

## HS-4 Weatherstrip Coating

*Before processing this product please read the associated Safety Data Sheet (SDS) for each component and observe good manufacturing practices*

### Coating Preparation:

1. When using weatherstrip coatings it is important that any settled matting agent, or friction modifiers, be brought back into suspension before use.

After opening a pail of HS-4 (the milky solution), spatula or rod must be used to loosen any deposit at the bottom of the container. Once this is complete, thoroughly mix the substance using a paddle blade stirrer that rotates at 30 - 100 rpm for a minimum of 10 minutes. The level of the stirrer needs to be regulated so that the substance can be mixed thoroughly with little to no foam generated.

2. The diluting solvent, adhesion promoter (XC9615), and catalyst (YC6831) are then added in order while the base is gently stirring. The additions are based on weight. The coating mixture is then placed under the stirrer for an additional 10 minutes. To eliminate potential blockages caused by dry material falling back into the coating solution, filtration, using a 200-micron disposable filter mesh, is recommended when transferring the coating from the mixing vessel to the delivery container. An alternate option is to install a filter in-line in the application tubing after the pump or pressure pot. The coating is then ready to use. Note, all equipment used should be washed with clean solvent following this process.

3. **IMPORTANT:** If the coating of the weatherstrip system is following a different system, it is necessary to clean all parts contacting the coating with the carrier solvent used for the first coating, followed by Toluene or n-Hexane to ensure all traces of the first coating and solvent are removed from the spray installation. Failure to follow this routine can result in gun blockages and instability of the HS-4 coating. If possible, an easier and more effective solution would be to change all the delivery pipework with new pipework.

### Application:

1. The coating can be applied by using any of the following methods:

**Hand spray** - using a HVLP gravity feed pistol

**Robotic off-line spray** - using electrostatic or HVLP gun

**On-line - using single or multiple guns** (determined by the profile to be coated)

**Drip and brush** - preferably using long bristles

All the above can be used in conjunction with pressure pot, gear pump or peristaltic pumps to feed coating to the application point.

2. If conventional HVLP equipment is used, the air cap should be 0.8-1.2mm in diameter. If needleless guns are used, a nozzle diameter of 0.6-0.8mm is recommended.
3. The part temperature should be between 80°C and 180°C at the point where the coating is applied (colder will produce a slightly more gloss surface).
4. If adhesion problems are experienced, they could be due to the formulation of the rubber compound, a difficult surface or that pretreatment does not exist - the use of primer solution will greatly improve the level of adhesion resulting in better abrasion resistance.

### **Coating:**

1. The fluid flow, atomizing pressure and distance of the gun to the part will have a major impact on the finished film appearance and should be adjusted accordingly to give the desired effect.
2. The coating should be applied so that it achieves a "wet" appearance at the coating station, but not excessively thick. The coating should be almost dry before the curing cycle.

If multiple guns or drip and brush technique are used, it is important to apply additional coatings while the original coating is still wet. This helps to achieve a good surface on the finished part. It is advised that the coating equipment be set up to minimize overspray and maximize use of the coating.

### **Curing:**

1. Cure of the coating is a function of the coating thickness, time and temperature and is determined by the oven type, efficiency of the oven and part construction.
2. During the cure the part temperature should not exceed 200°C otherwise degradation of the rubber surface can occur. Typical cure indications are 160°C for 2 minutes; 140°C for 4 minutes; 100°C for 7 minutes and 80°C for 10 minutes. These figures refer to the part temperature, NOT the air temperatures indicated on the ovens.
3. As the part exits production, initial evaluation of the coating is made by stretching the part and looking for cracking of the weatherstrip coating. A cross-hatch adhesion test is performed. Each of these routine examinations will quickly indicate problems of adhesion. Full laboratory testing will not give dependable results until 24 hours after coating, when the parts are fully cured and cold.

## **Evaluation:**

1. Visual examination of the coating should be made at the start of the production to ensure the spray (or other application method) is acceptable.

## **Common defects include:**

- Heavy coating in grooves of the profile resulting in blisters - move guns further away from part or reduce coating flow to this area
- Heavy coating where sprays overlap - move spray pistols for better coverage
- Light coating in certain areas of the part - move spray pistols closer or increase coating flow to that area
- Spots showing in coating - guns too close or atomizing pressure too low
- Rough surface on coating - extreme result of above
- Runs in coating - guns too close or too much wet coating being applied
- Poor adhesion on sponge rubber- part too hot at point of coating (on-line)
- Poor adhesion on solid rubber- free oils in rubber formulation (off-line) solvent; wash to clean the surface before coating and use a primer

## Contact Information:

For product prices, availability or order placement, contact customer service at :  
[momentive.com/contact/customer-service](http://momentive.com/contact/customer-service)

For literature and technical assistance, visit our website at: [www.momentive.com](http://www.momentive.com)

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