



The Chemical Company

MICRO AIR® 200

Oil Alcohol and Ammonium Salt Based Air Entraining Concrete Admixture



1305-CPD-0097
1305-CPD-0293

Description of Product

MICRO AIR® 200 is oil alcohol and ammonium salt based air entraining concrete admixture that forms permanent, small and optimum separated air bubbles by entraining controlled air into concrete and increases its strength against Freezing - Thawing cycle. (environment condition XF1-XF4 according to TS EN 206-1)

Consistent With the TS EN 934-2 Table 5: Air Entraining Concrete Admixture Standards.

Fields of Application

- In the pouring of concrete that is thought to be exposed to Freezing - Thawing cycle.
- In the production of pumpable and non-pumpable readymix concrete.
- In the pumpable production of coarse graded concrete.
- In the production of reinforced and plain concretes, light or normal weight concretes of all kinds.
- In the production of field and road concretes.
- In the production of mass concrete.

Features and Benefits

- With optimally improved air entraining property, increases concrete's strength against Freezing - Thawing cycle. In the production of mass concrete. (environment condition XF1-XF4 according to TS EN 206-1)
- Enables optimally separated air porosity system in hardened concrete.
- Enables durability and low permeability due to low water/cement ratio compared to concrete without admixture.
- Reduces segregation and desorption possibilities in fresh concrete.
- Improves workability and plasticizing properties of concrete compared to concrete without admixture.
- Shows air entraining property in low consistent concretes with different type of binder (like all cement types - flyash - slag - micro silica), thin grade, and high temperature.
- **MICRO AIR® 200** does not contain chloride.

Working Mechanism of Admixture

Admixtures generally go into reaction only with the binder. When the admixture is added to the concrete, it is absorbed by the particles of the binder. The particles of the binder push each other

Technical Data

Structure of the Material	Oil Alcohol and Ammonium Salt Based
Color	Amber
Density	1.00 - 1.02 kg/liter
Chloride Content% (EN 480-10)	< 0.1
Alkaline Content % (EN 480-12)	< 10

Obtained in +20°C, 50% relative humidity conditions



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by electrostatic force. Thus, the desired workability is obtained by less amount of water. Proportional with the decrease of mixture's water amount, mechanic strength increases.

Application Procedure

In places where **MICRO® AIR 200** will be used alone; binder (cement-micro silica-fly ash) and aggregate must be mixed until a homogenous mixture is obtained. After adding 50%-70% of the water to be added to the mixture, **MICRO® AIR 200** must be added to the mixture along with the remaining water. During this process, an electronic scale with $\pm 3\%$ accuracy must be used. When **MICRO® AIR 200** is used for continuous production; amount of concrete, temperature of concrete, mixer type, mixer strength and mixing time must be kept constant in every mixture. Any changes in these parameters will change the amount of air entrained in concrete. To entrain desired amount of air, mixture time has to be determined before. There may be differences between the times obtained in laboratory and production in concrete plant. Depending on the air amount entrained in the first mixture, dosing can be made again if necessary. When **MICRO® AIR 200** is used together with another plasticizer; binder (cement-micro silica-fly ash) and aggregate must be mixed until a homogenous mixture is obtained. After adding 50%-70% of the water to be added to the mixture, **MICRO® AIR 200** must be added to the mixture along with the remaining water. During this process, an electronic scale with $\pm 3\%$ accuracy must be used. When **MICRO® AIR 200** is used for continuous production; amount of concrete, temperature of concrete, mixer type, mixer strength and mixing time must be kept constant in every mixture. Any changes in these parameters will change the amount of air entrained in concrete. To entrain desired amount of air, mixture time has to be determined before. There may be differences between the times obtained in laboratory and production in concrete plant. Depending on the air amount entrained in the first mixture, dosing can be made again if necessary.

