



Safety Data Sheet

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SECTION 1: Identification

1.1. Product identifier

3M™ Thermal Bonding Film 583

Product Identification Numbers

70-0000-0535-8, 70-0025-1111-4, 70-0025-1113-0, 70-0025-1124-7, 70-0025-1133-8, 70-0025-1135-3, 70-0025-1156-9, 70-0060-0418-1, 70-0060-0721-8, 70-0060-2627-5, 70-0060-4361-9, 70-0060-4362-7, 70-0060-4363-5, 70-0062-6963-6, 70-0062-6964-4, 70-0062-6966-9, 70-0160-0205-0, 70-0715-4594-4, 80-0014-2685-9, 80-0014-2743-6, GT-3000-6252-5, 7100030075, 7000047509, 7000047510, 7000047511, 7000122496, 7010331694, 7000048381, 7000001156, 7000028859, 7010334012, 7000048453, 7000048454, 7000048846, 7100022220, 7100048746, 7010378931, 7100153218, 7100182119, 7100215655

1.2. Recommended use and restrictions on use

Recommended use

Bonding, bonding film

1.3. Supplier's details

MANUFACTURER:	3M
DIVISION:	Electronics Materials Solutions Division
ADDRESS:	3M Center, St. Paul, MN 55144-1000, USA
Telephone:	1-888-3M HELPS (1-888-364-3577)

1.4. Emergency telephone number

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

SECTION 2: Hazard identification

2.1. Hazard classification

Serious Eye Damage/Irritation: Category 1.

Reproductive Toxicity: Category 2.

2.2. Label elements

Signal word

Danger

Symbols

Corrosion | Health Hazard |

Pictograms**Hazard Statements**

Causes serious eye damage.

Suspected of damaging fertility or the unborn child.

Precautionary Statements**Prevention:**

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Wear protective gloves and eye/face protection.

Response:

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

Immediately call a POISON CENTER or doctor/physician.

IF exposed or concerned: Get medical advice/attention.

Disposal:

Dispose of contents/container in accordance with applicable local/regional/national/international regulations.

11% of the mixture consists of ingredients of unknown acute dermal toxicity.

SECTION 3: Composition/information on ingredients

Ingredient	C.A.S. No.	% by Wt
acrylonitrile-butadiene polymer	9003-18-3	40 - 50
p-tert-butylphenol-formaldehyde resin	25085-50-1	20 - 25
glycerol esters of rosin acids	8050-31-5	1 - 15
tackifier	Trade Secret*	1 - 15
salicylic acid	69-72-7	1 - 5 Trade Secret *
zinc oxide	1314-13-2	1 - 5
benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene	68411-46-1	< 3 Trade Secret *
potassium rosinat	61790-50-9	< 1
p-tert-butylphenol	98-54-4	<= 1 Trade Secret *
additive	Trade Secret*	<= 1
liner	None	0

*The specific chemical identity and/or exact percentage (concentration) of this composition has been withheld as a trade secret.

SECTION 4: First aid measures**4.1. Description of first aid measures****Inhalation:**

Remove person to fresh air. If you feel unwell, get medical attention.

Skin Contact:

Wash with soap and water. If you are concerned, get medical advice.

Eye Contact:

Immediately flush with large amounts of water for at least 15 minutes. Remove contact lenses if easy to do. Continue rinsing. Immediately get medical attention.

If Swallowed:

Rinse mouth. If you feel unwell, get medical attention.

4.2. Most important symptoms and effects, both acute and delayed

Serious damage to the eyes (corneal cloudiness, severe pain, tearing, ulcerations, and significantly impaired or loss of vision).

4.3. Indication of any immediate medical attention and special treatment required

Not applicable

SECTION 5: Fire-fighting measures**5.1. Suitable extinguishing media**

In case of fire: Use a fire fighting agent suitable for ordinary combustible material such as water or foam to extinguish.

5.2. Special hazards arising from the substance or mixture

None inherent in this product.

Hazardous Decomposition or By-Products**Substance**

Hydrocarbons
Carbon monoxide
Carbon dioxide
Oxides of Nitrogen
Oxides of Zinc

Condition

During Combustion
During Combustion
During Combustion
During Combustion
During Combustion

5.3. Special protective actions for fire-fighters

Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.

SECTION 6: Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures**

Evacuate area. Ventilate the area with fresh air. Refer to other sections of this SDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment.

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Collect as much of the spilled material as possible. Place in a closed container approved for transportation by appropriate authorities. Clean up residue. Seal the container. Dispose of collected material as soon as possible in accordance with applicable local/regional/national/international regulations.

