



Application Information TS-A 1

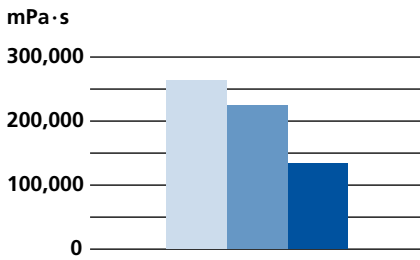
Additives for Cultured Marble, Onyx and Polymer Concrete Casting Resin Systems

Wetting and Dispersing Additive

BYK-W 908 and **BYK-W 909** are designed for cast polymer application areas of cultured marble, cultured onyx, cultured granite, solid surface (polyester and acrylic modified polyester) and polymer concrete. BYK-W 908 is the REACH registered version of BYK-W 909.

The additives are a water-clear liquid and have no effect on color, either initially or in the final cured part (see figure 2). Also BYK-W 985 is suitable for highly-filled casting systems.

High Viscosity Reduction of a 75 % filled Cultured Marble Formulation



As measured on Brookfield RVT Viscometer with #4 spindle @ 5 rpm for 1 minute (25 °C). All additive dosages are based on filler weight.

figure 1
 ■ Control
 ■ 0.5 % BYK-W 908/BYK-W 909
 ■ 1.0 % BYK-W 908/BYK-W 909

	BYK-W 908	BYK-W 909
Europe	■	
Outside EU		■

They exhibit high viscosity reducing effects in most highly-filled compounds containing silica sand, ATH, and calcium carbonate.

Highly-filled application areas, such as polymer concrete, show better wetting and therefore improved flow (see figure 3).

By using 1 % BYK-W 908/BYK-W 909 (based on resin) it is possible to reduce the amount of resin in the formulation up to 10 %.

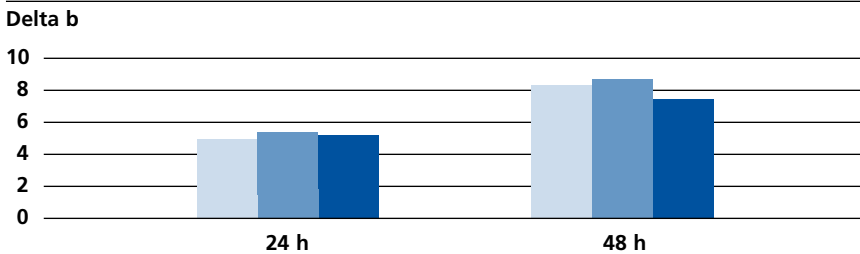
Physical Testing

Thermal Shock: Two vanity tops – one control without additive at 26 % resin and another with BYK-W 908/ BYK-W 909 at 22 % resin – were thermal shock tested up to 1500 cycles at a certified lab. The results showed that the use of the additives at lower resin content had no effects on the thermal cycles.

Impact: A certified lab tested the two vanity tops for impact strength. Both, the control sample and the sample with BYK-W 908/BYK-W 909, performed the same. This showed that the use at a lower resin content had no effect on the impact strength.

Reactivity: Testing in the BYK labs showed that the BYK-W 908/BYK-W 909 have no effect on reactivity and does not influence gel or cure times.

Onyx: No Color Shift due to BYK-W 908/BYK-W 909



Measured with BYK-Gardner color-guide after 24 h and 48 h exposure to UV light. Additive dosage based on filler weight.

figure 2
 ■ Control ■ 0.5 % BYK-W 908/BYK-W 909 ■ 1.0 % BYK-W 908/BYK-W 909

Dosage and Incorporation

BYK-W 908/BYK-W 909 when used at higher dosages will maximize the viscosity reduction. This will allow an optimization of resin/filler ratio leading to lower costs. The additives can also be used in lower dosages to improve the filler wet-out, enhance flow and leveling, and help with deaeration. In order to obtain the maximum air release properties in any casting application and obtain a final part with improved appearance and strength, it is recommended that air release additives be used in conjunction with BYK-W 908/ BYK-W 909.

- For systems with up to 75 % filler: 0.5 %-1.5 % based on filler.
- For systems with more than 75 % filler: 1.0 %-2.0 % based on resin.

For best performance the additive should be mixed into the resin prior to the addition of filler.

Lateral Spread of Polymer Concrete Compound



Without Additive

With 1 % BYK-W 908/BYK-W 909

figure 3

Air Release Additives

BYK-081

is a medium active and transparent defoamer and has food contact approval.

BYK-A 550

shows a high effectiveness with minimal haze and is recommended for use in transparent castings and translucent cultured onyx parts and cultured marble.

BYK-A 555

shows the best air release effect and is recommended for use in highly-filled casting applications such as cultured marble and polymer concrete.

BYK-A 515

offers very good air release and is recommended for use in polyester and acrylic modified polyester solid surface applications.

Additives to Improve Defoaming

	Cultured Marble	Polymer Concrete	Solid Surface Polyester	Solid Surface Polyester w/MMA	Cultured Onyx	Transparent Castings
BYK-081*	□	□		□	□	□
BYK-A 550	□	□	■	■	■	■
BYK-A 555	■	■	■	□		□
BYK-A 515	■	□	■	■	□	

■ Excellent □ Good *Compliant with EU Plastics Implementation Measure (PIM)

figure 4

Coupling Agent

Filler is usually only mechanically embedded in the resin. Under stress, filled parts break at the interface filler/resin.

BYK-C 8000 strengthens the interface between filler and resin by forming strong chemical bonds, resulting in a remarkable improvement of mechanical properties.

BYK-C 8000 is a polymeric coupling agent that enhances mechanical properties such as:

- flexural strength
- tensile strength
- compressive strength
- abrasion resistance
- impact strength

in filled ambient curing resins. As a result, depending on systems and usage, the thickness of the composites can be reduced which is economically favorable.

Your Benefits:

- Improving mechanical strength up to +50 %
- Improving flow properties by reducing viscosity up to 50 %
- Easy-to-use – just add the additive to the mixture prior to curing!

Increase of Flexural Strength in Polymer Concrete

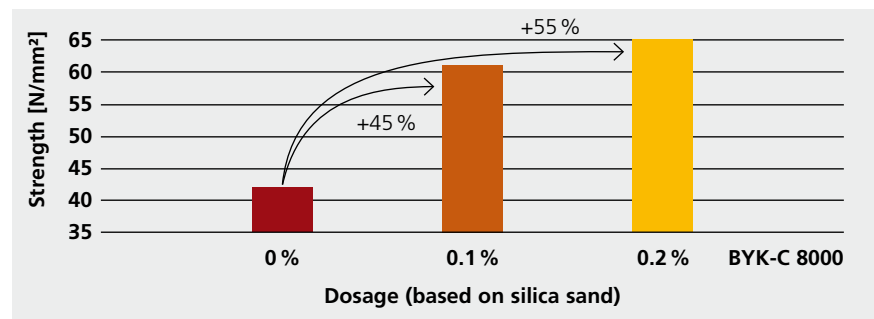


figure 5

Increase of Compressive Strength in Polymer Concrete

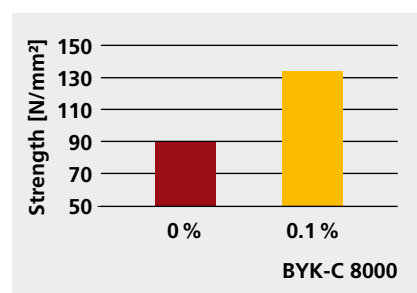


figure 6

For more information about our additives and instruments, as well as our additive sample orders please visit:

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Additive Guide



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