MATERIAL SAFETY 3M DATA SHEET 3M Center St. Paul, Minnesota 55144-1000 1-800-364-3577 or (651) 737-6501 (24 hours) Copyright, 2001, Minnesota Mining and Manufacturing Company. All rights reserved. Copying and/or downloading of this information for the purpose of properly utilizing 3M products is allowed provided that: 1) the information is copied in full with no changes unless prior agreement is obtained from 3M, and 2) neither the copy nor the original is resold or otherwise distributed with the intention of earning a profit thereon. DIVISION: INDUSTRIAL TAPE AND SPECIALTIES DIVISION TRADE NAME: Scotch brand No. 5419 Low Static Polyimide Film Tape ID NUMBER/U.P.C.: 70-0000-8226-6 70-0000-8134-2 70-0061-9643-3 00-21200-26208-1 70-0061-9703-5 00-21200-73502-8 70-0061-9734-0 00-21200-73541-7 70-0160-5065-3 00-21200-64863-2

 70-0160-5066-1
 00-21200-23774-4
 70-0160-5067-9
 00-21200-64865-6

 70-0160-5068-7
 00-21200-64866-3
 70-0160-5481-2
 00-21200-23959-5

 70-0160-5488-7
 00-21200-24294-6
 70-0160-5521-5
 00-21200-26332-3

 70-0160-5522-3
 00-21200-26331-6
 70-0160-5523-1
 00-21200-26330-9

ISSUED: March 21, 2001 SUPERSEDES: July 12, 2000 DOCUMENT: 07-5794-8 _____ 1. INGREDIENT C.A.S. NO. PERCENT _____ - 40 MQ RESIN...... 56275-01-5 15
 SILICONES AND SILOXANES.....
 68083-14-7
 15

 POLYIMIDE FILM BACKING.....
 25038-81-7
 15
 - 40 - 40 A Material Safety Data Sheet is not required by the OSHA Hazard Communication Standard (29 CFR 1910.1200) for this product. This MSDS is provided as a service to customers. _____ 2. PHYSICAL DATA _____ BOILING POINT: N/A VAPOR PRESSURE:..... N/A VAPOR DENSITY: N/A EVAPORATION RATE: N/A SOLUBILITY IN WATER:..... nil SPECIFIC GRAVITY:..... N/A PERCENT VOLATILE:..... 0 % pH:.....N/A VISCOSITY: N/A MELTING POINT:..... N/D _____ Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

MSDS: Scotch brand No. 5419 Low Static Polyimide Film Tape March 21, 2001 PAGE 2 _____ 2. PHYSICAL DATA (continued) _____ APPEARANCE AND ODOR: Roll of Tape, brown, no odor. _____ 3. FIRE AND EXPLOSION HAZARD DATA _____ FLASH POINT:..... N/A FLAMMABLE LIMITS - LEL:..... N/A FLAMMABLE LIMITS - UEL:..... N/A AUTOIGNITION TEMPERATURE:..... N/D EXTINGUISHING MEDIA: Water, Carbon dioxide, Dry chemical, Foam SPECIAL FIRE FIGHTING PROCEDURES: None known. UNUSUAL FIRE AND EXPLOSION HAZARDS: No unusual fire or explosion hazards are anticipated. NFPA HAZARD CODES: HEALTH: 1 FIRE: 0 REACTIVITY: 0 UNUSUAL REACTION HAZARD: none _____ 4. REACTIVITY DATA _____ STABILITY: Stable INCOMPATIBILITY - MATERIALS/CONDITIONS TO AVOID: Avoid temperatures above 200 C without adequate ventilation. HAZARDOUS POLYMERIZATION: Hazardous polymerization will not occur. HAZARDOUS DECOMPOSITION PRODUCTS: Carbon Monoxide and Carbon Dioxide, Formaldehyde. _____ 5. ENVIRONMENTAL INFORMATION _____ SPILL RESPONSE: Not applicable. RECOMMENDED DISPOSAL: Dispose of waste product in a sanitary landfill. Disposal alternative: Incinerate in an industrial or commercial facility in the presence of a combustible material. _____ Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