SECTION 7: Handling and storage**7.1. Precautions for safe handling**

For industrial/occupational use only. Not for consumer sale or use. Do not handle until all safety precautions have been

read and understood. Avoid breathing dust/fume/gas/mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Avoid release to the environment. Use personal protective equipment (gloves, respirators, etc.) as required.

7.2. Conditions for safe storage including any incompatibilities

Store away from heat.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

If a component is disclosed in section 3 but does not appear in the table below, an occupational exposure limit is not available for the component.

Ingredient	C.A.S. No.	Agency	Limit type	Additional Comments
zinc oxide	1314-13-2	ACGIH	TWA(respirable fraction):2 mg/m ³ ;STEL(respirable fraction):10 mg/m ³	
zinc oxide	1314-13-2	OSHA	TWA(as total dust):15 mg/m ³ ;TWA(respirable fraction):5 mg/m ³ ;TWA(as fume):5 mg/m ³	

ACGIH : American Conference of Governmental Industrial Hygienists

AIHA : American Industrial Hygiene Association

CMRG : Chemical Manufacturer's Recommended Guidelines

OSHA : United States Department of Labor - Occupational Safety and Health Administration

TWA: Time-Weighted-Average

STEL: Short Term Exposure Limit

CELL: Ceiling

8.2. Exposure controls

8.2.1. Engineering controls

Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below relevant Exposure Limits and/or control dust/fume/gas/mist/vapors/spray. If ventilation is not adequate, use respiratory protection equipment.

8.2.2. Personal protective equipment (PPE)

Eye/face protection

Select and use eye/face protection to prevent contact based on the results of an exposure assessment. The following eye/face protection(s) are recommended:

Full Face Shield

Indirect Vented Goggles

Skin/hand protection

Select and use gloves and/or protective clothing approved to relevant local standards to prevent skin contact based on the results of an exposure assessment. Selection should be based on use factors such as exposure levels, concentration of the substance or mixture, frequency and duration, physical challenges such as temperature extremes, and other use conditions. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible gloves/protective clothing. Note: Nitrile gloves may be worn over polymer laminate gloves to improve dexterity.

Gloves made from the following material(s) are recommended: Polymer laminate

Respiratory protection

An exposure assessment may be needed to decide if a respirator is required. If a respirator is needed, use respirators as part

of a full respiratory protection program. Based on the results of the exposure assessment, select from the following respirator type(s) to reduce inhalation exposure:

Half facepiece or full facepiece air-purifying respirator suitable for organic vapors and particulates

Half facepiece or full facepiece supplied-air respirator

For questions about suitability for a specific application, consult with your respirator manufacturer.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance

Physical state

Solid

Color

Colorless

Specific Physical Form:

Film

Odor

Slight Phenolic

Odor threshold

Not Applicable

pH

Not Applicable

Melting point

No Data Available

Boiling Point

Not Applicable

Flash Point

≥ 200 °F [*Test Method: Closed Cup*]

Evaporation rate

Not Applicable

Flammability (solid, gas)

Not Classified

Flammable Limits(LEL)

Not Applicable

Flammable Limits(UEL)

Not Applicable

Vapor Pressure

Not Applicable

Vapor Density

Not Applicable

Density

No Data Available

Specific Gravity

1.06 [*Ref Std: WATER=1*]

Solubility in Water

Nil

Solubility- non-water

Not Applicable

Partition coefficient: n-octanol/ water

No Data Available

Autoignition temperature

No Data Available

Decomposition temperature

Not Applicable

Viscosity

Not Applicable

Volatile Organic Compounds

Not Applicable

Percent volatile

Not Applicable

VOC Less H₂O & Exempt Solvents

Not Applicable

SECTION 10: Stability and reactivity

10.1. Reactivity

This material may be reactive with certain agents under certain conditions - see the remaining headings in this section.

10.2. Chemical stability

Stable.

10.3. Possibility of hazardous reactions

Hazardous polymerization will not occur.

10.4. Conditions to avoid

Heat

10.5. Incompatible materials

None known.

10.6. Hazardous decomposition products**Substance**

None known.

Condition

Refer to section 5.2 for hazardous decomposition products during combustion.

SECTION 11: Toxicological information

The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. In addition, toxicological data on ingredients may not be reflected in the material classification and/or the signs and symptoms of exposure, because an ingredient may be present below the threshold for labeling, an ingredient may not be available for exposure, or the data may not be relevant to the material as a whole.

11.1. Information on Toxicological effects**Signs and Symptoms of Exposure**

Based on test data and/or information on the components, this material may produce the following health effects:

Inhalation:

Respiratory Tract Irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

Skin Contact:

Contact with the skin during product use is not expected to result in significant irritation. Allergic Skin Reaction (non-photo induced) in sensitive people: Signs/symptoms may include redness, swelling, blistering, and itching.

