Safety Data Sheet

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SECTION 1: Identification

1.1. Product identifier
3M™ Scotch-Weld™ Epoxy Adhesive 2290, Amber

Product Identification Numbers
62-3847-7530-0, 62-3847-7535-9, 62-3847-8531-7, 62-3847-9530-8

1.2. Recommended use and restrictions on use

Recommended use
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
Flammable Liquid: Category 2.
Serious Eye Damage/Irritation: Category 1.
Skin Sensitizer: Category 1.
Reproductive Toxicity: Category 1B.
Germ Cell Mutagenicity: Category 2.
Specific Target Organ Toxicity (central nervous system): Category 3.

2.2. Label elements
Signal word
Danger

Symbols
Flame | Corrosion | Exclamation mark | Health Hazard |

Pictograms

Hazard Statements
Highly flammable liquid and vapor.

Causes serious eye damage.
May cause an allergic skin reaction.
May cause drowsiness or dizziness.
May damage fertility or the unborn child.
Suspected of causing genetic defects.

Precautionary Statements

Prevention:
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Ground/bond container and receiving equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Keep container tightly closed.
Use explosion-proof electrical/ventilating/lighting equipment.
Avoid breathing dust/fume/gas/mist/vapors/spray.
Use only outdoors or in a well-ventilated area.
Wear protective gloves and eye/face protection.
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 ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF ON SKIN: Wash with plenty of soap and water.
Immediately call a POISON CENTER or doctor/physician.
If skin irritation or rash occurs: Get medical advice/attention.
Wash contaminated clothing before reuse.
IF exposed or concerned: Get medical advice/attention.
In case of fire: Use a fire fighting agent suitable for flammable liquids such as dry chemical or carbon dioxide to extinguish.

Storage:
Keep cool.
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.

2.3. Hazards not otherwise classified
None.

24% of the mixture consists of ingredients of unknown acute inhalation toxicity.

SECTION 3: Composition/information on ingredients

Ingredient	C.A.S. No.	% by Wt
methyl ethyl ketone	78-93-3	55 - 65 Trade Secret *
tetrahydrofuran	109-99-9	10 - 20 Trade Secret *
phenoxy resin	25068-38-6	10 - 20 Trade Secret *
phenoxy resin	5026-74-4	5 - 10 Trade Secret *
1-methyl-2-pyrrolidinone	872-50-4	1 - 5 Trade Secret *
toluene	108-88-3	< 0.2 Trade Secret *

*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 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
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 flammable liquids such as dry chemical or carbon dioxide to extinguish.

5.2. Special hazards arising from the substance or mixture
Closed containers exposed to heat from fire may build pressure and explode.

Hazardous Decomposition or By-Products

Substance	Condition
Aldehydes	During Combustion
Hydrocarbons	During Combustion
Carbon monoxide	During Combustion
Carbon dioxide	During Combustion
Hydrogen Cyanide	During Combustion
Ketones	During Combustion

Oxides of Nitrogen	During Combustion

5.3. Special protective actions for fire-fighters
Water may not effectively extinguish fire; however, it should be used to keep fire-exposed containers and surfaces cool and prevent explosive rupture.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Evacuate area. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Use only non-sparking tools. 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. Warning! A motor could be an ignition source and could cause flammable gases or vapors in the spill area to burn or explode. 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. Cover spill area with a fire-extinguishing foam. An appropriate aqueous film forming foam (AFFF) is recommended. 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 using non-sparking tools. Place in a metal 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.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Do not handle until all safety precautions have been read and understood. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Use only non-sparking tools. Take precautionary measures against static discharge. 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.) Wear low static or properly grounded shoes. Use personal protective equipment (gloves, respirators, etc.) as required. To minimize the risk of ignition, determine applicable electrical classifications for the process using this product and select specific local exhaust ventilation equipment to avoid flammable vapor accumulation. Ground/bond container and receiving equipment if there is potential for static electricity accumulation during transfer.

7.2. Conditions for safe storage including any incompatibilities
Store in a well-ventilated place. Keep cool. Keep container tightly closed. Store away from heat. Store away from acids. 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	CMRG	STEL:75 ppm	Skin Notation
toluene	108-88-3	OSHA	TWA:200 ppm;CEIL:300 ppm	
toluene	108-88-3	ACGIH	TWA:20 ppm	A4: Not class. as human carcin
tetrahydrofuran	109-99-9	ACGIH	TWA:50 ppm;STEL:100 ppm	A3: Confirmed animal carcin., Skin Notation
tetrahydrofuran	109-99-9	CMRG	TWA:25 ppm;STEL:75 ppm	
tetrahydrofuran	109-99-9	OSHA	TWA:590 mg/m3(200 ppm)	
methyl ethyl ketone	78-93-3	OSHA	TWA:590 mg/m3(200 ppm)	
methyl ethyl ketone	78-93-3	ACGIH	TWA:200 ppm;STEL:300 ppm	
1-methyl-2-pyrrolidinone	872-50-4	AIHA	TWA:40 mg/m3(10 ppm)	Skin Notation

