



3M General Offices
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1-800-364-3577 or (651) 737-6501 (24 hours)

Safety Data Sheet

2023-02-15 13:09:50.12

Purchase Order #: 90060
Customer Number: 0016122909

SDS Coordinator
ADHESIVE MATERIALS GROUP
STE 150 HWY 6 N 9327
HOUSTON, TX 77095-2403
USA

Dear SDS Coordinator

Enclosed is the Safety Data Sheet (SDS)* for the product that your company recently purchased from 3M.

Please forward the attached document(s) to the individual in your organization responsible for hazard communication.

If you are a distributor and resell this product, OSHA and EPA require that you transmit this SDS information to your customers at the time of first shipment or whenever you receive revised SDSs from 3M.

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3M is committed to meeting our customer requirements. Please contact your 3M customer service or sales representative if you have any questions. If you do not know whom to contact, please call the 3M Product Information Center at 1-800-364-3577.

If you are not currently receiving 3M SDSs by e-mail and would like to do so, please contact our eSDS Administrator at emsdsadmin@mmm.com

*An Article Information Sheet (AIS) or Article Information Letter (AIL) may be enclosed in place of an SDS if the product is an article which does not require an SDS under the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.



Safety Data Sheet

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Document Group:	11-3173-9	Version Number:	16.02
Issue Date:	11/15/22	Supersedes Date:	08/05/20

Product identifier

3M™ Scotch-Weld™ Urethane Adhesive 3549 B/A and 3M™ Scotch-Weld™ Urethane Adhesive DP640

ID Number(s):

62-3549-0501-0, 62-3549-1430-1, 62-3549-1431-9, 62-3549-1435-0, 62-3549-1436-8, 62-3549-3530-6, 62-3549-3830-0, 62-3549-6401-7

7000046484, 7010310200, 7100076724, 7010330225, 7000046485, 7100148761, 7010412258

Recommended use

2-Part Urethane Adhesive, Industrial use

Supplier's details

MANUFACTURER:	3M
DIVISION:	Industrial Adhesives and Tapes Division
ADDRESS:	3M Center, St. Paul, MN 55144-1000, USA
Telephone:	1-888-3M HELPS (1-888-364-3577)

Emergency telephone number

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

This product is a kit or a multipart product which consists of multiple, independently packaged components. A Safety Data Sheet (SDS), Article Information Sheet (AIS), or Article Information Letter (AIL) for each of these components is included. Please do not separate the component documents from this cover page. The document numbers for components of this product are:

10-3187-1, 10-3186-3

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Document Group:	10-3186-3	Version Number:	29.02
Issue Date:	11/15/22	Supersedes Date:	04/15/21

SECTION 1: Identification

1.1. Product identifier

3M™ Scotch-Weld™ Urethane Adhesive 3549 B/A and 3M™ Scotch-Weld™ Urethane Adhesive DP640, Part B

Product Identification Numbers

62-3549-8501-2

7100041737

1.2. Recommended use and restrictions on use

Recommended use

Structural adhesive

1.3. Supplier's details

MANUFACTURER:	3M
DIVISION:	Industrial Adhesives and Tapes 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

Skin Sensitizer: Category 1.

Reproductive Toxicity: Category 1B.

Specific Target Organ Toxicity (repeated exposure): Category 1.

2.2. Label elements

Signal word

Danger

Symbols

Exclamation mark | Health Hazard |

Pictograms

**Hazard Statements**

May cause an allergic skin reaction.
May damage fertility or the unborn child.

Causes damage to organs through prolonged or repeated exposure:
respiratory system |

Precautionary Statements**Prevention:**

Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Do not breathe dust/fume/gas/mist/vapors/spray.
Wear protective gloves.
Do not eat, drink or smoke when using this product.
Wash thoroughly after handling.
Contaminated work clothing must not be allowed out of the workplace.

Response:

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.
IF exposed or concerned: Get medical advice/attention.

Storage:

Store locked up.

Disposal:

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

52% of the mixture consists of ingredients of unknown acute dermal toxicity.

