Safety Data Sheet

This Safety Data Sheet has been prepared in accordance with the SS586 Specification for Hazard Communication for Hazardous Chemicals and Dangerous Goods.

Document group:	28-8293-4	**Version number:**	3.08
Issue Date:	06/08/2025	**Supersedes date:**	28/01/2024

IDENTIFICATION

1.1. Product identifier
3M™ Scotchcast™ Flame-Retardant Compound 2131 (Parts A and B)

1.2. Recommended use and restrictions on use

Recommended use
Electrical resin.

1.3. Supplier's details

Address: 3M Technologies (S) Pte Ltd,10 Ang Mo Kio Street 65, Singapore 569059
Telephone: +65 6450 8888
Website: www.3m.com.sg

1.4. Emergency telephone number

Company Emergency Hotline: +65 6591 6601 (8.15am - 5.00pm, Monday - Friday)

This product is a kit or a multipart product which consists of multiple, independently packaged components. An SDS for each of these components is included. Please do not separate the component SDSs from this cover page. The document numbers of the SDSs for components of this product are:

28-7650-6, 28-7666-2

TRANSPORT INFORMATION

International Regulations

UN No.: Not restricted for transport.
UN Proper shipping name: Not restricted for transport.
Transportation Class (IMO): None assigned
Transportation Class (IATA): None assigned
Other Dangerous Goods Descriptions (IMO): None assigned
Other Dangerous Goods Descriptions (IATA): None assigned
Packing Group: None assigned
Marine pollutant: None assigned

DISCLAIMER: The information on this Safety Data Sheet is based on our experience and is correct to the best of our knowledge at the date of publication, but we do not accept any liability for any loss, damage or injury resulting from its use (except as required by law). The information may not be valid for any use not referred to in this Data Sheet or use of the product in combination with other materials. For these reasons, it is important that customers carry out their own test to satisfy themselves as to the suitability of the product for their own intended applications.

3M Singapore SDSs are available at www.3m.com.sg

Safety Data Sheet

This Safety Data Sheet has been prepared in accordance with the SS586 Specification for Hazard Communication for Hazardous Chemicals and Dangerous Goods.

Document group:	28-7650-6	**Version number:**	4.01
Issue Date:	06/08/2025	**Supersedes date:**	29/08/2024

SECTION 1: Identification

1.1. Product identifier
3M™ Scotchcast™ Flame-Retardant Compound 2131 (Part A)

1.2. Recommended use and restrictions on use

Recommended use
Electrical, Part A of two part electrical resin

1.3. Supplier's details
Address: 3M Technologies (S) Pte Ltd,10 Ang Mo Kio Street 65, Singapore 569059
Telephone: +65 6450 8888
Website: www.3m.com.sg

1.4. Emergency telephone number
+65 6591 6601 (8.15am - 5.00pm, Monday - Friday)

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture
Skin Corrosion/Irritation: Category 2.
Serious Eye Damage/Irritation: Category 2.
Respiratory Sensitizer: Category 1.
Skin Sensitizer: Category 1.
Specific Target Organ Toxicity (repeated exposure): Category 1.
Specific Target Organ Toxicity (single exposure): Category 3.

2.2. Label elements
SIGNAL WORD
DANGER!

Symbols
Exclamation mark |Health Hazard |

Pictograms

HAZARD STATEMENTS

H315	Causes skin irritation.
H319	Causes serious eye irritation.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317	May cause an allergic skin reaction.
H335	May cause respiratory irritation.
H372	Causes damage to organs through prolonged or repeated exposure: respiratory system.

PRECAUTIONARY STATEMENTS

Prevention:

P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P280E	Wear protective gloves.

Response:

P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333 + P313	If skin irritation or rash occurs: Get medical attention.
P342 + P311	If experiencing respiratory symptoms: Call a POISON CENTER or doctor.

2.3. Other hazards

Persons previously sensitised to isocyanates may develop a cross-sensitisation reaction to other isocyanates.

SECTION 3: Composition/information on ingredients

This material is a mixture.

Ingredient	CAS Nbr	% by Wt
Polyoxyalkylenes	154517-54-1	35 - 45
P,P'-Methylenebis(phenyl isocyanate)	101-68-8	15 - 40
1,1'-Methylenebis[isocyanatobenzene], homopolymer	39310-05-9	10 - 30
Diundecyl phthalate	3648-20-2	< 15
Methylenediphenyl diisocyanate	26447-40-5	1 - 5
TRIETHYL PHOSPHATE	78-40-0	< 1.2

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
Closed containers exposed to heat from fire may build pressure and explode.

