

## Preliminary Product Information

# CHO-FORM<sup>®</sup> 5528 and 5532 Form-in-Place EMI Shielding Materials

### DESCRIPTION

Cho-Form<sup>®</sup> 5528 and Cho-Form 5532 are one component, moisture cure, electrically conductive, form-in-place EMI gasketing materials. These formulations that contain silver-plated copper particles dispersed in a silicone elastomer, are specifically designed for highly conductive surfaces. These application specific materials also allow for ease of dispensing with increased flow rates over other form-in-place materials and softer beads for applications needing a high range of deflection. Both 5528 and 5532 are designed to be robotically dispensed onto a variety of substrates, ranging from metal castings to electrically conductive coatings on plastic substrates. The materials have identical electrical and mechanical properties and differ only in flow rate with 5528 having a slightly faster flow rate than 5532. These differences allow robotic dispensing on a variety of commercially available dispense equipment and to address specific material flow characteristics for specific part designs. The choice of Cho-Form 5528 or 5532 for a specific application should therefore be discussed with a Chomerics' applications engineer so as to ensure proper bead material selection and ensure specific dispense parameters.



### HANDLING AND CURING OF MATERIAL

Cho-Form 5528 and 5532 are moisture cure materials and as such the temperature and humidity combination will determine the time necessary for both handling of the parts as well as time for full cure. Handling time for these materials ranges from 20 minutes to 55 minutes depending on temperature and humidity conditions. Full cure for these materials is typically 72 hours at 30 C and 50% RH. However, for larger bead sizes and variations in temperature and humidity, especially in those areas where only low humidity is available, full cure can take longer.

### PACKAGING

Cho-Form 5528 and 5532 are packaged in either 850 gram or 2.5 kilogram aluminum cartridge. Other packaging options can be made available at customer request.

Chomerics part numbers are as follows:

19-26-5528-0850 - 850 grams of 5528 in an 11 fluid ounce (0.33 liter) aluminum cartridge

19-26-5528-2500 - 2.5 kilograms of 5528 in a one liter aluminum cartridge

19-26-5532-0850 - 850 grams of 5532 in an 11 fluid ounce (0.33 liter) aluminum cartridge

19-26-5532-2500 - 2.5 kilograms of 5532 in a one liter aluminum cartridge

### MATERIAL DISPENSING

Both Cho-Form 5528 and 5532 are easily dispensed from a variety of commercially available gasket dispense systems. In addition to Chomerics' existing worldwide network of Cho-Form applicators, our Cho-Form applications group can provide support for material dispense needs worldwide for customers wishing to utilize their own or other dispense equipment.

### FEATURES

- Moisture cure at room temperature.
- Designed for low closure force applications
- Excellent compression set characteristics
- No solvent in formulation – VOC free
- Low material and installation costs
- Six month shelf life at room temperature

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### DESIGN AND PROTOTYPING

Application and design assistance is available to prospective customers. The specific focus of the assistance is on the examination/identification of design issues with regard to the substrate. These design issues include: enclosure material and surface finish, available gasket placement area, part flatness, transitions in the design layout of the dispensed bead, obstructions in the design of the enclosure to the unimpeded travel of the dispense needle, and z direction dispense needs.

The typically largest practical cross-section for Cho-Form 5528 and 5532 dispensed beads is 1.65 mm height x 1.93 mm width (.065" x .076") and the typically smallest practical bead size is 0.558 mm x 0.066 mm (.022" x .026").

Prototype dispensing is available on sample parts or sample coupons for customer evaluation.

Subsequent to the purchase of Cho-Form material, application support is available for part-gasket shipment packaging design, part fixturing/palletizing for robotic dispense, and establishment of appropriate QC test procedures for resistivity and bead placement and dimensioning.

### CHO-FORM 5528 AND 5532 CURE SCHEDULES

| Cure Cycle                                   | Time/Temperature/Humidity  |
|--|--|
| Tack Free Time                               | <ul style="list-style-type: none"> <li>• Approx. 3 minutes @30°C &amp; 85% RH</li> <li>• Approx. 3 minutes @40°C &amp; 50% RH</li> <li>• Approx. 3 minutes @40°C &amp; 85% RH</li> <li>• Approx. 2 minutes @65°C &amp; 85% RH</li> </ul> |
| Handling Time                                | <ul style="list-style-type: none"> <li>• 20 min @ 65°C &amp; 85% RH</li> <li>• 40 min @ 40°C &amp; 50% RH</li> <li>• 55 min @ 30°C &amp; 50% RH</li> </ul>   |
| Properties Measurement – Resistance/Adhesion | <ul style="list-style-type: none"> <li>• 2 hours @ 30C &amp; 20% RH</li> <li>• 2 hours @ 30C &amp; 50% RH</li> <li>• 2 hours @ 30C &amp; 85% RH</li> <li>• 2 hours @ 40 C &amp; 50% RH</li> <li>• 2 hours @ 65C &amp; 85% RH</li> </ul>  |
| Full Cure – Compression Set                  | Max. 72 hours at 30°C & 50% RH   |

### CHO-FORM 5528 AND 5532

| Property          |                   |
|-------------------|-------------------|
| Filler            | Ag/Cu             |
| Resin             | One Part Silicone |
| Solvent Level-Wet | None              |
| Cure Mechanism    | Moisture          |

### QUALIFICATION TESTS

| Property                                     | Method                 | Typical Value      |
|--|------------------------|--------------------|
| Adhesion                                     | Shear – Cho-Form WI038 | >12 N/cm (typical) |
| Shielding Effectiveness<br>200 MHz to 10 GHz | Chomerics TP08         | > 70 dB            |
| Use Temperature                              |                        | 85°C               |

### QUALITY CONFORMANCE TESTS

| Property                              | Method                            | Specification Limits     |                              | Typical Values               |
|---------------------------------------|-----------------------------------|--------------------------|------------------------------|------------------------------|
|                                       |                                   | Lower                    | Upper                        |                              |
| Volume Resistivity<br>Initial<br>Aged | Chomerics MAT-1002                | N/A                      | 0.020 ohm-cm<br>0.020 ohm-cm | 0.009 ohm-cm<br>0.009 ohm-cm |
| Hardness                              | ASTM D2240                        | N/A                      | 45 Shore A                   | 26 Shore A                   |
| Tensile Strength                      | ASTM D412                         | 60 psi                   | N/A                          | 85 psi                       |
| Specific Gravity                      | ASTM D792                         | 2.80                     | 3.30                         | 3.02                         |
| Compression Set                       | ASTM D395 Method B<br>22 hrs 85°C | 20%                      | 45%                          | 30%                          |
| Flow Rate **<br>5528<br>5532          | Chomerics MAT-1200                | 8.0 gm/min<br>5.5 gm/min | 10.0 gm/min<br>7.5 gm/min    | 9.0 gm/min<br>6.0 gm/min     |

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