteristics is essential for the proper execution of the surface preparation.

For further information, consult WEG Technical Department.

PREPARATION FOR APPLICATION

Mixture

Homogenize the contents of each component by means of mechanical or pneumatic stirring (A and B). Ensure that no sediment is settled at the bottom of the package. Add component B to component A, at the recommended mixture proportion, under stirring, until complete homogenization, observing the mixing ratio. Avoid mixing for extended periods, since the heat of the friction will significantly reduce the product pot life.

Mixing ratio (Volume)

6 A x 1 B.

Diluent Epoxy diluent 3012

Dilution

Depending on the application method, dilute at most. 5%

Do not dilute with solvents that are not allowed by local legislation and do not exceed the recommended dilution percentage.

Only add the diluent after complete mixing of components A + B.

The quantity of diluent may vary depending on the type of equipment used and the ambient conditions during the application.

Excessive dilution of the coating may affect the formation and aspect of the film and not allow to reach the specified thickness.

Pot life of the mixture (25°C)

35 min

Check the pot life values in the Characteristics field.

The pot life is reduced with a higher room temperature.

The pot-life test is performed according to the Brazilian standard ABNT NBR 15742; however, different volumes of coating prepared at once combined with different ambient and coating temperatures will influence the pot life, and different results than those mentioned in this data sheet may be found.

Induction time (25°C)

No induction time required.

In hot areas, we recommend consulting WEG Technical Department.

APPLICATION FORMS

The data below is a guide, and similar equipment may be used.

In the spray application, make a 50% overlap in each gun pass, concluding with a cross pass. This technique is used to avoid uncovered and unprotected areas and to obtain a suitable aesthetic finish.

Recoat all sharp edges, cracks and weld beads with a brush to prevent premature failures in these areas.

Changes in nozzle sizes and pressures may be necessary to improve spraying characteristics. Before application, check if the equipment and its components are clean and in best condition. Purge the compressed air line to prevent contamination of the coating.

After mixing two-component products, if there are stops in the application, and pot life is exceeded (the coating shows variation in fluidity) it can no longer be diluted for further application.

Airless Gun:

Use Airless:

Use at least pump 70:1

Fluid pressure:

3500 – 4500 psi

Hose:

The outlet hose from the airless pump to the harness should be no longer than 15 meters with internal diameter of ½", 12.7 mm. The hose harness that reaches the gun should be 1.5 meters long with internal diameter of ¾", 9.5 mm.

Nozzle:

0,031" a 0,035"

Note:

As the product contains glass flakes in its formulation, premature wear of the nozzle may occur. All the filters should be removed.

For further information on the application of this product with airless spray gun, please refer to the annex at the end of this data sheet.

Brush:

Only recommended for touch up small areas or stripe coat (screws, nuts, weld and sharp edges). Use a brush 75 to 100 mm wide for larger surfaces and 25 to 38 mm for touch up.

Roller:

Use a thin nap, seamless sheepskin or microfiber roller for epoxy coatings.

For application with brush and/or roller, two or more passes may be necessary to obtain a uniform layer according to the recommended film thickness per coat.

Cleaning the equipment:

Epoxy diluent 3012

Clean all equipment immediately after use.

Do not leave catalyzed product in contact with the equipment used in the application, because the coating will vary in fluidity at temperatures above specified in the pot life and will cure faster, making the cleaning difficult.

Furthermore, it is a good working practice to periodically wash the spray equipment along the day. The cleaning frequency will depend on the amount sprayed, temperature and elapsed time, including all delays.

NOTE:

PERFORMANCE IN THE APPLICATION

For a good performance of the product, we recommend following the directions below:

We recommend coating only if the surface temperature is at least 3 °C above the dew point temperature.

Variations in color, aspect and gloss (more noticeable in dark colors) may occur, as well as delay in curing and low coating performance, when applied during periods of high air relative humidity, rainy days, low temperatures or drying the coating outdoor.