Hazardous Decomposition or By-Products

Substance	Condition
Carbon monoxide.	During combustion.
Carbon dioxide.	During combustion.
Hydrogen cyanide.	During combustion.
Oxides of nitrogen.	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. Use personal protective equipment based on the results of an exposure assessment. Refer to Section 8 for PPE recommendations. If anticipated exposure resulting from an accidental release exceeds the protective capabilities of the PPE listed in Section 8, or are unknown, select PPE that offers an appropriate level of protection. Consider the physical and chemical hazards of the material when doing so. Examples of PPE ensembles for emergency response could include wearing bunker gear for a release of flammable material; wearing chemical protective clothing if the spilled material is a corrosive, a sensitizer, a significant dermal irritant, or can be absorbed through the skin; or donning a positive pressure supplied-air respirator for chemicals with inhalation hazards. For information regarding physical and health hazards, refer to sections 2 and 11 of the SDS.

6.2. Environmental precautions
Avoid release to the environment. For larger spills, cover drains and build dykes 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 authorised person. Ventilate the area with fresh air. Read and follow safety precautions on the solvent label and Safety Data Sheet. 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 use in a confined area with minimal air exchange. Do not breathe dust/fume/gas/mist/vapours/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.

7.2. Conditions for safe storage including any incompatibilities
Store in a well-ventilated place. Keep cool. Keep container tightly closed to prevent contamination with water or air. If contamination is suspected, do not reseal container. Protect from sunlight. Store away from heat. Store away from strong bases. Store away from areas where product may come into contact with food or pharmaceuticals. Store in a dry place.

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	CAS Nbr	Agency	Limit type	Additional comments
P,P'-Methylenebis(phenyl isocyanate)	101-68-8	Singapore PELs	TWA(8 hours):0.051 mg/m3(0.005 ppm)	
TRIETHYL PHOSPHATE	78-40-0	AIHA	TWA:7.45 mg/m3(1 ppm)	

ACGIH : American Conference of Governmental Industrial Hygienists
AIHA : American Industrial Hygiene Association
CMRG : Chemical Manufacturer's Recommended Guidelines
Singapore PELs : Singapore. Workplace Safety and Health (Permissible Exposure Levels of Toxic Substances) Order
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/vapours/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.
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 (e.g., spraying, high splash potential, etc.), then use of a protective apron may be necessary. See recommended glove material(s) for determining appropriate apron material(s). If a glove material is not available as an apron, polymer laminate is a suitable option.

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 vapours and particulates
Half facepiece or full facepiece supplied-air respirator

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

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Liquid.
Color	Light Straw
Odor	Pungent Petroleum
Odour threshold	*No data available.*
pH	*Not applicable.*
Melting point/Freezing point	*Not applicable.*
Boiling point/Initial boiling point/Boiling range	>=148.9 ºC
Flash point	>=148.9 ºC [*Test Method:*Closed Cup]
Evaporation rate	*No data available.*
Flammability	Not applicable.
Flammable Limits(LEL)	*No data available.*
Flammable Limits(UEL)	*No data available.*
Vapour pressure	*No data available.*
Relative Vapor Density	*No data available.*
Density	*No data available.*
Relative density	1.08 [*Ref Std:*WATER=1]
Water solubility	Nil
Solubility- non-water	*No data available.*
Partition coefficient: n-octanol/water	*No data available.*
Autoignition temperature	*No data available.*
Decomposition temperature	*No data available.*
Kinematic Viscosity	741 mm²/sec
VOC less H2O & exempt solvents	10.5 g/l
Average particle size	*No data available.*
Bulk density	*No data available.*
Molecular weight	*No data available.*
Softening point	*No data available.*

Particle Characteristics	*Not applicable.*

SECTION 10: Stability and reactivity

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

10.2 Chemical stability
Stable.

10.3 Possibility of hazardous reactions
Hazardous polymerisation may occur.

10.4 Conditions to avoid
None known.

10.5 Incompatible materials
Strong bases.
Alcohols.
Water

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 labelling, 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 diarrhoea.

Additional Health Effects:

Prolonged or repeated exposure may cause target organ effects:
Respiratory effects: Signs/symptoms may include cough, shortness of breath, chest tightness, wheezing, increased heart rate, bluish coloured skin (cyanosis), sputum production, changes in lung function tests, and respiratory failure.

