

03 30 00	Cast-in-Place Concrete
03 40 00	Precast Concrete
03 70 00	Mass Concrete

MasterLife[®] ASR 30

ASR Inhibiting Admixture

Description

MasterLife ASR 30 lithium-based, liquid admixture is formulated for use in high-alkali concrete containing reactive aggregates to inhibit and control Alkali-Silica Reactivity (ASR).

MasterLife ASR 30 admixture meets ASTM C 494/C 494M requirements for Type S, Specific Performance, admixtures.

Applications

Recommended for use in:

- All concrete mixtures containing high alkali cement and reactive aggregates
- Areas with known ASR problems
- Large structures that are difficult to repair or replace
- Bridges, dams, stadiums, buildings
- Concrete pavements
- Structures with long design service lives

Features

- Proven chemistry for mitigating ASR (lithium compounds have been shown to be effective in mitigating ASR in concrete)
- Ready-to-use liquid admixture
- Compatible with other Master Builders Solutions admixtures
- Does not require low-alkali cement
- No adverse effects on concrete properties

Benefits

- Improved durability of concrete
- Extended service life of concrete structures
- Allows use of locally available aggregates

Performance Characteristics

Mitigation of Alkali-Silica Reactivity (ASR): Since the early 1950s, lithium compounds have been shown to be effective in mitigating ASR in concrete and SHRP Report C-343 details extremely favorable results in controlling ASR in concrete. MasterLife ASR 30 admixture is based on this long term and extensively tested use of lithium as an effective method for control of ASR in concrete.

Rate of Hardening: The addition of MasterLife ASR 30 admixture can accelerate the initial setting time of concrete by 5-20%.

Guidelines for Use

Dosage: The dosage of MasterLife ASR 30 admixture is based on the alkali content of the cement, but may be adjusted depending on the particular ingredients of the concrete mixture (see Note 1).

- A. Determine the amount of cement (lb/yd³ or kg/m³) in the mixture.
- B. Determine the alkali content of the cement (%).
- C. Determine the preferred dosage multiplier. If you are using gal/ yd³, multiplier is 0.55. If you are using L/m³, multiplier is 4.6.
- D. Dosage = $\frac{(A) \times (B) \times (C)}{100}$

Sample Calculation: If the concrete mixture contains 500 lb/yd³ (297 kg/m³) of cement with an alkali content of 0.6%, the MasterLife ASR 30 admixture dosage is:

$$\text{gal/yd}^3: \frac{500 \times 0.6 \times 0.55}{100} = 1.65$$

$$\text{L/m}^3: \frac{297 \times 0.6 \times 4.6}{100} = 8.20$$

Note 1: Some supplementary cementitious materials (SCMs) such as silica fume, slag cement and some types of fly ash do provide a benefit in mitigating ASR in concrete. Therefore, the dosage of MasterLife ASR 30 admixture in a SCM-treated concrete mixture may be reduced if testing is performed (a) to establish the beneficial effect of the SCM and (b) to determine the optimum dosage of MasterLife ASR 30 admixture required for the concrete mixture. Testing is particularly recommended if a significant amount of alkalies can be contributed by sodium-bearing admixtures or Class C fly ash that are a part of the concrete mixture. For additional information on testing and dosages of MasterLife ASR 30 admixture in SCM-treated or other concrete mixtures, please contact your local sales representative.

Water Content: For every gallon of MasterLife ASR 30 admixture, the mix water content should be reduced by 0.8 gal (0.8 L for every liter of MasterLife ASR 30 admixture) to maintain the designed water-cementitious materials ratio.

Product Notes

Compatibility: MasterLife ASR 30 admixture may be used in combination with any Master Builders Solutions admixture. MasterLife ASR 30 admixture can be used in combination with Class F fly ash, slag cement or silica fume to help control ASR. The optimal replacement levels for these SCMs should be determined by testing.

Storage and Handling

Storage Temperature: MasterLife ASR 30 admixture should be stored above freezing temperatures. MasterLife ASR 30 admixture has no slush point. If MasterLife ASR 30 admixture freezes, thaw at 20 °F (-7 °C) or above and completely reconstitute by mild mechanical agitation. **Do not use pressurized air for agitation.**

Shelf Life: MasterLife ASR 30 admixture has a minimum shelf life of 12 months. Depending on storage conditions, the shelf life may be greater than stated. Please contact your local sales representative regarding suitability for use and dosage recommendations if the shelf life of MasterLife ASR 30 admixture has been exceeded.

Packaging

MasterLife ASR 30 admixture is supplied in 3 gal (11 L) pails, 55 gal (208 L) drums, 275 gal (1,040 L) totes and by bulk delivery.

Related Documents

Safety Data Sheets: MasterLife ASR 30 admixture

Additional Information

For additional information on MasterLife ASR 30 admixture or its use in developing a concrete mixture with special performance characteristics, contact your local sales representative.

For suggested specification information or for additional product data on MasterAir VR 20 admixture, contact your local sales representative. Master Builders Solutions creates technologies for the construction industry inspiring people to build better. We are active in ~40 countries and operate 35 production sites with over 1,600 employees. We develop, produce, and market high-quality chemical admixtures, as well as adjacent core technologies, to master the challenges of today and support a decarbonized future. Our people are pivotal and pair leading technologies and a strong brand heritage to surpass our customers' expectations and drive continuous value creation.

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