



DRIZORO[®]

WRAP

REPAIR AND STRENGTHENING SYSTEM BASED ON CARBON FIBER SHEETS

DESCRIPTION

DRIZORO[®] WRAP System is a carbon-fiber sheet with small amounts of epoxy-based resins, which is a repair and strengthening system suitable for structural concrete elements. The strengthening sheets are made of unidirectional and flexible carbon fibers, having a high strength and elastic modulus. Three epoxy-based resins have been specially designed for being easily applied to concrete: primer, levelling putty and under/over-coating adhesive-resin. System provides a strengthening based on a composite material that is "in situ" generated. Properties such as high tensile strength, low weight, versatility, and applicability make to **DRIZORO[®] WRAP System** a suitable system for repair, strengthening of structures, or both. To adjust to the different applications, three types of carbon fiber sheets are available: **DRIZORO[®] WRAP 200**, **DRIZORO[®] WRAP 300** y **DRIZORO[®] WRAP HM**.

- High tensile strength and fatigue. It is 10 and 3 times stronger than steel and fibreglass systems, respectively. Also, it is highly resistant to fatigue.
- High modulus tensile. It reduces the tensile strength in the reinforcing bars.
- Long lasting. It withstands to UV rays, almost all chemicals, marine environments, and freeze-thaw cycles. It is non-corrosive system.
- Easy and quick to apply. It does not required maintenance.
- A flexible system. It can be applied to complex structures. The required strengthening level is provided by a specific number of composite layers.
- Low thickness with a minimum increasing for the cross-section of the strengthened structural elements. It allows maintaining the geometry and appearance of the strengthened elements.

APPLICATION FIELDS

- Restoration works in columns, beams, desks, and balconies.
- Strengthening of concrete elements due to changes in construction uses.
- Repair of damaged structures by accidents, pathologies, or both.
- Adaptation to new regulations.
- Rectification of design or job constructions defects.
- Repair and strengthening of concrete structures damaged by earthquakes.
- Restoration of bridges, chimneys, silos and outstanding concrete structures.

ADVANTAGES

- Low weight. It weights 20% less than standard steel strengthening.

APPLICATION INSTRUCTIONS

Application Procedure

There are eight main steps in the application procedure of the **DRIZORO[®] WRAP System** as described below: (1) Concrete surface preparation, (2) Primer application, (3) Putty application -if required-, (4) Cutting of carbon fiber sheets, (5) Under-coating resin application, (6) Carbon fiber sheet application, (7) Overcoating resin application and (8) Protective coating application -if required-.

Step 1. Concrete Surface Preparation

The effectiveness of carbon fiber system relies upon the bond between the fiber itself and the concrete surface it is being applied to. So that, before **DRIZORO[®] WRAP System** application can begin, the concrete surface must be properly prepared to system to bond well with the concrete, avoid delaminating or both.

The surface to be coated must be sound (Compression strength, at 28 days, >15 N/mm² measured in a 15 x 30 cm cylindrical specimen), dry and clean, free from dirt, remains of paints, gypsum, efflorescences, greases, oils, as well as de-moulding agents, curing agents or any coating, which could affect the adhesion. Using a disk grinder, or other similar device, remove the above-mentioned substances. Grind any unevenness on the concrete surface to less than 1 mm. Concrete surface to be strengthened must be even with a variance of less than 2 mm over a length of 300 mm. Carbon fiber strengthening is not effective around sharp edges. So, corners and edges must be rounded (chamfered) to a radius greater than 3 cm, with a desirable of 50 cm to prevent a significant reduction in the tensile strength of the system.

