



## Safety Data Sheet

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### SECTION 1: Identification

#### 1.1. Product identifier

3M™ Thermally Conductive Epoxy Adhesive TC-2810 (Part B)

#### 1.2. Recommended use and restrictions on use

##### Recommended use

Conductive adhesive., 2 PART ADHESIVE

#### 1.3. Supplier's details

<b>MANUFACTURER:</b>	3M
<b>DIVISION:</b>	Electronics Materials Solutions Division
<b>ADDRESS:</b>	3M Center, St. Paul, MN 55144-1000, USA
<b>Telephone:</b>	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 2B.

Skin Sensitizer: Category 1.

## 2.2. Label elements

### Signal word

Warning

### Symbols

Exclamation mark |

### Pictograms



### Hazard Statements

Causes eye irritation.

May cause an allergic skin reaction.

### Precautionary Statements

#### Prevention:

Avoid breathing dust/fume/gas/mist/vapors/spray.

Wear protective gloves.

Wash thoroughly after handling.

Contaminated work clothing must not be allowed out of the workplace.

#### Response:

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

If eye irritation persists: Get medical advice/attention.

IF ON SKIN: Wash with plenty of soap and water.

If skin irritation or rash occurs: Get medical advice/attention.

Wash contaminated clothing before reuse.

#### Disposal:

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

## 2.3. Hazards not otherwise classified

**SECTION 3: Composition/information on ingredients**

Ingredient	C.A.S. No.	% by Wt
epoxy resin	25068-38-6	30 - 70 Trade Secret *
boron nitride	10043-11-5	20 - 30
methyl methacrylate - butadiene - styrene polymer	Trade Secret*	5 - 10

\*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:**

Immediately wash with soap and water. Remove contaminated clothing and wash before reuse. If signs/symptoms develop, get medical attention.

**Eye Contact:**

Flush with large amounts of water. Remove contact lenses if easy to do. Continue rinsing. If signs/symptoms persist, 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**

See Section 11.1. Information on toxicological effects.

**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**

Aldehydes  
Carbon monoxide  
Carbon dioxide

**Condition**

During Combustion  
During Combustion  
During Combustion

Hydrogen Chloride  
Oxides of Nitrogen

During Combustion  
During Combustion

### 5.3. Special protective actions for fire-fighters

No special protective actions for fire-fighters are anticipated.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

Evacuate area. Ventilate the area with fresh air. For large spill, or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapors, in accordance with good industrial hygiene practice. 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. For larger spills, cover drains and build dikes to prevent entry into sewer systems or bodies of water.

### 6.3. Methods and material for containment and cleaning up

Contain spill. Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Remember, adding an absorbent material does not remove a physical, health, or environmental hazard. Collect as much of the spilled material as possible. Place in a closed container approved for transportation by appropriate authorities. Clean up residue with an appropriate solvent selected by a qualified and authorized person. Ventilate the area with fresh air. Read and follow safety precautions on the solvent label and SDS. 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 or professional use only. 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. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment. Wash contaminated clothing before reuse. Avoid contact with oxidizing agents (eg. chlorine, chromic acid etc.)

### 7.2. Conditions for safe storage including any incompatibilities

Store away from acids. Store away from oxidizing agents.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### Occupational exposure limits

No occupational exposure limit values exist for any of the components listed in Section 3 of this SDS.

## 8.2. Exposure controls

### 8.2.1. Engineering controls

Provide ventilated enclosure for heat curing. Curing enclosures must be exhausted to outdoors or to a suitable emission control device. 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:

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

If this product is used in a manner that presents a higher potential for exposure (eg. spraying, high splash potential etc.), then use of protective coveralls may be necessary. Select and use body protection to prevent contact based on the results of an exposure assessment. The following protective clothing material(s) are recommended: Apron - 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

