Antistatic Tape

Applications

Surface Resistance (73°F, 45% RH):
10E10 - 10E11 Ohms - ASTM-D-257
Static Generation from conductive plate:
(73°F, 45% RH): 80 volts average
Static Generation from roll:
(73°F, 45% RH): 50 volts average
Meets government specs: CID-A-A-113C, Type 1 Class A

Applications for Antistatic Clear Cellulose Tape with and without Symbols
- Sealing ESD bags and other ESD packaging / containers
- Use with ESD symbols for ESD awareness
- General purpose ESD tape applications
- Secure (bundle) IC DIP tubes
- Prevents damage to sensitive electronic components in manufacturing
- Ideal for holding notes, work orders or obstructions in offices, antistatic workstations, or for general purpose third hand use
- Ideal for conformal coating or holding and sealing supplies in manufacturing
- Ideal in packaging for container sealing, static shielding bag closure and holding DIP tubes

Applications for Antistatic Clear Cellulose Tape with Symbols
- Identification or marking product / paperwork / processes
- High visibility with ESD susceptibility symbol for increased awareness
- Attach ESD paperwork to bags or product
- Ideal in packaging for container sealing, static shielding bag closure and holding IC DIP tubes
- Prevents damage to sensitive electronic components in manufacturing

In ESD protected areas, replace regular high charging tape with Wescorp Antistatic Tape. ANSI/ESD S20.20 paragraph 6.23.1. state “All nonessential insulators, such as those made of plastics and paper (e.g., coffee cups, food wrappers and personal items) must be removed from the workstation.

Wescorp Antistatic Cellulose Tape Line
Technical Information for Antistatic Cellulose Tape

Thickness: 2.4 mil (0.06 mm)
Film construction: Cellulose
Adhesive: Rubber based - non-staining, absorbs moisture
Adhesive surface resistance: 10E10 - 10E11 Ohms
Temperature Range: -10°C - 71°C (14°F - 160°F)
100°C for 10 min max - MIL-B-81705
Color: Transparent
Roll Length: 36 yards (1” core); 72 yards (3” core)
Film Thickness: 2.0 mils
Elongation: 25%
Tensile Strength: 25 lbs/in²
Adhesion Strength: 40 oz/in²
**Wescorp Antistatic Conductive Shielding Grid Tape**

**Technical Information for Conductive Shielding Grid Tape**
Both surfaces non-tribocharging at 50% RH  
Thickness: 1.9 mil (0.049 mm)  
Adhesive: acrylic based  
Conductive grid layer (50% RH): 10E4 to 10E5 ohms  
Adhesive copolymer resistivity: 10E9 Ohms  
Copolymer layer resistivity: 10E12 Ohms  
Max Temperature: 140°F (60°C)  
Absence of shed, crack, chip, or rub off  
Non-corrosive

**Applications for Conductive Shielding Grid Tape**
- For applications requiring EMI shielding  
- Use in areas where the generation of static electricity is of concern  
- Using grounded Tape Dispenser, voltage generated by unrolling will effectively be reduced to zero  
- Secure (bundle) IC tubes  
- Covers external plugs, holes or connector pins on electronic chassis (black boxes, etc.) during transportation or storage

*Excerpt from the Naval Aviation Schools Command:* “…Weapon Replaceable Assemblies (WRA)s shall have ESD conductive plug caps or grid tape over all external cannon plugs and connector pins.”

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**Wescorp Antistatic High-Temp Polyimide Tape**

**Technical Information for High-Temp Polyimide Tape**
Removal leaves little or no residue  
Adhesive surface resistance: 10E2 to 10E4 Ohms  
Max Temperature: 572°F (300°C) 10 seconds  
Adhesive Strength: 1 N/cm (DIN), 5 oz/inch² (ASTM)  
Surface Resistance (Adhesive): 10E3 to 10E4 Ohms  
DuPont's Kapton® Polyimide Film or equivalent  
Thickness: 0.0254 mm (DIN), 1.0 mil (ASTM)  
Conductive Silicone Adhesive  
Thickness: 0.0356 mm (DIN), 1.4 mil thick (ASTM)  
Total Thickness: 0.060 mm (DIN), 2.4 mil (ASTM)  
Color: Brown Opaque  
Tensile Strength: 50 N/cm (DIN), 28 lbs/in² (ASTM)  
Elongation: 70% (DIN & ASTM)

