# V-MAR® 5

Rheology-modifying admixture for Self-Consolidating Concrete

## Product Description

V-MAR® 5 is a high efficiency, liquid admixture designed to enable production of Self-Consolidating Concrete (SCC) by modifying the rheology of concrete. V-MAR 5 works by increasing the viscosity of the concrete while still allowing the concrete to flow without segregation. V-MAR 5 is based on a unique, patented biopolymer and is manufactured under closely controlled conditions to provide uniform, predictable performance.

## Applications

V-MAR 5 is recommended for use in conjunction with ADVA® superplasticisers to produce Self-Consolidating Concrete.

V-MAR 5 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 time required to update and test new mix designs if raw materials change. In addition, V-MAR 5 allows for the production of SCC in applications where mix designs and materials cannot be modified for SCC properties, such as exposed aggregate concrete.

## Product Advantages

Self Consolidating Concrete produced with V-MAR 5 has unique advantages over conventional flowing concrete:

- 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.
- Easy to dispense liquid admixture: Dosage rates can be adjusted to meet a wide spectrum of SCC performance requirements.

## Addition Rate

V-MAR 5 is typically used at an addition rate of 390 to 1,550mL / $m^3$ of concrete.

Dosage requirements are based on water content in the mix. As water content increases, the V-MAR 5 requirement will increase. Typical water contents for SCC mixes are 166 to 190kg / $m^3$. At lower water content, use V-MAR 5 at the lower dosage range; at higher water content, dosage rates will be higher.

V-MAR 5 dosage requirements may also be affected by mix design, cementitious content, aggregate gradations and SCC application. Please consult with your local GCP representative for more information and assistance.

Use of ADVA superplasticisers is highly recommended for SCC production. Dosage rate requirements for superplasticisers are typically slightly higher for SCC than for conventional concrete mixes. When producing SCC, admixtures (excluding air entrainers) should be added after addition of the cementitious materials.

Pre-placement testing is 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 configuration. Please consult your local GCP representative for assistance with developing mix designs, admixture combinations and SCC production.

## Compatibility with Other Admixtures

V-MAR 5 is intended for use with ADVA superplasticser in combination with all air-entraining agents. Use with other ADVA products and in non-precast applications should be tested prior to use. Each admixture should be added separately into the mix.

## Benefits

SCC produced with V-MAR 5 and ADVA superplasticisers is designed to eliminate the need for vibration and manual compaction in precast and cast-in-place concrete.

For precast/prestressed concrete producers SCC provides the following benefits:

- Reduced labour and improved productivity through faster and easier concrete placement with no vibration.
- The highest quality surface finish, eliminating/reducing the need for surface touch ups.
- Improved labour 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.
- Increased production flexibility by enabling use of form geometry and form orientations in which placement of conventional concrete mixes would be difficult or impossible.

## Dispensing Equipment

Please contact your local GCP representative for further information regarding the dispensing equipment for this product.

## Packaging

V-MAR 5 is available in bulk, 205 L drums and pails. It will freeze at about -2ºC but will return to full functionality after thawing and thorough mechanical agitation.

## Specifications

The V-MAR 5 admixture is supplied as a ready-to-use liquid. One litre weighs approximately 1.20kg ± 0.02kg. V-MAR 5 contains no intentionally added chlorides.

The viscosity-modifying admixture shall be V-MAR 5 as manufactured by GCP Applied Technologies.

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