PRO®

HIGH PERFORMANCE SILICA FUME GEL

RAMKA
CONSTRUCTION
CHEMICALS

PRO® is a silica-fume super gel containing silica fume, a second-generation naphthalene-based superplasticizer and polypropylene fibres. It improves fresh-concrete rheology and hardened-concrete quality. Added at the batching plant or project site, its fine silica fume fills pores, improves compaction and protects concrete against ingress of chloride and sulfate ions. It is suitable for durable, watertight concrete and high-performance concrete (HPC), but is not recommended for self-compacting concrete (SCC); polycarboxylate-based silica-fume gels such as ULTRA are preferred for SCC.

Applications

- Mass concrete
- Durable, low-permeability concrete
- Unreinforced concrete without temperature-reinforcement bars
- Concrete requiring prolonged transport
- High-strength concrete
- Concrete exposed to aggressive sulfate and chloride ions
- Hydraulic and marine structures

Approvals / Standards

- Silica fume refs: ASTM C1240 / INSO 13278.
- ASTM C494

Advantages / Benefits

- Increased durability against aggressive ions and chemicals
- Lower water-to-cement ratio
- Reduced concrete permeability
- Easier pumping and reduced pump wear

Guideline for Use

At the batching plant, add PRO after the cement and mix until homogeneous.

For truck-mixer addition at the project site, first assess slump: excessive initial flowability can lead to bleeding after the gel is added.

Bring the concrete to the upper mixer blades and pour the gel directly onto it.

After addition, mix the concrete at high speed for at least 4 minutes, until fully mixed.

Dosage

5 to 10% by mass of cementitious materials. Establish the exact dosage through site trials. Dosages outside this range depend on the concrete, project and performance requirements; consult RAMKA Technical Services before changing the dosage.

Compatibility

PRO is compatible with all known Portland cements manufactured under ASTM specifications. Always conduct trials before combining products in specific mixes and contact our Technical Service Department for information about specific combinations.

- Increased tensile, compressive and flexural strength
- Reduced thermal-stress cracking
- Reduced shrinkage cracking
- Lower cement content at equal strength

Effects

PRO reacts chemically within a cementitious matrix to increase the amount of calcium silicate hydrate (CSH gel) that is formed (pozzolanic reaction). The CSH gel is the bonding agent that holds the matrix of the cementitious mixture together in the hardened state. The additional CSH gel due to silica fume increases strength and decreases permeability.

Storage

Keep only in the original container in a cool, dry, well-ventilated place away from ignition sources, heat or flame. Protect from direct sunlight. For specific storage condition contact RAMKA Technical Services Department.

Basis of Data

All technical data stated in this Product Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

Health and Safety

PRO does not fall into the hazard classifications of current regulations. However, it should not be swallowed or allowed to come into contact with skin and eyes. Suitable protective gloves and goggles should be worn. Splashes on the skin should be removed with water. In case of contact with eyes rinse immediately with plenty of water and seek medical advice.

Additional Information

For additional information on PRO admixture, consult our Technical Services Department.

Product Information

State	Thick gel
Packaging	22KG Pail
Chloride Content	Chloride ion-free; <0.1%.
Corrosion Behavior	-
Appearance / Color	Grey
Shelf Life	12 months from date of production if stored properly in undamaged unopened, original packaging.
Storage Condition	Store in dry conditions at temperatures between +10°C and +30°C. Protect from direct sunlight and frost.
PH-Value	3-7
Recommended Dosage	5-10% by mass of total cementitious materials
Chemical base	Silica fume and naphthalene sulfonate formaldehyde
Density	1.45 ± 0.05 g/cm^3 at 20°C

References (continued)

ASTM C1202; BS 1881-122; BS EN 12390-8; INSO 2930.

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Important Notes: The information, and, in particular, the recommendations relating to the application and end-use of RAMKA products, are given in good faith based on RAMKA's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with RAMKA's recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the product's suitability for the intended application and purpose. RAMKA reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.