BASF
The Chemical Company

RHEOMAC® AS 180

Amorphous silica mineral admixture

DESCRIPTION

RHEOMAC AS 180 is a dry, highly reactive pozzolanic powder formulated to produce concrete with special performance qualities. It improves the hardened characteristics of concrete in two ways. Firstly, **RHEOMAC AS 180** is a very fine material that, when added to concrete, physically fills the voids between cement particles. Secondly, **RHEOMAC AS 180** is a pozzolan, which reacts chemically within the concrete to increase the amount of calcium silicate hydrate gel formed. These physical and chemical changes produce concrete, which has higher strength, low chloride ion diffusion, increased resistance to aggressive materials and reduced permeability. A strong and extremely durable concrete is the result.

FEATURES AND BENEFITS

RHEOMAC AS 180 aids in the production of concrete with the following special properties:

- **Increased compressive strength at all ages**
- **Increased flexural strength at all ages**
- **Greatly reduced permeability**
- **Improved overall durability**
- **Increased resistance to chemical attack**
- **Increased resistance to abrasion/erosion**
- **Improved pumpability**
- **Improved cohesiveness and adhesion when added to shotcrete thereby enabling larger layer thicknesses**

ADVANTAGES

RHEOMAC AS 180 is a dry, highly reactive pozzolanic powder that provides handling advantages, over other forms of silica fume, to the ready-mix producer:

- Easy to transport and batch
- Dispenses similarly to cement or fly ash
- No dispensing equipment to be installed or maintained
- Bags can be stored at another plant as a back-up
- Heating/cooling of concrete is possible since all of the batch water is available
- Product can be stored for indefinite periods

WHERE TO USE

The reduced permeability of concrete produced with **RHEOMAC AS 180** greatly limits the ingress of water, chlorides, sulfates, and aggressive chemicals known for promoting reinforcing steel corrosion and other distresses in concrete.

The use of **RHEOMAC AS 180** in shotcrete and spray mixes will increase internal cohesion, reducing rebound and improve long and short term durability.

This makes **RHEOMAC AS 180** an ideal product for use in parking garages, bridge decks, marine structures, swimming pools, tunnels and in concrete protective coverings for banks and embankments.

Because of its pozzolanic and void-filling properties, the addition of **RHEOMAC AS 180** to conventional concrete will produce higher and more consistent compressive strengths allowing for greater design flexibility - thinner and lighter structural elements.

CORROSION PROTECTION

When reinforcing steel is embedded in the highly alkaline environment of concrete, a natural protective layer is formed on the steel bars. Aggressive chemicals, such as chloride ions from de-icing salts or marine exposure, can break down the protective layer. If this occurs, and moisture and oxygen are present, corrosion of the reinforcing steel can result. **RHEOMAC AS 180** helps to protect the reinforced concrete from corrosion. The low permeability concrete produced with **RHEOMAC AS 180** restricts the ingress of chloride ions to the reinforcing steel. Also, **RHEOMAC AS 180** reduces the electrical conductivity of concrete, impeding the electrochemical process of corrosion.

PERFORMANCE IN CONCRETE

RHEOMAC AS 180 is millions of silica fume particles compacted into spheres less than 1mm in diameter. Once subjected to the mixing action of concrete production, **RHEOMAC AS 180** returns to its pre-compacted form and disperses throughout the concrete mixture providing low permeability and high strength properties.

QUANTITY TO USE

RHEOMAC AS 180 is recommended for use at an addition rate of 5 to 10% by weight of cement, depending on the amount of strength increase or durability enhancement desired. The exact amount should be determined by trial batches using job materials. If dosages exceed the recommended, contact your local BASF Construction Chemicals Technical Sales Representative. The specific gravity of **RHEOMAC AS 180** is approximately 2.3.

RHEOMAC® AS 180

DIRECTIONS FOR USE

RHEOMAC AS 180 is batched at the ready-mix plant in a manner similar to cement or other cementitious materials such as fly ash and ground granulated blast furnace slag (GGBFS). **RHEOMAC AS** 180 is supplied in biodegradable bags and can be placed directly into the agitator. When air entraining is desired, a BASF Construction Chemicals air-entraining admixture is recommended. Because it is very fine, **RHEOMAC AS 180**, will increase water demand when added to conventional concrete. It is recommended that **RHEOMAC AS 180** be used in conjunction with a BASF Construction Chemicals high-range, water reducing admixture, such as BASF Construction Chemicals **RHEOBUILD** or **GLENIUM**, in order to provide maximum workability while maintaining the desired low water/cementitious ratio.

NOTE: For directions on correct use of **RHEOMAC AS 180** and adequate finishing and curing procedures to concrete containing **RHEOMAC AS 180**, contact your local BASF Construction Chemicals technical representative.

RATE OF HARDENING

Setting time of concrete is influenced by the chemical and physical composition of the cement and/or cement type used to produce the concrete, temperature of the concrete, climatic conditions, and the use of chemical admixtures. Trial mixes should be made with job materials to determine the dosage required for a specified setting time.

PACKAGING

RHEOMAC AS 180 is supplied in 10kg biodegradable bags.

PRECAUTIONS

Risk

The silica content of **RHEOMAC AS 180** is approximately 90% amorphous. The residual is primarily crystalline silica in the form of Quartz (CAS 14808-60-7), Cristobalite (CAS 14464 46-1) and Tridymite CAS (15468-32-3). Airborne crystalline silica forms a chronic hazard dust - prolonged and repeated inhalation may lead to silicosis. **RHEOMAC AS 180** is irritating to the skin and eyes

For the full health and safety hazard information and how to safely handle and use this product, please make sure that you obtain a copy of the BASF **Material Safety Data Sheet (MSDS**) from our office or our website

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