Eye Contact:

Corrosive (Eye Burns): Signs/symptoms may include cloudy appearance of the cornea, chemical burns, severe pain, tearing, ulcerations, significantly impaired vision or complete loss of vision.

Ingestion:

Physical Blockage: Signs/symptoms may include cramping, abdominal pain, and constipation.

Gastrointestinal Irritation: Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea.

May cause additional health effects (see below).

Additional Health Effects:**Reproductive/Developmental Toxicity:**

Contains a chemical or chemicals which can cause birth defects or other reproductive harm.

Toxicological Data

If a component is disclosed in section 3 but does not appear in a table below, either no data are available for that endpoint or the data are not sufficient for classification.

Acute Toxicity

Name	Route	Species	Value
Overall product	Dermal		No data available; calculated ATE >5,000 mg/kg
Overall product	Ingestion		No data available; calculated ATE >5,000 mg/kg
acrylonitrile-butadiene polymer	Dermal	Rabbit	LD50 > 15,000 mg/kg
acrylonitrile-butadiene polymer	Ingestion	Rat	LD50 > 30,000 mg/kg

p-tert-butylphenol-formaldehyde resin	Dermal		LD50 estimated to be > 5,000 mg/kg
p-tert-butylphenol-formaldehyde resin	Ingestion	Rat	LD50 5,660 mg/kg
tackifier	Ingestion	Mouse	LD50 > 2,000 mg/kg
glycerol esters of rosin acids	Dermal	Rabbit	LD50 > 5,000 mg/kg
glycerol esters of rosin acids	Ingestion	Rat	LD50 > 2,000 mg/kg
zinc oxide	Dermal		LD50 estimated to be > 5,000 mg/kg
zinc oxide	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 5.7 mg/l
zinc oxide	Ingestion	Rat	LD50 > 5,000 mg/kg
salicylic acid	Dermal	Rat	LD50 > 2,000 mg/kg
salicylic acid	Ingestion	Rat	LD50 891 mg/kg
benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene	Dermal	Rat	LD50 > 2,000 mg/kg
benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene	Ingestion	Rat	LD50 > 5,000 mg/kg
potassium rosinate	Dermal	Rat	LD50 > 2,000 mg/kg
potassium rosinate	Ingestion	Rat	LD50 > 2,000 mg/kg
p-tert-butylphenol	Dermal	Rabbit	LD50 2,318 mg/kg
p-tert-butylphenol	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 5.6 mg/l
p-tert-butylphenol	Ingestion	Rat	LD50 4,000 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
acrylonitrile-butadiene polymer	Professional judgement	No significant irritation
glycerol esters of rosin acids	Rabbit	Minimal irritation
zinc oxide	Human and animal	No significant irritation
salicylic acid	Rabbit	No significant irritation
benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene	Rabbit	Mild irritant
potassium rosinate	Rabbit	No significant irritation
p-tert-butylphenol	Rabbit	Irritant

Serious Eye Damage/Irritation

Name	Species	Value
acrylonitrile-butadiene polymer	Professional judgement	No significant irritation
glycerol esters of rosin acids	Rabbit	Mild irritant
zinc oxide	Rabbit	Mild irritant
salicylic acid	Rabbit	Corrosive
benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene	Rabbit	Mild irritant
potassium rosinate	Rabbit	Moderate irritant
p-tert-butylphenol	Rabbit	Corrosive

Skin Sensitization

Name	Species	Value
p-tert-butylphenol-formaldehyde resin	Human	Some positive data exist, but the data are not sufficient for classification
glycerol esters of rosin acids	Guinea pig	Not classified
zinc oxide	Guinea pig	Not classified

salicylic acid	Mouse	Not classified
benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene	Guinea pig	Not classified
potassium rosinat	Mouse	Not classified
p-tert-butylphenol	Human and animal	Not classified

Photosensitization

Name	Species	Value
salicylic acid	Mouse	Not sensitizing

Respiratory Sensitization

For the component/components, either no data are currently available or the data are not sufficient for classification.

