

# Powercrete® R-120 Liquid Epoxy



## Product Description

Powercrete R-120 is a single coat, 100% solids, high build epoxy novolac that coats, repairs and rehabilitates pipelines operating at maximum temperatures up to 120°C (250°F). As an abrasion resistant overlay (ARO) it is compatible with FBE and CTE mainline coatings and is used on any other metal structure. This 2-component, solvent-free epoxy can easily achieve a dry film thickness of 40+ mils in a single application and can be hand or spray applied.

## Product Applications

- Pipeline Repair & Rehabilitation
- Girth Welds / Field Joints
- Pipe Bends, Fittings, Valves & Odd Shapes
- Any bare steel structure in need of protection

## Product Features & Benefits

- 100% Solids Epoxy, no V.O.C.s and no isocyanates  
Safe to use
- Novolac Chemistry  
Greater surface tolerance and chemical resistance
- Excellent Wetting Properties to Bare Steel  
Exceptional adhesion and cathodic disbondment resistance
- Same Formula for Hand or Spray Application  
Reduce inventory  
Easy selection to avoid errors
- High Build in a Single Application  
Save time by applying 40+ mils in a single pass
- Excellent Mechanical Properties  
Used in directional drill and thrust bore applications



## Physical Properties

| Property                       | Condition                   | Test Method    | Typical Value  |                   |
|--------------------------------|-----------------------------|----------------|----------------|-------------------|
|                                |                             |                | US Imperial    | Metric            |
| Specific Gravity               | (Mixed)                     | ASTM D-3289-03 | 1.64           | 1.64              |
| Compressive Strength           |                             | ASTM C-109     | 14,660 psi     | 110 MPa           |
| Hardness                       | (Shore D)                   | ASTM D-2240    | 85             | 85                |
| Thin Film Water Absorption     | 24 Hrs                      | ASTM D-570     | 0.15 %         | 0.15 %            |
| Dielectric Strength            | (Oil)                       | ASTM D-149     | 690 volts/mil  | 27 volts/micron   |
| Resistance to Acids & Alkalies |                             | ASTM C-581     | Excellent      | Excellent         |
| Adhesion to                    |                             |                |                |                   |
| FBE                            |                             | ASTM D-4541    | 3,400 psi      | 23.44 MPa         |
| Bare Steel                     |                             | ASTM D-4541    | 3,550 psi      | 24.48 MPa         |
| Impact Resistance              | (40 mils thickness)         | ASTM G-14-88   | 57 inch lbs    | 6.4 Nm/6.4 Joules |
| Flexibility                    | (Degrees per pipe diameter) | NACE RP-0394   | < 0.6 °        | < 0.6 °           |
| Tabor Abrasion                 | (CS-17 wheel, wear cycles)  | ASTM D-4060-95 | 780 cycles/mil | 30 cycles/micron  |
| Cathodic Disbondment           | 30 days                     |                |                |                   |
| 23°C (73°F)                    |                             | ASTM G-8       | 0.2 inch       | 4.0 mm            |
| 95°C (203°F)                   |                             | ASTM G-42      | 0.3 inch       | 8.0 mm            |
| 120°C (250°F)                  |                             | ASTM G-42      | 0.4 inch       | 10 mm             |

## Product Selection Guide

|                             |                      |                               |                  |
|-----------------------------|----------------------|-------------------------------|------------------|
| Maximum Operating Temp      | 120°C (250°F)        | Color                         | Gray             |
| Compatible Line Coatings    | FBE, CTE             | Typical Single Coat Thickness |                  |
| Mixing Ratio                |                      | Manually Applied              | 40 mils (1.0 mm) |
| By Volume                   | 3.6:1 Part A to B    | Spray Applied                 | 40 mils (1.0 mm) |
| By Weight                   | 100:16 Part A to B   | Recoat Interval (Spray)       |                  |
| Surface Profile Recommended | 2.5 - 4.0 mils       | @ 21°C, 70°F                  | 34 - 60 minutes  |
|                             | 63.5 - 101.6 microns | @ 65°C, 150°F                 | 4 - 7 minutes    |
| Surface Preparation         | SA 2 1/2             | Clean Up                      | Acetone, MEK     |
|                             | SSPC-10 - Near-White |                               |                  |
|                             | SSPC-SP5 - White     |                               |                  |