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. Use explosion-proof ventilation 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: 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

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
Odor, Color, Grade:	Ketone odor, light yellow or clear liquid.
Odor threshold	*No Data Available*
pH	*No Data Available*
Melting point	*No Data Available*
Boiling Point	151.00 ºF [*Details:* CONDITIONS: THF]
Flash Point	6 ºF [*Test Method:* Tagliabue Closed Cup]
Evaporation rate	>=2.00 [*Ref Std:* ETHER=1]
Flammability (solid, gas)	Not Applicable
Flammable Limits(LEL)	2.00 % volume
Flammable Limits(UEL)	11.80 % volume
Vapor Pressure	145.0000 mmHg [*Details:* CONDITIONS: @ 68F]
Vapor Density	2.50 [*Ref Std:* AIR=1]
Density	0.89 g/ml
Specific Gravity	0.890 [*Ref Std:* WATER=1]
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	45 - 90 centipoise
Hazardous Air Pollutants	< 1 % weight [*Test Method:* Calculated]
VOC Less H2O & Exempt Solvents	701 g/l [*Test Method:* calculated SCAQMD rule 443.1]
VOC Less H2O & Exempt Solvents	78.8 % [*Test Method:* calculated per CARB title 2]

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
Sparks and/or flames

10.5. Incompatible materials
Strong oxidizing agents

10.6. Hazardous decomposition products

Substance	Condition
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 be harmful if inhaled.
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:
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:
May be harmful if swallowed.
Gastrointestinal Irritation: Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea.

Additional Health Effects:

Single exposure may cause target organ effects:
Central Nervous System (CNS) Depression: Signs/symptoms may include headache, dizziness, drowsiness, incoordination, nausea, slowed reaction time, slurred speech, giddiness, and unconsciousness.

Reproductive/Developmental Toxicity:
Contains a chemical or chemicals which can cause birth defects or other reproductive harm.

Genotoxicity:
Genotoxicity and Mutagenicity: May interact with genetic material and possibly alter gene expression.

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	Inhalation-Vapor(4 hr)		No data available; calculated ATE 20 - 50 mg/l
Overall product	Ingestion		No data available; calculated ATE 2,000 - 5,000 mg/kg
methyl ethyl ketone	Dermal	Rabbit	LD50 > 8,050 mg/kg
methyl ethyl ketone	Inhalation-Vapor (4 hours)	Rat	LC50 34.5 mg/l
methyl ethyl ketone	Ingestion	Rat	LD50 2,737 mg/kg
tetrahydrofuran	Dermal	Rat	LD50 > 2,000 mg/kg
tetrahydrofuran	Inhalation-	Rat	LC50 54 mg/l

	Vapor (4 hours)		
tetrahydrofuran	Ingestion	Rat	LD50 3,180 mg/kg
phenoxy resin	Dermal	Rat	LD50 > 1,600 mg/kg
phenoxy resin	Ingestion	Rat	LD50 > 1,000 mg/kg
phenoxy resin	Dermal	Rabbit	LD50 > 4,000 mg/kg
phenoxy resin	Ingestion	Rat	LD50 500-5000 mg/kg
1-methyl-2-pyrrolidinone	Dermal	Rabbit	LD50 4,000 mg/kg
1-methyl-2-pyrrolidinone	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 5.1 mg/l
1-methyl-2-pyrrolidinone	Ingestion	Rat	LD50 4,320 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

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
methyl ethyl ketone	Rabbit	Minimal irritation
tetrahydrofuran	Rabbit	Minimal irritation
phenoxy resin	Rabbit	Mild irritant
phenoxy resin	Rabbit	Irritant
1-methyl-2-pyrrolidinone	Rabbit	Minimal irritation
toluene	Rabbit	Irritant

Serious Eye Damage/Irritation

Name	Species	Value
methyl ethyl ketone	Rabbit	Severe irritant
tetrahydrofuran	Rabbit	Corrosive
phenoxy resin	Rabbit	Moderate irritant
phenoxy resin	Rabbit	Severe irritant
1-methyl-2-pyrrolidinone	Rabbit	Severe irritant
toluene	Rabbit	Moderate irritant

Skin Sensitization

Name	Species	Value
tetrahydrofuran	Human and animal	Not sensitizing
phenoxy resin	Human and animal	Sensitizing
phenoxy resin	Guinea pig	Sensitizing
1-methyl-2-pyrrolidinone	Human and animal	Not sensitizing
toluene	Guinea pig	Not sensitizing