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

General Physical Form:	Liquid
Specific Physical Form:	Paste

<b>Odor, Color, Grade:</b>	white, epoxy odour
<b>Odor threshold</b>	<i>No Data Available</i>
<b>pH</b>	<i>No Data Available</i>
<b>Melting point</b>	<i>Not Applicable</i>
<b>Boiling Point</b>	>=170 °C
<b>Flash Point</b>	>=170 °C [ <i>Test Method: Estimated</i> ]
<b>Evaporation rate</b>	<i>No Data Available</i>
<b>Flammability (solid, gas)</b>	Not Applicable
<b>Flammable Limits(LEL)</b>	<i>No Data Available</i>
<b>Flammable Limits(UEL)</b>	<i>No Data Available</i>
<b>Vapor Pressure</b>	<=2.7 Pa [ <i>@ 20 °C</i> ]
<b>Vapor Density</b>	Nil
<b>Density</b>	1.44 g/ml
<b>Specific Gravity</b>	1.44 [ <i>Ref Std: WATER=1</i> ]
<b>Solubility in Water</b>	Negligible
<b>Solubility- non-water</b>	<i>No Data Available</i>
<b>Partition coefficient: n-octanol/ water</b>	<i>No Data Available</i>
<b>Autoignition temperature</b>	<i>No Data Available</i>
<b>Decomposition temperature</b>	<i>No Data Available</i>
<b>Viscosity</b>	150,000 mPa-s [ <i>@ 20 °C</i> ]

## 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 is generated during cure. Do not cure a mass larger than 50 grams in a confined space to prevent a premature exothermic reaction with production of intense heat and smoke.

### 10.5. Incompatible materials

Strong acids

Strong oxidizing agents

### 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:**

Mild Skin Irritation: Signs/symptoms may include localized redness, swelling, itching, and dryness. Allergic Skin Reaction (non-photo induced): Signs/symptoms may include redness, swelling, blistering, and itching.

**Eye Contact:**

Moderate Eye Irritation: Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.

**Ingestion:**

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

**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	Ingestion		No data available; calculated ATE >5,000 mg/kg
epoxy resin	Dermal	Rat	LD50 > 1,600 mg/kg
epoxy resin	Ingestion	Rat	LD50 > 1,000 mg/kg
boron nitride	Dermal	Rabbit	LD50 > 20,000 mg/kg
boron nitride	Ingestion	Rat	LD50 > 50,000 mg/kg
methyl methacrylate - butadiene - styrene polymer	Dermal	Rabbit	LD50 > 5,000 mg/kg
methyl methacrylate - butadiene - styrene polymer	Ingestion	Rat	LD50 > 5,000 mg/kg

ATE = acute toxicity estimate

**Skin Corrosion/Irritation**

Name	Species	Value
epoxy resin	Rabbit	Mild irritant
methyl methacrylate - butadiene - styrene polymer	Professional judgement	Minimal irritation

**Serious Eye Damage/Irritation**

Name	Species	Value
epoxy resin	Rabbit	Moderate irritant
methyl methacrylate - butadiene - styrene polymer	Professional judgement	Mild irritant

**Skin Sensitization**

Name	Species	Value
epoxy resin	Human and animal	Sensitizing



**Respiratory Sensitization**

Name	Species	Value
epoxy resin	Human	Not classified

**Germ Cell Mutagenicity**

Name	Route	Value
epoxy resin	In vivo	Not mutagenic
epoxy resin	In Vitro	Some positive data exist, but the data are not sufficient for classification

**Carcinogenicity**

Name	Route	Species	Value
epoxy resin	Dermal	Mouse	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
epoxy resin	Ingestion	Not classified for female reproduction	Rat	NOAEL 750 mg/kg/day	2 generation
epoxy resin	Ingestion	Not classified for male reproduction	Rat	NOAEL 750 mg/kg/day	2 generation
epoxy resin	Dermal	Not classified for development	Rabbit	NOAEL 300 mg/kg/day	during organogenesis
epoxy resin	Ingestion	Not classified for development	Rat	NOAEL 750 mg/kg/day	2 generation

**Target Organ(s)****Specific Target Organ Toxicity - single exposure**

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

**Specific Target Organ Toxicity - repeated exposure**

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
epoxy resin	Dermal	liver	Not classified	Rat	NOAEL 1,000 mg/kg/day	2 years

epoxy resin	Dermal	nervous system	Not classified	Rat	NOAEL 1,000 mg/kg/day	13 weeks
epoxy resin	Ingestion	auditory system   heart   endocrine system   hematopoietic system   liver   eyes   kidney and/or bladder	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
boron nitride	Inhalation	pneumoconiosis	Some positive data exist, but the data are not sufficient for classification		HHA	

**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. Combustion products will include halogen acid (HCl/HF/HBr). Facility must be capable of handling halogenated materials. 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.

**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.

#### 311/312 Hazard Categories:

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

#### EPCRA 311/312 Hazard Classifications (effective January 1, 2018):

##### Physical Hazards

Not applicable

##### Health Hazards

Respiratory or Skin Sensitization

Serious eye damage or eye irritation

### 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.

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: 2 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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