Dosage

MICRO® AIR 200 is suggested to be used as 0.09 - 0.2 kg for 100 kg binder (cement-micro silica-flyash). When used together with another plasticizer, it must be used in lower doses for the same air entraining amount. The dosage to be used must be determined beforehand by laboratory experiments according to concrete class and properties. **BASF Yapı Kimyasalları San. A.S.** Technical Service must be consulted for detailed information.

Compatibility

MICRO® AIR 200 can be used with the following materials:

1. Can be used with all cement types.
2. Can be used with mineral admixtures like silica, flyash and slag.
3. Used with **Glenium®**, **Rheobuild®**, and **Pozzolith®** series admixtures to produce high strength concrete or balance decreasing strength with micro air bubbles.
4. Used against fissures from plastic shrinkage with synthetic fibers **Meyco® FIB. SP 530/540/550** and steel fibers.
5. In environments with high temperature and wind, must be used with a suitable curing membrane or material like **Masterkure® 101**, **Masterkure® 107**, **Masterkure® 176** or **Masterkure® 181** to prevent the water of the mixture inside the concrete from evaporating.

Watchpoints

- Concrete design and admixture dosage must be determined by prior laboratory trials according to concrete class and properties.
- The determined binder (cement-micro silica-fly ash), at the end of laboratory trials, coarse and fine aggregate must be mixed until a homogenous and dry mixture is obtained. If admixture is added to the dry mixture before adding mixing water, then it will be absorbed by the fine

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aggregate and uniform distribution will not be obtained. Even if all the mixing water is added on top of this, aimed concrete class and properties cannot be obtained. Since the mixture will need extra water, the water amount in design values will be exceeded and the concrete's mechanical properties will be below the aimed value. For this reason, concrete admixtures must not be added directly to the dry mixture.

- Possible changes in the factors that can affect dosage of **MICRO® AIR 200** must be frequently checked during the work.
- Any dosage adjustments have to be made at the point of pouring, according to desired air amount in the mixture.
- Researches about concrete strength show that the best protection against adverse effects of Freezing - Thawing cycles and ice preventing salts are:
 1. Air entrained in hardened concrete under control.
 2. Appropriate air space system depending on sizes of air bubbles and surface conditions.
 3. Getting durable materials together, good mixing, placement, and cure methods.

ASTM C 666 suggests an evaluation parameter for concrete strength against ice and freezing:

$$s.f \text{ (strength factor)} = (n \times e) / 300$$

n: number of repetitions (-20°C; +5°C)

e: starting elasticity percentage after n repetitions

- According to TS EN 206-1, ideal air content has to be 4%.
- In case of more than 6% air entraining, undesired decreases may be seen in concrete strength if appropriate measurements are not taken.

Packaging

30 kg can
220 kg drum
1000 kg tank
Bulk

Storage

Must be stored in original packing, in +5°C environment and protected from direct sunlight. If the material freezes because of storing in undesirable environments, it must be thawed by keeping it in room temperature without direct heating, and mixed by mechanical methods until it becomes homogenous. Pressured air must not be used when mixing.

Shelf Life

12 months after the production date under appropriate storing conditions. Opened packages can be used throughout the shelf life if the package cover is well closed.

Health and Safety Precautions

Work cloth, protective gloves, goggles and masks concordant with Work and Worker Health rules must be used during the application. Avoid contact to skin and eyes during storing and application. If such a contact occurs, it must be washed by soap and plenty of water. Consult a physician urgently if swallowed. Food and drink must be kept outside the application areas. Must be stored away from children. Please look at the Material Safety Data Sheet for detailed information.

Disclaimer

This information given here is true, represents our best knowledge and is based not only on laboratory work, but also on field experience. However, BASF Yapı Kimyasalları San. A.S. is only responsible from the quality of the product. BASF Yapı Kimyasalları San. A.S. cannot be hold responsible from the results caused by applications of the product not in accordance with the written suggestions of how and where to use the product and/or faulty applications.

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