



# BC AL polyurea

## Equipment Introduction:

Reactor 2 E-XP2 proportional is an advanced technology in applying fast-curing polyurea coatings. The Reactor 2 E-XP2 is engineered to process and spray polyurea and other coatings that require high pressures. The hybrid heater and heated hose condition the materials to the right viscosity prior to mixing. Quick knockdown lower pump for easy maintenance, easy-to-use controls, and rugged design make the Reactor the preferred choice for coatings applications.

### 1.Scope of Work:

This method of statement is for Plural component spray application of BC 104 polyurea describes the procedures intended to adopt for all associated works with this contract package.

### 2. Access/Egress:

The Access /Egress to the site for the easy movement of workmen, material and equipment will be carried out in a safe manner. Any obstacle shall be properly cleared either manually or employing suitable mechanical equipment. The access should be as per project safety procedures.

### 3. Lighting:

#### 3.1 Safety Lighting:

Customer will provide Safety lighting at the entry point/s of the project as such adequate to the basic security of the site premises or in accordance with the project requirements.

#### 3.2 Task Lighting:

Tower light or portable light is use in the dark or in reduced visibility, lights will be fitted and used to enable the work area to be adequately illuminated. In addition, amber flashing beacons that give warning of the presence of the vehicle will be fitted and used if necessary.

#### 3.3 General:

Generally, if otherwise required Tamimi PEB will provide adequate lighting facility where verthere is a necessity for the lighting for the safety of its employees, material, equipment or any other asset of Tamimi PEB or Client.



## 4. Plant & Equipment:

### 4.1 Plant & Equipment Schedule:

<u>Sn</u>	<u>Description</u>	<u>QTY</u>	<u>Model</u>	<u>Utilization</u>
2.	GracoReactor, PolyureaMachine	1 2	2E-XP2	1year
3.	Heater Hose(240bar),15cmwithScuffGuard	2 2	E- XP2,240	3years
4.	Whip Hose(240bar),3mwithScuffGuard	8	E- XP2,240	9months
5.	Fusion Gun AP	1 6	Fusion	7months
6.	Transfer Pump	2 4	T2Pump	2years
7.	<b>Air Supply and Fusion Gun</b>	<b>2 4</b>	<b>Kit for Pumps</b>	<b>4years</b>

### 4.2 Personnel Protective Equipment(PPE)

- Safety Helmet
- Clear Goggles
- Black Goggles
- Coverall
- Safety vest
- Safety Shoe
- Hand Gloves
- Face Shield(Where required)

### 4.3 Manpower

- Foreman/Supervisor
- Site Engineer
- QC
- Plumbers
- Labors(As Required)
- Flagman's (As Required)
- Operators(As Required)
- Masons(As Required)



## **5.Materials:**

Surface preparation tools like grinding wheels , cleaning tools
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BC Epoxy Putty 2000
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BC Epoxy primer 349
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BC 104 Polyurea
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BC PU Top coat
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## **6.Sequence/Method of work:**

Delivery of Material using Dyna Truck :

- Before any delivery of materials to site, the supervisor with his crew will prepare the area of storage to receive the material at the lay down area. Number of containers , packing size and total quantity , drum condition , labeling and documents etc shall be verified .
- The supplier shall inform the site at least two (2) days before the delivery date to have sufficient time on securing relevant work permit and gate passes required.
- If the delivery vehicle is from the supplier, it must be checked to ensure that it is conforming to the requirement of the project using the approved vehicle/equipment checklist. Driver of the delivery vehicle must be of complete PPE while he is in the jobsite.
- The delivery vehicle shall be escorted by SUBCONTRACTOR representative from gate to lay down area and vice versa.
- Upon arrival of the material, the driver will hand over the delivery receipt to the warehouse supervisor who will check the document that includes the following:
  - After completion of unloading and material inspection, the materials shall be covered with tarpaulin or blue sheets to protect from exposure to weather.
  - The materials delivered have been checked and they are correct as per the approved material submittal

Material Receiving by Manual Handling:

- The delivery materials will receive by workforce manually as all of materials are not too heavy.
- Each shipment should be inventoried and inspected upon arrival.
- It is the carrier's responsibility to deliver the shipment in good condition, and it is the receiver's responsibility to ensure that there has been no loss or damage.



**7. Program:**

System guide
Surface preparation
High pressure air cleaning to remove dust and other debris materials
Power tool cleaning / Hand tool cleaning
BCpoxyPutty 2000
Cracks and damages are treated with BC Repair 100
BC Epoxy Primer 349
Apply one full coat of BC high performance Epoxy primer 349 through rollers to cover entire surface to form durable Chemical; resistant layer
BC 237 Polyurea( water proofing)
Apply one or two coats BC 104 Polyurea through heated plural component spray equipment to form a seamless protective cover
Top coat (Weather resistant finish )_
Apply one full coat of ultra weather able finish layer BCPU Topcoat @150-200μ

**8. Risks and Controls:**

8.1 Hazards/risks:

Risk Assessment (See appendix)

8.2 Control measures/permits:

PermittoworkshallinplacepriortoanyworkissuedbyTamimiPermitauthorizerand must be communicated to workers, operators &staff.

8.3 Third party protection:

Obtain third party inspection for equipment and operator if necessary as per. Plant and Equipment - Training, Licensing, and Certification Requirements.