SECTION 3: Composition/information on ingredients

Ingredient	C.A.S. No.	% by Wt
Polyester Resin (NJTS Reg. No. 04499600-7133)	Trade Secret*	40 - 70 Trade Secret *
Polypropylene Glycol	25322-69-4	10 - 30 Trade Secret *
Talc	14807-96-6	10 - 30 Trade Secret *
Polyoxypropylene Triol	25723-16-4	1 - 10 Trade Secret *
Zeolites	1318-02-1	1 - 10 Trade Secret *
o-Diethylbisaniline	13680-35-8	1 - 2.5 Trade Secret *
beta-(3,4-epoxycyclohexyl)ethyltrimethoxy silane	3388-04-3	< 1 Trade Secret *
Toluene	108-88-3	< 1 Trade Secret *

NJTS or NJTSRN: New Jersey Trade Secret Registry Number.

*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

Allergic skin reaction (redness, swelling, blistering, and itching). Target organ effects following prolonged or repeated exposure. See Section 11 for additional details.

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

Carbon monoxide
Carbon dioxide
Irritant Vapors or Gases

Condition

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. 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

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**

Do not handle until all safety precautions have been read and understood. Do not breathe 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.) Use personal protective equipment (gloves, respirators, etc.) as required.

7.2. Conditions for safe storage including any incompatibilities

Store away from oxidizing agents.

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
Toluene	108-88-3	ACGIH	TWA:20 ppm	A4: Not class. as human carcin, Ototoxicant
Toluene	108-88-3	OSHA	TWA:200 ppm;CEIL:300 ppm	
Aluminum, insoluble compounds	1318-02-1	ACGIH	TWA(respirable fraction):1 mg/m3	A4: Not class. as human carcin
Talc	14807-96-6	ACGIH	TWA(respirable fraction):2 mg/m3	A4: Not class. as human carcin
Talc	14807-96-6	OSHA	TWA concentration(respirable):0.1 mg/m3(2.4 millions of particles/cu. ft.);TWA:20 millions of particles/cu. ft.	
Polypropylene Glycol	25322-69-4	AIHA	TWA(as aerosol):10 mg/m3	

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

CEIL: 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:

Safety Glasses with side shields

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

Appearance

Physical state

Liquid

Color

Off-White

Specific Physical Form:

Paste

Odor

Slight Polyester

Odor threshold

No Data Available

pH

Not Applicable

Melting point

No Data Available

Boiling Point

≥ 179 °C

Flash Point

≥ 354 °F [*Test Method: Closed Cup*]

Evaporation rate

Not Applicable

Flammability (solid, gas)

Not Applicable

Flammable Limits(LEL)

Not Applicable

Flammable Limits(UEL)

Not Applicable

Vapor Pressure

Not Applicable

Vapor Density

Not Applicable

Density

1.31 g/ml

Specific Gravity

1.31 [*Ref Std: WATER=1*]

Solubility in Water

Negligible

Solubility- non-water

No Data Available

Partition coefficient: n-octanol/ water

No Data Available

Autoignition temperature

No Data Available

Decomposition temperature	No Data Available
Viscosity	10,000 - 40,000 centipoise [@ 73.4 °F] [Test Method: Brookfield]
Hazardous Air Pollutants	0 % weight [Test Method: Calculated]
Molecular weight	No Data Available
VOC Less H2O & Exempt Solvents	0 g/l [Test Method: calculated SCAQMD rule 443.1] [Details: when used as intended with Part A]
VOC Less H2O & Exempt Solvents	6.78 g/l [Test Method: calculated SCAQMD rule 443.1] [Details: as supplied]

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

None known.

10.5. Incompatible materials

Strong oxidizing agents

10.6. Hazardous decomposition products

<u>Substance</u>	<u>Condition</u>
None known.	

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:

May cause additional health effects (see below).

Skin Contact:

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

Eye Contact:

Contact with the eyes during product use is not expected to result in significant irritation.

Ingestion:

May cause additional health effects (see below).

Additional Health Effects:**Prolonged or repeated exposure may cause target organ effects:**

Pneumoconiosis: Sign/symptoms may include persistent cough, breathlessness, chest pain, increased amounts of sputum, and changes in lung function tests.