Static Charge Generation (300 mm/min):  
- Removal from Core (23°C +/- 2°C, 50% +/- 2% RH): 5 volts, Internal Test Method  
- Removal from stainless steel (50% RH): 5 volts, Internal Test Method

Flamability: NASA STD 6001, Test 1  
Hypergol ignition and Penetration testing: MTB-175-88 (for casual contact)

**Applications for High-Temp Polyimide Tape**
- Ideal for masking gold leads and other components on boards populateFd with sensitive integrated circuits  
- Thick conductive adhesive excellent for conformability to protect critical PCB features  
- Near zero voltage generation when tape unrolled from roll [at 50% relative humidity]  
- Near zero voltage generation when tape removed from PCB [at 50% relative humidity]  
- Masking off PCBs for IR reflow ovens or wave soldering under 572°F (300°C) ~ 10 seconds
Proper Storage of Tape Rolls
SPI's Wescorp Brand ESD Tape line, if stored under proper conditions (see Note above) should retain its ESD technical properties as described by each corresponding Technical Drawing:

Wescorp Antistatic Cellulose Tape

Wescorp Antistatic Conductive Shielding Grid Tape

Wescorp Antistatic High Temp Polyimide Tape

Usability
The user must determine the suitability for use of an antistatic tape for his particular application.

Tape widths are nominal metric ±0.8 mm (± 1/32")
- 1/4” is 6 mm nominal or 0.236”
- 1/2” is 12 mm nominal or 0.472”
- 3/4” is 18 mm nominal or 0.709”
- 1” is 24 mm nominal or 0.945”
- 2” is 48 mm nominal or 1.890”

Limited Warranty
SPI expressly warrants that for a period of one (1) year from the date of purchase, SPI Antistatic Tape will be free of defects in material (parts) and workmanship (labor). Within the warranty period, the product will be tested, repaired, or replaced at our option, free of charge. Call our Customer Service Department at 909-664-9986 for a Return Material Authorization (RMA) and proper shipping instructions and address. Include a copy of your original packing slip, invoice, or other proof of purchase date. Any unit under warranty should be shipped prepaid to the SPI factory. Warranty repairs will take approximately two weeks.

Warranty Exclusions
THE FOREGOING EXPRESS WARRANTY IS MADE IN LIEU OF ALL OTHER PRODUCT WARRANTIES, EXPRESSED AND IMPLIED, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHICH ARE SPECIFICALLY DISCLAIMED. The express warranty will not apply to defects or damage due to accidents, neglect, misuse, alterations, operator error, or failure to properly maintain, clean or repair products.

Limit of Liability
In no event will SPI or any seller be responsible or liable for any injury, loss or damage, direct or consequential, arising out of the use of or the inability to use the product. Before using, users shall determine the suitability of the product for their intended use, and users assume all risk and liability whatsoever in connection therewith.
Material Safety Data Sheet

May be used to comply with
OSHA's Hazard Communication Standard,
29 CFR 1910.1200, Standard must be
consulted for specific requirements.

IDENTITY (As Used on Label and List)
Wescorp Antistatic Cellulose Tape

<table>
<thead>
<tr>
<th>NFPA Designation 704</th>
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<tbody>
<tr>
<td>Degree of Hazard:</td>
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<tr>
<td>4 = Extreme</td>
</tr>
<tr>
<td>3 = High</td>
</tr>
<tr>
<td>2 = Moderate</td>
</tr>
<tr>
<td>1 = Slight</td>
</tr>
<tr>
<td>0 = Insignificant</td>
</tr>
<tr>
<td>Special Hazard</td>
</tr>
<tr>
<td>Flammability (Red)</td>
</tr>
<tr>
<td>Reactivity (Yellow)</td>
</tr>
</tbody>
</table>

Note: Blank spaces are not permitted. If any item it not applicable, or no information is available the space must be marked to indicate that.