Epoxy-based products are known by having excellent anti-corrosion properties and low resistance to sunlight exposure. In situations of exposure of the film to the weather, over time it will present a loss of gloss known as chalking and its shade will change as a consequence. Remember that even undergoing such chalking, the film anti-corrosion protection is not impaired.

In paintings carried out in front of the sea, if exposed to sea air, we recommend to wash with fresh water between coats eliminating settled impurities.

Due to the high viscosity and thixotropy of this product, bubbles will be trapped in the coating; therefore, when carrying out the volume solid test according to ISO 3233, the value found may be below 95%. Thus, because it is not the real value, it should not be considered for the coverage calculations.

As the product contains glass flakes in its formulation, wear of the nozzle may occur.

It should not be applied in adverse conditions, such as air relative humidity above 85% or on condensed surfaces. Small variations in color, appearance and gloss of the coated parts may occur in periods of high air relative humidity, rainy days, at low temperatures or in situations where the coated parts are placed to dry outdoors.

Do not use excessive air pressure. Adjust the fluid pressure and nozzle properly for a better atomization.

To achieve a suitable viscosity for application, the ambient temperature during the storage of the coating and during the mixing and application should be between 20 and 30 °C.

Epoxy systems may have longer curing time when exposed to low temperatures. For temperatures below 10 °C, consult WEG Technical Department.

Do not apply the product after the pot life has expired.

For better application properties, the coating temperature should be between 21 - 27 °C prior to the mixing and application.

In coatings with variation in application method in the same job, the final aspect and gloss of the painted surfaces may show differences.

The temperature of the substrate, the weather and environmental conditions during the application and during the curing of the product, and the thickness of the coat may interfere in the product drying time.

For further information, consult WEG Technical Department.

SAFETY PRECAUTIONS

Product developed for industrial use intended for handling by qualified professionals.

Please read carefully all the information contained in the MSDS of this product, available at: www.weg.net.

Store in a covered, well-ventilated area. Keep the container tightly closed and away from sources of heat or ignition.

Use only in well-ventilated areas avoiding the accumulation of flammable vapors. Keep the product away from heat and sources of ignition.

Do not inhale mists / vapors / aerosols generated during handling and / or application.

Wear protective gloves / protective clothing / eye protection / face protection.

Avoid release this product and its packaging, as well as materials used during handling and application in the environment.

NOTE:

The information contained in this technical datasheet is based upon the experience and knowledge acquired in the field by the technical team of WEG.

If using the product without previous inquiry to WEG Coating concerning its suitability for the customer's intended purpose, the customer is aware that the use shall be its exclusive responsibility, WEG not being responsible for behavior, safety, suitability or durability of the product.

Some information contained in this datasheet are estimated, and can undergo variances arising from factors outside the manufacturer's control. Thus, WEG does not guarantee and does not assume any responsibility regarding the yield, performance or any other material or personal damage resulting from the incorrect use of the products concerned or the information contained in this Technical datasheet.

The information contained in this technical datasheet is subject to periodic modification, without prior notice, due to the policy of evolution and continuous improvement of our products and services, providing solutions with quality to satisfy our customers' requirements.

APPLICATION MANUAL

1. General Painting Recommendations:

- 1.1. Environmental conditions, surface cleaning, interval between coats: Respecting all the features described in the technical bulletin.
- 1.2. No paint must be applied, if it is expected that the ambient temperature can fall to 0°C, before the paint has dried.
- 1.3. No paint application must be done in rain, mist or fog, or when the relative air humidity exceeds 85% (eighty-five percent), or when it is expected to be reached, under risk of jeopardizing the adherence between coats or total of the film applied.
- 1.4. Each coat of paint must have a uniform thickness, free of defects such as porosity, wrinkles, blistering, bubbles, craters and impregnation of other visible contaminants.
- 1.5. The concrete surfaces shall receive suitable treatment to attain conditions of providing the good performance of the painting system.

2. General Floor Recommendations:

- 2.1. So that the protection system can be applied, the surface shall be clean, solid, free of any types of contaminant, totally dry and have sufficient rugosity to allow the adherence of the protection system to be applied.