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
Polyester Resin (NJTS Reg. No. 04499600-7133)	Ingestion	Rat	LD50 > 15,000 mg/kg
Polypropylene Glycol	Dermal	Rabbit	LD50 > 10,000 mg/kg
Polypropylene Glycol	Ingestion	Rat	LD50 > 2,000 mg/kg
Talc	Dermal		LD50 estimated to be > 5,000 mg/kg
Talc	Ingestion		LD50 estimated to be > 5,000 mg/kg
Polyoxypropylene Triol	Dermal	Rat	LD50 > 2,000 mg/kg
Polyoxypropylene Triol	Ingestion	Rat	LD50 > 2,500 mg/kg
Zeolites	Dermal	Rabbit	LD50 > 2,000 mg/kg
Zeolites	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 4.57 mg/l
Zeolites	Ingestion	Rat	LD50 > 5,000 mg/kg
Toluene	Dermal	Rat	LD50 12,000 mg/kg
Toluene	Inhalation-Vapor (4 hours)	Rat	LC50 30 mg/l
Toluene	Ingestion	Rat	LD50 5,550 mg/kg
o-Diethylbisaniline	Ingestion	Rat	LD50 1,901 mg/kg
beta-(3,4-epoxycyclohexyl)ethyltrimethoxy silane	Dermal	Rabbit	LD50 6,700 mg/kg
beta-(3,4-epoxycyclohexyl)ethyltrimethoxy silane	Inhalation-Vapor (4 hours)	Rat	LC50 > 7 mg/l
beta-(3,4-epoxycyclohexyl)ethyltrimethoxy silane	Ingestion	Rat	LD50 13,100 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
Polypropylene Glycol	Rabbit	No significant irritation
Talc	Rabbit	No significant irritation
Polyoxypropylene Triol	Rabbit	No significant irritation
Zeolites	Rabbit	No significant irritation
Toluene	Rabbit	Irritant
o-Diethylbisaniline	Rabbit	Minimal irritation
beta-(3,4-epoxycyclohexyl)ethyltrimethoxy silane	Rabbit	Minimal irritation

Serious Eye Damage/Irritation

Name	Species	Value
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Polypropylene Glycol	Rabbit	No significant irritation
Talc	Rabbit	No significant irritation
Polyoxypropylene Triol	Rabbit	Mild irritant
Zeolites	Rabbit	Mild irritant
Toluene	Rabbit	Moderate irritant
o-Diethylbisaniline	Rabbit	No significant irritation
beta-(3,4-epoxycyclohexyl)ethyltrimethoxy silane	Rabbit	No significant irritation

Skin Sensitization

Name	Species	Value
Toluene	Guinea pig	Not classified
beta-(3,4-epoxycyclohexyl)ethyltrimethoxy silane	similar compounds	Sensitizing

Respiratory Sensitization

Name	Species	Value
Talc	Human	Not classified

Germ Cell Mutagenicity

Name	Route	Value
Talc	In Vitro	Not mutagenic
Talc	In vivo	Not mutagenic
Toluene	In Vitro	Not mutagenic
Toluene	In vivo	Not mutagenic
o-Diethylbisaniline	In Vitro	Not mutagenic
beta-(3,4-epoxycyclohexyl)ethyltrimethoxy silane	In Vitro	Some positive data exist, but the data are not sufficient for classification

Carcinogenicity

Name	Route	Species	Value
Talc	Inhalation	Rat	Some positive data exist, but the data are not sufficient for classification
Toluene	Dermal	Mouse	Some positive data exist, but the data are not sufficient for classification
Toluene	Ingestion	Rat	Some positive data exist, but the data are not sufficient for classification
Toluene	Inhalation	Mouse	Some positive data exist, but the data are not sufficient for classification
beta-(3,4-epoxycyclohexyl)ethyltrimethoxy silane	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
Talc	Ingestion	Not classified for development	Rat	NOAEL 1,600 mg/kg	during organogenesis
Toluene	Inhalation	Not classified for female reproduction	Human	NOAEL Not available	occupational exposure
Toluene	Inhalation	Not classified for male reproduction	Rat	NOAEL 2.3 mg/l	1 generation
Toluene	Ingestion	Toxic to development	Rat	LOAEL 520 mg/kg/day	during gestation
Toluene	Inhalation	Toxic to development	Human	NOAEL Not available	poisoning and/or abuse

beta-(3,4-epoxycyclohexyl)ethyltrimethoxy silane	Ingestion	Not classified for development	Rabbit	NOAEL 0.27 mg/kg/day	during organogenesis
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Target Organ(s)**Specific Target Organ Toxicity - single exposure**