Additional information:
Persons previously sensitised to isocyanates may develop a cross-sensitisation 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	Ingestion		No data available; calculated ATE >5,000 mg/kg
Polyoxyalkylenes	Dermal		LD50 estimated to be > 5,000 mg/kg
Polyoxyalkylenes	Ingestion		LD50 estimated to be 2,000 - 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
1,1'-Methylenebis[isocyanatobenzene], homopolymer	Dermal	Rabbit	LD50 > 5,000 mg/kg
1,1'-Methylenebis[isocyanatobenzene], homopolymer	Inhalation-Dust/Mist (4 hours)	Rat	LC50 0.368 mg/l
1,1'-Methylenebis[isocyanatobenzene], homopolymer	Ingestion	Rat	LD50 31,600 mg/kg
Diundecyl phthalate	Dermal	Rabbit	LD50 > 7,900 mg/kg
Diundecyl phthalate	Ingestion	Rat	LD50 > 15,000 mg/kg
Methylenediphenyl diisocyanate	Dermal	Rabbit	LD50 > 5,000 mg/kg
Methylenediphenyl diisocyanate	Inhalation-Dust/Mist (4 hours)	Rat	LC50 0.368 mg/l
Methylenediphenyl diisocyanate	Ingestion	Rat	LD50 31,600 mg/kg
TRIETHYL PHOSPHATE	Dermal	Guinea pig	LD50 > 21,400 mg/kg
TRIETHYL PHOSPHATE	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 8.8 mg/l
TRIETHYL PHOSPHATE	Ingestion	Rat	LD50 1,131 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
P,P'-Methylenebis(phenyl isocyanate)	official classification	Irritant
1,1'-Methylenebis[isocyanatobenzene], homopolymer	official classification	Irritant
Methylenediphenyl diisocyanate	official classification	Irritant
TRIETHYL PHOSPHATE	Rabbit	No significant irritation

Serious Eye Damage/Irritation

Name	Species	Value

P,P'-Methylenebis(phenyl isocyanate)	official classification	Severe irritant
1,1'-Methylenebis[isocyanatobenzene], homopolymer	official classification	Severe irritant
Methylenediphenyl diisocyanate	official classification	Severe irritant
TRIETHYL PHOSPHATE	Rabbit	Severe irritant

Sensitization:

Skin Sensitisation

Name	Species	Value
P,P'-Methylenebis(phenyl isocyanate)	Mouse	Sensitising
1,1'-Methylenebis[isocyanatobenzene], homopolymer	Mouse	Sensitising
Methylenediphenyl diisocyanate	Mouse	Sensitising
TRIETHYL PHOSPHATE	Mouse	Not classified

Respiratory Sensitisation

Name	Species	Value
P,P'-Methylenebis(phenyl isocyanate)	Human	Sensitising
1,1'-Methylenebis[isocyanatobenzene], homopolymer	Human	Sensitising
Methylenediphenyl diisocyanate	Human	Sensitising

Germ Cell Mutagenicity

Name	Route	Value
P,P'-Methylenebis(phenyl isocyanate)	In Vitro	Some positive data exist, but the data are not sufficient for classification
1,1'-Methylenebis[isocyanatobenzene], homopolymer	In Vitro	Some positive data exist, but the data are not sufficient for classification
Methylenediphenyl diisocyanate	In Vitro	Some positive data exist, but the data are not sufficient for classification

Carcinogenicity

Name	Route	Species	Value
P,P'-Methylenebis(phenyl isocyanate)	Inhalation	Rat	Some positive data exist, but the data are not sufficient for classification
1,1'-Methylenebis[isocyanatobenzene], homopolymer	Inhalation	Rat	Some positive data exist, but the data are not sufficient for classification
Methylenediphenyl diisocyanate	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
P,P'-Methylenebis(phenyl isocyanate)	Inhalation	Not classified for development	Rat	NOAEL 0.004 mg/l	during organogenesis
1,1'-Methylenebis[isocyanatobenzene], homopolymer	Inhalation	Not classified for development	Rat	NOAEL 0.004 mg/l	during organogenesis
Methylenediphenyl diisocyanate	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
P,P'-Methylenebis(phenyl isocyanate)	Inhalation	respiratory irritation	May cause respiratory irritation	official classification	NOAEL Not available	
1,1'-Methylenebis[isocyanatobenzene], homopolymer	Inhalation	respiratory irritation	May cause respiratory irritation	official classification	NOAEL Not available	
Methylenediphenyl diisocyanate	Inhalation	respiratory irritation	May cause respiratory irritation	official classification	NOAEL Not available	
TRIETHYL PHOSPHATE	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL Not available	

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
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
1,1'-Methylenebis[isocyanatobenzene], homopolymer	Inhalation	respiratory system	Causes damage to organs through prolonged or repeated exposure	Rat	LOAEL 0.004 mg/l	13 weeks
Methylenediphenyl diisocyanate	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

The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. Additional information leading to material classification in Section 2 is available upon request. In addition, environmental fate and effects data on ingredients may not be reflected in this section because an ingredient is present below the threshold for labelling, an ingredient is not expected to be available for exposure, or the data is considered not relevant to the material as a whole.

