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.

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 %.

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.

**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.

**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.
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

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<tr>
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<th>Cultured Marble</th>
<th>Polymer Concrete</th>
<th>Solid Surface Polyester</th>
<th>Solid Surface Polyester w/MMA</th>
<th>Cultured Onyx</th>
<th>Transparent Castings</th>
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*Excellent □ Good □ *Compliant with EU Plastics Implementation Measure (PIM)

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**

![Graph](image)

**Increase of Compressive Strength in Polymer Concrete**

![Graph](image)
For more information about our additives and instruments, as well as our additive sample orders please visit:

www.byk.com

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