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
Toluene	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	
Toluene	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Human	NOAEL Not available	
Toluene	Inhalation	immune system	Not classified	Mouse	NOAEL 0.004 mg/l	3 hours
Toluene	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	poisoning and/or abuse

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
Talc	Inhalation	pneumoconiosis	Causes damage to organs through prolonged or repeated exposure	Human	NOAEL Not available	occupational exposure
Talc	Inhalation	pulmonary fibrosis respiratory system	Not classified	Rat	NOAEL 18 mg/m3	113 weeks
Toluene	Inhalation	auditory system eyes olfactory system	Causes damage to organs through prolonged or repeated exposure	Human	NOAEL Not available	poisoning and/or abuse
Toluene	Inhalation	nervous system	May cause damage to organs though prolonged or repeated exposure	Human	NOAEL Not available	poisoning and/or abuse
Toluene	Inhalation	respiratory system	Some positive data exist, but the data are not sufficient for classification	Rat	LOAEL 2.3 mg/l	15 months
Toluene	Inhalation	heart liver kidney and/or bladder	Not classified	Rat	NOAEL 11.3 mg/l	15 weeks
Toluene	Inhalation	endocrine system	Not classified	Rat	NOAEL 1.1 mg/l	4 weeks
Toluene	Inhalation	immune system	Not classified	Mouse	NOAEL Not available	20 days
Toluene	Inhalation	bone, teeth, nails, and/or hair	Not classified	Mouse	NOAEL 1.1 mg/l	8 weeks
Toluene	Inhalation	hematopoietic system vascular system	Not classified	Human	NOAEL Not available	occupational exposure
Toluene	Inhalation	gastrointestinal tract	Not classified	Multiple animal species	NOAEL 11.3 mg/l	15 weeks
Toluene	Ingestion	nervous system	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 625 mg/kg/day	13 weeks
Toluene	Ingestion	heart	Not classified	Rat	NOAEL 2,500 mg/kg/day	13 weeks
Toluene	Ingestion	liver kidney and/or bladder	Not classified	Multiple animal species	NOAEL 2,500 mg/kg/day	13 weeks
Toluene	Ingestion	hematopoietic system	Not classified	Mouse	NOAEL 600 mg/kg/day	14 days
Toluene	Ingestion	endocrine system	Not classified	Mouse	NOAEL 105 mg/kg/day	28 days
Toluene	Ingestion	immune system	Not classified	Mouse	NOAEL 105 mg/kg/day	4 weeks

Aspiration Hazard

Name	Value
Toluene	Aspiration hazard

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 completely cured (or polymerized) material in a permitted industrial waste facility. As a disposal alternative, incinerate uncured product in a permitted waste incineration facility. Proper destruction may require the use of additional fuel during incineration processes. If no other disposal options are available, waste product that has been completely cured or polymerized may be placed in a landfill properly designed for industrial waste. 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

Respiratory or Skin Sensitization

Specific target organ toxicity (single or repeated exposure)

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.

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.

Document Group:	10-3186-3	Version Number:	29.02
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Issue Date:	11/15/22	Supersedes Date:	12/14/21

SECTION 1: Identification

1.1. Product identifier

3M™ Scotch-Weld™ Urethane Adhesive 3549 B/A and 3M™ Scotch-Weld™ Urethane Adhesive DP640, Part A

Product Identification Numbers

62-3649-8501-0
7100041738

1.2. Recommended use and restrictions on use

Recommended use

Accelerator for 2-Part Polyurethane Adhesive, Industrial use

1.3. Supplier's details

MANUFACTURER:	3M
DIVISION:	Industrial Adhesives and Tapes 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 2A.
Skin Corrosion/Irritation: Category 2.
Respiratory Sensitizer: Category 1.
Skin Sensitizer: Category 1.
Specific Target Organ Toxicity (single exposure): Category 3.
Specific Target Organ Toxicity (repeated exposure): Category 1.

2.2. Label elements

Signal word

Danger

Symbols

Exclamation mark | Health Hazard |

Pictograms**Hazard Statements**

Causes serious eye irritation.

Causes skin irritation.

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

May cause an allergic skin reaction.

May cause respiratory irritation.

Causes damage to organs through prolonged or repeated exposure:
respiratory system |

Precautionary Statements**Prevention:**

Do not breathe dust/fume/gas/mist/vapors/spray.

Use only outdoors or in a well-ventilated area.

In case of inadequate ventilation wear respiratory protection.

