

# Instructions For Use

## General Handling

The water-based coatings you receive may be **stored for up to one year** at room temperature. Freezing and long periods at high temperatures may change their characteristics.

**Mix well before using.** Avoid aggressive mixing that will incorporate foam unless you will allow to sit before use, or are planning to add solvents that will allow the foam to break. Note that some coatings containing particulate (Tungsten, Silver and platelet scratch protective) may require some agitation to prevent settling from occurring during application.

To avoid shock and coagulation in crosslinked coatings, it is best to **mix the appropriate amount of crosslinker by dropwise addition to coating or diluent which is mixing.** The agitation should be sufficient to immediately dispersed the crosslinkers added. Often solvents should be added in this manner as well if they are to be used. Check stability and homogeneity of the mix before use.” Once mixed these may be used directly or diluted and used per best application methods. Coatings prepared with Crosslinker B should not be mixed with active hydrogen containing solvents such as amines, or alcohols such ethanol. Pot life for the mixed coatings will depend on solids and ambient conditions. Generally speaking the lower solids and lower temperatures will yield longer pot lives. Crosslinkers, especially crosslinker B which will gel, should be protected from atmospheric moisture. If needed for reuse outside the prepackaged material, they should be sealed under dry nitrogen purge. Once the mix gels, it is not able to be remixed.

While wet, coatings may be **diluted with water, acetone, ethanol (primer only), or NMP** to allow thinner coatings to be applied. Coating thickness can also be controlled by the removal speed when dipping (faster = thicker) and amount sprayed or deposited on the surface.

**Safety and cleanup:** Use reasonable practices in handling these materials. Eye protection, adequate ventilation and normal handling such as protective garments and gloves are advised.

Please read appropriate MSD sheets to assure that appropriate handling precautions are taken for any and all systems particularly those resulting from dilution with solvent. Water is the first choice for clean up. Unless there is a hazardous material in the coating (once cross-linked into the dried coating, the cross-linkers are not considered hazards) these dried coatings may be disposed of as trash. Please check local, state and federal laws in disposing of these materials.

Once these coatings have dried they will not re-dissolve and must be filtered to remove particulate formed during drying.

**If adhesion or surface wetting is inadequate**, there are several steps that may be taken. Either the surface tension of the substrate may be increased with corona, plasma, acid or flame etching. Alternatively the surface tension of the coating may be reduced with surfactants (less desirable as the coating then becomes a different chemical composition) or solvents may be incorporated to dilute and wet. See FAQ for more information.

Coatings are **best used as thin films** (or multiple thin films) to meet performance standards without compromising profiles.

ETO is suggested for sterilization.

*NOTE: If you are experiencing problems with the application of these products, please contact us for coaching, or consider utilizing our engineering services provided via Surface Solutions Labs to prepare initial samples for your evaluation.*

## Primer Mix

1. Premix 25 parts of reagent ethanol with 25 parts of water

*NOTE: The term “parts” applies to volume or weight measurements. Whatever units you select for production, be sure to keep them consistent through the mix process. For example: Step 1. Premix 25g of ethanol with 25g of distilled water.*

2. Slowly, being sure to avoid chemical/polymeric shock, add with agitation 50 parts of Primer 5-017
3. Slowly add with agitation 1.5 parts of Crosslinker A
4. Mix for 5 minutes, minimum

*NOTE: Properly clean your devices prior to mixing/coating.*

*NOTE: The Primer 5-017 mix may be made at higher or lower solids/viscosity by reducing or increasing the amount of solvents. For example, Step 1. Premix 10 or 50 parts of each ethanol and distilled water. A small amount of additional ethanol alone may be sufficient to reduce the surface tension and allow for good wetting and adhesion to the surface of your device. For more information, contact us at [info@coatings2go.com](mailto:info@coatings2go.com)*

5. Coat by dip, wipe, flow, etc. after determining the best transfer efficiencies for the geometry of your parts. Allow to sag and remove excesses that may accumulate at the lowest section of your part. If needed, mask or use a mandrel to protect the lumen or other parts of your device to remain uncoated.
6. Dry and cure for a minimum of 5 minutes at 160° F, or other suitable time/temperature profile based on higher solids/viscosity, before topcoating. The primed part may sit for several days at ambient before coating.

*NOTE: The dried/cured primer is tacky when warm and may stick to other primed parts. Also, the formula ratio may be scaled up or down proportionally to the volume needs for R+D or manufacturing. For more information, contact us at [info@coatings2go.com](mailto:info@coatings2go.com)*

## **Patented Topcoat Hydrophilic (8-3C, 8-63 as is, & 11-107)**

1. To 1-3 parts of Crosslinker B (XLB), immediately but slowly, add 10 parts of water with good agitation, avoiding air entrapment and foam. DO NOT OPEN THE XLB UNTIL YOU ARE READY TO MIX AND COAT.

