

REC PLAST ASR 300

ADMIXTURE TO CONTROL ALKALI-SILICA REACTION IN CONCRETE

DESCRIPTION

REC PLAST ASR 300 is a lithium nitrate-based admixture used to control alkali-silica reaction (ASR) in high-alkali concrete, produced when using reactive aggregates. **REC PLAST ASR 300** meets the requirements of ASTM C494, Type S admixture.

PRIMARY APPLICATIONS

What is ASR?

Alkali-Silica Reaction (ASR) is a chemical reaction which occurs when the alkali hydroxides present in the pore solution of the concrete react with certain forms of reactive silica present in the aggregates to form an alkali silica gel. This gel itself is harmless, but in presence of moisture it swells and generates tensile stresses in the concrete, eventually causing the concrete to crack. The main source of alkalis (sodium and potassium) in fresh concrete is Portland cement.

When lithium nitrate is added to the concrete in sufficient quantity, the alkali silica gel along with the sodium, potassium and calcium ions also contains lithium ions.

This gel containing lithium ions does not have a tendency to swell and expand in the presence of moisture and hence prevents the concrete from cracking.

Note: Addition of **REC PLAST ASR 300** may cause a minor set acceleration and provide a small amount of water reduction.

Applications: **REC PLAST ASR 300** can be used in concrete produced using aggregates which can potentially take part in alkali-silica reaction.

FEATURES/BENEFITS

- Minimizes deleterious expansions in concrete due to ASR
- Increases durability and life span of the concrete structure
- Allows use of locally available aggregate
- Compatible with appropriate pozzolans and other RECKON admixtures
- Easy to use.

TECHNICAL INFORMATION

Colour:	Clear Water White to Yellow Solution
Specific gravity:	1.2 ± 0.02

DIRECTIONS FOR USE

DOSAGE

The standard dosage of **REC PLAST ASR 300** depends on the alkali content of the cement used. Add 0.55 gallon of **REC PLAST ASR 300** for every pound (4.63 liters of **REC PLAST ASR 300** for every kilogram) of sodium equivalent supplied by the cement (Actual dosages should be determined by performance testing). To maintain the same water to cement ratio, subtract 0.85 gallon of water for each gallon (0.85 liter of water for each liter) of **REC PLAST ASR 300** added Sample Calculation:

If the cement content of concrete is 520 lbs./Cyd (308 kg/m³) and the total alkali content of the cement is 0.6%, the dosage of **REC PLAST ASR 300** is: Gal/yd³= 520 x 0.6 x 0.55 / 100 = 1.72

L/m³= 308 x 0.6 x 4.63 / 100 = 8.56

Amount of Water to be reduced:

Gal/yd³= 0.85 x 1.72 = 1.46

L/m³= 0.85 x 8.56 = 7.28

Note: Some supplementary cementitious materials like silica fume, fly ash and slag when used in appropriate amounts have a tendency to mitigate ASR in concrete. When such materials are used in concrete, the dosage of **REC PLAST ASR 300** can be reduced. The dosage reduction is dependent on the composition of the pozzolan, reactivity of the aggregate and the overall mix design. It is recommended to conduct accelerated mortar bar testing as per CRD C-662 to determine the minimum dosage of **REC PLAST ASR 300** needed to minimize deleterious expansion to acceptable levels. Please consult local RECKON representative for more information on dosage calculations. Assistance in specifications and mix optimization is also available through RECKON.

MIXING

REC PLAST ASR 300 is added at the concrete plant. Measure required quantity manually or by automated dispenser. Add into the water line at the batch plant or to the mixer at the end of the batching cycle.

COMBINATION WITH OTHER ADMIXTURES: **REC PLAST ASR 300** works effectively as a single admixture or in combination with other admixtures in the RECKON System. When air entrained concrete is specified, RECKON recommends the use of REC air entraining admixtures. When used in combination with other admixtures, care must be taken to dispense each admixture separately into the concrete. Do not mix with dry cement.

PACKAGING

REC PLAST ASR 300 is available in 210 kg drums and 1000 kg bulks supply.

STORAGE

REC PLAST ASR 300 has a shelf life of 06 months from date of manufacture if stored at temperatures between 10°C and 27°C.

If these conditions are exceeded, Reckon Technical Department should be contacted for advice.

HEALTH & SAFETY

REC PLAST ASR 300 is not classified as hazardous material. **REC PLAST ASR 300** should not come into contact with skin and eyes.

In case of contact with eyes wash immediately with plenty of water and seek medical advice promptly. For further information refer to the Material Safety Data Sheet.

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