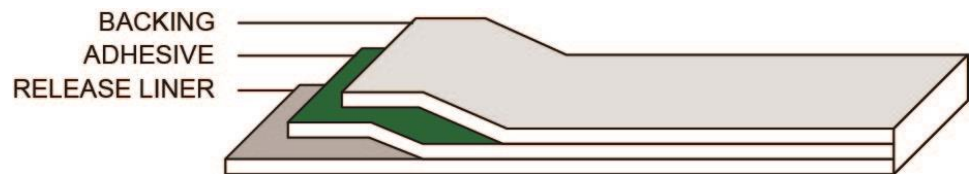


ARcare® 90038 is a highly conductive pressure sensitive adhesive, supported by a tin-coated copper, electronic grade foil carrier. The foil carrier possesses oxidation and corrosion resistance to undesirable byproducts generated during elevated temperature encapsulation of photovoltaic modules and over the life of said modules. The conductive filler package also allows for direct Z axis contact between the tin coated copper and the substrate of interest. ARcare® 90038 provides an ideal balance of adhesion and electrical performance.

PRODUCT APPLICATIONS

The typical use for this product is as a bus bar for photovoltaic applications. Other applications include EMI shielding for cellular phones, computers, PDAs, disk drives, modems and automotive electronics, cable assembly shielding for satellites, electronic vehicles and robotics.



FEATURES AND BENEFITS

- Able to withstand elevated temperature and thermal cycling when encapsulated in photovoltaic module
- No pre-tack step required
- Thin consistent bond line
- Conforms to the topography of 'imperfect surfaces' providing excellent contact
- Conductive PSA forms strong immediate bonds

| Product Construction | | | |
|-----------------------|-----------------|-------|---|
| | Typical Values* | | Description |
| Copper foil thickness | 1.4 mil | 36 µm | Electronic grade tin coated copper foil |
| Adhesive thickness | 1.0 mil | 25 µm | Highly conductive PSA |
| Liner thickness | 2.0 mil | 51 µm | Clear polyester release liner |
| Total thickness | 2.4 mil | 61 µm | (Excluding liner) |

*All stated values are nominal and should only be used as a guide for selection. They are not specifications.

| Technical Properties | | | |
|--|---|-----------------------------|---|
| Attribute* | Typical Values* | | Test Method* |
| Peel adhesion on stainless steel | 55 oz/in | 15.3 N/25mm | 180°, 12 ipm, 1 hr. dwell |
| Tensile Strength | 30.2 lb/in | 52.8 N/cm | 12 ipm |
| Static Shear | ≥ 30 min | | ½" x ½", 500 grams |
| Liner Release | 30 g/2" | | 180°, 300 ipm |
| Flame Retardancy | Pass | | Per UL 510, Product Category OANZ2, Adhesives Research file No. E318981 |
| Electrical Properties | ~5 amps | | Current Carrying Capability ¹ |
| Electrical Properties | 1.6 x 10 ⁻⁸ Ω-m | | Volume Resistivity (calculated) ² |
| Electrical Properties | 4.8 X 10 ⁻⁴ Ω/□ | | Sheet Resistance ³ |
| Recommended storage of unconverted product | 70°F ± 20°F 50% ± 20% RH | 21°C ± 11°C 50% ± 20% RH | |
| Shelf life of unconverted product | Not to exceed one year from date of manufacture | | |

1. Approximate value based on 0.50" X 0.25" area.
2. Calculated from four point probe sheet resistance. Test Method: ART 15093.
3. Four point probe placed on adhesive surface of 0.5" wide sample. Probes spaced 0.5" apart.

| Accelerated Aging Performance | | | |
|-------------------------------|---|---------------------------------------|--|
| Conditioning | 180° Peel Stainless Steel ¹ (oz.in)* | 180° Peel Glass ¹ (oz/in)* | Volume Resistance ² (milliOhm)* |
| RT-1 week age | 78 | 80 | 4.96 |
| 65°C-1 Week Age | 85 | 90 | 5.37 |
| 120°C-1 Week Age | 66 | 62 | 3.82 |

1. Samples conditioned 1 week @ specific temperature. Samples tested @ 12" per minute.
2. Calculated from four point probe sheet resistance. Test Method: ART 15093

*All stated values are nominal and should only be used as a guide for selection. They are not specifications.

Product Information Sheet

ARcare® 90038



Note: The information contained on this data sheet is based upon test results of limited quantities of this material and may be modified by Adhesives Research following additional production experience and evaluation. This data should not be used in preparing specifications. Products identified as developmental may be subject to modification by Adhesives Research, Inc.

APPLICATION AND STORAGE OF PRESSURE-SENSITIVE ADHESIVE TAPES

Pressure-sensitive adhesive tapes function as a mechanical product; however, the adhesive itself is a chemical composition that can be sensitive to environmental conditions. A purchaser of pressure-sensitive adhesive products should be aware of the shelf life of each product and not purchase more than it can use before the expiration date. Shipping and storage conditions affect shelf life. The optimum storage temperature is 70 °F (21 °C). Cool, dry storage is recommended.

For best results...

- 1) The surfaces you wish to bond should be clean and free of oil, moisture and dust. If the surface temperature is below 40°F, it may be difficult to achieve a proper bond.
- 2) Do not use a pressure-sensitive adhesive product where it will be exposed to temperatures lower or higher than those designated for each product. Heat can destroy the effectiveness of the bond and extreme cold can cause the adhesive to harden and not adhere properly.
- 3) When the tape is applied, use firm hand or lamination pressure to achieve contact between the adhesive and the surface to which it is applied. Hand rollers or nip rollers may be needed for certain products or applications.

Consult your AR sales representative if you need additional information.

THIS IS NOT AN OFFER

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AR limits the purchaser's remedies in the event of a breach of any warranty. The purchaser's exclusive remedy and AR's obligations for a breach of any warranty shall be as set forth in the Sales Order Acknowledgment.

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