

# V-MAR<sup>®</sup> 3 Data Sheet

Concrete rheology-modifying admixture ASTM C494 Type S

## Product Description

V-MAR<sup>®</sup>3 is a high efficiency, liquid admixture designed to enable production of self-consolidating concrete (SCC) by modifying the rheology of concrete. V-MAR<sup>®</sup>3 works by increasing the viscosity of the concrete while still allowing the concrete to flow without segregation. V-MAR<sup>®</sup>3 is based on a unique, patented biopolymer and is manufactured under closely controlled conditions to provide uniform, predictable performance.

The V-MAR<sup>®</sup>3 admixture is supplied as a ready-to-use milky white liquid. One gallon weighs approximately 8.5 lbs (one liter weighs approximately 1.02 kg). V-MAR<sup>®</sup>3 admixture does not contain intentionally added chlorides.

## Uses

V-MAR<sup>®</sup>3 is recommended for use in conjunction with ADVA<sup>®</sup>series superplasticizers to produce SCC.

V-MAR<sup>®</sup>3 enhances the ability to manufacture SCC by allowing for variations in aggregate gradations and moisture contents. This can greatly reduce the time required to develop SCC mixes, and to update and test new mix designs if raw materials change. In addition, V-MAR<sup>®</sup>3 allows for the production of SCC in applications where mix designs and materials can not be modified for SCC properties, such as exposed aggregate concrete.

V-MAR<sup>®</sup>3 can also be used to reduce pump pressures when pumping concrete and for underwater, antiwashout concrete applications.

## Product Advantages

- Enables concrete and SCC mix flexibility when using less-than-optimal aggregate gradation and in presence of fluctuation of moisture content
- Modifies concrete rheological properties for improved workability
- Reduces segregation and bleed
- Enhances surface appearance
- Easy to dispense liquid admixture
- Normal set times
- Minimal impact on air entrainment

## Advantages

Self-consolidating concrete produced with V-MAR<sup>®</sup>3 and ADVA<sup>®</sup>superplasticizers offers the following advantages:

- Moisture variation — consistent production of SCC even with normal moisture variation from batch to batch
- Self placement — vibration can be eliminated because SCC is highly flowable and will change shape under its own weight to self level and self consolidate within formwork
- No segregation — SCC is a flowable yet highly cohesive material that will not segregate and has significantly reduced bleeding
- No blocking — SCC can pass freely through narrow openings and congested reinforcement without aggregate “blocking” behind obstructions that stop the flow of concrete
- Reduced labor and improved productivity through faster and easier concrete placement with no vibration
- Improved labor safety, reduced plant noise levels and improved work environment
- Reduced wear and tear on forms by eliminating vibration
- Achievement of complete consolidation throughout concrete elements, even in thin walled, highly reinforced units

## Addition Rates

V-MAR<sup>®</sup>3 is typically used at an addition rate of 10 to 40 fl oz/ yd<sup>3</sup> (390 to 1550 mL/m<sup>3</sup>) of concrete.

Dosage requirements are based on water content in the mix. As water content increases, the V-MAR<sup>®</sup>3 requirement will increase. Typical water contents for SCC mixes are 280 to 320 lbs/yd<sup>3</sup> (166 to 190 kg/m<sup>3</sup>). At lower water content, use V-MAR<sup>®</sup>3 at the lower dosage range; at higher water content, dosage rates will be higher.

V-MAR<sup>®</sup>3 dosage requirements may also be affected by mix design, cementitious content, aggregate gradations and SCC application.

Use of ADVA<sup>®</sup>series superplasticizers is highly recommended for SCC production. Dosage rate requirements for superplasticizers are typically higher for SCC than for conventional concrete mixes. When producing SCC, admixtures (excluding air entrainers) should be added after the addition of the cementitious material and water.

Pre-placement testing and testing when materials or quantities change are recommended to determine the optimum admixture addition rate. Factors that influence optimum addition rate include other concrete mix components, aggregate gradations, form geometry and reinforcement configurations. Please consult your local GCP Applied Technologies representative for assistance with developing mix designs, admixture combinations and SCC production.

## Compatibility with Other Admixtures

V-MAR<sup>®</sup>3 is intended for use with ADVA<sup>®</sup>series superplasticizers and in combination with all air-entraining agents. All applications should be tested prior to use. Each admixture should be added separately into the concrete mix and not come in contact with each other prior to entering the mix.

## Packaging & Handling

V-MAR<sup>®</sup>3 is available in bulk, in totes, drums and pails.

V-MAR<sup>®</sup>3 will freeze at about 28 °F (-2 °C) but will return to full functionality after thawing and thorough mechanical agitation.

## Dispensing Equipment

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

## Health and Safety

See V-MAR<sup>®</sup>3 SDS (Safety Data Sheet) or consult GCP Applied Technologies.

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