Wear protective gloves and eye/face protection.

Do not eat, drink or smoke when using this product.

Wash thoroughly after handling.

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

Response:

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.

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.

Take off contaminated clothing and wash it before reuse.

Get medical advice/attention if you feel unwell.

Storage:

Keep container tightly closed.

Store locked up in a well-ventilated place.

Disposal:

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

Supplemental Information:

Persons previously sensitized to isocyanates may develop a cross-sensitization reaction to other isocyanates.

SECTION 3: Composition/information on ingredients

Ingredient	C.A.S. No.	% by Wt
Urethane Prepolymer (NJTS Reg. No. 04499600-5770P)	Trade Secret*	15 - 40 Trade Secret *
Higher Oligomers of MDI	9016-87-9	10 - 30 Trade Secret *
p,p'-Methylenebis(phenyl isocyanate)	101-68-8	10 - 30 Trade Secret *

Talc	14807-96-6	10 - 30 Trade Secret *
Diphenylmethane Diisocyanate (MDI)	26447-40-5	1 - 15 Trade Secret *
Zeolites	1318-02-1	1 - 5 Trade Secret *

NJTS or NJTSRN: New Jersey Trade Secret Registry Number.

*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:

Immediately flush with large amounts of water. Remove contact lenses if easy to do. Continue rinsing. 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

Irritating to the respiratory tract (coughing, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain). Allergic respiratory reaction (difficulty breathing, wheezing, cough, and tightness of chest). Allergic skin reaction (redness, swelling, blistering, and itching). Target organ effects following prolonged or repeated exposure. See Section 11 for additional details.

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

Isocyanates
Carbon monoxide
Carbon dioxide
Hydrogen Cyanide
Oxides of Nitrogen

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. 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. Pour isocyanate decontaminant solution (90% water, 8% concentrated ammonia, 2% detergent) on spill and allow to react for 10 minutes. Or pour water on spill and allow to react for more than 30 minutes. Cover with absorbent material. 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 container approved for transportation by appropriate authorities, but do not seal the container for 48 hours to avoid pressure build-up. 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. 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 breathe 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 in a well-ventilated place. Keep container tightly closed to prevent contamination with water or air. If contamination is suspected, do not reseal container. Store away from acids. Store away from strong bases. Store away from oxidizing agents. Store away from amines.

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
p,p'-Methylenebis(phenyl isocyanate)	101-68-8	ACGIH	TWA:0.005 ppm	
p,p'-Methylenebis(phenyl isocyanate)	101-68-8	OSHA	CEIL:0.2 mg/m ³ (0.02 ppm)	
Aluminum, insoluble compounds	1318-02-1	ACGIH	TWA(respirable fraction):1 mg/m ³	A4: Not class. as human carcin
Talc	14807-96-6	ACGIH	TWA(respirable fraction):2 mg/m ³	A4: Not class. as human carcin
TALC	14807-96-6	OSHA	TWA - Use asbestos limits:	
Talc	14807-96-6	OSHA	TWA concentration(respirable):0.1 mg/m ³ (2.4 millions of	

			particles/cu. ft.);TWA:20 millions of particles/cu. ft.	
Higher Oligomers of MDI	9016-87-9	Manufacturer determined	TWA(inhalable fraction)(8 hours):0.05 mg/m3;CEIL(inhalable fraction):0.1 mg/m3	Dermal Sensitizer, Respiratory Sensitizer

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
 CEIL: 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:

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.

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

Nitrile Rubber

Natural Rubber

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

Appearance

Physical state

Liquid

Color

Brown

Specific Physical Form:

Paste

Odor

Slight Urethane

Odor threshold	No Data Available
pH	Not Applicable
Melting point	Not Applicable
Boiling Point	>=186 °C
Flash Point	>=367 °F [Test Method: Closed Cup]
Evaporation rate	Not Applicable
Flammability (solid, gas)	Not Applicable
Flammable Limits(LEL)	No Data Available
Flammable Limits(UEL)	No Data Available
Vapor Pressure	No Data Available
Vapor Density	No Data Available
Density	1.35 g/ml
Specific Gravity	1.35 [Ref Std: WATER=1]
Solubility in Water	Negligible
Solubility- non-water	No Data Available
Partition coefficient: n-octanol/ water	No Data Available
Autoignition temperature	No Data Available
Decomposition temperature	No Data Available
Viscosity	15,000 - 32,000 centipoise [@ 73.4 °F] [Test Method: Brookfield]
Hazardous Air Pollutants	<= 20 % weight [Test Method: Calculated]
Hazardous Air Pollutants	0.39 lb HAPS/lb solids [Test Method: Calculated]
Molecular weight	No Data Available
VOC Less H2O & Exempt Solvents	0 g/l [Test Method: calculated SCAQMD rule 443.1] [Details: when used as intended with Part B]
VOC Less H2O & Exempt Solvents	0 g/l [Test Method: calculated SCAQMD rule 443.1] [Details: as supplied]

