



Material Safety Data Sheet

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This material safety data sheet (MSDS) is provided as a courtesy in response to a customer request. This product is not regulated under, and a MSDS is not required for this product by the OSHA Hazard Communication Standard (29 CFR 1910.1200) because, when used as recommended or under ordinary conditions, it should not present a health and safety hazard. However, use or processing of the product not in accordance with the product's recommendations or not under ordinary conditions may affect the performance of the product and may present potential health and safety hazards.

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: 3M™ BONDING FILM 588
MANUFACTURER: 3M
DIVISION: Electronics Markets Materials Division
Industrial Adhesives and Tapes Division
ADDRESS: 3M Center
St. Paul, MN 55144-1000

EMERGENCY PHONE: 1-800-364-3577 or (651) 737-6501 (24 hours)

Issue Date: 05/14/09
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Document Group: 10-8380-7

Product Use:

Intended Use: bonding

SECTION 2: INGREDIENTS

<u>Ingredient</u>	<u>C.A.S. No.</u>	<u>% by Wt</u>
PHENOL-FORMALDEHYDE POLYMER	9003-35-4	40 - 70
ACRYLONITRILE-BUTADIENE POLYMER	9003-18-3	15 - 40
TRIMETHYLDIHYDROQUINOLINE POLYMER	26780-96-1	1 - 5
ZINC OXIDE	1314-13-2	1 - 5
AMORPHOUS SILICA	7631-86-9	0.5 - 1.5
PHENOL	108-95-2	0.1 - 1
FORMALDEHYDE	50-00-0	0.1 - 1

SECTION 3: HAZARDS IDENTIFICATION

3.1 EMERGENCY OVERVIEW

Specific Physical Form: Film

Odor, Color, Grade: non-tacky, slight phenolic odor.

General Physical Form: Solid

Immediate health, physical, and environmental hazards: This product, when used under reasonable conditions and in accordance with the 3M directions for use, should not present a health 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.

3.2 POTENTIAL HEALTH EFFECTS

Eye Contact:

No health effects are expected.

Skin Contact:

No health effects are expected.

Inhalation:

No health effects are expected.

Ingestion:

No health effects are expected.

SECTION 4: FIRST AID MEASURES

4.1 FIRST AID PROCEDURES

The following first aid recommendations are based on an assumption that appropriate personal and industrial hygiene practices are followed.

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.

SECTION 5: FIRE FIGHTING MEASURES

5.1 FLAMMABLE PROPERTIES

Autoignition temperature	<i>No Data Available</i>
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Flammable Limits - LEL	<i>Not Applicable</i>
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Flammable Limits - UEL	<i>Not Applicable</i>
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5.2 EXTINGUISHING MEDIA

Use fire extinguishers with class B extinguishing agents (e.g., dry chemical, carbon dioxide).

5.3 PROTECTION OF FIRE FIGHTERS

Special Fire Fighting Procedures: Wear full protective equipment (Bunker Gear) and a self-contained breathing apparatus (SCBA).

Unusual Fire and Explosion Hazards: No unusual fire or explosion hazards are anticipated.

Note: See STABILITY AND REACTIVITY (SECTION 10) for hazardous combustion and thermal decomposition information.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Not applicable.

SECTION 7: HANDLING AND STORAGE

7.1 HANDLING

Avoid breathing of dust created by cutting, sanding, grinding or machining. This product is considered to be an article which does not release or otherwise result in exposure to a hazardous chemical under normal use conditions.

7.2 STORAGE

Product should be stored below 40°F to maximize usable shelf-life.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 ENGINEERING CONTROLS

Not applicable.

8.2 PERSONAL PROTECTIVE EQUIPMENT (PPE)

8.2.1 Eye/Face Protection

Avoid eye contact.

8.2.2 Skin Protection

Gloves not normally required. Avoid prolonged or repeated skin contact. Gloves are not required.

8.2.3 Respiratory Protection

Under normal use conditions, airborne exposures are not expected to be significant enough to require respiratory protection.

8.2.4 Prevention of Swallowing

Not applicable.

8.3 EXPOSURE GUIDELINES

<u>Ingredient</u>	<u>Authority</u>	<u>Type</u>	<u>Limit</u>	<u>Additional Information</u>
FORMALDEHYDE	ACGIH	CEIL	0.3 ppm	Sensitizer; Table A2
FORMALDEHYDE	CMRG	TWA	0.5 ppm	
FORMALDEHYDE	OSHA	TWA	0.5 ppm	Standard Appendix
OIL MIST, MINERAL	ACGIH	TWA, as mist	5 mg/m3	
OIL MIST, MINERAL	ACGIH	STEL, as mist	10 mg/m3	
OIL MIST, MINERAL	OSHA	TWA, as mist	5 mg/m3	Table Z-1
PHENOL	ACGIH	TWA	5 ppm	Skin Notation*; Table A4
PHENOL	OSHA	TWA	5 ppm	Skin Notation*; Table Z-1
AMORPHOUS SILICA	CMRG	TWA, as respirable dust	3 mg/m3	
ZINC OXIDE	ACGIH	TWA, respirable	2 mg/m3	
ZINC OXIDE	ACGIH	STEL	10 mg/m3	
ZINC OXIDE	OSHA	TWA, as fume	5 mg/m3	Table Z-1
ZINC OXIDE	OSHA	TWA, respirable	5 mg/m3	Table Z-1
ZINC OXIDE	OSHA	STEL, Vacated, as fume	10 mg/m3	
ZINC OXIDE	OSHA	TWA, Vacated, as dust	10 mg/m3	
ZINC OXIDE	OSHA	TWA, as total dust	15 mg/m3	Table Z-1

* Substance(s) 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.

