

CEMTEC 400

HIGH RANGE WATER REDUCER-SUPER PLASTICIZER [ASTM-C 494 TYPE A & F]

CEMTEC 400 is a high range water-reducing admixture. It may be added to the concrete at the job site or at the ready mix concrete plant. No chlorides are used in the formulation; consequently, it is suitable for prestressed concrete. It is also compatible with air-entraining agents, water proofing agents, and all other types of admixtures; however, each material should be added to the concrete separately.

PRIMARY APPLICATIONS

- High performance concrete
- General ready mix concrete
- Heavily reinforced concrete
- Flatwork and mass concrete
- Minimum water content concrete
- Low water/cement ratio concrete
- High slump, flowable concrete
- Precast concrete

FEATURES/BENEFITS

- Produces low water content and low water/cement ratio concrete allowing higher strength.
- Produces flowing concrete with better than normal strength.
- Aids in concrete placement and reduces labor cost.
- Will produce high early strengths when used in precast work with Type I cement.

SPECIFICATIONS / COMPLIANCES

Fully complies with the requirements of ASTM C-494 type A & F admixtures.

PACKAGING

CEMTEC 400 is packaged in bulk, 10,000 ltr. tanks, 1000 ltrs. containers and 210 ltr drums.

TECHNICAL INFORMATION:

Typical Engineering Data

The following results were developed under laboratory conditions.

Compressive Strength

| Age | Specification (% of control) | Control | CEMTEC 400 Mix (% of control) |
|----------|---------------------------------|---------|----------------------------------|
| 1 day | Min 140 | 100 | 169.7 |
| 3 days | Min 125 | 100 | 161.4 |
| 7 days | Min 115 | 100 | 151.8 |
| 28 days | Min 110 | 100 | 153.8 |
| 6 months | Min 100 | 100 | 151.4 |

Flexural Strength :

| Age | Specification | Control | % of Control |
|---------|---------------|---------|--------------|
| 3 days | Min 110 | 100 | 144.2 |
| 7 days | Min 100 | 100 | 126.2 |
| 28 days | Min 100 | 100 | 117.1 |

Relative Durability Factor

Minimum 80% 97.93% 96.79%

Rate of slump loss

Concrete treated with **CEMTEC 400** retains its plastic consistency for 30 to 60 minutes after dosing depending on the initial/final slumps and dosage rate. **CEMTEC 400** can be added at the ready mix plant or at the job site from field dispensers.

Use **CEMTEC 311 RSP / CEMTEC 312 RSP** as replacement for **CEMTEC 400** when placing concrete in hot weather (32°C and above).

Typical Slump Loss 21° C

| Initial Slump | Slump after 30 minutes |
|---------------|------------------------|
| 216 mm | 178 mm |
| 241 mm | 203 mm |

Appearance

CEMTEC 400 is a dark brown, free flowing liquid which when added to concrete, does not change the concrete's natural appearances.

DIRECTIONS FOR USE

Add **CEMTEC 400** to the sand and water. It should not come into contact with dry cement.

High Strength Concrete

Dosage charge all concrete material in the proper order into the mixer with about 70% of the mixing water and mix five (5) minutes or 70 revolutions. Add additional water carefully to obtain the required slump and mix for three (3) additional minutes. Use **CEMTEC 400** at the rate of 0.6 ltr. - 1.5 ltr/100 kg of cement.

These low water/cement ratio mixes can be placed at slumps of 152 - 229 mm.

Placeable concrete

Charge all concrete material in the proper order into the mixer and mix five (5) minutes or 70 revolutions for a typical 76 mm slump mix. Add **CEMTEC 400** and mix an additional one (1) minute. **Dosage:** Use at the rate 375 - 500 ml/100 kg of cement.

The Initial slump is generally 51- 76 mm. These mixes with a water/cement ratio of 0.45 to 0.50 are often used in floor and slab mixes to minimize water content, shrinkage and cracking.

Flowable Concrete

Change all concrete material in the proper order into the mixer and mix five (5) minutes or 70 revolutions for a typical 7.6 cm slump mix. Add **CEMTEC 400** and mix an additional three (3) minutes.

“High Quality Construction Chemicals”

Dosage: Use **CEMTEC 400** at the rate of 0.6 ltrs - 1.5 ltrs/100 kg of cement on conventional 76 mm slump concrete to achieve a flowable mix. The mix design must be proportioned on the bases of temperature, type of cement, and rate of slump loss required. The following table shows approximate quantities to be added for flowable concrete.

| Initial Slump In mm | Dosage ml/100 kg Cement |
|--------------------------------|------------------------------------|
| 102 | 500 - 625 |
| 76 | 625 - 750 |
| 64 | 750 - 875 |
| 51 | 875 - 1000 |
| 38 | 1000 - 1125 |

When designing mixes for use with **CEMTEC 400** follow recommendations in ACI 211.1 and 211.2 Adjust sand aggregate ratio to maintain homogeneity.

Placement: Concrete treated with **CEMTEC 400** may be placed in the same fashion as conventional concrete.

Formwork: Forms for walls or narrow sections must be watertight, strong and have good bracing. During the “flowing period”, when the concrete is at a slump of 178 -229 mm, the concrete will exert a higher pressure at the base of the form than conventional concrete. Formwork for a slab is the same as for conventional concrete.

Curing and Sealing: Proper curing procedures are important to ensure the durability and quality of concrete. To prevent surface cracking, cure flatwork with a high solid curing compound, such as SUPER KURECOTE 75 VOX or SUPER CEMTEC KURE N SEAL.

CLEAN-UP:

Clean tools and equipment with water before the material hardens.

PRECAUTIONS/ LIMITATIONS

- Test batches/mix designs/sample slabs may be required due to variations in local cement and aggregates.
- **CEMTEC 400** is used in many different mix designs. Technical Service Department of CMCI should be consulted whenever a question on usage or compatibility with other admixtures is raised. Many successful mix designs are on file and can be an excellent reference when preparing a project mix design.
- Add to mix independent of other admixtures

QUALITY STATEMENT

CMCI manufacture its products at their manufacturing facility in Saudi Arabia as per the Quality Procedures certified to conform with Quality Management System described in ISO 9000 series

CMCI provides a comprehensive technical support system for its full range of high performance construction products. CMCI also offers full technical field support to consultants, Architects, Contractors, applicators and End Users

The Technical Specification information and recommendation given are based on the current technical knowledge and the user or his representative is recommended to check the suitability of the product. CMCI reserves the right to amend the technical characteristic of the product as part of ongoing research and development. As the work execution is beyond the direct and continuous control of CMCI no guaranty and or responsibility is assumed on the performance of work completion executed with use of our products.