Adoair Technical Specifications

Concrete Air Entraining Agent

ADOAIR is a chemical formulation designed to impart the deliberate and controlled entrainment of air in concrete, in the form of disconnected, uniformly dispersed microscopic air bubbles.

It helps increase the workability with lower water/cement ratio. Offers increased resistance to passage of water through hardened concrete and produces frost resistant concrete.

Advantages

- Increases workability with lower water/cement ratio.
- Increases workability of dry no-slump concrete.
- Increase resistance to passage of water through hardened concrete.
- Increases resistance to aggressive soil chemicals.
- Increases yield with lower costs.
- Produces frost resistant concrete.
- Improves surface finish and surface wearing properties.
- Reduces segregation and bleeding.
- Reduces placing and compaction time.

Application

Roads, Runways and Paving:

To obtain low water/cement ratio consistent with good placing and compaction properties. To reduce segregation and bleeding thus improving wearing properties and durability. To produce concrete resistant to the effects of freeze–thaw cycles. To speed placing and compaction. ADOAIR complies with the requirements of D.o.T. Specification for Highway Work Clause 1001.

Mass Concrete Structures:

To ease the placing of lean and under–sanded mixes and to reduce the excessive bleeding associated with these types of mixes. To provide improved water retention for curing throughout the mass.

Pneumatically Placed Concrete:

To ease the placing of lean harsh mixes. To prevent segregation a double dosage is recommended for this type of application, the excess air resulting from this will be expended during passage through the pipeline.

Concrete Block Making:

To ease de–moulding and reduce the number of breakages, and to improve surface texture and arises on the casting. There are numerous other applications where the inclusion of ADOAIR will produce concrete with all the benefits mentioned above.

Use:

The optimum amount of air to entrain is 3% to 6% and this is obtained by the addition of 20–60ml ADOAIR per 50Kg cement added to the gauging water or pre–wetted mix. The quantity of ADOAIR required to achieve the desired degree of air entrainment is dependant upon such factors as mix proportions, grading and shape of coarse and fine aggregates, water/cement ratio and temperature. To ensure that the desired degree of air entrainment is achieved we recommend that the air content be checked by means of an air meter.

Mix Design with ADOAIR

Commencing with an existing mix, check the degree of air entrained in the original concrete and proceed as follows:

For every 1% of additional entrained air required over the original, reduce the sand content by 4.5% of the cement content. Reduce total water content to give similar workability. This is generally achieved by a reduction of 10–20%

adomast.co.uk T + 44 (0)1226 707863 F + 44 (0)1226 718051 E info@adomast.co.uk **Adomast Manufacturing Ltd,** Barkston Road, Carlton Industrial Estate, Barnsley S71 3HU

A typical example assuming 0.5% air entrained in the original mix and a required additional 4% air entrainment is as follows:

	Original Mix	Redesigned Mix
Cement	200 kg	200 kg
Sand	405 kg	370 kg
Coarse Aggregate	810 kg	810 kg
Water (total)	110 kg	95 kg
Water/Cement Ratio	0.55	0.48
Slump	40 mm	50 mm
ADOAIR	None	120 ml
Air Entrained	0.5 %	4.6 %
Compr. Str.@ 28 days	40 N/mm^2	38 N/mm^2

It can be seen that despite the entrainment of air the reduction in water/cement ratio combined with improved workability has produced a similar strength concrete with all the benefits obtained from controlled air entrainment. We always recommend that trials are carried out to determine optimum Adoair dosage rate and its bearing and impact on the ultimate compressive strength.

Storage

Store in cool temperature, but above freezing, and stir just prior to use. In the event of freezing, material should be completely thawed and then thoroughly mixed before use.

Shelf Life

12 months in sealed containers from date of manufacture. Must be used 2 months after opening.

Specification

ADOAIR is manufactured by Adomast Manufacturing Ltd and shall be used strictly in accordance with the manufacturer's instructions. For specific advice regarding any aspect of this product, please consult our Technical Department

Health and Safety

ADOAIR is a mildly alkaline liquid and has a defatting effect on the skin, therefore prolonged contact should be avoided. Splashes should be washed with water, if eye contact should occur immediately flush with clean water and if irritation persists seek medical advice.

See Safety Data Sheet for further information.

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