

CONCRESlVE[®] 2929

High performance, thixotropic epoxy concrete

Description

CONCRESlVE 2929 is a solvent free, multi-component, aggregate-extended, low-exothermic, thixotropic epoxy concrete. It is formulated to repair and reconstruct damaged concrete members in heavy civil engineering structures such as dams, bridges, ports and concrete pavements. CONCRESlVE 2929 can be applied to properly prepare and formed voids from 15 mm to 200 mm thickness in a single stage casting.

Uses

As high strength, chemical-resistant, high performance repairs to concrete members of structures such as:

- Dams and spillways
- Tunnels and canals
- Concrete runways, aprons & taxiways
- Pavements & heavy duty industrial floors
- Bridges and viaducts

Advantages

- Low exothermic formulation – thick applications
- High tensile, flexural and compressive strength
- Excellent adhesion to steel and concrete
- High resistance to dynamic loads and chemical attack

Typical properties

Mix Density	without aggregates	: 2.2 ± 0.1 kg/litre
	with aggregates*	: 2.7 ± 0.1 kg/litre
Volume solids		: 100 %
Pot life		: 45 Minutes at 25°C
		: 15 Minutes at 40°C
Compressive strength*		: 75 MPa at 1 Day
(ASTM C579, 70 mm cube)		: 85 MPa at 3 Days
		: 90 MPa at 7 Days
Flexural Strength* (BS 6319, part 3)		: 12 MPa at 7 Days

* Values are based on addition of 5 – 10 mm size basalt aggregates @ 17 Kg per 25 Kg pack of CONCRESlVE 2929. Values may vary depending on aggregate types and amount. Prior site trials are advised. Compressive & Flexural strength shall exceed above values if material is used without addition of coarse aggregates.

Specification Clause

The high performance, thixotropic epoxy concrete shall be CONCRESlVE 2929, filler-extended, high strength, formulation. The epoxy concrete shall exhibit compressive strength of minimum 70 MPa at 1 day and 85 MPa at 7 days. The flexural strength shall not exceed 18 MPa at 7 days. The formulation shall be of 100% solids and designed for application of up to 200 mm thick layer in single stage casting, free of any cracking due to exothermic reaction.

Chemical resistance

CONCRESlVE 2929 resists the following most common corrosive chemicals -

- Dilute and concentrated alkalis
- Most dilute acids
- Oil and petrol
- Ammonia
- Formaldehyde
- Saline solutions
- Mineral oil, vegetable and animal fats

It is recommended to use top coat such as MASTERSEAL SP120 or MASTERSEAL 180 depending upon the nature of chemicals. The top coat shall reduce the effective surface area in contact with the aggressive chemicals and shall enhance the service life of epoxy coating.

Temperature Requirements

- Substrate temperatures: 15°C – 35°C
- Material temperatures: 15°C – 30°C

Very low or very hot temperatures will make application more difficult and careful consideration should be given to storage of materials. In the cold weather conditions, pre-condition materials by keeping it in a heated room. In hot weather conditions, some form of air-conditioned storage is required. Pre-conditioned materials at 20-25°C will reduce the possibilities of flash/slow setting and other defects.

Surface Preparation

Correct substrate preparation is critical for optimum performance. Surfaces should be structurally sound, and clean. Remove oil grease and wax contaminants by scrubbing with industrial grade detergent or degreasing compounds followed by mechanical cleaning. Remove Cement laitance, loose particles, mould release agent, curing membrane, and other contaminants by shot blasting, scarifying or mechanically wire brushing followed by vacuum cleaning.

In case of steel surfaces remove grease and oil with suitable industrial grade cleaning and degreasing compounds. Remove rust and mill scale by grit blasting. Blast steel to white metal followed by vacuuming or blowing clean using oil-free compressed air.

Priming

Prime the prepared surface with CONCRESlVE 1020 in dry to damp conditions and CONCRESlVE 1020 SPECIAL in wet conditions. Leave it for

approximately 1h (at 25°) to go tacky before placing the CONGRESIVE 2929.

Forming

Before erecting the forms, cover them with extras heavy coat of paste wax or shall be wrapped in polythene to ensure a clean release.

Forms must be liquid tight. They may be sealed with putty, foam or caulk. Seal wood forms to vertical concrete surface by applying putty, foam or caulk below top of concrete and then press form in to place.

Mixing

Mechanical mixing is necessary. Mix using a heavy duty, slow speed (300 to 400 rpm) drill fitted with a helical stirrer.

Keeping the mixer running, pour the Hardener completely in to the Base container and mix for about a minute until homogenous mix is obtained.

Add the filler component, while continuing to mix; and mix for at least 2 to 3 minutes to obtain a homogenous mixture.

Do not split packs or alter the ratio of resin components in any way. Do not thin any component of this product.

Thin applications (15 mm – 50mm thickness): Use the pack without addition of any extra filler or aggregates for such thin applications.

Thick applications (> 50mm thickness): Pre-mix the supplied pack consisting of Base, Hardener & filler. Then add 15 to 20 Kg of 5 – 10 mm size coarse aggregates per pack of 25 Kg. Ensure to use coarse aggregates free from dust and moisture & having good abrasion, impact and crushing strengths. Mix for extra 2 to 3 minutes using heavy duty, slow speed stirrer to uniformed mass.

Placing

Place immediately after mixing. CONGRESIVE 2929 is thixotropic consistency and hence requires light compaction using steel tamping rod. Carry out light compaction (tamping) with long but slow strokes rather than short quick strokes, to remove all entrapped air. Finally finished the epoxy concrete using steel trowel to even surface.

Equipment care

Clean all equipment promptly with CLEANING SOLVENT NO. 2. Any excess cured material will have to be mechanically removed.

Packaging

CONGRESIVE 2929 is supplied in 25kg pack consisting of Base, Hardener & Filler. Coarse aggregates of 5 - 10mm size can be supplied on request in packing of 17 Kg bag.

Coverage

One pack of 25 Kg shall yield 11 litre of volume.

When extended with coarse aggregates (15 ~ 20 Kg per 25 kg pack of CONGRESIVE 2929) one cubic metre of repair volume shall require approximately 55 to 60 pack of CONGRESIVE 2929. The yield shall vary depending upon the density of coarse aggregates and amount added.

Storage and Shelf life

Store under cover, out of direct sunlight and protect from extremes of temperature. In tropical climates the product must be stored in an air-conditioned environment.

Shelf life is 12 months when stored as above.

Failure to comply with the recommended storage conditions may result in premature deterioration of the product or packaging. For specific storage advice please consult BASF's Technical Services Department.

Safety precautions

As with all chemical products, care should be taken during use and storage to avoid contact with eyes, mouth, skin and foodstuffs (which can also be tainted with vapour until product fully cured or dried). Treat splashes to eyes and skin immediately. If accidentally ingested, seek immediate medical attention. Keep away from children and animals. Reseal containers after use. Do not reuse containers for storage of consumable item. For further information refer to the material safety data sheet. MSDS available on demand or on BASF construction chemicals web site.

Note

All BASF Technical Data Sheets are updated on regular basis; it is the user's responsibility, to obtain the most recent issue.

Field services where provided, does not constitute supervisory responsibility, for additional information contact your local BASF representative.

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