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

Amines

Alcohols

Water

Reaction with water, alcohols, and amines is not hazardous if container can vent to the atmosphere to prevent pressure buildup.

Strong acids

Strong bases

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.

Allergic Respiratory Reaction: Signs/symptoms may include difficulty breathing, wheezing, cough, and tightness of chest.

May cause additional health effects (see below).

Skin Contact:

Skin Irritation: Signs/symptoms may include localized redness, swelling, itching, dryness, cracking, blistering, and pain.

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

Eye Contact:

Severe Eye Irritation: Signs/symptoms may include significant redness, swelling, pain, tearing, cloudy appearance of the cornea, and impaired vision.

Ingestion:

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

Additional Health Effects:

Prolonged or repeated exposure may cause target organ effects:

Pneumoconiosis: Sign/symptoms may include persistent cough, breathlessness, chest pain, increased amounts of sputum, and changes in lung function tests.

Respiratory Effects: Signs/symptoms may include cough, shortness of breath, chest tightness, wheezing, increased heart rate, bluish colored skin (cyanosis), sputum production, changes in lung function tests, and/or respiratory failure.

Additional Information:

Persons previously sensitized to isocyanates may develop a cross-sensitization reaction to other isocyanates.

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	Inhalation-Vapor(4 hr)		No data available; calculated ATE >50 mg/l

Overall product	Ingestion		No data available; calculated ATE >5,000 mg/kg
Higher Oligomers of MDI	Dermal	Rabbit	LD50 > 5,000 mg/kg
Higher Oligomers of MDI	Inhalation-Dust/Mist (4 hours)	Rat	LC50 0.368 mg/l
Higher Oligomers of MDI	Ingestion	Rat	LD50 31,600 mg/kg
Talc	Dermal		LD50 estimated to be > 5,000 mg/kg
Talc	Ingestion		LD50 estimated to be > 5,000 mg/kg
p,p'-Methylenebis(phenyl isocyanate)	Dermal	Rabbit	LD50 > 5,000 mg/kg
p,p'-Methylenebis(phenyl isocyanate)	Inhalation-Dust/Mist (4 hours)	Rat	LC50 0.368 mg/l
p,p'-Methylenebis(phenyl isocyanate)	Ingestion	Rat	LD50 31,600 mg/kg
Diphenylmethane Diisocyanate (MDI)	Dermal	Rabbit	LD50 > 5,000 mg/kg
Diphenylmethane Diisocyanate (MDI)	Inhalation-Dust/Mist (4 hours)	Rat	LC50 0.368 mg/l
Diphenylmethane Diisocyanate (MDI)	Ingestion	Rat	LD50 31,600 mg/kg
Zeolites	Dermal	Rabbit	LD50 > 2,000 mg/kg
Zeolites	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 4.57 mg/l
Zeolites	Ingestion	Rat	LD50 > 5,000 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
Higher Oligomers of MDI	official classification	Irritant
Talc	Rabbit	No significant irritation
p,p'-Methylenebis(phenyl isocyanate)	official classification	Irritant
Diphenylmethane Diisocyanate (MDI)	official classification	Irritant
Zeolites	Rabbit	No significant irritation

Serious Eye Damage/Irritation

Name	Species	Value
Higher Oligomers of MDI	official classification	Severe irritant
Talc	Rabbit	No significant irritation
p,p'-Methylenebis(phenyl isocyanate)	official classification	Severe irritant
Diphenylmethane Diisocyanate (MDI)	official classification	Severe irritant
Zeolites	Rabbit	Mild irritant

Skin Sensitization

Name	Species	Value
Higher Oligomers of MDI	official classification	Sensitizing
p,p'-Methylenebis(phenyl isocyanate)	official classification	Sensitizing