Respiratory Sensitization

Name	Species	Value
phenoxy resin	Human	Some positive data exist, but the data are not sufficient for classification

Germ Cell Mutagenicity

Name	Route	Value
methyl ethyl ketone	In Vitro	Not mutagenic

tetrahydrofuran	In Vitro	Not mutagenic
tetrahydrofuran	In vivo	Not mutagenic
phenoxy resin	In vivo	Not mutagenic
phenoxy resin	In Vitro	Some positive data exist, but the data are not sufficient for classification
phenoxy resin	In Vitro	Some positive data exist, but the data are not sufficient for classification
phenoxy resin	In vivo	Mutagenic
1-methyl-2-pyrrolidinone	In vivo	Not mutagenic
1-methyl-2-pyrrolidinone	In Vitro	Some positive data exist, but the data are not sufficient for classification
toluene	In Vitro	Not mutagenic
toluene	In vivo	Not mutagenic

Carcinogenicity

Name	Route	Species	Value
methyl ethyl ketone	Inhalation	Human	Not carcinogenic
tetrahydrofuran	Inhalation	Multiple animal species	Some positive data exist, but the data are not sufficient for classification
phenoxy resin	Dermal	Mouse	Some positive data exist, but the data are not sufficient for classification
1-methyl-2-pyrrolidinone	Inhalation	Rat	Not carcinogenic
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

Reproductive Toxicity

Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test Result	Exposure Duration
methyl ethyl ketone	Inhalation	Not toxic to female reproduction	Rat	NOAEL 14.7 mg/l	90 days
methyl ethyl ketone	Inhalation	Not toxic to male reproduction	Rat	NOAEL 14.7 mg/l	90 days
methyl ethyl ketone	Inhalation	Some positive developmental data exist, but the data are not sufficient for classification	Rat	LOAEL 8.8 mg/l	during gestation
tetrahydrofuran	Ingestion	Not toxic to female reproduction	Rat	NOAEL 782 mg/kg/day	2 generation
tetrahydrofuran	Ingestion	Not toxic to male reproduction	Rat	NOAEL 782 mg/kg/day	2 generation
tetrahydrofuran	Ingestion	Some positive developmental data exist, but the data are not sufficient for classification	Rat	NOAEL 305 mg/kg/day	2 generation
tetrahydrofuran	Inhalation	Some positive developmental data exist, but the data are not sufficient for classification	Mouse	NOAEL 1.8 mg/l	during gestation
phenoxy resin	Ingestion	Not toxic to female reproduction	Rat	NOAEL 750 mg/kg/day	2 generation
phenoxy resin	Ingestion	Not toxic to male reproduction	Rat	NOAEL 750 mg/kg/day	2 generation
phenoxy resin	Dermal	Not toxic to development	Rabbit	NOAEL 300 mg/kg/day	during organogenesis
phenoxy resin	Ingestion	Not toxic to development	Rat	NOAEL 750 mg/kg/day	2 generation
1-methyl-2-pyrrolidinone	Inhalation	Some positive developmental data exist, but the data are not sufficient for classification	Rat	LOAEL 0.68 mg/l	during gestation
1-methyl-2-pyrrolidinone	Ingestion	Toxic to female reproduction	Rat	LOAEL 50 mg/kg/day	2 generation

1-methyl-2-pyrrolidinone	Ingestion	Toxic to male reproduction	Rat	LOAEL 50 mg/kg/day	2 generation
1-methyl-2-pyrrolidinone	Dermal	Toxic to development	Rat	NOAEL 237 mg/kg/day	during organogenesis
1-methyl-2-pyrrolidinone	Ingestion	Toxic to development	Rat	NOAEL 160 mg/kg/day	2 generation
toluene	Inhalation	Some positive female reproductive data exist, but the data are not sufficient for classification	Human	NOAEL Not available	occupational exposure
toluene	Inhalation	Some positive male reproductive data exist, but the data are not sufficient for classification	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

Target Organ(s)