MSDS: Scotch brand No. 5419 Low Static Polyimide Film Tape March 21, 2001 PAGE 3 _____ 5. ENVIRONMENTAL INFORMATION (continued) _____ ENVIRONMENTAL DATA: Not determined. **REGULATORY INFORMATION:** Volatile Organic Compounds: N/A. VOC Less H2O & Exempt Solvents: N/A. Since regulations vary, consult applicable regulations or authorities before disposal. U.S. EPA Hazardous Waste Number = None (Not U.S. EPA Hazardous). EPCRA HAZARD CLASS: FIRE HAZARD: NO PRESSURE: NO REACTIVITY: NO ACUTE: NO CHRONIC: NO _____ 6. SUGGESTED FIRST AID _____ EYE CONTACT: No need for first aid is anticipated. SKIN CONTACT: No need for first aid is anticipated. INHALATION: No need for first aid is anticipated. IF SWALLOWED: No need for first aid is anticipated. _____ 7. PRECAUTIONARY INFORMATION _____ _____ EYE PROTECTION: Not applicable. SKIN PROTECTION: Avoid prolonged or repeated skin contact. RECOMMENDED VENTILATION: Provide appropriate local exhaust when product is heated. RESPIRATORY PROTECTION: Avoid breathing of thermal decomposition products.

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MSDS: Scotch brand No. 5419 Low Static Polyimide Film Tape March 21, 2001

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7. PRECAUTIONARY INFORMATION (continued)

PREVENTION OF ACCIDENTAL INGESTION: Not applicable.

RECOMMENDED STORAGE: Not applicable.

FIRE AND EXPLOSION AVOIDANCE: Not applicable.

EXPOSURE LIMITS

| INGREDIENT | VALUE | UNIT | TYPE | AUTH | SKIN* |
|-------------------------|-------|-----------|------|-------|-------|
| MQ RESIN | NONE | NONE | NONE | NONE | |
| SILICONES AND SILOXANES | NONE | NONE | NONE | NONE | |
| POLYIMIDE FILM BACKING | 10 | MG/M3 | TWA | CMRG | |
| POLIIMIDE FILM BACKING | ± 0 | OTAL DUST | IWA | CMRG | |
| POLYIMIDE FILM BACKING | 5 | MG/M3 | TWA | CMRG | |
| | AS R | ESPIRABLE | | 01110 | |

* SKIN NOTATION: Listed substances indicated with 'Y' under SKIN refer to the potential contribution to the overall exposure by the cutaneous route including mucous membrane and eye, either by airborne or, more particularly, by direct contact with the substance. Vehicles can alter skin absorption.

SOURCE OF EXPOSURE LIMIT DATA: - CMRG: Chemical Manufacturer Recommended Exposure Guidelines

- NONE: None Established

8. HEALTH HAZARD DATA

EYE CONTACT:

Eye contact is not expected to occur during normal use of the product.

SKIN CONTACT: No adverse health effects are expected from skin contact.

Prolonged or repeated exposure may cause:

Mechanical skin irritation: signs/symptoms can include itching and redness.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

MSDS: Scotch brand No. 5419 Low Static Polyimide Film Tape March 21, 2001 PAGE 5 _____ 8. HEALTH HAZARD DATA (continued) _____ TNHALATTON: No adverse health effects are expected unless product is overheated. IF SWALLOWED: Ingestion is not a likely route of exposure to this product. OTHER HEALTH HAZARD INFORMATION: This product, when used under reasonable conditions or in accordance with the 3M directions for use, should not present a health and safety hazard. However, use or processing of the product in a manner not in accordance with the product's directions for use may affect the performance of the product and may present potential health and safety hazards. _____ SECTION CHANGE DATES _____ PRECAUTIONARY INFO. SECTION CHANGED SINCE July 12, 2000 ISSUE

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

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