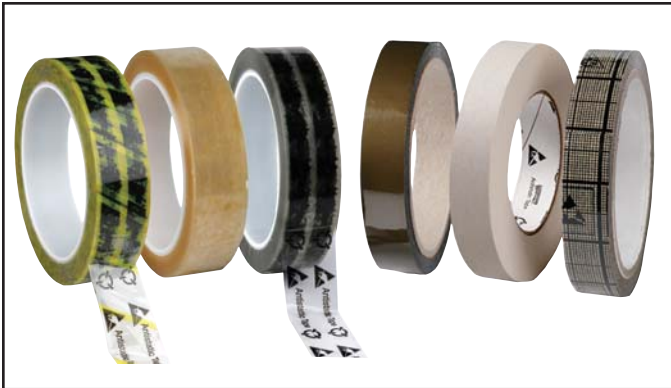




Antistatic Tape Applications



Wescorp Antistatic Tapes

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
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

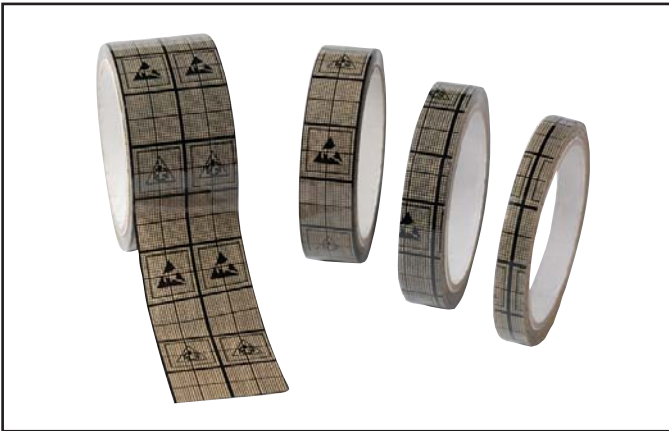
Applications for Antistatic Clear Cellulose Tape with and without Symbols

- 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 masking, 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

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): 10^4 to 10^5 ohms

Adhesive copolymer resistivity: 10^9 Ohms

Copolymer layer resistivity: 10^{12} 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."

Wescorp Antistatic High-Temp Masking Tape



Technical Information for High-Temp Masking Tape

Backing: Saturated, high strength crepe paper

Adhesive: Natural rubber based, non-staining, solvent spread, cured

Thickness: 0.18 mm / 7 mils

Adhesion Strength: 38 N/100 mm / 35 oz/in²

Tensile Strength: 385 N/100 mm / 22 lbs/in²

Temperature Resistance: 302°F (150°C) - 60 minutes

Color: Natural

Meets CDN Spec.: 53.79-94 Type 1

Meets US Spec.: A-A 883-B-Type 1

Roll Length: 55 meters (60 yards)

Thickness: 7.0 mils (0.18 mm)

Adhesion to Steel: 35 oz/inch²

Elongation: 8%

Moisture Resistance: fair

Solvent Resistance: good

Storage Stability: excellent

Temperature Range: -32°F to + 275°F

Max Temp: 275°F (135°C) 45 minutes max

Government Specs: PPP-T-42C

Type 1, CID-AA-883A Type 1

Waterproof

Tribocharges, but no charge retention (recommend slow unrolling utilizing an ionizer to neutralize charges)

Adhesive surface resistance: 10^{11} Ohms

Non-toxic, and pH neutral

Non-corrosive

What causes residue problems (excessive stickiness) for masking tape?

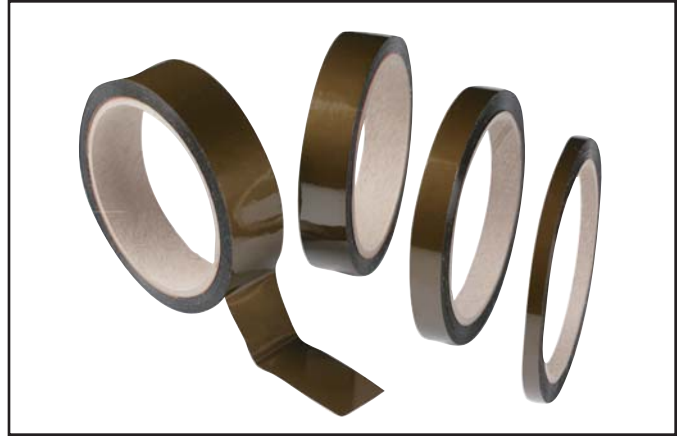
- 1) Direct sunlight [ultra-violet radiation]
- 2) Usage shelf life is the combination of time and heat a temperature of about 300°F for a duration of 1 hour or until it is cured out (not holding its adhesive)
- 3) Storage time
 - if stored flat (72°F) and rotated every 6-8 weeks, the product should be evaluated every 12 months
 - if stored in a hot environment (>70°F) then the tape should be evaluated every 6 months or less

Normal use of our High Temperature Low Charging tape is for masking or protective applications on printed circuit boards not exceeding temperatures of 150°C (302°F) at a duration under 60 minutes. If the tape is used for masking operations or temporary protection, it should not be left on the product for more than 24 hours. For best results, the tape should not be exposed to ultraviolet rays or high temperature for prolonged periods of time (beyond manufacturer's specs). This tape is non-staining under normal use as described above.