Section I

<table>
<thead>
<tr>
<th>Manufacturer's Name</th>
<th>Emergency Telephone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desco Industries Inc.</td>
<td>(909) 627-8178</td>
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<tr>
<th>Address (Number, Street, City, State, and Zip Code)</th>
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<td>3651 Walnut Avenue, Chino, CA 91710</td>
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<table>
<thead>
<tr>
<th>Date Prepared</th>
<th>Signature of Preparer (Optional)</th>
</tr>
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<tbody>
<tr>
<td>2-1-2006</td>
<td></td>
</tr>
</tbody>
</table>

Section II - Physical/Chemical Characteristics

| Solubility in Water | Negligible |

| Volatility at 100°C | Less than 0.1% |

Section III - Hazardous Ingredients

Hazardous Ingredients
None

Section IV - Fire and Explosion Hazard Data

<table>
<thead>
<tr>
<th>Flash Point (Method Used)</th>
<th>Flammable Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
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</table>

| Extinguishing Media |
| Water, dry chemicals, foam, and CO2 |

| Unusual Fire and Explosion Hazards |
| Produces dense black smoke if burned |

Section V - Reactivity Data

Reactivity
Not Reactive

| Conditions to Avoid |
| Exposure to temperatures in excess of 200°C/392°F cause decomposition. |

Section VI - Health Hazard Data

<table>
<thead>
<tr>
<th>Route(s) of Entry:</th>
<th>Inhalation?</th>
<th>Skin?</th>
<th>Ingestion?</th>
</tr>
</thead>
<tbody>
<tr>
<td>None Known</td>
<td>Minor Irritation</td>
<td>None Known</td>
<td></td>
</tr>
</tbody>
</table>

| Health Hazards (Acute and Chronic): |
| None known |

| Signs and Symptoms of Exposure |
| Skin: May cause skin irritation after protracted exposure with adhesive side to skin. |

Section VII - Precautions for Safe Handling and Use

Steps to Be Taken In Case Material is Released or Spilled
N/A

Section VII - Spill or Leak Procedures

N/A

Section VIII - Special Protection Information

N/A

N/A = Not Applicable; NE = None Established

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Material Safety Data Sheet

May be used to comply with OSHA's Hazard Communication Standard, 29 CFR 1910.1200. Standard must be consulted for specific requirements.

IDENTITY (As Used on Label and List)
Wescorp Antistatic Hi Temp Polyimide Tape

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</table>

Date Prepared: 2-1-2006
Signature of Preparer (Optional)

Section II - Physical/Chemical Characteristics
Polyimide Film
Electrically conductive particles embedded in a layer of polysiloxane adhesive

Section III - Hazardous Ingredients
No hazardous materials present

Section IV - First Aid Measures
4.1. Skin: No irritation is expected from handling the tape, however ensure good industrial hygiene and wash exposed areas with soap and Water.
4.2. Eyes: Rinse opened eye for several minutes under running water.
4.3. Inhalation: Not a probable route of exposure for adhesive tape. Exposure to the encapsulated electrically conductive articles in the adhesive layer is not likely.
4.4. Ingestion: Not a probable route of exposure for adhesive tape. Treat symptomatically.
4.5. Other first aid information: Not known

Section V - Fire Extinguishing Measures
5.1. Extinguishing media: Carbon dioxide, foam, dry powder, or fine water spray.
5.2. Unsuitable extinguishing media: None known
5.3. Unusual firefighting hazards: None known
5.4. Special firefighting procedures: Self-contained respirator should be worn.
5.5. Other recommendations: None known
5.6. Combustion products: Polyimide film chars but does not burn in air, however it will burn in an atmosphere of 100% oxygen. The major off-gases are carbon dioxide and carbon monoxide. The silicone adhesive layer also tends to char leaving residues of silica and off-gases containing carbon dioxide, traces of incompletely burned carbon products and formaldehyde.

Section VI - Accidental Release Measure
6.1. Personal protection: Avoid contact with eyes.
6.2. Precautions to protect the environment: None established
6.3. Clean up procedure: Pick up to prevent floor

Section VII - Handling and Storage
7.1. Handling precautions: Avoid contact with eyes. Ensure good industrial hygiene and wash skin with soap and water after contact.
7.2. Storage: No special measures are required.
7.3. Unsuitable packaging materials: None known.
7.4. Incompatibilities: None known.
7.5. Other information: None known.

