

CONSTRUCTION

CARBOLITH PL

THREE-COMPONENT ELASTICIZED SILICATE RESIN

DESCRIPTION

CarboLith PL is a non-foaming elasticized three component resin having good adhesion even on moist surfaces for the application of short liners in sewer repair. CarboLith PL component A is a special sodium silicate component with additives. Component B is a modified polyisocyanate. Component C is a blend of additives improving the components and regulates the pot life of the mix. The curing of Component A results in a silicate; simultaneously a solid polyisocyanurate/polyurea is formed from the Component B.

The final product forms an interpenetrating network of tough elasticized, non-foaming silicate resin that when impregnated into fiberglass mats can endure multiple washings with 120 bar (1700 psi at the nozzle) without significant damage even after only 3 days curing time. Curing time can be adjusted by addition of the Component C.

USES

CarboLith PL is used to facilitate a durable sewer repair by means of short liner application.

ADVANTAGES

- High adhesive strength
- High chemical resistance
- Low cost repair method



APPLICATION METHOD

MIXING

By appropriate addition of Component C, the resin setting speed can be adjusted to meet the requirements of temperature, size of the liner, and installation time. As a standard, we recommend the following dosage:

| Temp | Dosage |
|------------|--|
| Above 64°F | 2 p. b. v. Comp C on 100 p. b. v. Comp A |
| Below 64°F | 3 p. b. v. Comp C on 100 p. b. v. Comp A |
| Below 50°F | 4 p. b. v. Comp C on 100 p. b. v. Comp A |

Component C is first mixed and then mixed into Component A at the required dosage. This blend is mixed with double the volume of Component B and stirred vigorously for two minutes.

TECHNICAL DATA

The data shown below is laboratory data. It may vary in practice due to thermal exchange between resin and pipe, surface properties of the stone, humidity, pressure, and other factors. The pot life depends on the temperature of the grout while demold depends on the ambient temperature.

MATERIAL DATA

| Parameter | Unit | Component A | Component B | Component C | Standard |
|-------------------|-------------------|-------------|-------------|-------------|-------------|
| Density at 77°F | kg/m ³ | 1490 ± 50 | 1130 ± 40 | 1120 ± 40 | DIN 12791-1 |
| Color | | Colorless | black brown | light brown | |
| Flash point | °F | none | >390 | >212 | DIN 53213 |
| pH value | | 12 - 13 | - | 12 - 13 | DIN 19268 |
| Viscosity at 77°F | cps | 270 ± 70 | 150 ± 100 | 40 ± 10 | ISO 3219 |

REACTION DATA

| Mixing Ratio A : B : C 100 : 200 : 3.0 p. b. volume | | |
|---|----------------|----------------|
| Starting temperature °F | 60°F | 68°F |
| Pot life (for spreading) | approx. 10 min | approx. 8 min |
| Time for placing | approx. 20 min | approx. 10 min |
| Demould time | approx. 60 min | approx. 50 min |

For more details in temperature range (40°F to 77°F) see "Instruction CarboLith PL Spot Repair System"

MECHANICAL DATA (LINER)

| Parameter | Unit | Value | Standard |
|---|------|--------|-------------------------|
| Ring stiffness (apex thrust) * | psi | 20 | DIN EN 1228 |
| Modulus apex thrust test | psi | 1.3 M | DIN EN 1228 |
| Ring stiffness (apex thrust), short time ** (S ₀) | psi | 0.38 | DIN EN 1228 |
| Modulus apex thrust test, short time** | psi | 2.1 M | DIN EN 1228 |
| Modulus apex thrust test, 400 d ** | psi | 1.28 M | DIN EN 1228, DIN EN 761 |
| Flexural strength, axial | psi | 20,000 | DIN EN ISO 178 |
| Flexural modulus, axial | psi | 0.8 M | DIN EN ISO 178 |
| Flexural strength, radial | psi | 17400 | DIN EN ISO 178 |
| Flexural modulus, radial | psi | 0.8 M | DIN EN ISO 178 |
| Adhesive strength (glazed clay pipe) | psi | 320 | DIN EN ISO 24 624 |
| Adhesive strength (glazed clay pipe) | psi | 450 | DIN EN ISO 24 624 |

*Pipe i.d. 150 mm, liner thickness 4 mm

**Pipe i.d. 300 mm, liner thickness 4 mm

The values are taken from the indicated approvals, they are to be regarded as orientation value

Soaking Fiberglass Mats

Advantex® type or comparable fiberglass shall be used. To achieve the prescribed liner thickness of at least 3 mm, either a double folded mat of 1386 g/m² or a triple folded mat of 1086 g/m² is used. The random layer chopped strand mat must be on the exposed surface.

The mat is spread on a polyethylene sheet and the resin is applied on either side by spatula or rubber wiper. Twice the resin mass is needed relative to the mass of the glass mat. If the surface is uneven, (e.g. corroded concrete) or shows high degree of cracking, the quantity must be accordingly higher. A second polyethylene sheet is laid on top, by rolling it with a metal roller, the mat is completely impregnated.

Placing the Liner

An inflatable packer is wrapped with a cling film (in order to prevent adhesion). Then it is wrapped tightly with the impregnated mat. The packer is put into position at the place requiring repair within the placing time. The packer is then inflated and kept at 1 – 2 bar pressure for one hour, deflated and withdrawn.

Curing the Liner

After demoulding, the sewage water may pass through the liner. Complete curing is achieved within one week; the sewer then can be flushed with high-pressure water. For more details, see “Instruction CarboLith PL Spot Repair System”.

SAFETY INSTRUCTIONS AND LIMITATIONS

Observe the usual precautionary measures for handling chemicals, see CarboLith PL SDS.

Material is alkaline so avoid acids.

PACKAGING and TRANSPORTATION

| CONTAINER TYPE | CARBOLITH PL COMPONENT A | CARBOLITH PL COMPONENT B |
|----------------|--------------------------|--------------------------|
| PC (Jug) | 77 lbs (35 kg) | 59 lbs (27 kg) |
| Steel Drum | 626 lbs (284 kg) | 478 lbs (217 kg) |
| IBC (Tote) | 3,129 lbs (1,419 kg) | 2,391 lbs (1,084 kg) |

Other packing units available on request.

STORAGE AND SHELF LIFE

At least six months from date of delivery respectively twelve months after production when stored in a dry place between 50°F (10°C), and 86°F (30°C). If this time is exceeded, we recommend having the material checked by Minova USA, Inc. for compliance with specification. Frost may damage the Component A (if setting occurs, please consult Minova USA, Inc).

DISPOSAL

If this product as supplied becomes a waste, it does not meet the criteria of a hazardous waste as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261. Dispose of material in accordance with all applicable federal, state/provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator.

APPROVALS AND CERTIFICATES



an ISO 9001:2015
Quality Management System Certified Company.

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ADDITIONAL DOCUMENTATION

Started more than 135 years ago, Minova is a global manufacturer and supplier of chemical and mechanical earth control products and support equipment. With manufacturing plants on five continents and operations in more than 25 countries, Minova is an industry-leading provider of ground support solutions for the underground mining, construction and energy industries.

If further information is required consult Minova Americas website: www.minovaglobal.com.

- CarboLith PL Component A Safety Data Sheet (SDS)
- CarboLith PL Component B Safety Data Sheet (SDS)
- CarboLith PL Component C Safety Data Sheet (SDS)
- Minova Handling Injection Resins Technical Handbook
- CarboLith PL Spot Repair System Application Guide
- Minova CarboLith PL Product Specification

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