

# Eclipse® 4500

## Shrinkage Reducing Admixture

### DESCRIPTION

**ECLIPSE® 4500** is a high-performance admixture for concrete that significantly reduces drying shrinkage, thereby minimizing the risk of shrinkage-induced cracking and curling. Unlike traditional expansive agents, it operates by lowering the surface tension of pore water within the concrete matrix.

This reduction in surface tension helps to control the shrinkage that typically occurs as concrete dries, leading to more durable and stable concrete structures.

### ADVANTAGES

- Reduces drying shrinkage up to 80% at 28 days & 50% at +1 year
- Enables normal performance of air-entraining admixtures
- Reduces drying shrinkage-induced cracking & curling
- Improves durability

### FIELDS OF APPLICATION

- All Cement Types
- Precast Concrete
- Post Tensioned & Prestressed Concrete
- Ready-Mix Concrete
- Mortar, Grout, & Wet Mix Shotcrete

### Method of Use

#### Dosage

- ECLIPSE® 4500 dosage rates range between 0.5 gal/yd<sup>3</sup> to 1.5 gal/yd<sup>3</sup> (2.5 L/m<sup>3</sup> to 7.5 L/m<sup>3</sup>).
  - Dosage rates ranging from 0.2 gal/yd<sup>3</sup> to 2.0 gal/yd<sup>3</sup> (1.0 L/m<sup>3</sup> to 10 L/m<sup>3</sup>) can be utilized to meet specific drying shrinkage requirements.
- It is recommended that trial mixtures be evaluated for shrinkage reduction in accordance with ASTM C157 prior to construction.
- Optimal addition rates will depend on other concrete mixture components, job conditions, and desired performance characteristics. Dosage rates may vary when used in conjunction with other CHRYSO® admixtures. Should conditions require using more than the recommended addition rates, please consult your CHRYSO® representative.

#### Additional Usage Recommendations

- Provides the most value when used on concrete in freeze-thaw environments where the potential for cracking due to drying shrinkage is prevalent and undesirable.
- Ideal for the construction of parking garage decks, containment structures, bridge decks, and structures in marine environments.

#### Implementation

- In general, it is recommended that ECLIPSE® 4500 be added to the concrete mix after the dry materials and most of the water for optimum performance. Different sequencing may be used if local testing shows better performance.
- Please see [Technical Bulletin TB-0110](#), *Admixture Dispenser Discharge Line Location and Sequencing for Concrete Batching Operations* for further recommendations.
- Pretesting of the concrete mix should be performed before use and as conditions and materials change in order to assure compatibility with other admixtures, and to optimize dosage rates, addition times in the batch sequencing and concrete performance.

#### Equipment

- A complete line of accurate, automatic dispensing equipment is available.

The information contained in this technical data sheet is given to the best of our knowledge and the result from extensive testing - which were conducted in order to remain as objective as possible. However, it cannot, in any case, be considered as a warranty involving our liability in case of misuse or any different use of our products, other than those from the "Application" paragraph of this technical data sheet. Some application tests should be carried out before using the product to ensure that the methods of use and conditions of application of the product are satisfactory. Our technical assistance is at the disposal of the users.

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## Complimentary Products

- ECLIPSE® 4500 is compatible with most CHRYSO® admixtures as long as they are added separately to the concrete mix, usually through the water holding tank discharge line.
- In mixtures containing water reducers, it is recommended that ECLIPSE® 4500 be used with polycarboxylate-based water reducers.
- ECLIPSE® 4500 is fully compatible with ASTM C260 air entrainers including and with calcium nitrite-based products.

## Air Management Guidelines

- Concrete containing ECLIPSE® 4500 typically requires slightly higher AEA dosages to achieve similar plastic air content compared to an identical concrete mixture not containing ECLIPSE® 4500. The following guidelines are recommended for concrete containing ECLIPSE® 4500 and subject to freeze-thaw conditions. These guidelines were developed and validated through extensive laboratory and field testing.
- Note that minimum plastic concrete air contents represent plastic air at the point of placement.
  - Minimum compressive strength at 28 days of 4,500 psi (31 MPa)
  - Maximum water-cementitious materials ratio of 0.45
  - Minimum fresh concrete air content in accordance with the maximum aggregate size

Max. Coarse Aggregate Size	Min. Plastic Air Content
3/8 in. (9.5 mm)	7.5%
1/2 in. (12.5 mm)	7%
3/4 in. (19 mm) or greater	6%

## Performances

- Impacts workability (slump) similarly to an equal volume of water (replacement of an equal volume of water is recommended)
- Decreases (typically less than 10%) early and later age compressive strengths.

## CHARACTERISTICS

Product Nature	Liquid
Color	Colourless to light yellow
Shelf life	12 months
Cl <sup>-</sup> Ions content	≤ 0,100 %
Specific gravity (25°C)	0,924

## PACKAGING

- Bulk
- 210 L (55 Gallons) Drum
- 1000L Tote (275 gallons)

## PRECAUTIONS

- Product has a flash point of 216°F (102°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) for classification as a combustible material by DOT requirements.
- This product must be treated with care and protected from excessive heat, open flames or sparks.

## SAFETY

Prior to any use, please read carefully the Safety data Sheet.