VAC Vacated PEL: Vacated Permissible Exposure Limits [PEL] are enforced as the OSHA PEL in some states. Check with your local regulatory agency.

SOURCE OF EXPOSURE LIMIT DATA:

ACGIH: American Conference of Governmental Industrial Hygienists

CMRG: Chemical Manufacturer Recommended Guideline

OSHA: Occupational Safety and Health Administration

AIHA: American Industrial Hygiene Association Workplace Environmental Exposure Level (WEEL)

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Specific Physical Form:	Film
Odor, Color, Grade:	non-tacky, slight phenolic odor.
General Physical Form:	Solid
Autoignition temperature	<i>No Data Available</i>
Flammable Limits - LEL	<i>Not Applicable</i>
Flammable Limits - UEL	<i>Not Applicable</i>
Boiling point	<i>Not Applicable</i>
Vapor Density	<i>Not Applicable</i>
Vapor Pressure	<i>Not Applicable</i>
Specific Gravity	Approximately 1.1 [Ref Std: WATER=1]
pH	<i>Not Applicable</i>
Melting point	<i>No Data Available</i>
Solubility in Water	Nil
Evaporation rate	<i>Not Applicable</i>

Hazardous Air Pollutants	Not Applicable
Volatile Organic Compounds	No Data Available
Percent volatile	Not Applicable
VOC Less H2O & Exempt Solvents	No Data Available
Viscosity	Not Applicable

SECTION 10: STABILITY AND REACTIVITY

Stability: Stable.

Materials and Conditions to Avoid: None known

Hazardous Polymerization: Hazardous polymerization will not occur.

Hazardous Decomposition or By-Products

<u>Substance</u>	<u>Condition</u>
Hydrocarbons	During Combustion
Carbon monoxide	During Combustion
Carbon dioxide	During Combustion
Oxides of Nitrogen	During Combustion
Oxides of Zinc	During Combustion

Hazardous Decomposition: Under recommended usage conditions, hazardous decomposition products are not expected. Hazardous decomposition products may occur as a result of oxidation, heating, or reaction with another material.

SECTION 11: TOXICOLOGICAL INFORMATION

Please contact the address listed on the first page of the MSDS for Toxicological Information on this material and/or its components.

SECTION 12: ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

Not determined.

CHEMICAL FATE INFORMATION

Not determined.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Method: Dispose of waste product in a sanitary landfill. As a disposal alternative, incinerate in an industrial or commercial facility.

Since regulations vary, consult applicable regulations or authorities before disposal.

SECTION 14: TRANSPORT INFORMATION

ID Number(s):

62-0037-0151-3, 62-0037-1811-1, 62-0037-2001-8, 62-0037-2801-1, 62-0037-3301-1, 62-0037-4101-4, 62-0037-4721-9, 70-0025-1213-8, 70-0060-1574-0, 70-0060-2118-5, 70-0060-2259-7, 70-0060-3959-1, 70-0063-3561-9, 70-0063-3593-2, 70-0063-3647-6, 70-0063-3651-8, 70-0063-3652-6, 70-0063-3653-4, 70-0063-3654-2, 70-0160-2352-8

Not regulated per U.S. DOT, IATA or IMO.

These transportation classifications are provided as a customer service. As the shipper YOU remain responsible for complying with all applicable laws and regulations, including proper transportation classification and packaging. 3M's transportation classifications are based on product formulation, packaging, 3M policies and 3M's understanding of applicable current regulations. 3M does not guarantee the accuracy of this classification information. This information applies only to transportation classification and not the packaging, labeling, or marking requirements. The original 3M package is certified for U.S. ground shipment only. If you are shipping by air or ocean, the package may not meet applicable regulatory requirements.

SECTION 15: REGULATORY INFORMATION

US FEDERAL REGULATIONS

Contact 3M for more information.

311/312 Hazard Categories:

Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No Immediate Hazard - No Delayed Hazard - No

Section 313 Toxic Chemicals subject to the reporting requirements of that section and 40 CFR part 372 (EPCRA):

<u>Ingredient</u>	<u>C.A.S. No</u>	<u>% by Wt</u>
ZINC OXIDE (ZINC COMPOUNDS)	1314-13-2	1 - 5
FORMALDEHYDE	50-00-0	0.1 - 1

STATE REGULATIONS

Contact 3M for more information.

CHEMICAL INVENTORIES

The components of this product are in compliance with the chemical notification requirements of TSCA.

All applicable chemical ingredients in this material are listed on the European Inventory of Existing Chemical Substances (EINECS), or are exempt polymers whose monomers are listed on EINECS.

Contact 3M for more information.

INTERNATIONAL REGULATIONS

Contact 3M for more information.

This MSDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SECTION 16: OTHER INFORMATION

NFPA Hazard Classification

Health: 0 **Flammability:** 0 **Reactivity:** 0 **Special Hazards:** None

National Fire Protection Association (NFPA) hazard ratings are designed for use by emergency response personnel to address the hazards that are presented by short-term, acute exposure to a material under conditions of fire, spill, or similar emergencies. Hazard ratings are primarily based on the inherent physical and toxic properties of the material but also include the toxic properties of combustion or decomposition products that are known to be generated in significant quantities.

Revision Changes:

Section 1: Product name was modified.

Section 1: Product use information was modified.

Copyright was modified.

Section 14: Transportation legal text was modified.

Page Heading: Product name was modified.

Section 14: ID Number Heading Template 1 was added.

Section 14: ID Number(s) Template 1 was added.

Section 2: Ingredient table was added.

Section 15: EPCRA 313 information was added.

Section 15: EPCRA 313 text was added.

Section 8: Exposure guidelines ingredient information was added.

Section 8: Exposure guidelines legend was added.

Section 8: Exposure guideline note was added.

Section 8: Exposure guidelines data source legend was added.

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