After the initial surface abrasion, many defects greater than 5 mm can be exposed. So that before the application of **DRIZORO® WRAP System**, all surface damages such as defects, cavities, honeycombs, peelings should be filled with a repair mortar. Remove all concrete around structural reinforcement affected by corrosion. These reinforcements should be cleaned of rust and scale and then, coated with the oxide converter and anti-corrosive protection **MAXREST® PASSIVE** (Technical Bulletin No. 12). To repair the area, use a structural repair mortar such as **MAXREST®** (No. 4) or **MAXRITE® -500/-700/-S** (Technical Bulletin n° 50, 51 y 57 respectively). Repair cracks of the size greater than 0,25 mm by low viscosity, epoxy-based resin injection such as **MAXEPOX® INJECTION** (Technical Bulletin n° 78) or **MAXEPOX® INJECTION -R** (Technical Bulletin No. 79) according to temperature, to prevent water leakage and restore the strength of concrete.

Generated dust or other residue must be removed by pressurized air or clean wiping rags.

Step 2. Primer Application

Prior to the **MAXPRIMER®-C** primer application, check and confirm the on-site conditions which can affect the **DRIZORO® WRAP System** application: ambient temperature (greater or equal to 5°C) and presence of moisture on surface (less than 4%). Primer penetrates the concrete surface to increase the strength of concrete and to improve the bonding between the concrete and

the carbon fiber sheet. Two types of primer can be applied. Selection depends on the substrate/ambient temperature of application. So that, “cool season” primer, **-W**, is recommended for use in the temperature with the range of 5-15°C, while the “warm season” primer, **-S**, is recommended for use in the temperature with the range of 15-35°C.

MAXPRIMER®-C is mixed using an electric hand mixer or spatula in clean container at a weight ratio of main agent/hardener of 4:1 to produce a product with uniform consistency. The mixed quantity should be controlled to ensure that it is all used within the pot life period. Do not use any mixed primer that has exceeded the specified pot life. Using a clean roller or brush, apply one or two layers, in a uniform manner, with a total consumption from 0,10 to 0,35 kg/m² (standard 0,25 kg/m²). The applied primer must become tack-free (no longer sticky) when touched before progressing onto the next stage.

Step 3. Putty Application (if required)

If after primer application, concavities, gaps or pinholes up to 6 mm are seen on the surface, **MAXEPOX® -CP** putty must be applied to smooth the concrete surface prior to the application of the resin and the carbon fiber sets. Prior to the **MAXEPOX® -CP** putty application, check and confirm the ambient temperature (greater or equal to 5°C) and that primer has become tack-free to the fingertip. If more than 7 days have passed since the primer application then, the primer surface must be roughened with sandpaper and wipe clean before putty application. Two types of putty can be applied. Selection depends on the substrate/ambient temperature of application. So that, “cool season” putty, **-W**, is recommended for use in the temperature with the range of 5-15°C, while the “warm season” putty, **-S**, is recommended for use in the temperature with the range of 15-35°C.

MAXEPOX®-CP is mixed using appropriate tools, in clean container at a weight ratio of main agent/hardener of 2:1 to produce a product with uniform consistency (paste) and colour (grey). The mixed quantity should be controlled to ensure that it is all used within the pot life period. Do not use any mixed putty that has exceeded the

specified pot life. Using a clean trowel or spatula, apply to all indents, defects or pinholes larger than 1 mm, with a total consumption from 0,5 to 1,5 kg/m². Generally, the putty is applied to small areas, but it can also be applied to level uneven concrete surfaces. The applied putty must become tack-free (no longer sticky) when touched before progressing onto the next stage.

Step 4. Cutting of Carbon Fiber Sheets

Before proceeding to the **MAXEPOX® -CS** under-coating resin application, preparation of the carbon fiber sheets must be taken. Using a scissor or utility cutter, cut a sheet to the specified length according to the drawing and work plan. It is recommended that prepared sheets have a maximum length in the range from 4 to 6 meters for easy of handling and to prevent wrinkling.

Sheets must be handled and stored with care to prevent it from becoming contaminated or damaged. Contact with water is strictly prohibited. Sheets must not be folded or rolled up without a central core. Care should be taken when handling **DRIZORO® WRAP HM** (High Modulus) sheets, as its fibers are particularly prone to damage.

