

**POWER GEL-iSC****INTELLIGENT SELF-CURING PC MODIFIED SILICA FUME GEL****DESCRIPTION**

POWER GEL-iSC is an advanced additive formulated using Nano-hydrophilic polymer technology embedded within a microsilica gel matrix. It is designed to enable intelligent Self-Curing (iSC) by absorbing and retaining free water within its porous structure, thereby supplying the moisture needed to sustain cement hydration. This internal curing mechanism effectively minimizes early-age drying shrinkage and reduces the risk of cracking caused by premature water evaporation.

In addition, POWER GEL-iSC improves the rheological properties of fresh concrete and enhances the quality of hardened concrete, particularly by increasing compressive strength. This makes it an ideal solution for producing high-durability concrete under challenging climatic conditions such as mass concrete placements, hot weather, or freezing environments. The use of this additive eliminates reliance on traditional curing methods such as water spraying.

This advanced-technology product meets the requirements of the following standards:

ASTM C1202

BS EN 12390-8, BS 1881-122

**ADVANTAGES**

- Enables internal curing by storing and gradually releasing water required for cement hydration
- Reduces surface water evaporation in hot, dry, or windy conditions
- Prevents thermal shrinkage-induced cracking
- Lowers water-to-cement ratio
- Enhances concrete workability and flow
- Increases compressive, flexural, and tensile strengths
- Facilitates easier pumping and reduces wear on concreting equipment
- Promotes early-age strength development
- Compatible with all types of Portland cement
- Provides cost-effective mix designs for concrete exposed to impact, dynamic loading, and aggressive chemical attacks (e.g., sulfates and chlorides)
- Compensates for fine aggregate deficiencies and creates a more cohesive concrete matrix
- Improves concrete durability
- Enhances abrasion resistance
- Significantly reduces concrete permeability

**FIELD OF APPLICATION**

- Concrete production and transportation in hot, cold, or windy climates
- Concrete for massive structures such as dams, water treatment plants, water channels, and bridges





- Production of durable and impermeable concrete in environments exposed to aggressive chemical ions, such as the northern and southern coastal regions or saline lands
- Suitable for both reinforced and unreinforced structural concrete

## DOSAGE

The optimum dosage of POWER GEL-iSC can be determined by trials in the site. Depending on concrete mix design (concrete type, workability, compressive strength, sizes and types of aggregates, cement content, water/cement ratio, ambient temperature and concreting conditions), a dosage of between 1.0 and 3.0 percent by weight of cement is recommended.

Any deviation from the recommended dosage must be approved by the Concrete Technology Experts at Abadgaran Construction Chemicals Co.

Note: If using multiple concrete additives simultaneously, please consult Abadgaran's Technical Department.

## DIRECTION OF USE

POWER GEL-iSC can be added to concrete in two ways:

- 1- POWER GEL-iSC could be added to ready-mix concrete before placing concrete.
- 2- POWER GEL-iSC could be added to a part or whole of concrete mixing water then added to the concrete mix.

## PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Slurry

Specific gravity:  $1.26 \pm 0.05 \text{ g/cm}^3$

Color: Grey

## STORAGE & SHELF LIFE

Shelf life: 1 year in the original package

Storage condition: should be protected from direct sunlight and frost. Keep pail in the temperature range between  $+10^\circ\text{C}$  and  $+30^\circ\text{C}$ .

Packing: 24 kg pail

## HEALTH & SAFETY

This product does not contain any substances hazardous to human health and the environment. However, it should not be swallowed and contact with skin and eyes. In case of contact with eyes, rinse immediately with plenty of water. POWER GEL-iSC is not flammable. For further information refer to the material safety data sheet. MSDS is available at ABADGARAN website.

## TECHNICAL SERVICE

The ABADGARAN INTERNATIONAL GROUP Technical Department is available to assist you in the correct use of our products and its resources are at your disposal entirely without obligation.

All data presented in this technical datasheet are based on our last researches in ABADGARAN CONSTRUCTION CHEMICALS laboratories and are just as a guide for choosing appropriate material. Therefore users should conduct a sufficient investigation to establish the suitability and conformity of any product for intended uses.