Germ Cell Mutagenicity

Name	Route	Value
glycerol esters of rosin acids	In Vitro	Not mutagenic
zinc oxide	In Vitro	Some positive data exist, but the data are not sufficient for classification
zinc oxide	In vivo	Some positive data exist, but the data are not sufficient for classification
salicylic acid	In Vitro	Not mutagenic
salicylic acid	In vivo	Not mutagenic
benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene	In Vitro	Not mutagenic
p-tert-butylphenol	In Vitro	Not mutagenic

Carcinogenicity

Name	Route	Species	Value
p-tert-butylphenol	Ingestion	Multiple animal species	Some positive data exist, but the data are not sufficient for classification

Reproductive Toxicity

Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test Result	Exposure Duration
zinc oxide	Ingestion	Not classified for reproduction and/or development	Multiple animal species	NOAEL 125 mg/kg/day	prematings & during gestation
salicylic acid	Ingestion	Toxic to development	Rat	NOAEL 75 mg/kg/day	during organogenesis
benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene	Ingestion	Not classified for male reproduction	Rat	NOAEL 54 mg/kg/day	2 generation
benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene	Ingestion	Not classified for development	Rat	NOAEL 18 mg/kg/day	2 generation
benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene	Ingestion	Toxic to female reproduction	Rat	NOAEL 54 mg/kg/day	2 generation
p-tert-butylphenol	Ingestion	Not classified for male reproduction	Rat	NOAEL 600 mg/kg/day	2 generation
p-tert-butylphenol	Ingestion	Not classified for development	Rat	NOAEL 70 mg/kg/day	2 generation
p-tert-butylphenol	Ingestion	Toxic to female reproduction	Rat	NOAEL 200 mg/kg/day	2 generation

Target Organ(s)

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL not available	
potassium rosinate	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL Not available	
p-tert-butylphenol	Inhalation	respiratory irritation	May cause respiratory irritation	Rat	LOAEL 5.6 mg/l	4 hours

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
glycerol esters of rosin acids	Ingestion	liver heart skin endocrine system bone, teeth, nails, and/or hair blood bone marrow hematopoietic system immune system muscles nervous system eyes kidney and/or bladder respiratory system	Not classified	Rat	NOAEL 5,000 mg/kg/day	90 days
zinc oxide	Ingestion	nervous system	Not classified	Rat	NOAEL 600 mg/kg/day	10 days
zinc oxide	Ingestion	endocrine system hematopoietic system kidney and/or bladder	Not classified	Other	NOAEL 500 mg/kg/day	6 months
salicylic acid	Ingestion	liver	Not classified	Rat	NOAEL 500 mg/kg/day	3 days
benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene	Ingestion	nervous system	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 54 mg/kg/day	98 days
benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene	Ingestion	endocrine system liver kidney and/or bladder heart gastrointestinal tract bone, teeth, nails, and/or hair hematopoietic system immune system muscles eyes respiratory system	Not classified	Rat	NOAEL 225 mg/kg/day	28 days
p-tert-butylphenol	Ingestion	endocrine system liver kidney and/or bladder	Not classified	Rat	NOAEL 600 mg/kg/day	2 generation
p-tert-butylphenol	Ingestion	blood	Not classified	Rat	NOAEL 200 mg/kg	6 weeks

Aspiration Hazard

For the component/components, either no data are currently available or the data are not sufficient for classification.

Please contact the address or phone number listed on the first page of the SDS for additional toxicological information on this material and/or its components.

SECTION 12: Ecological information

Ecotoxicological information

Please contact the address or phone number listed on the first page of the SDS for additional ecotoxicological information on this material and/or its components.

Chemical fate information

Please contact the address or phone number listed on the first page of the SDS for additional chemical fate information on this material and/or its components.

SECTION 13: Disposal considerations

13.1. Disposal methods

Dispose of contents/ container in accordance with the local/regional/national/international regulations.

Dispose of waste product in a permitted industrial waste facility. As a disposal alternative, incinerate in a permitted waste incineration facility. Proper destruction may require the use of additional fuel during incineration processes. Empty drums/barrels/containers used for transporting and handling hazardous chemicals (chemical substances/mixtures/preparations classified as Hazardous as per applicable regulations) shall be considered, stored, treated & disposed of as hazardous wastes unless otherwise defined by applicable waste regulations. Consult with the respective regulating authorities to determine the available treatment and disposal facilities.

EPA Hazardous Waste Number (RCRA): Not regulated

SECTION 14: Transport Information

For Transport Information, please visit <http://3M.com/Transportinfo> or call 1-800-364-3577 or 651-737-6501.

SECTION 15: Regulatory information

15.1. US Federal Regulations

Contact 3M for more information.

EPCRA 311/312 Hazard Classifications:

Physical Hazards
Not applicable

Health Hazards
Reproductive toxicity
Serious eye damage or eye irritation

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

15.2. State Regulations

Contact 3M for more information.

15.3. Chemical Inventories

The components of this product are in compliance with the chemical notification requirements of TSCA. All required components of this product are listed on the active portion of the TSCA Inventory.

This product is an article as defined by TSCA regulations, and is exempt from TSCA Inventory listing requirements.

Contact 3M for more information.

15.4. International Regulations

Contact 3M for more information.

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

SECTION 16: Other information

NFPA Hazard Classification

Health: 3 **Flammability:** 1 **Instability:** 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.

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