Typical Application

| Hand Apply   |  | Spray Apply  | Waste Factor  |                      |                 |                |                      |         |                     |                      |                |                     |  |         |                      |  |
|--|--|--|---|----------------------|-----------------|----------------|----------------------|---------|---------------------|----------------------|----------------|---------------------|--|---------|----------------------|--|
|   | <b>Theoretical Coverage Rates</b><br>425 mil-sq. ft./litre<br>1605 mil-sq. ft./US gallon<br>1.0 mm-m <sup>2</sup> /litre |  | (approx.)<br><table border="1"> <tr> <td>10%</td> <td>Kit Application</td> </tr> <tr> <td>15%</td> <td>20" + pipe OD</td> </tr> <tr> <td>25%</td> <td>14"-18" pipe OD</td> </tr> <tr> <td>35%</td> <td>2"-12" pipe OD</td> </tr> </table> | 10%                  | Kit Application | 15%            | 20" + pipe OD        | 25%     | 14"-18" pipe OD     | 35%                  | 2"-12" pipe OD |                     |  |         |                      |  |
|  | 10%  | Kit Application  |   |                      |                 |                |                      |         |                     |                      |                |                     |  |         |                      |  |
|  | 15%  | 20" + pipe OD  |   |                      |                 |                |                      |         |                     |                      |                |                     |  |         |                      |  |
| 25%  | 14"-18" pipe OD  |  |   |                      |                 |                |                      |         |                     |                      |                |                     |  |         |                      |  |
| 35%  | 2"-12" pipe OD   |  |   |                      |                 |                |                      |         |                     |                      |                |                     |  |         |                      |  |
| <b>Recommended Tip Sizes</b>   |  |  |   |                      |                 |                |                      |         |                     |                      |                |                     |  |         |                      |  |
| <table border="1"> <tr> <th>Tip Size</th> <th>Pipe Size (DN)</th> <th>Flow Rates (approx.)</th> </tr> <tr> <td>331</td> <td>to 12" (DN300)</td> <td>19tip = 1.1 L / min.</td> </tr> <tr> <td>419/431</td> <td>12"-16" (DN300-400)</td> <td>31tip = 2.8 L / min.</td> </tr> <tr> <td>519/531</td> <td>16"-24" (DN400-600)</td> <td></td> </tr> <tr> <td>619/631</td> <td>24"-48" (DN600-1200)</td> <td></td> </tr> </table> | Tip Size   |  | Pipe Size (DN)  | Flow Rates (approx.) | 331             | to 12" (DN300) | 19tip = 1.1 L / min. | 419/431 | 12"-16" (DN300-400) | 31tip = 2.8 L / min. | 519/531        | 16"-24" (DN400-600) |  | 619/631 | 24"-48" (DN600-1200) |  |
| Tip Size   | Pipe Size (DN)   | Flow Rates (approx.)   |   |                      |                 |                |                      |         |                     |                      |                |                     |  |         |                      |  |
| 331  | to 12" (DN300)   | 19tip = 1.1 L / min.   |   |                      |                 |                |                      |         |                     |                      |                |                     |  |         |                      |  |
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| 519/531  | 16"-24" (DN400-600)  |  |   |                      |                 |                |                      |         |                     |                      |                |                     |  |         |                      |  |
| 619/631  | 24"-48" (DN600-1200)   |  |   |                      |                 |                |                      |         |                     |                      |                |                     |  |         |                      |  |

Temperature Considerations

If the surface to be coated is below 10°C (50°F), preheating of the substrate is recommended. Preheat temperatures should not exceed 100°C (212°F) prior to the application.

Note: The application should only be done when the temperature of the steel is at least 3°C (5°F) higher than the dew point, as recommended by NACE.

Storage & Handling

For optimum performance, store Powercrete® R-120 epoxy products in a dry, well-ventilated area. Maintain products in original packaging and sealed until just before use. Avoid exposure to direct sunlight, rain, snow, dust or other adverse environmental conditions or contaminates.

NOTE:  
Avoid prolonged storage at temperatures above 40°C (104°F) or below 5°C (40°F).

Cure Times

|  |                              |
|--|------------------------------|
| Pot Life: 4 Lbs Kit (1.82 Kg), @ 25°C (77°F) | 14 minutes                   |
| Spray Application                            |                              |
| Gel Time: 40 mils, @ 27°C (80°F)             | 31 minutes                   |
| Dry Time: 40 mils, @ 27°C (80°F)             | 77 minutes                   |
| 65 Shore "D" Reading: 40 mils, @ 27°C (80°F) | 2.2 hours                    |
| 75 Shore "D" Reading: 40 mils, @ 27°C (80°F) | 5 hours                      |
| Application Temp Range:                      | -30 to 100°C<br>-20 to 212°F |
| Shelf Life (stored in specified conditions): | 2 years                      |

Ordering Information

Powercrete R-120 is available in three (3) packaging options:

Drum

- Part A: 40 Gal / 153 L (625 Lbs / 283.5 Kg)
- Part B: 46 Gal / 176 L (400 Lbs / 181.4 Kg)

Pail

- Part A: 4 Gal / 15.1 L (61.7 Lbs / 28 Kg)
- Part B: 4.6 Gal / 17.4 L (39.5 Lbs / 18 Kg)

Kit Options (Part A and B in proper mix ratio by weight)

- 20 Lbs / 9 Kg (1.44 Gal / 5.44 L)
- 10 Lbs / 4.5 Kg (0.72 Gal / 2.7 L)
- 4 Lbs / 1.8 Kg (0.29 Gal / 1.09 L)
- 2 Lbs / 0.9 Kg (0.14 Gal / 0.54 L)





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