8.4 Environmental considerations and sustainability:

A. Waste Management

- Waste shall be controlled and managed at all times
- Waste shall be transferred by appropriately registered carriers and only removed to licensed sites
- Wastes shall be kept in a secure manner, suitably contained and labeled
- Hazardous wastes shall be kept separately and securely labeled containers for the task and disposed of in accordance with the Hazardous Waste Regulations





### Waste minimization:

BCI shall endeavor to minimize wastestreams in line with the principles of the waste hierarchy

- Avoidance of waste at source
- Reduction of waste volumes
- Re-use of uncontaminated spoil within the works
- Arrange for recycling of the waste
- Disposal as last option

### Operations of vehicles and plant

To ensure minimal impact from the operation of vehicles and plant, operators shall give due regard and implement the following

- Minimize route and journey mile a to and from and around site
  - Prevent nuisance to the community caused by parking, spoil from vehicle movements, noise and access restrictions
  - Ensure prevention of spillage of spoil, fuels, coolants, hydraulic oils and other vehicle fuels
  - Maintain vehicles
  - Ensure all vehicles and machinery are turned off when not in use
  - Ensure suitable control for the means of access and egress to public highway
- ### Noise and nuisance

Care shall be taken to ensure good image and relations with the local community by the following

- The use of offensive language, behavior and or discourtesy to the public prohibited
- Excessive noise from plant, equipment, vehicles and employees being monitored
- Strict compliance with noise and working hour restrictions
- Excessive emissions of dust, fumes and odors
- BCI will ensure a high standard of housekeeping and litter control on all sites at all times



#### Air Quality:

- Any black smoke/ unsightly emissions from vehicles and other equipment must be reported.
- Customer shall ensure that smoking is only permitted in designated areas.
- All materials to adequately covered to prevent loss of material through wind erosion as well as dust lift.
- Where possible, avoid simultaneous instances of side-by-side material handling to prevent excessive generation of nuisance dust.

#### 8.5General:

Personal Protective Equipment and selection refer to Employer Requirement(AML-DEV-H&S-GLE-0014 Personal Protective Equipment) for minimum requirements for selection, use and maintenance of PPE.

#### 8.6Communication and Fire Precautions:

- Ensure fire extinguishers, type ABC dry chemical, are provided in all active work areas. Units shall be sized and spaced according to work activity occurring, quantities of combustible and flammable materials in the work area, and level of potential for fires.
- Ensure temporary enclosures are equipped with a minimum of one fire extinguisher suitable for all classes of fires that are expected inside the enclosure
- Ensure all permit requirements for hot work activities are followed. Refer to Employer Requirement (AML-DEV-H&S-GLE-0035Welding,Cutting& Brazing).
- Maintain that combustible debris, rubbish and waste material are removed from buildings at the end of each shift of work. Refer to the Employer Requirement (AML-DEV-H&S-GLE-0013Housekeeping).
- Ensure that combustible debris, rubbish and waste material are disposed of properly.
- Ensure that adequate and unimpeded means of egress from all parts of the works, is available at all times in case fire.

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## **9. Training:**

- All on site must complete site safety induction.
- Tool box meeting must be conducted prior to commence the activity.
- Provide awareness training for the new employee for (tools, equipment etc.) and discuss a wide variety of hazards that new workers can encounter while performing different types of tasks, and explains what they need to do to avoid those hazards.
- Working at height training.

## **10. Supervision:**

- Works to be supervised by BCI site management.
- The Site Supervisor manages and assesses any potential safety hazards on site and looks at eliminating them. Conduct a regular site inspection and provide a safety program.
- Ensure that a project is seen through and completed safely.

## **11. Supervisor:**

- To ensure that the approved reparation methodology is well executed by all of the team.
- Safety of the Manpower should always be promoted in all the duration of work daily to avoid any kind of accidents.

### **A. Foreman**

- To ensure the high level of workmanship. To ensure that the preparation methodology adopted by the Supervisor involved is well executed.
- To ensure the availability and the quality of the tools and product use by the team.
- The provision to his responsible Supervisor in charge the adequate information for works performance.
- The provision to his responsible Supervisor the daily report illustrating work progress / reparation methodology applied / resources / manpower / completed work.
- Manage the equipment's in the working zone in a safe way.



#### B. QC Inspector

- Inspect and conform the quality and test report of the required backfilling materials.
- Witness placement, compaction and compaction test.
- Responsible for random inspection required during the execution
- Responsible for the witness testing approval and records.
- Responsible for arranging third parties required for testing at site whenever needed.

#### C. Safety Officer

- Ensure that work is performed according to the safety instruction and precautions specified in the work permit.
- Ensure that barricades and warning tapes are erected where required and safety equipment

#### D. Work Permit Receiver

- Submit the activity permit request.
- Must abide by the instructions provided in the activity permit.
- Responsible for obtaining work permits required for the daily job and maintain the record as per project requirements.

### **12. Working Hours:**

BCI generally have an 8 hour working schedule. However, working hours may be extended by the Project In charge which is paid in accordance with the Saudi labor laws. Usually breaks are considered as per project requirements and Saudi labor laws.

### **13. Housekeeping:**

- All rubbish and debris must be cleared from the worksite on a daily basis in progress with the work.
- No excess rubbish or debris will be permitted to be left on site at the end of the working shift.
- Sufficient bins must be available for the Contractor at each work face to cope with debris generated.
- Bins must be emptied/changed immediately when full.

### **14. Other Information:**

- Safety induction to be conducted to all new workers that involved to this activity.
- Safety tool box meeting shall be conducted to remind the workers about concerning the safety.
- Make sure that material will be stored at temp storage area and should be barricaded properly.

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