Step 5. Under-coating Resin Application

MAXEPOX® -CS under-coating resin functions as an adhesive to bond the carbon fiber sheet to the concrete surface. The resin impregnates into the carbon fibers, which when cured, will form the laminate to strengthen the concrete element.

Prior to the **MAXEPOX® -CS** under-coating resin application, check and confirm the on-site conditions: ambient temperature (greater or equal to 5°C) and that primer, putty, or both have become tack-free to the fingertip. If more than 7 days have passed since the primer, putty application, or both then, the surface must be roughened with sandpaper and wipe clean before putty application. Two types of primer can be applied. Selection depends on the substrate/ambient temperature of application. So that, “cool season” primer, **-W**, is recommended for use in the temperature with the range of 5-15°C, while the “warm season” primer, **-S**, is recommended for use in the temperature with the range of 15-35°C.

MAXEPOX® -CS is mixed using an electric hand mixer or spatula, in clean container at a

weight ratio of main agent/hardener of 4:1 to produce a product with a liquid uniform consistency and green colour. The mixed quantity should be controlled to ensure that it is all used within the pot life period. Do not use any mixed resin that has exceeded the specified pot life. Using a clean roller or brush, apply one or two layers, in a uniform and adequate manner to the surface of the primed concrete, with a total consumption from 0,40 to 0,50 kg/m² (depending on carbon fiber type). Relatively large quantities of resin must be applied to areas of curvature when compared to that applied to flat concrete surfaces.

Step 6. Carbon-fiber sheets Application

Immediately after **MAXEPOX® -CS** under-coating resin application, the carbon fiber sheets must be applied (within 20 minutes). The sheets are applied by pressing then onto the resin. The sheets should be smoothed longitudinally by hand, either from one end to the other. After the sheets have been attached, any air trapped between the sheets and concrete substrate is removed by gently and firmly pressing an “air removal roller” over the length of the sheets. This will allow the resin to impregnate into the carbon fibers. Do not roll against fiber direction since this may misalign or damage the fibers.

When connecting two sheets in the fiber longitudinal direction, the sheets are recommended overlap by at least 20 cm. When applying two sheets next to each other (side by side), a 1,25 cm overlap is recommended to ensure that there is no surface uncovered by carbon fiber.

Wait approximately 30 minutes to allow the resin to impregnate into the carbon fiber sheet (If ambient temperature is 10°C or below, wait 1 h), before proceeding to the next stage. The sheets application and **MAXEPOX® -CS** over-coating resin application must be completed in the same day.

Step 7. Over-coating Resin Application

Prior to the **MAXEPOX® -CS** over-coating resin application, check and confirm the on-site conditions: ambient temperature (greater or equal to 5°C) and that under-coating resin has become tack-free to the fingertip. **MAXEPOX® -CS** is mixed

according to above procedure. The mixed quantity should be controlled to ensure that it is all used within the pot life period. Do not use any mixed resin that has exceeded the specified pot life.

- a) Single-layer application. Using a clean roller or brush, apply one or two layers, in a uniform and adequate manner to the carbon fiber sheet, with a total consumption from 0,2 to 0,3 kg/m² (depending on carbon fiber type). Apply following the fiber longitudinal direction to prevent misalignment of the fibers. Wait 30 minutes to allow the resin to impregnate the fiber and then **DRIZORO® WRAP System** application is complete.
- b) Multi-layer application. Where multiple layers of carbon fiber sheets have been specified, the standard quantity of over-coating resin for mid-layers is the sum of the over-coating resin (0,2-0,3 kg/m²) and the under-coating resin (0,4-0,5 kg/m²) for the next layer, that is 0,6-0,8 kg/m² per layer applied at once.

Alternatively, the over-coating resin and the under-coating resin may be applied in separate operations according above procedures, If more than 7 days have passed since the previous resin application, then the over-coated surface must be roughened with sandpaper and wiped clean before the next resin application.

