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Technical Data Sheet

CEMSEAL E500SL

HIGH-DENSITY STRUCTURAL EPOXY MORTAR SYSTEM

DESCRIPTION

CEMSEAL E500SL is a three-component, high-density structural epoxy mortar engineered for superior durability in aggressive industrial environments. Utilizing an optimized resin-to-aggregate matrix, it delivers exceptional mechanical toughness, providing high-performance structural re-profiling at a thickness of 3 to 5mm. While the system can be installed at a minimum of 3mm for medium-duty applications, a nominal thickness of 4mm is highly recommended as the optimum specification to exhibit superior technical properties, offering a highly efficient alternative to standard 5mm systems for heavy-duty areas requiring extreme load-bearing capacity and a permanent moisture barrier.

FEATURES AND BENEFITS

- Engineered to exceed standard industrial requirements, delivering higher mechanical toughness than traditional bulk-sand mortars.
- While capable of a 3mm minimum, specifying the optimum 4mm thickness provides maximum structural protection and moisture dissipation while remaining highly cost-effective.
- Offers excellent protection against dropped items, heavy loads, and constant heavy-vehicle traffic.
- Functions as a highly effective moisture barrier for slabs with high moisture content when applied at the optimum thickness and sealed with a resin-rich grout coat.
- Hardens with minimal shrinkage to ensure permanent monolithic bonding and dimensional stability.
- Protects concrete substrates against a range of chemicals used in industrial manufacturing.

RECOMMENDED USES

- Suitable for use as a body coat or topcoat on:
  Palm oil mills, manufacturing plants, and heavy engineering workshops.
- For concrete substrates with high moisture content prior to resin floor installation (minimum 4mm recommended).
- Repairing damaged expansion joint nosings, spalled surfaces, and machine beds.
- Warehouses, ramps, and silo beds subject to heavy traffic and mechanical impact.

PRODUCT INFORMATION

Packaging	**Industrial Kit (Packaging 1)**: 120 kg Part A : 8kg Part B : 4kg Part C : 27kg x 4 bags Designed for large-area installation **Repair Kit (Packaging 2)**: 30 kg Part A : 2kg Part B : 1kg Part C : 27kg x 1 bags Designed for small-area installation
Appearance	Binder: Clear Liquid Mortar: Natural High-Density Sand
Chemical Base	Solvent-free Epoxy Resin

TECHNICAL PROPERTIES

Properties	Test Method	Typical Value
Compressive Strength	ASTM C579	≥ 70 N/mm²
Flexural Strength	BS EN 13892-2	≥ 40 N/mm²
Impact Resistance	ISO 6272	≥ 2.0 kg-m
Adhesion Strength	ASTM D4541	≥ 1.5 N/mm² (Failure in concrete)

SUBSTRATE REQUIREMENTS & PREPARATION

- The concrete must be at least 28 days old and the surface must be clean, sound, dry, and free from contaminants such as dirt, oil, grease, coatings, and surface treatments.
- The concrete substrate must possess sufficient compressive strength (min. 25 N/mm²) and a minimum pull-off strength of 1.5 N/mm².
- Surfaces should be prepared mechanically using abrasive blast cleaning or diamond grinding to remove cement laitance and achieve an open-textured surface.
- All dust and loose material must be thoroughly removed via vacuum before application.

APPLICATION INFORMATION

Ambient Temperature	+10°C min. / +35°C max.
Substrate Temperature	+10°C min. / +35°C max.
Relative Humidity	Maximum 80%
Dew Point	Substrate temperature must be at least +3°C above the dew point.
Substrate Moisture Content	≤ 4.0% pbw (measured by Tramex CM Method).
Thickness	3 to 5 mm (4 mm highly recommended as the optimum thickness)
Mixing Ratio	1 : 9 by weight (1 part Binder A+B 9 parts Aggregate C)
Consumption	~2.0 kg/m^2 per mm thickness
Pot Life (at 30°C)	~25 minutes
Curing Matrix	Set to Light Traffic: 16 hours @ 30°C Full Traffic: 24 hours @ 30°C Full Chemical Cure: 7 days @ 30°C
Waiting Time / Overcoating	Min: 12 hours Max: 48 hours

MIXING

For Industrial Kit (Packaging 1 : 120kg) - Large Area Installation

1. Recommended Equipment: Use a minimum 150-litre capacity pan mixer (forced-action mixer). This size provides sufficient headroom for complete material turnover and ensures uniform mixing of the full 120 kg batch.
2. Add all four bags of Part C (Filler) to the empty pan mixer and start the mixer running at low speed.
3. In a separate clean plastic pail, stir Part A (Resin) thoroughly in its original container for 30 seconds to disperse any settled fillers, then pour into the pail.
4. Add the entire contents of Part B (Hardener) to the pail with Part A.
5. Mix the binder components continuously for approximately 1 minute until a homogeneous clear liquid is obtained.
6. Slowly pour the entire pre-mixed binder (Part A+B) into the turning filler over 30-45 seconds to ensure immediate absorption.
7. Continue mixing at low speed for 2-3 minutes until a uniform "damp sand" consistency is achieved.
8. Stop the mixer and scrape down the sides and bottom of the drum to ensure no unmixed binder or dry aggregate remains.
9. Mix for an additional 30 seconds to ensure complete homogeneity before discharging immediately for application.