12.1. Toxicity

Acute aquatic hazard:
Not acutely toxic to aquatic life by GHS criteria.

Chronic aquatic hazard:
Not chronically toxic to aquatic life by GHS criteria.

No product test data available.

Material	CAS Nbr	Organism	Type	Exposure	Test endpoint	Test result
Polyoxyalkylenes	154517-54-1	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
P,P'-Methylenebis(phenyl isocyanate)	101-68-8	Activated sludge	Estimated	3 hours	EC50	>100 mg/l
P,P'-Methylenebis(phenyl isocyanate)	101-68-8	Green algae	Estimated	72 hours	EC50	>1,640 mg/l
P,P'-	101-68-8	Water flea	Estimated	24 hours	EC50	>1,000 mg/l

Methylenebis(phenyl isocyanate)						
P,P'-Methylenebis(phenyl isocyanate)	101-68-8	Zebra Fish	Estimated	96 hours	LC50	>1,000 mg/l
P,P'-Methylenebis(phenyl isocyanate)	101-68-8	Green algae	Estimated	72 hours	NOEC	1,640 mg/l
P,P'-Methylenebis(phenyl isocyanate)	101-68-8	Water flea	Estimated	21 days	NOEC	10 mg/l
1,1'-Methylenebis[isocyanatobenzene], homopolymer	39310-05-9	Water flea	Analogous Compound	24 hours	EC50	>100 mg/l
Diundecyl phthalate	3648-20-2	Fathead minnow	Experimental	96 hours	LC50	>100 mg/l
Diundecyl phthalate	3648-20-2	Water flea	Experimental	21 days	NOEC	0.35 mg/l
Methylenediphenyl diisocyanate	26447-40-5	Green algae	Analogous Compound	72 hours	EC50	>1,640 mg/l
Methylenediphenyl diisocyanate	26447-40-5	Water flea	Analogous Compound	24 hours	EC50	>1,000 mg/l
Methylenediphenyl diisocyanate	26447-40-5	Zebra Fish	Analogous Compound	96 hours	LC50	>1,000 mg/l
Methylenediphenyl diisocyanate	26447-40-5	Green algae	Analogous Compound	72 hours	NOEC	1,640 mg/l
Methylenediphenyl diisocyanate	26447-40-5	Water flea	Analogous Compound	21 days	NOEC	10 mg/l
Methylenediphenyl diisocyanate	26447-40-5	Activated sludge	Analogous Compound	3 hours	EC50	>100 mg/l
Methylenediphenyl diisocyanate	26447-40-5	Lettuce	Analogous Compound	17 days	NOEC	1,000 mg/kg (Dry Weight)
Methylenediphenyl diisocyanate	26447-40-5	Redworm	Analogous Compound	14 days	LC50	>1,000 mg/kg (Dry Weight)
TRIETHYL PHOSPHATE	78-40-0	Activated sludge	Experimental	5 hours	EC50	5,000 mg/l
TRIETHYL PHOSPHATE	78-40-0	Bacteria	Experimental	30 minutes	EC10	2,985 mg/l
TRIETHYL PHOSPHATE	78-40-0	Fathead minnow	Experimental	96 hours	LC50	>100 mg/l
TRIETHYL PHOSPHATE	78-40-0	Green algae	Experimental	72 hours	EbC50	900 mg/l
TRIETHYL PHOSPHATE	78-40-0	Water flea	Experimental	48 hours	EC50	350 mg/l
TRIETHYL PHOSPHATE	78-40-0	Water flea	Experimental	21 days	NOEC	31.6 mg/l