If the over-coating resin is not for the last layer of carbon fiber sheet, apply the next layer within 20 minutes of applying the resin. If this is the last layer of sheet applied, wait 30 minutes to allow the resin to impregnate the sheet and then, **DRIZORO® WRAP System** application is complete.

When multiple layers are applied in one day, a maximum of 3 layers to the vertical surface, and a maximum of 2 layers to horizontal surface is recommended to be applied in any one day in order to prevent slippage or separation. In several days application, the top layer each day must be finish with the overcoating resin. The next day, the under-coating resin is applied on top and the **DRIZORO® WRAP**

System application process continues as indicated above.

In case of a large surface area that requires multiple layers, overlapping size should be taken into consideration.

Step 8. Protective Coating Application

DRIZORO® WRAP System is extremely durable to weather conditions (heat, humidity, freeze/thaw cycles, marine environment), many acids and chemicals, gasoline, fuel, and UV rays. From an architectural and aesthetic point of view, an application of a finish coating (weather resistant, finishing, or both mortar) is recommended to provide further protection against impacts, fire, weather conditions and mischief-makers. **DRIZORO** coatings or mortars are suitable products for these purposes:

- Exposed areas to UV rays or direct sunlight: **MAXURETHANE® 2C**
- Exposed areas to mechanical impacts: **MAXREST®, CONCRESEAL® PLASTERING**. To improve the bonding property of these mortars over **DRIZORO® WRAP System**, silica sand (0,0 to 2,5 mm diameter) should be spread over the before the over-coating resin hardens. A standard spraying quantity is 1 kg/m².
- Decorative and protective finishing: **MAXSHEEN®, MAXSHEEN® ELASTIC, MAXSEAL® FLEX, MAXQUICK®**

Application Conditions

Two types of **MAXPRIMER®-C** primer, **MAXEPOX® -CP** levelling putty and **MAXEPOX®-CS** resin are available. Selection depends on the substrate/ambient temperature of application. So that, "cool season" primer, **-W**, is recommended for use in the temperature with the range of 5-15°C, while the "warm season" primer, **-S**, is recommended for use in the temperature with the range of 15-35°C.

If substrate/ambient temperature at the work site is less or equal to 5°C, do not apply the **DRIZORO® WRAP System**. Viscosity of primer, putty and resin becomes higher at lower substrate/ambient temperatures. This may cause difficulty in

application, poor impregnation to carbon fiber sheet and concrete body, and alterations in the tack-free time and the curing time. Heating apparatus (electrical heaters), handled carefully, can be used to ensure that the ambient temperature at the work site is greater than 5°C. On the contrary, if substrate/ambient temperature at the work site is greater than 35°C, reaction rate will increase, and *Pot Life* will be reduced to very low value.

Moisture may hinder the bonding of primer, putty or resin. If rain or dew condensation is anticipated, postpone the application work. **DRIZORO® WRAP System** must not be applied to concrete surfaces where surface moisture is greater than 10%. In this way, moisture within the concrete substrate may be discharged through pores, which may cause debonding of the applied composite material

Curing

Curing time for **MAXPRIMER®-C** primer and **MAXEPOX®-CP** levelling putty depends on substrate/ambient temperature. It varies from 3,5 to 7 hours and from 3 to 5 hours for primer and putty respectively.

Allow the **MAXEPOX®-CS** to cure and bond with strengthen the concrete surface. Depending on the type of resin used (**-W/-S**) and ambient temperature, both complete curing and full load transfer occurs in 5 to 14 days.

If the substrate/ambient temperature is less than 5°C, then heating apparatus such as a spotlight or heater may be used to increase

them. It should be noted that high a substrate/ambient differential temperature means a danger of condensation or dew forming.

Care should be taken at the work site to keep rain, sand, dust, etc, away from the concrete surface retrofitted with **DRIZORO® WRAP System**. Use of protective sheets is recommended and care must be taken to keep the protective sheets from touching the application until is fully cured.

Cleaning

All tools and equipments for **DRIZORO® WRAP System** application can be cleaned immediately with **MAXEPOX® SOLVENT** after use. Once any epoxy-based product (primer, levelling putty or resin) cures, can only be removed by mechanical means.