For Repair Kit (Packaging 2 : 30kg) - Small Area Installation

1. Recommended Equipment: Use a clean 20-litre plastic pail and a low-speed electric mixer (300-400 rpm) fitted with a mortar mixing paddle.
2. Stir Part A (Resin) thoroughly in its original container for 30 seconds to disperse any settled fillers.
3. Pour Part A into the 20-litre pail and add the entire contents of Part B (Hardener) to Part A.
4. Mix the binder components continuously for approximately 1 minute until a homogeneous clear liquid is obtained.
5. Add the entire bag of Part C (Filler) to the pail.
6. Mix at low speed for 2-3 minutes, periodically scraping down the sides and bottom of the pail, until a uniform "damp sand" consistency is achieved throughout the entire batch.

APPLICATION METHOD

1. Apply one coat of CEMSEAL P100SLF to the prepared surface and allow it to cure.
2. Apply a second coat of CEMSEAL P100SLF.
3. Pour the mixed CEMSEAL E500SL onto the second priming coat while it is still tacky or wet to ensure a monolithic bond.
4. Use screed rails and a straight-edge bar to maintain the specified thickness. Compact and close the surface using a steel trowel or power float for large areas to ensure maximum density.
5. Apply a tight scratch coat of CEMSEAL E100SL mixed with CEMSEAL QUARTZ T1 (thickener) to saturate surface pores and create a permanent moisture-tolerant finish.

CLEANING OF TOOLS

Clean all tools and application equipment with an approved solvent thinner immediately after use. Hardened or cured material can only be removed mechanically.

IMPORTANT CONSIDERATIONS

- While 3mm is the minimum acceptable thickness for light to medium duty, 4mm is the optimum specification to ensure maximum impact absorption, full moisture dissipation, and the best workability for the 1:9 dry-pack mortar during application.
- Mechanical properties are only achievable through thorough compaction. Use of a power trowel is highly recommended for large areas.
- The system must be sealed with a resin-rich grout coat of CEMSEAL E100SL mixed with CEMSEAL QUARTZ T1 (thickener) to function as an effective moisture barrier.
- Substrate temperature must be at least 3°C above the dew point to prevent surface defects.
- The sealing grout coat should ideally be applied within 12 to 48 hours after the mortar has set.
- Do not attempt to mix partial quantities. Use only full pre-weighed kits to ensure the correct chemical reaction and consistency. This is critical to achieving the stated technical properties and avoiding premature system failure.
- A minimum surface profile of CSP 3 (shot-blasting) is required for a permanent mechanical bond.
- For large-area installations, always use the 120 kg Industrial Kit with a minimum 150-litre pan mixer to ensure uniform mixing and consistent batch quality across the entire project.

STORAGE AND SHELF LIFE

Storage: CEMSEAL E500SL should be stored in the original manufacturer's packaging in a shaded, cool, and dry place. Storage temperature should be between +5°C and +30°C. Keep at least 2 meters away from direct heat sources.

Shelf Life: Expected 24 months shelf life with the above-mentioned storage conditions.

HEALTH & SAFETY

The user must refer to the latest version of the Safety Data Sheet (SDS) for comprehensive information on the safe handling, storage, and disposal of this chemical product. The SDS contains essential physical, ecological, and toxicological data required for professional use.

BASIS OF TECHNICAL DATA

All technical data provided in this Technical Data Sheet are based on laboratory tests. Actual performance may vary due to factors beyond our control.

Disclaimer:
The information and any recommendations relating to the application and end-use of all CEMSEAL products are provided in good faith based on CEMSEAL's knowledge and experience of the products. In applications, the differences in materials, and variances of substrates and actual site conditions can vary such that no warranty in respect of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be taken as inferred either from this information, or from any written recommendations, or from any other advice offered by CEMSEAL. The proprietary rights of third parties must be observed. All orders are accepted subject to our sale terms and conditions. All users should always refer to the most recent and up to date issue of the Technical Data Sheet for the product concerned, which is available on request. It is recommended that products should always be properly stored, handled and applied under tested and recommended conditions.

For More Information:

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