- 2.2. The floor must have neutral pH (7) or slightly alkaline (10).
- 2.3. No coating of any kind can be directly applied to the concrete floor or subfloor with curing accelerator additives, unless representative tests indicate the possibility of satisfactory adhesion of the coating system.
- 2.4. No type of coating or painting must be applied, without the concrete (or subfloor of sand and cement mortar) being totally dry and cured for at least 28 days in normal climatic condition.
- 2.5. Coatings must not be applied to floors contaminated with oils or aggressive products. The floor shall be clean in efficacious manner. If the application is done on residue of these contaminants, the coating film may be detached and other types of failure and defect.
- 2.6. The execution project of the concrete shall foresee its prior impermeabilization, in order to avoid rising damp or the rise of the water table by the concrete capillarity, under the burden of appearance of blistering (bubbles) and peeling of the paint.
- 2.7. Check the presence of humidity in the concrete as per standard ASTM D 4263, summarized below:
 - 2.7.1. Stick a plastic sheet 18 x 18 inches (457 mm x 457 mm) using adhesive tape of the type Silver Tape 3M, level with the concrete surface ensuring that all the edges are well sealed.
 - 2.7.2. Deixar a folha plástica selada ao concreto por no mínimo 16 h no local.
 - 2.7.3. After this time period (between 16 – 24 h), remove the plastic sheet and evaluate visually the under part of the sheet and surface of the concrete regarding the presence of humidity.
 - 2.7.4. Execute the sampling of 01 (one) test area every 46 m² or proportion thereof.
 - 2.7.5. Do not execute the painting if there is any type of residual humidity in the plastic sheets of the sample area.

3. **General Recommendations for painting on old paint:**

- 3.1. An analysis shall be made regarding the compatibility of the old paint with the system to be applied. If there is any incompatibility, the painting shall not be done, or all the old paint shall be removed beforehand. If there is compatibility, the sanding shall be executed (to break the gloss and promote adherence) and cleaning of the floor.
- 3.2. If there is peeling of old paint (even with compatible systems), a scraping and/or removal of all the old paint shall be executed. For this scraping tools can be used as steel spatulas, milling machines and grinders G-16 – G-24.
- 3.3. The surface, after scraping, sanding or any other type of repair shall be clean of contaminants and residue.
- 3.4. Contact the Technical Department of WEG (WEG Paints) to evaluate the requirement of applying the sealer.

4. **Execution of Painting (Basic methodology recommended):**

- 4.1. **Start degreasing:**
 - 4.1.1. Wet all the surface well with clean water, under high pressure and preferably hot.
 - 4.1.2. Spread uniformly over all the area a biodegradable detergent solution as per instruction of the detergent manufacturer;
 - 4.1.3. Rub vigorously with the aid of industrial floor waxers, polishers and/or piassabai palm brushes and brooms;
 - 4.1.4. Leave it to act on the floor for approximately 10 minutes;
 - 4.1.5. Rinse with clean water in abundance, under high pressure and preferably hot and leave it to dry.
 - 4.1.6. Repeat this start degreasing process, as many times as necessary. As an option the floor can be rubbed in the localized points where the greatest contamination by oil and ordinary acids is perceived, followed by the degreasing process, described above.

Important Comment: Para el inicio de la aplicación del sistema de pintura descrito abajo, es necesario que el piso esté completamente seco, sin humedad, para esto se puede utilizar la ayuda de sopletes, siempre asegurándose con la prueba del papel plástico (ASTM D 4263). Antes de iniciar el pintado el concreto deberá presentar humedad residual e hasta un máximo de 6%.

- 4.1.7. These technical recommendations aim to obtain the best performance of the painting system.