PACKAGING

Carbon fiber sheets: **DRIZORO® WRAP MH**. rolls of 50 and 100 m length and 25, 33 and 50 cm width, **DRIZORO® WRAP 200/300** rolls of 50 m length and 30 cm width.

Epoxi-based Primer: **MAXPRIMER®-C (S and W versions)**. Pre-weighted sets of 5 and 15 kg.

Epoxi-based levelling putty: **MAXEPOX® -CP (S and W versions)**. Pre-weighted sets of 5 and 15 kg.

Epoxy-based under/over coating resin: **MAXEPOX® -CS (S and W versions)**. Pre-weighted sets of 5 and 15 kg.

CONSUMPTION

| PRODUCT | CONSUMPTION (kg/m ²) | | |
|----------------------|--------------------------------------|--------------------------|-----------------------------------|
| MAXPRIMER® -C | 0,1 - 0,35 (Standard value: 0,25) | | |
| MAXEPOX® -CP | 0,5 - 1,5 (Depends on repair volume) | | |
| MAXEPOX® -CS | | DRIZORO® WRAP 200 | DRIZORO® WRAP 300 & MH |
| | Standard under-coating | 0,4 | 0,5 |
| | Standard over-coating | 0,2 | 0,3 |
| | Multiple layers | 0,6 | 0,8 |

TECHNICAL DATA

PROPERTIES FOR DRIZORO® WRAP System PRIMER, LEVELLING PUTTY AND ADHESIVE-RESIN

| PRODUCTS | | PRIMER | | LEVELLING PUTTY | | ADHESIVE-RESIN | |
|-------------------------------------------------|------------|-----------------------|-----------------|-----------------------|-----------------|-------------------------------|-----------------|
| Product Name | | MAXPRIMER® -C | | MAXEPOX® -CP | | MAXEPOX® -CS | |
| Suitable for | | Warm Season (S) | Cool Season (W) | Warm Season (S) | Cool Season (W) | Warm Season (S) | Cool Season (W) |
| Recommended temperature range (°C) | | 15 – 35 | 5 – 15 | 15 – 35 | 5 – 15 | 15 – 35 | 5 – 15 |
| Solvent | | Free-solvent | | | | | |
| Base Resin | | Epoxy-based resin | | | | | |
| Appearance | Main agent | Pale Liquid | | White Putty | | Green and Thixotropic Liquid | |
| | Hardener | Pale yellow Liquid | | Black Putty | | Pale yellowish/reddish Liquid | |
| Mixing ratio (by weight) | Main agent | 4 | | 2 | | 4 | |
| | Hardener | 1 | | 1 | | 1 | |
| Specific Gravity (25°C) | Main agent | 1,15 | 1,13 | 1,50 | 1,51 | 1,12 | 1,14 |
| | Hardener | 0,96 | 0,97 | 1,85 | 1,73 | 0,96 | 0,97 |
| Viscosity (mPa·s) | 30°C | 200 | - | Putty | - | 7.600 | - |
| | 25°C | 320 | 160 | Putty | Putty | 8.200 | 4.300 |
| | 15°C | 750 | 440 | Putty | Putty | 12.600 | 6.300 |
| | 5°C | - | 1.100 | - | Putty | - | 15.600 |
| Consumption (kg/m ²) | | 0,25 | | 1,5 ⁽²⁾ | | 0,6 – 0,8 ⁽³⁾ | |
| Pot Life ⁽¹⁾ (minutes) | 30°C | 90 | - | 50 | - | 70 | - |
| | 23°C | 130 | 18 | 60 | 40 | 130 | 25 |
| | 15°C | > 180 | 40 | > 180 | 60 | > 180 | 60 |
| | 5°C | - | 130 | - | 150 | - | 120 |
| Tack-free Time (hours) | 30°C | 8,0 | - | 3,0 | - | 8,0 | - |
| | 23°C | 11,0 | 3,0 | 5,5 | 3,5 | 11,0 | 4,0 |
| | 15°C | 17,0 | 7,0 | 10,0 | 5,5 | 18,0 | 7,0 |
| | 5°C | - | 15,0 | - | 10,0 | - | 18,0 |
| Curing Time (days) | 30°C | - | - | - | - | 5 | - |
| | 23°C | - | - | - | - | 7 | 5 |
| | 15°C | - | - | - | - | 14 | 7 |
| | 5°C | - | - | - | - | - | 14 |
| Mechanical Properties (N/mm²) | | | | | | | |
| Tensile Strength | | - | | - | | > 29 | |
| Flexural Strength | | - | | - | | > 39 | |
| Shear Strength | | - | | - | | > 9,8 | |
| Adhesive Strength (concrete) | | 1,5 | | 1,5 | | - | |
| Packaging | | 15 kg Pre-weighed set | | 15 kg Pre-weighed set | | 15 kg Pre-weighed set | |