Section VIII - Exposure Controls and Personal Protection
8.1 Exposure controls: Safe handling/usage of PPI RD-042 at high temperatures (above 200°C/392°F) requires adequate ventilation. Using small quantities normal air circulation may be adequate otherwise further ventilation measures are recommended.
8.2. Exposure controls for hazardous components: No hazardous materials present
8.3. Personal protective equipment:
    Respiratory: Not required for normal handling.
    Protective gloves: Not required for normal handling, if tape is hot gloves are recommended as good industrial practice.
    Eye/Face: Safety glasses are recommended as good industrial practice.
    Industrial Hygiene: Wash after handling, especially before eating, drinking or smoking. Exercise good industrial hygiene practice.

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Section IX - Physical and Chemical Properties

9.1 Appearance:
   Form: Self-adhesive tape   Color: Opaque black   Odor: None

9.2. Safety Related Information
   pH: Not determined
   Boiling point/Boiling range: Not determined
   Melting point/Melting range: Not determined
   Flash point: Not determined
   Flammability (solid): Non-flammable
   Auto flammability: Non-flammable
   Explosive properties: Not determined
   Oxidizing properties: Not determined
   Vapor pressure: Not determined
   Specific gravity: Not determined
   Solubility in water: Not soluble
   Solubility in organic solvent: Soluble in Toluene
   Oil/water partition co-efficient: Not determined

Other data:
   Vapor density (air=1): Not determined
   Evaporation rate (ethyl ether = 1): Not determined
   Viscosity: Not determined
   % Volatiles: < 0.05% @ 200°C (392°F)
   Molecular weight: Not determined

Section X - Stability and Reactivity

10.1 Stability: Stable at normal temperatures and storage conditions (ideal 23°C ± 2°C (73°F ± 4°F), 50% ± 2% relative humidity)
10.2 Reactivity:
   Conditions to avoid: none known.
   Materials to avoid: Can react with strong oxidizing agents
   Hazardous decomposition products: At temperatures above 400°C/752°F, the major off-gases from polyimide film are carbon monoxide and carbon dioxide. With prolonged exposure to temperatures above 150°C/302°F silicone adhesives in the presence of oxygen may emit trace quantities of formaldehyde.

Section XI - Toxicological Information

Possible Health Effects
   Skin: (1) Prolonged or repeated contact may lead to slight irritation
   Eyes: (1) May cause temporary discomfort
   Inhalation: (1) No adverse effects are normally expected.
   Ingestion: (1) Not known
   Other health hazard information: None known.
   LC 50 : Not determined
   LD 50 : Not determined

(1) This information is based either on test data, extrapolation from tests on similar materials, review of component details, or a combination of all of these.

Section XII - Ecological Impact

12.1 Elimination        Persistence: Not known          Degradability: The adhesive is partly biodegradable
12.2 Behavior in an aquatic environment        Mobility: Insoluble in water          Bioaccumulation: Not known
12.3 Aquatic: Ecotoxic effects not known        Terrestrial: Not known

Section XIII - Waste Disposal

13.1. Product disposal: Can be incinerated or land filled in accordance with federal, state and local regulations.
13.2. Packaging disposal: Packaging should be disposed of in accordance with regional and/or national regulations.

Section XIV - Transport Information

UNNO: Not applicable        Label: Not applicable
ROAD & RAIL TRANSPORT (ADR/RID) No special packaging or labeling required.
SEA TRANSPORT (IMO) No special packaging or labeling required.
IMO MARINE POLLUTANT: Not applicable
AIR TRANSPORT (ICAO) No special packaging or labeling required.

Section XV - Regulatory Information

15.1. EEC Supply classification & labeling: (1) Contains: Not applicable - No special packaging on labeling requirements
15.2 National legislation. For product information in other EC languages, including appropriate national legislation, please contact the sales office at the above address.
15.3 Other regulations
   German water class: 1 - slight risk of causing water pollution
   German Vbf: Not applicable
   Ozone depleting chemicals: No ozone depleting chemicals are present or used in manufacture.

N/A = Not Applicable; NE = None Established

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