12.2. Persistence and degradability

Material	CAS Nbr	Test type	Duration	Study Type	Test result	Protocol
Polyoxyalkylenes	154517-54-1	Data not available-insufficient	N/A	N/A	N/A	N/A
P,P'-Methylenebis(phenyl isocyanate)	101-68-8	Estimated Hydrolysis		Hydrolytic half-life	20 hours (t 1/2)	
1,1'-Methylenebis[isocyanatobenzene], homopolymer	39310-05-9	Hydrolysis product	28 days	BOD	0 %BOD/ThOD	OECD 301C - MITI test (I)
1,1'-Methylenebis[isocy	39310-05-9	Analogous Compound		Hydrolytic half-life (pH 7)	<2 hours (t 1/2)	

anatobenzene], homopolymer		Hydrolysis				
Diundecyl phthalate	3648-20-2	Experimental Biodegradation	28 days	CO2 evolution	76 %CO2 evolution/THCO2 evolution	similar to OECD 301B
Methylenediphenyl diisocyanate	26447-40-5	Analogous Compound Biodegradation	28 days	BOD	0 %BOD/ThOD	OECD 301C - MITI test (I)
Methylenediphenyl diisocyanate	26447-40-5	Analogous Compound Aquatic Inherent Biodegrad.	28 days	BOD	0 %BOD/ThOD	OECD 302C - Modified MITI (II)
Methylenediphenyl diisocyanate	26447-40-5	Analogous Compound Hydrolysis		Hydrolytic half-life (pH 7)	<2 hours (t 1/2)	
TRIETHYL PHOSPHATE	78-40-0	Experimental Biodegradation	28 days	Dissolv. Organic Carbon Deplet	97 %removal of DOC	835.3200 Zhan-Wellens
TRIETHYL PHOSPHATE	78-40-0	Experimental Biodegradation	28 days	BOD	0 %BOD/ThOD	OECD 301C - MITI test (I)
TRIETHYL PHOSPHATE	78-40-0	Experimental Hydrolysis		Hydrolytic half-life (pH 7)	>1 years (t 1/2)	EC C.7 Hydrolysis at pH

12.3 : Bioaccumulative potential

Material	CAS Nbr	Test type	Duration	Study Type	Test result	Protocol
Polyoxyalkylenes	154517-54-1	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
P,P'-Methylenebis(phenyl isocyanate)	101-68-8	Experimental BCF - Fish	28 days	Bioaccumulation factor	200	OECD305-Bioconcentration
1,1'-Methylenebis[isocyanatobenzene], homopolymer	39310-05-9	Analogous Compound BCF - Fish	28 days	Bioaccumulation factor	200	
Diundecyl phthalate	3648-20-2	Modeled Bioconcentration		Bioaccumulation factor	7.4	Catalogic™
Methylenediphenyl diisocyanate	26447-40-5	Analogous Compound BCF - Fish	28 days	Bioaccumulation factor	200	OECD305-Bioconcentration
Methylenediphenyl diisocyanate	26447-40-5	Analogous Compound Bioconcentration		Log Kow	4.51	OECD 117 log Kow HPLC method
TRIETHYL PHOSPHATE	78-40-0	Experimental BCF - Fish	42 days	Bioaccumulation factor	<1.3	OECD305-Bioconcentration

12.4. Mobility in soil
Please contact manufacturer for more details

12.5 Other adverse effects
No information available.

SECTION 13: Disposal considerations

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

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

available treatment and disposal facilities.

SECTION 14: Transport Information

International Regulations

UN No.: Not restricted for transport.
UN Proper shipping name: Not restricted for transport.

Transportation Class (IMO): None assigned
Transportation Class (IATA): None assigned
Other Dangerous Goods Descriptions (IMO): None assigned
Other Dangerous Goods Descriptions (IATA): None assigned
Packing Group: None assigned
Marine pollutant: None assigned

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Global inventory status
Contact 3M for more information. The components of this material are in compliance with the provisions of Philippines RA 6969 requirements. Certain restrictions may apply. Contact the selling division for additional information. This product complies with Measures on Environmental Management of New Chemical Substances. All ingredients are listed on or exempt from on China IECSC inventory. The components of this product are in compliance with the chemical notification requirements of TSCA. All required components of this product are listed on the active portion of the TSCA Inventory.

This product may contain component(s) that are regulated by the following:
Workplace Safety and Health Act & Workplace Safety and Health (General Provisions) Regulations: this product is subject to SDS, labelling, PEL and other requirements in the Act/Regulations.
Environmental Protection and Management (Hazardous Substances) Regulations: This product is subject to the requirements in the Regulations

SECTION 16: Other information

DISCLAIMER: The information on this Safety Data Sheet is based on our experience and is correct to the best of our knowledge at the date of publication, but we do not accept any liability for any loss, damage or injury resulting from its use (except as required by law). The information may not be valid for any use not referred to in this Data Sheet or use of the product in combination with other materials. For these reasons, it is important that customers carry out their own test to satisfy themselves as to the suitability of the product for their own intended applications.