Diphenylmethane Diisocyanate (MDI)	official classification	Sensitizing
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Respiratory Sensitization

Name	Species	Value
Higher Oligomers of MDI	Human	Sensitizing
Talc	Human	Not classified
p,p'-Methylenebis(phenyl isocyanate)	Human	Sensitizing
Diphenylmethane Diisocyanate (MDI)	Human	Sensitizing

Germ Cell Mutagenicity

Name	Route	Value
Higher Oligomers of MDI	In Vitro	Some positive data exist, but the data are not sufficient for classification
Talc	In Vitro	Not mutagenic
Talc	In vivo	Not mutagenic
p,p'-Methylenebis(phenyl isocyanate)	In Vitro	Some positive data exist, but the data are not sufficient for classification
Diphenylmethane Diisocyanate (MDI)	In Vitro	Some positive data exist, but the data are not sufficient for classification

Carcinogenicity

Name	Route	Species	Value
Higher Oligomers of MDI	Inhalation	Rat	Some positive data exist, but the data are not sufficient for classification
Talc	Inhalation	Rat	Some positive data exist, but the data are not sufficient for classification
p,p'-Methylenebis(phenyl isocyanate)	Inhalation	Rat	Some positive data exist, but the data are not sufficient for classification
Diphenylmethane Diisocyanate (MDI)	Inhalation	Rat	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
Higher Oligomers of MDI	Inhalation	Not classified for development	Rat	NOAEL 0.004 mg/l	during organogenesis
Talc	Ingestion	Not classified for development	Rat	NOAEL 1,600 mg/kg	during organogenesis
p,p'-Methylenebis(phenyl isocyanate)	Inhalation	Not classified for development	Rat	NOAEL 0.004 mg/l	during organogenesis
Diphenylmethane Diisocyanate (MDI)	Inhalation	Not classified for development	Rat	NOAEL 0.004 mg/l	during organogenesis

Target Organ(s)

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
Higher Oligomers of MDI	Inhalation	respiratory irritation	May cause respiratory irritation	official classification	NOAEL Not available	
p,p'-Methylenebis(phenyl isocyanate)	Inhalation	respiratory irritation	May cause respiratory irritation	official classification	NOAEL Not available	

				tion		
Diphenylmethane Diisocyanate (MDI)	Inhalation	respiratory irritation	May cause respiratory irritation	official classification	NOAEL Not available	

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
Higher Oligomers of MDI	Inhalation	respiratory system	Causes damage to organs through prolonged or repeated exposure	Rat	LOAEL 0.004 mg/l	13 weeks
Talc	Inhalation	pneumoconiosis	Causes damage to organs through prolonged or repeated exposure	Human	NOAEL Not available	occupational exposure
Talc	Inhalation	pulmonary fibrosis respiratory system	Not classified	Rat	NOAEL 18 mg/m3	113 weeks
p,p'-Methylenebis(phenyl isocyanate)	Inhalation	respiratory system	Causes damage to organs through prolonged or repeated exposure	Rat	LOAEL 0.004 mg/l	13 weeks
Diphenylmethane Diisocyanate (MDI)	Inhalation	respiratory system	Causes damage to organs through prolonged or repeated exposure	Rat	LOAEL 0.004 mg/l	13 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 completely cured (or polymerized) material in a permitted industrial waste facility. As a disposal alternative, incinerate uncured product 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
Respiratory or Skin Sensitization
Serious eye damage or eye irritation
Skin Corrosion or Irritation
Specific target organ toxicity (single or repeated exposure)

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>
Higher Oligomers of MDI	9016-87-9	Trade Secret 10 - 30
Higher Oligomers of MDI (DIISOCYANATES (CERTAIN CHEMICALS ONLY))	9016-87-9	Trade Secret 10 - 30
p,p'-Methylenebis(phenyl isocyanate)	101-68-8	Trade Secret 10 - 30
p,p'-Methylenebis(phenyl isocyanate) (Benzene, 1,1'-methylenebis[4-isocyanato-)	101-68-8	Trade Secret 10 - 30
p,p'-Methylenebis(phenyl isocyanate) (DIISOCYANATES (CERTAIN CHEMICALS ONLY))	101-68-8	Trade Secret 10 - 30

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.

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:** 1 **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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