(1) Pot life is determined by heat generation rising method.

(2) Consumption of putty depends on the surface condition of the structure surface.

(3) DRIZORO® WRAP 200: 0,6 kg/m². DRIZORO® WRAP 300: 0,8 kg/m².

PROPERTIES FOR DRIZORO® WRAP System CARBON FIBRE-RESIN COMPOSITE

| PRODUCTS | CARBON FIBER SHEETS | | | EPOXI-BASED RESIN MAXEPOX®-CS | FIBER-RESIN COMPOSITE |
|---------------------------------------|---------------------|---------------------|---------------------|----------------------------------|--------------------------|
| | DRIZORO® WRAP 200 | DRIZORO® WRAP 300 | DRIZORO® WRAP HM | | |
| Product Name | | | | | |
| Thickness (mm) | 0,111 | | | 0,545 | 0,656 |
| Tensile Strength (N/mm ²) | 3.400 | | | 29 | 575 ⁽¹⁾ |
| Tensile Modulus (N/mm ²) | 2,3·10 ⁵ | | | 0,015·10 ⁵ | 0,39·10 ⁵ (2) |
| Thickness (mm) | | 0,167 | | 0,727 | 0,894 |
| Tensile Strength (N/mm ²) | | 3.400 | | 29 | 635 |
| Tensile Modulus (N/mm ²) | | 2,3·10 ⁵ | | 0,015·10 ⁵ | 0,43·10 ⁵ |
| Thickness (mm) | | | 0,163 | 0,727 | 0,890 |
| Tensile Strength (N/mm ²) | | | 2.400 | 29 | 444 |
| Tensile Modulus (N/mm ²) | | | 4,4·10 ⁵ | 0,015·10 ⁵ | 0,81·10 ⁵ |

Thickness:

- DRIZORO® WRAP 200 (Weight 200 g/m² and Density 1,80 g/cm³) E = 0,111 mm
- DRIZORO® WRAP 300 (Weight 300 g/m² and Density 1,80 g/cm³) E = 0,167 mm
- DRIZORO® WRAP HM (Weight 300 g/m² and Density 1,84 g/cm³) E = 0,163 mm
- MAXEPOX® -CS. Standard consumption of 0,6 kg/m² for DRIZORO WRAP 200 (Density 1,10 g/cm³) E = 0,545 mm
- MAXEPOX® -CS. Standard consumption of 0,8 kg/m² for DRIZORO® WRAP 300 & DRIZORO® WRAP HM (Density 1,1 g/cm³) E = 0,727 mm

(1) Since the resin tensile strength is very low compared with that of carbon fiber, it can be neglect in the following formula to determine the DRIZORO® WRAP composite tensile strength. Therefore, the tensile strength for composite is calculated as follows:

$$\text{Tensile Strength for DRIZORO® WRAP 200 composite} = 3.400 \text{ N/mm}^2 \times (0,111 \text{ mm}/0,656 \text{ mm}) = 575 \text{ N/mm}^2$$