3M Singapore SDSs are available at www.3m.com.sg

Safety Data Sheet

This Safety Data Sheet has been prepared in accordance with the SS586 Specification for Hazard Communication for Hazardous Chemicals and Dangerous Goods.

Document group:	28-7666-2	**Version number:**	5.00
Issue Date:	13/06/2025	**Supersedes date:**	07/03/2025

SECTION 1: Identification

1.1. Product identifier
3M™ Scotchcast™ Flame Retardant Resin 2131 (Part B)

1.2. Recommended use and restrictions on use

Recommended use
Electrical, Part B of two part electrical resin

1.3. Supplier's details
Address: 3M Technologies (S) Pte Ltd,10 Ang Mo Kio Street 65, Singapore 569059
Telephone: +65 6450 8888
Website: www.3m.com.sg

1.4. Emergency telephone number
+65 6591 6601 (8.15am - 5.00pm, Monday - Friday)

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture
Serious Eye Damage/Irritation: Category 1.
Carcinogenicity: Category 2.

2.2. Label elements
SIGNAL WORD
DANGER!

Symbols
Corrosion | Health Hazard |

Pictograms

HAZARD STATEMENTS

H318	Causes serious eye damage.
H351	Suspected of causing cancer.

PRECAUTIONARY STATEMENTS

Prevention:

P280G	Wear respiratory protection and eye/face protection.

Response:

P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor.

2.3. Other hazards

None known.

SECTION 3: Composition/information on ingredients

This material is a mixture.

Ingredient	CAS Nbr	% by Wt
Homopolymer	69102-90-5	20 - 30
1,1'-(Ethane-1,2-diyl)bis[pentabromobenzene]	84852-53-9	22 - 25
DIUNDECYL PHTHALATE, BRANCHED AND LINEAR	85507-79-5	10 - 20
Castor oil	8001-79-4	1 - 10
Silicic acid, aluminum potassium sodium salt	12736-96-8	1 - 10
Diantimony pentoxide	1314-60-9	5 - 10
1,1'-Phenyliminodipropan-2-ol	3077-13-2	4 - 10
POLYPROPYLENE ETHER DIOL	25322-69-4	5 - 10
Oxydipropanol	25265-71-8	3 - 6
Carbon black	1333-86-4	<= 2
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica	68909-20-6	<= 1
1,4-diazabicyclooctane	280-57-9	<= 1

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation

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

Skin contact

Wash with soap and water. If you feel unwell, 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

Serious damage to the eyes (corneal cloudiness, severe pain, tearing, ulcerations, and significantly impaired or loss of vision). 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	Condition
Carbon monoxide.	During combustion.
Carbon dioxide.	During combustion.
Oxides of nitrogen.	During combustion.
Oxides of antimony.	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
Use personal protective equipment based on the results of an exposure assessment. Refer to Section 8 for PPE recommendations. If anticipated exposure resulting from an accidental release exceeds the protective capabilities of the PPE listed in Section 8, or are unknown, select PPE that offers an appropriate level of protection. Consider the physical and chemical hazards of the material when doing so. Examples of PPE ensembles for emergency response could include wearing bunker gear for a release of flammable material; wearing chemical protective clothing if the spilled material is a corrosive, a sensitizer, a significant dermal irritant, or can be absorbed through the skin; or donning a positive pressure supplied-air respirator for chemicals with inhalation hazards. For information regarding physical and health hazards, refer to sections 2 and 11 of the SDS. 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.

6.2. Environmental precautions
Avoid release to the environment. For larger spills, cover drains and build dykes 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 authorised person. Ventilate the area with fresh air. Read and follow safety precautions on the solvent label and Safety Data Sheet. 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/vapours/spray. Do not get in eyes, on skin, or on clothing. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Avoid release to the environment. Use personal protective equipment (eg. gloves, respirators…) as required.

7.2. Conditions for safe storage including any incompatibilities
Keep container tightly closed. Keep cool. Store away from heat. Store in a dry place.

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	CAS Nbr	Agency	Limit type	Additional comments
Carbon black	1333-86-4	ACGIH	TWA(inhalable fraction):3 mg/m3	A3: Confirmed animal carcin.
Carbon black	1333-86-4	Singapore PELs	TWA(8 hours):3.5 mg/m3	
POLYPROPYLENE ETHER DIOL	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
Singapore PELs : Singapore. Workplace Safety and Health (Permissible Exposure Levels of Toxic Substances) Order
TWA: Time-Weighted-Average
STEL: Short Term Exposure Limit
CEIL: Ceiling

8.2. Exposure controls

8.2.1. Engineering controls
Use with appropriate local exhaust ventilation. Provide appropriate local exhaust ventilation on open containers.