Applications for High-Temp Masking Tape

- Silk screening applications
- Masking application in spray and brush painting, non-staining
- Protective purposes in manufacturing processes, strips clean
- For securing polyethylene sheeting to walls during painting
- For OEM repair shops
- Use in applications masking PCBs gold features for wave soldering or soldering under 302°F (150°C)
- Thick conductive adhesive excellent for conformability to protect critical PCB features
- Ideal for masking gold leads and other components on boards populated with sensitive integrated circuits
- Easily handles high temperatures of wave soldering without leaving a residue
- Handles temperatures found in test and burn-in ovens

Wescorp Antistatic High-Temp Kapton® Tape



Technical Information for High-Temp Kapton® Tape

Removal leaves little or no residue
Adhesive surface resistivity: 10^3 to 10^4 Ohms
Max Temperature: 572°F (300°C) 10 seconds
Adhesive Strength: 1 N/cm (DIN), 5 oz/inch² (ASTM)
Surface Resistivity (Adhesive): 10^3 to 10^4 Ohms
DuPont's Kapton® Polyimide Film
Thickness: 0.0254 mm (DIN), 1.0 mil (ASTM)
Conductive Polysiloxide Adhesive
Thickness: 0.0356 mm (DIN), 1.4 mil thick (ASTM)
Total Thickness: 0.060 mm (DIN), 2.4 mil (ASTM)
Color: Brown Opaque
Adhesive Type: Silicone
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

Applications for High-Temp Kapton® Tape

- Ideal for masking gold leads and other components on boards populated 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

Applications for Aisle Marking Tape



- Use to mark off floors designating ESD Controlled areas
- Can be used as area signs

Tape Dispenser



2 inch wide Tape Dispenser Item #47036

- Use with Wescorp antistatic tapes
- For tapes with 3" Cores
- For tapes up to 2" wide
- Groundable chassis with cord

Proper Storage of Tape Rolls

For best results, tape inventory should be continually replenished. It is recommended that rolls of tape be stored flat and rotated (flipped over to the other side) 6 to 8 weeks. Tapes should be stored in a dry, well ventilated room with a reasonably consistent temperature of 68° F (20° C) and be protected from exposure to direct sunlight. Tape should not be stored while exposed to ultraviolet sunlight, moisture, or heat. Tape over one year old should be evaluated by the user to determine acceptability for the user's application. Master packs are date coded.

Protektive Pak'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

<http://www.protektivepak.com/pdf/47000.pdf>

Wescorp Antistatic Conductive Shielding Grid Tape

<http://www.protektivepak.com/pdf/47016.pdf>

Wescorp Antistatic High Temp Masking Tape

<http://www.protektivepak.com/pdf/47020.pdf>

Wescorp Antistatic High Temp Polyimide Tape

<http://www.protektivepak.com/pdf/47026.pdf>

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 ($\pm 1/32$ ")

- 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

Protektive Pak expressly warrants that for a period of one (1) year from the date of purchase, our Wescorp Brand Antistatic Tape will be free of defects in material (parts) and workmanship (labor). Within the warranty period, the material will be replaced at our option, free of charge. Call our Customer Service Department at 909-627-2578 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 material under warranty should be shipped prepaid to our factory.

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 Protektive Pak 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.

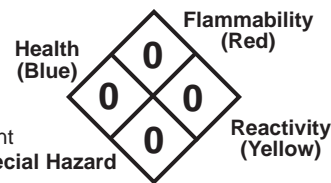
Material Safety Data Sheet

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

NFPA Designation 704

Degree of Hazard:
4 = Extreme
3 = High
2 = Moderate

1 = Slight
0 = Insignificant



IDENTITY (As Used on Label and List)

Wescorp Antistatic Cellulose Tape

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

Section I

Manufacturer's Name

Desco Industries Inc.

Address (Number, Street, City, State, and Zip Code)

3651 Walnut Avenue, Chino, CA 91710

Emergency Telephone Number

(909) 627-8178

Telephone Number for Information

(909) 627-8178

Date Prepared

2-1-2006

Signature of Preparer (Optional)

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

Flash Point (Method Used)

N/A

Flammable Limits

N/A

LEL

UEL

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

Route(s) of Entry:

Inhalation?

None Known

Skin?

Minor Irritation

Ingestion?

None Known

Health Hazards (Acute and Chronic):

None known

Signs and Symptoms of Exposure

Skin: May cause skin irritation after prolonged 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

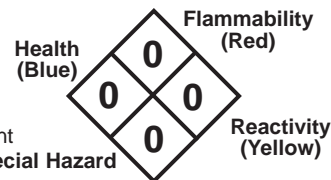
N/A = Not Applicable; NE = None Established

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.

NFPA Designation 704

Degree of Hazard:
4 = Extreme
3 = High
2 = Moderate
1 = Slight
0 = Insignificant



IDENTITY (As Used on Label and List)

Wescorp Antistatic Hi Temp Polyimide Tape

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

Section I

Manufacturer's Name Desco Industries Inc.	Emergency Telephone Number (909) 627-8178
Address (Number, Street, City, State, and Zip Code) 3651 Walnut Avenue, Chino, CA 91710	Telephone Number for Information (909) 627-8178
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
(1) According to Commission Directive 88/379/EEC (Article 3 6aa).

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 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.

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	Other data:	
Boiling point/Boiling range:	Not determined	Vapor density (air=1):	Not determined
Melting point/Melting range:	Not determined	Evaporation rate (ethyl ether = 1):	Not determined
Flash point:	Not determined	Viscosity:	Not determined
Flammability (solid):	Non-flammable	% Volatiles:	< 0.05% @ 200°C (392°F)
Auto flammability:	Non-flammable	Molecular weight:	Not determined
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		

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 or 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