(2) Since the resin tensile modulus is very low compared with that of carbon fiber, it can be neglect in the following formula to determine the DRIZORO® WRAP composite tensile modulus. Therefore, the tensile modulus for composite is calculated as follows

$$\text{Tensile Strength for DRIZORO® WRAP 200 composites} = 2,3 \cdot 10^5 \text{ N/mm}^2 \times (0,111 \text{ mm}/0,656 \text{ mm}) = 0,39 \cdot 10^5 \text{ N/mm}^2$$

IMPORTANT INDICATIONS

- DRIZORO® WRAP System is a suitable method for strengthening of concrete subjected to mechanical loads. Durability problems of concrete such as steel corrosion, chemical attack, high chloride content or running water leaks must be dealt with in an appropriate manner prior to any carbon fiber strengthening.
- Prior to the epoxy-based product application, check and confirm the on-site conditions which can affect the DRIZORO® WRAP SYSTEM application: substrate/ambient temperature, moisture level and dust.
- Do not dilute primer, putty, or resin with any organic solvent. It may decrease the tensile strength and other properties of the cured laminate.
- After mixing the main agent and hardener, be sure to use it within its pot life.
- If the mixed resin should start to rapidly generate heat or significantly increase in viscosity, stop using it immediately.
- For further information, consult our Technical Department.

• STORAGE

Epoxy-based products and carbon fiber sheets for **DRIZORO® WRAP System** must be stored in its original unopened packaging, in a dry and covered place, protected from frost and direct exposure of sunlight, with temperatures above 5°C. Epoxy materials must be stored at an ambient temperature below 30°C.

Unused and part used sheets shall be stored in sealed containers with an additional protective layer such as a corrugated cardboard box. Part used should be wound back around the central paper core provided or laid out flat on an even surface. Sheets must not be folded, creased, or rolled up without a central core (exceeding 300 mm diameter).

SAFETY AND HEALTH

Carbon fiber sheet is a highly conductive material. Therefore, if it enters electrical apparatus or machinery, there is the possibility of electric shocks or short-circuiting.

Resin mixing should be minimised, particularly during warm weather. Mixed resin tends to build up heat so that large quantities may lead to excessive or even abnormal heating of the mixture.

Epoxy-based resins for **DRIZORO® WRAP System** can cause irritation and inflammation

to the skin if they come into direct contact. Avoid inhaling primer, putty or resin fumes. It is important that full protective clothing including goggles, rubber gloves and masks are worn when handling these materials. In case of skin contact, wash affected areas with soap and water but do not use organic solvents. If irritation continues, seek medical attention. In case of eye contact rinse immediately and thoroughly with clean water but do not rub prior to seeking medical advice/treatment. In some instances, people may suffer from irritation or inflammation without event coming into direct contact with the materials. In such cases, the application work should cease immediately.

Works site must always be well ventilated. Primer, putty, and resin are flammable. Avoid using fire near epoxy-based materials.

Safety Data Sheets for all products of **DRIZORO® WRAP System** is available by request.

The final user must do disposal of the products and their empty containers according to official regulations. Allow unused primer, putty, and resin to harden in its containers prior to disposal as industrial waste. No more than 2 kg should be hardened at once.

GUARANTEE

The information contained in this leaflet is based on our experience and technical knowledge, obtained through laboratory testing and from bibliographic material. **DRIZORO®, S.A.U.** reserves the right to introduce changes without prior notice. Any use of this data beyond the purposes expressly specified in the leaflet will not be the Company's responsibility unless authorised by us. We shall not accept responsibility exceeding the value of the purchased product. The data shown on consumptions, measurement and yields are for guidance only and based on our experience. These data are subject to variation due to the specific atmospheric and jobsite conditions so reasonable variations from the data may be experienced. In order to know the real data, a test on the jobsite must be done, and it will be carried out under the client responsibility. We shall not accept responsibility exceeding the value of the purchased product. For any other doubt, consult our Technical Department. This version of bulletin replaces the previous one.



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