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
methyl ethyl ketone	Inhalation	central nervous system depression	May cause drowsiness or dizziness	official classification	NOAEL Not available	
methyl ethyl ketone	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Human	NOAEL Not available	
methyl ethyl ketone	Ingestion	liver	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL Not available	not applicable
methyl ethyl ketone	Ingestion	kidney and/or bladder	Some positive data exist, but the data are not sufficient for classification	Rat	LOAEL 1,080 mg/kg	not applicable
tetrahydrofuran	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	
tetrahydrofuran	Inhalation	respiratory irritation	May cause respiratory irritation		NOAEL Not available	
tetrahydrofuran	Inhalation	respiratory system	Some positive data exist, but the data are not sufficient for classification	Rabbit	NOAEL 2.9 mg/l	4 hours
tetrahydrofuran	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Rat	NOAEL 180 mg/kg	not applicable
1-methyl-2-pyrrolidinone	Inhalation	respiratory irritation	All data are negative	Human	NOAEL 0.05 mg/l	8 hours
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	Some positive data exist, but the data are not sufficient for classification	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
methyl ethyl ketone	Dermal	nervous system	All data are negative	Guinea pig	NOAEL Not available	31 weeks
methyl ethyl ketone	Inhalation	liver | kidney and/or bladder	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 14.7 mg/l	90 days
methyl ethyl ketone	Inhalation	heart | endocrine system | bone, teeth,	All data are negative	Rat	NOAEL 14.7 mg/l	90 days

		nails, and/or hair | hematopoietic system | immune system | muscles				
methyl ethyl ketone	Ingestion	liver	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL Not available	7 days
methyl ethyl ketone	Ingestion	nervous system	All data are negative	Rat	NOAEL 173 mg/kg/day	90 days
tetrahydrofuran	Inhalation	liver	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 0.6 mg/l	12 weeks
tetrahydrofuran	Inhalation	respiratory system	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 2.9 mg/l	12 weeks
tetrahydrofuran	Inhalation	kidney and/or bladder	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 0.6 mg/l	105 weeks
tetrahydrofuran	Ingestion	liver	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL Not available	2 weeks
phenoxy resin	Dermal	liver	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 1,000 mg/kg/day	2 years
phenoxy resin	Dermal	nervous system	All data are negative	Rat	NOAEL 1,000 mg/kg/day	13 weeks
phenoxy resin	Ingestion	auditory system | heart | endocrine system | hematopoietic system | liver | eyes | kidney and/or bladder	All data are negative	Rat	NOAEL 1,000 mg/kg/day	28 days
1-methyl-2-pyrrolidinone	Inhalation	bone marrow | immune system | respiratory system	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 0.5 mg/l	4 weeks
1-methyl-2-pyrrolidinone	Ingestion	endocrine system	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 250 mg/kg/day	90 days
1-methyl-2-pyrrolidinone	Ingestion	kidney and/or bladder	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 2,060 mg/kg/day	4 weeks
1-methyl-2-pyrrolidinone	Ingestion	nervous system	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 1,057 mg/kg/day	90 days
1-methyl-2-pyrrolidinone	Ingestion	hematopoietic system	Some positive data exist, but the data are not sufficient for classification	Mouse	NOAEL 300 mg/kg/day	90 days
1-methyl-2-pyrrolidinone	Ingestion	liver	Some positive data exist, but the data are not sufficient for classification	Mouse	NOAEL 150 mg/kg/day	3 months
toluene	Inhalation	auditory system | nervous system | eyes | olfactory system	Causes damage to organs through 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	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 11.3 mg/l	15 weeks
toluene	Inhalation	endocrine system	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 1.1 mg/l	4 weeks
toluene	Inhalation	immune system	Some positive data exist, but the data are not sufficient for classification	Mouse	NOAEL Not available	20 days

toluene	Inhalation	bone, teeth, nails, and/or hair	Some positive data exist, but the data are not sufficient for classification	Mouse	NOAEL 1.1 mg/l	8 weeks
toluene	Inhalation	hematopoietic system | vascular system	Some positive data exist, but the data are not sufficient for classification	Human	NOAEL Not available	occupational exposure
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	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 2,500 mg/kg/day	13 weeks
toluene	Ingestion	liver | kidney and/or bladder	Some positive data exist, but the data are not sufficient for classification	Multiple animal species	NOAEL 2,500 mg/kg/day	13 weeks
toluene	Ingestion	hematopoietic system	Some positive data exist, but the data are not sufficient for classification	Mouse	NOAEL 600 mg/kg/day	14 days
toluene	Ingestion	endocrine system	Some positive data exist, but the data are not sufficient for classification	Mouse	NOAEL 105 mg/kg/day	28 days
toluene	Ingestion	immune system	Some positive data exist, but the data are not sufficient for classification	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. 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): D001 (Ignitable), D035 (Methyl ethyl ketone)

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

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

Ingredient	C.A.S. No	% by Wt
1-methyl-2-pyrrolidinone	872-50-4	1 - 5

This material contains a chemical which requires export notification under TSCA Section 12[b]:

Ingredient (Category if applicable)	C.A.S. No	Regulation	Status
phenoxy resin	5026-74-4	Toxic Substances Control Act (TSCA) 4 Test Rule Chemicals	Applicable

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: 3 **Flammability:** 3 **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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