*NOTE: The term “parts” applies to volume or weight measurements. For example, Step 1. To 1-3g Crosslinker B, slowly add 10g water. Whatever units you select for production, be sure to keep them consistent through the mix process.*

*NOTE: We encourage the use of our Crosslinker B Concentrate (CBC), which can be effectively substituted for the Crosslinker B (XLB). The CBC is more stable to moisture in production, shipping and storage. This extends the final mix pot-life and increases both the crosslinking within the Topcoat’s polymer network and covalent bonding to your substrate.*

The kit supplied XLB is prediluted to increase its solubility in water. The B Concentrate must be diluted immediately before use. Reagent acetone or other inactive ketones, or NMP, can be used to dilute the CBC and facilitate its ability to disperse well in water.

### IF USING Crosslinker B Concentrate:

Step 1. To 0.5-1.5 parts of Crosslinker B Concentrate, add equal parts solvent (reagent acetone, NMP, MEK, etc). This 1:1 addition should combine to 1-3 parts. Then, immediately but slowly, add 10 parts of water with good agitation, avoiding air entrapment and foam.

*NOTE: Properly clean your devices prior to mixing/coating.*

2. Mix well, there should be no lumps of coagulated material. It should look like milk.

3. Slowly add 1 part Crosslinker A (XLA) under similar agitation and mix well.

4. Slowly, being sure to avoid chemical/polymeric shock, add 100 parts of Topcoat with agitation. Slowly add ~10 parts distilled water, let stir 5-10sec. Repeat until 30 parts of distilled water has been added. Slowly add ~10 parts acetone, let stir 5-10sec. Repeat until 30 parts of acetone has been added.

*NOTE: The Topcoat mix may be made at a lower solids/viscosity by diluting with acetone, water or a 1:1 acetone and water mix. For example, we would not recommend diluting beyond 60 parts on 100 parts Topcoat. A small amount of acetone alone may be sufficient to reduce the surface tension and allow good wetting and adhesion. Diluting will increase the pot-life, but lower solids and viscosity. For more information, contact us at [info@coatings2go.com](mailto:info@coatings2go.com)*

5. Mix well but avoid bubbles and foam. Coat by dip, wipe, etc.

*NOTE: Product will not spray well due to high MW polymers in the coating. However, a very diluted Topcoat has been used with ultrasonic spraying. For more information, contact us at [info@coatings2go.com](mailto:info@coatings2go.com)*

6. Dry and cure for 1-8 hours at 160°F and at ambient for full properties to develop.

*NOTE: This formula ratio may be scaled up or down proportionally to the volume needs for your R+D or manufacturing. For more information, contact us at [info@coatings2go.com](mailto:info@coatings2go.com)*

### **Patented Topcoat Hydrophilic (8-3C, 8-63 as is, & 11-107)**

1. Into a suitable container, weigh 100 g of the hydrophobic dry slip of block resistant coating
2. Place the coating container under mild agitation (no foam inclusion) and add slowly dropwise 3 g of Crosslinker A
3. Mix for 5 minutes minimum. Coating can be used for up to 48hours.
4. Dilute as needed
5. Coat by dip, wipe, etc. Dry for 1 hour at 160 F and at ambient for full properties to develop.

This formula ratio may be scaled up or down proportionally to the volume needs for R+D or manufacturing.

### **Patented Additive Compatible Coating**

The topcoat Hydrophilic for drug delivery, 8-63, can be used as is, or modified to reduce hydrophilicity with Primer 5-149 or Non-NMP equivalent. Once the ratio of hydrophilic to primer is determined, the process is the same as above Topcoat Hydrophilic. This formula ratio may be scaled up or down proportionally to the volume needs for R+D or manufacturing. Ratios of the Crosslinkers may be explored to obtain best binding vs elution.

Exercise caution in adding the drugs around pH, stability/solubility and proportions in the final mix.

1. To 10 parts water, add the drug amount needed for the batch size. A small amount of cosolvent -with no primary active hydrogens-for the drug may help incorporation. Adjust pH as needed to 8+ with TriEthylAmine.

2. If appropriate add 1-3 g Crosslinker B with good agitation. Crosslinker B will react slowly to bind active hydrogens in your drug. Avoid this if you have these functions and need elution.

This formula ratio may be scaled up or down proportionally to the volume needs for R+D or manufacturing.

3. Mix well, there should be no lumps of coagulated material. It should look like milk.

4. Add 1-2 part Crosslinker A and mix well Crosslinker A is reactive with acidic functions on the drug so consider this in your formulating if binding is not needed.

5. Add 100 parts of Basic drug delivery coating 8-63 with agitation.

6. Mix well, dilute as needed with water or a mix of 75% water/25% or less acetone.

7. Coat by dip, wipe, etc. Dry for 1 hour at 160 F and at ambient for full properties to develop. Consider drug heat stability if needed.

Product may be made at lower or higher solids/viscosity by adding or reducing the amount of solvents (Acetone and/or water). A small amount of acetone alone may be sufficient to reduce the surface tension and allow good wetting and adhesion. The more dilution, the longer the potlife and lower solids and viscosity.

This formula ratio may be scaled up or down proportionally to the volume needs for R+D or manufacturing.

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