8.2.2. Personal protective equipment (PPE)

Eye/face protection

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

Skin/hand protection
No chemical protective gloves are required.

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 vapours 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

Physical state	Liquid.
Color	Black
Odor	Pungent Glycol
Odour threshold	*No data available.*
pH	*Not applicable.*
Melting point/Freezing point	*Not applicable.*
Boiling point/Initial boiling point/Boiling range	> 143.3 ºC
Flash point	> 143.3 ºC [*Test Method:*Closed Cup]
Evaporation rate	*No data available.*
Flammability	Not applicable.
Flammable Limits(LEL)	*No data available.*
Flammable Limits(UEL)	*No data available.*
Vapour pressure	< 186,158.4 Pa [@ 55 ºC]
Relative Vapor Density	*No data available.*
Density	*No data available.*
Relative density	1.29 [*Ref Std:*WATER=1]
Water solubility	Nil
Solubility- non-water	*No data available.*
Partition coefficient: n-octanol/water	*No data available.*
Autoignition temperature	*No data available.*
Decomposition temperature	*No data available.*
Kinematic Viscosity	4,264 mm²/sec
VOC less H2O & exempt solvents	12.9 g/l
Molecular weight	*No data available.*

Particle Characteristics	*Not applicable.*

SECTION 10: Stability and reactivity

10.1 Reactivity
This material is considered to be non reactive under normal use conditions

10.2 Chemical stability
Stable.

10.3 Possibility of hazardous reactions
Hazardous polymerisation will not occur.

10.4 Conditions to avoid
None known.

10.5 Incompatible materials
None known.

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 labelling, 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.

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 diarrhoea.

Additional Health Effects:

Prolonged or repeated exposure may cause target organ effects:
Respiratory effects: Signs/symptoms may include cough, shortness of breath, chest tightness, wheezing, increased heart rate, bluish coloured skin (cyanosis), sputum production, changes in lung function tests, and respiratory failure.

Carcinogenicity:
Contains a chemical or chemicals which can cause cancer.

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-Dust/Mist(4 hr)		No data available; calculated ATE >12.5 mg/l
Overall product	Ingestion		No data available; calculated ATE >2,000 - =5,000 mg/kg
Homopolymer	Dermal		LD50 estimated to be > 5,000 mg/kg
Homopolymer	Ingestion		LD50 estimated to be 2,000 - 5,000 mg/kg
DIUNDECYL PHTHALATE, BRANCHED AND LINEAR	Dermal	Rat	LD50 > 2,000 mg/kg
DIUNDECYL PHTHALATE, BRANCHED AND LINEAR	Ingestion	Rat	LD50 > 15,800 mg/kg
POLYPROPYLENE ETHER DIOL	Dermal	Rabbit	LD50 > 10,000 mg/kg
POLYPROPYLENE ETHER DIOL	Ingestion	Rat	LD50 > 1,000 mg/kg

1,1'-Phenyliminodipropan-2-ol	Dermal	Rabbit	LD50 > 2,000 mg/kg
1,1'-Phenyliminodipropan-2-ol	Ingestion	Rat	LD50 3,800 mg/kg
Castor oil	Dermal		LD50 estimated to be > 5,000
Castor oil	Ingestion		LD50 estimated to be > 5,000
Oxydipropanol	Dermal	Rabbit	LD50 > 5,010 mg/kg
Oxydipropanol	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 2.34 mg/l
Oxydipropanol	Ingestion	Rat	LD50 > 5,010 mg/kg
Carbon black	Dermal	Rabbit	LD50 > 3,000 mg/kg
Carbon black	Ingestion	Rat	LD50 > 8,000 mg/kg
1,4-diazabicyclooctane	Dermal	Rabbit	LD50 > 3,200 mg/kg
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica	Ingestion	Rat	LD50 > 2,000 mg/kg
1,4-diazabicyclooctane	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 5.05 mg/l
1,4-diazabicyclooctane	Ingestion	Rat	LD50 1,870 mg/kg
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica	Dermal	similar health hazards	LD50 estimated to be > 5,000 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
DIUNDECYL PHTHALATE, BRANCHED AND LINEAR	Rabbit	No significant irritation
POLYPROPYLENE ETHER DIOL	Not available	No significant irritation
1,1'-Phenyliminodipropan-2-ol	Professional judgement	Minimal irritation
Castor oil	Human	Minimal irritation
Oxydipropanol	Rabbit	No significant irritation
Carbon black	Rabbit	No significant irritation
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica	Rabbit	No significant irritation
1,4-diazabicyclooctane	Rabbit	Mild irritant

