

Description

Tetraguard AS20 shrinkage-reducing admixture is the first commercially available chemical admixture developed specifically to reduce drying shrinkage of concrete and mortar, and the potential for subsequent cracking. Tetraguard AS20 admixture has been used successfully in the Far East and North American construction markets since its introduction in 1985.

Tetraguard AS20 admixture was developed to replace/enhance inorganic expansive admixtures that were being used to prevent drying shrinkage cracking. These expansive admixtures acted by inducing compressive stresses in concrete to offset tensile stresses caused by drying shrinkage.

Tetraguard AS20 admixture functions by reducing capillary tension of pore water, a primary cause of drying shrinkage.

Applications

Recommended for use in:

- Ready mix or precast concrete structures requiring shrinkage reduction and long term durability
- Wet mix shotcrete
- Mortars and grouts

TETRAGUARD® AS20

Shrinkage-Reducing Admixture

Features

- Significantly reduces drying shrinkage by as much as 80% at 28 days, and up to 50% at one year or beyond.
- Reduces stresses induced from one-dimensional surface drying in concrete slabs and floors
- Reduces compressive creep
- Reduces carbonation

Benefits

- Reduces drying shrinkage cracking and microcracking thereby improving aesthetics, watertightness and durability
- Reduces compressive creep under drying conditions that minimizes prestress loss
- Minimizes curling

Performance Characteristics

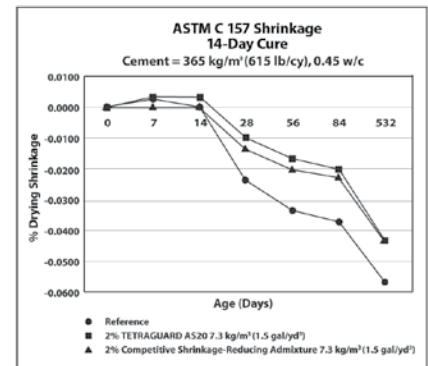
Tetraguard AS20 admixture does not substantially affect slump. Tetraguard AS20 admixture may increase bleed time and bleed ratio (10% higher). Tetraguard AS20 admixture may also delay time of set by 1-2 hours depending upon dosage and temperature. Compressive strength loss is minimal with Tetraguard AS20 admixture.

All projects requiring Tetraguard AS20 admixture in concrete applications exposed to freezing and thawing environments must be pre-approved and require field trails prior to use. Therefore, contact a BASF Construction Chemicals representative when concrete treated with Tetraguard AS20 admixture is being proposed for applications exposed to freezing and thawing environments.

Guidelines for Use

Dosage: Knowledge of the shrinkage characteristics of the concrete mixture proposed for use is required prior to the addition of Tetraguard AS20 admixture. The dosage of Tetraguard AS20 admixture will be dependent on the desired drying shrinkage and the reduction in drying shrinkage required. Therefore, it is strongly recommended that drying shrinkage testing be performed to determine the optimum dosage for each application and each set of materials.

The typical dosage range of Tetraguard AS20 admixture is 0.5 to 1.5 gal/yd³ (2.5-7.5 L/m³). However, dosages outside of this range may be required depending on the level of shrinkage reduction needed.



Product Data: TETRAGUARD® AS20

Mixing: Tetraguard AS20 admixture may be added to the concrete mixture during the initial batch sequence or at the jobsite.

The mix water content should be reduced to account for the quantity of Tetraguard AS20 admixture used.

If the delayed addition method is used, mixing at high speed for 3-5 minutes after the addition of Tetraguard AS20 admixture will result in mixture uniformity.

Product Notes

Corrosivity – Non-Chloride, Non-Corrosive: Tetraguard AS20 admixture will neither initiate nor promote corrosion of reinforcing steel, prestressing steel or of galvanized steel floor and roof systems. Neither calcium chloride nor other chloride-based ingredients are used in the manufacture of Tetraguard AS20 admixture.

Compatibility: Tetraguard AS20 admixture is compatible with all water reducers, mid-range water-reducers, superplasticizers, set retarders, accelerators, silica fume, and corrosion inhibitors. For air-entrained concrete applications, Micro-Air® admixture is the recommended air-entrainer. The dosage of Micro-Air admixture should be established through truck trial evaluations. The trials should include a simulated haul time of at least 20 minutes to assess air content stability. Tetraguard AS20 admixture should be added separately to the concrete mixture to ensure desired results.

Storage and Handling

Storage Temperature: Tetraguard AS20 admixture is a potentially combustible material with a flash point of 208 °F (98 °C). This is substantially above the upper limit of 140 °F (60 °C) for classification as a flammable material, and above the limit of 200 °F (93 °C) where DOT requirements would classify this as a combustible material. Nonetheless, this product must be treated with care and protected from excessive heat, open flame or sparks. For more information consult the MSDS.

Tetraguard AS20 admixture should be stored at ambient temperatures above 35 °F (2 °C), and precautions should be taken to protect the admixture from freezing. If Tetraguard AS20 admixture freezes, thaw and reconstitute by mild mechanical agitation. **Do not use pressurized air for agitation.**

Shelf Life: Tetraguard AS20 admixture has a minimum shelf life of 12 months. Depending on storage conditions, the shelf life may be greater than stated. Please contact your BASF Construction Chemicals representative regarding suitability for use and dosage recommendations if the shelf life of Tetraguard AS20 admixture has been exceeded.

Packaging

Tetraguard AS20 admixture is available in 55 gal (208 L) drums and 268 gal (1014 L) totes.

Related Documents

Material Safety Data Sheets: Tetraguard AS20 admixture.

Additional Information

For additional information on Tetraguard AS20 admixture or its use in developing concrete mixtures with special performance characteristics, contact your BASF Construction Chemicals representative.

The Admixture Systems business of BASF Construction Chemicals is a leading provider of innovative additives for specialty concrete used in the ready mix, precast, manufactured concrete products, underground construction and paving markets throughout the NAFTA region. The Company's respected Master Builders brand products are used to improve the placing, pumping, finishing, appearance and performance characteristics of concrete.

BASF Construction Chemicals, LLC
Admixture Systems

www.masterbuilders.com

United States 23700 Chagrin Boulevard, Cleveland, Ohio 44122-5544 ■ Tel: 800 628-9990 ■ Fax: 216 839-8821
Canada 1800 Clark Boulevard, Brampton, Ontario L6T 4M7 ■ Tel: 800 387-5862 ■ Fax: 905 792-0651

Tetraguard is a registered trademark of Tanyo Cement Corporation and Sanyo Industries, Ltd.

© BASF Construction Chemicals 2007, LLC ■ Printed in USA ■ 03/07 ■ LIT # 1017369

**Master
Builders**