4.2. **Surface preparation:**

4.2.1. The surface preparation must be executed in compliance with Standard SSPC SP-13/NACE # 6, Technical Guideline # 03732 of ICRI – International Concrete Repair Institute and compared with the visual standards expressed as CSP 1 to 9:

- CSP 1 – Acid etching
- CSP 2 – Grinding
- CSP 3 – Light shotblast
- CSP 4 – Light scarification
- CSP 5 – Medium shotblast
- CSP 6 – Medium scarification
- CSP 7 – Heavy abrasive blast
- CSP 8 – Scabbled
- CSP 9 – Heavy scarification

4.2.2. The type of surface preparation will affect the thickness of the painting schema and consequently the consumption and yield of the material, also impacting the real function of the system applied (see the table below):

Visual Standard (Technical Guide of ICRI)		mils	mils	µm
CSP-1	Acid etching	13.5	+/- 2.5	342.9
CSP-2	Grinding	16	+/- 2.5	406,4
CSP-3	Light shotblast	19	+/- 2.5	482.6
CSP-4	Light scarification	25	+/- 2.5	635.0
CSP-5	Medium shotblast	33	+/- 2.5	838.2
CSP-6	Medium scarification	63	+/- 2.5	1600.2
CSP-7	Heavy abrasive blast	87.5	+/- 5	2222,5
CSP-8	Scabbled	105	+/- 5	2667.0
CSP-9	Heavy scarification	107	+/- 5	2717.8

4.2.3. Scarification (milling cutter):

This method is an excellent option for repairs and recovery of damaged surfaces, being appropriate for both light and heavy work.

This equipment is recommended for cutting antiskid grooves, removal of surface layers of concrete contaminated as with grease, oil, rubber, synthetic paving, paint, drops, ranges of traffic demarcation among other application on floor surfaces in general.

The milling cutter consists of an electric motor (three-phase or single-phase) or gasoline engine which rotates a reel of tools/disks parts of Widea (tungsten carbide) which execute the surface wear and chipping of the floor. The depth of the wear will depend upon the type and format of the disk used together with the milling cutter shaft.

4.2.4. Manual polishers and rotary hammers:

The polishers are intended for the service of preparation, regularization, reduction, cleaning and polishing of floors and coatings. These machines work with electric motors (three-phase or single-phase) and with 1 or 2 multiuse disks (3 grinders or diamond tipped inserts per disk).

Depending upon the hardness of the floor, inserts of carborundum or widea (tungsten carbide) can be used.

4.2.5. Captive blast with centrifugal turbines:

Another way of preparing the concrete, mainly in floors, is with the blast produced by centrifugal turbines, using steel shot in a closed circuit. The turbine throws the shot particles against the concrete and a strong vacuum withdraws the powder and shot, which undergo a purification process and return to the turbine to be thrown against the floor again. This method wears some millimeters of the concrete.

4.2.6. Treatment with acido:

This type of surface treatment with acid requires great care and attention. Acid is only recommended on floors at the level of the soil and walls, provided that there is no risk of infiltration, as acid attack in the ironwork can jeopardize the mechanical resistance and safety of the structure.

When opting to use this method, follow the steps below:

4.2.6.1. Wet the surface beforehand, apply the solution with 15% of hydrogen chloride (muriatic) acid in water (01 part of commercial muriatic acid to 01 part of water in volume).

Important note: To calculate the quantity of solution required, consider that 10 liters of muriatic acid solution covers approximately 15 to 18 m² of area.

- 4.2.6.2. Spread the acid solution uniformly on the surface, using nylon piassabai palm brush, avoiding the formation of puddles and letting the solution act on the concrete until the surface has a rugosity similar to a sheet of sandpaper 80.
- 4.2.6.3. Wash with water in abundance to eliminate all the acid residue and attain pH near to neutral.
- 4.2.6.4. Apply the first coat of the sealer or coating when the concrete is dry.

5. General Recommendations for Painting New Floor:

- 5.1. One must proceed as per the instructions of the technical bulletin described in this document, as well as the aforesaid instructions.
- 5.2. If there any queries regarding the performance of the floor, do not apply any product and contact the technical area of WEG (WEG Paints).
- 5.3. For the preparation and application, it is advisable to contract specialized companies responsible for the application of the product.