Serious Eye Damage/Irritation

Name	Species	Value
DIUNDECYL PHTHALATE, BRANCHED AND LINEAR	Rabbit	Mild irritant
POLYPROPYLENE ETHER DIOL	Not available	Mild irritant
1,1'-Phenyliminodipropan-2-ol	Professional judgement	Corrosive
Castor oil	Rabbit	Mild irritant
Oxydipropanol	Rabbit	No significant irritation
Carbon black	Rabbit	No significant irritation
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica	Rabbit	No significant irritation
1,4-diazabicyclooctane	Rabbit	Corrosive

Sensitization:

Skin Sensitisation

Name	Species	Value
DIUNDECYL PHTHALATE, BRANCHED AND LINEAR	Human	Not classified
POLYPROPYLENE ETHER DIOL	Human and	Not classified

	animal	
Castor oil	Human	Not classified
Oxydipropanol	Guinea pig	Not classified
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica	Guinea pig	Not classified

Respiratory Sensitisation

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

Germ Cell Mutagenicity

Name	Route	Value
DIUNDECYL PHTHALATE, BRANCHED AND LINEAR	In Vitro	Not mutagenic
POLYPROPYLENE ETHER DIOL	In Vitro	Not mutagenic
Castor oil	In Vitro	Not mutagenic
Castor oil	In vivo	Not mutagenic
Oxydipropanol	In Vitro	Not mutagenic
Oxydipropanol	In vivo	Not mutagenic
Carbon black	In Vitro	Not mutagenic
Carbon black	In vivo	Some positive data exist, but the data are not sufficient for classification
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica	In Vitro	Not mutagenic

Carcinogenicity

Name	Route	Species	Value
Oxydipropanol	Ingestion	Multiple animal species	Not carcinogenic
Carbon black	Dermal	Mouse	Not carcinogenic
Carbon black	Ingestion	Mouse	Not carcinogenic
Carbon black	Inhalation	Rat	Carcinogenic.

Reproductive Toxicity

Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test result	Exposure Duration
DIUNDECYL PHTHALATE, BRANCHED AND LINEAR	Ingestion	Not classified for male reproduction	Rat	NOAEL 2,100 mg/kg/day	21 days
DIUNDECYL PHTHALATE, BRANCHED AND LINEAR	Ingestion	Not classified for development	Rat	NOAEL 1,000 mg/kg/day	during gestation
Oxydipropanol	Ingestion	Not classified for development	Rat	NOAEL 5,000 mg/kg/day	during organogenesis
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica	Ingestion	Not classified for female reproduction	Rat	NOAEL 509 mg/kg/day	1 generation
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica	Ingestion	Not classified for male reproduction	Rat	NOAEL 497 mg/kg/day	1 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

DIUNDECYL PHTHALATE, BRANCHED AND LINEAR	Ingestion	liver	Not classified	Rat	NOAEL 2,100 mg/kg/day	21 days
Castor oil	Ingestion	heart | hematopoietic system | liver	Not classified	Rat	NOAEL 4,800 mg/kg/day	13 weeks
Castor oil	Ingestion	kidney and/or bladder	Not classified	Mouse	NOAEL 13,000 mg/kg/day	13 weeks
Oxydipropanol	Ingestion	respiratory system	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 470 mg/kg/day	105 weeks
Oxydipropanol	Ingestion	heart | endocrine system | liver	Not classified	Rat	NOAEL 3,040 mg/kg/day	105 weeks
Oxydipropanol	Ingestion	kidney and/or bladder	Not classified	Rat	NOAEL 115 mg/kg/day	105 weeks
Oxydipropanol	Ingestion	skin | gastrointestinal tract | bone, teeth, nails, and/or hair | hematopoietic system | immune system | nervous system | vascular system	Not classified	Rat	NOAEL 3,040 mg/kg/day	105 weeks
Carbon black	Inhalation	pneumoconiosis	Not classified	Human	NOAEL Not available	occupational exposure
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica	Inhalation	respiratory system	May cause damage to organs though prolonged or repeated exposure	Rat	LOAEL 0.035 mg/l	13 weeks
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica	Inhalation	hematopoietic system | kidney and/or bladder	Not classified	Rat	NOAEL 0.035 mg/l	13 weeks
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica	Ingestion	liver	Not classified	Rat	NOAEL 1,000 mg/kg/day	5 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

The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. Additional information leading to material classification in Section 2 is available upon request. In addition, environmental fate and effects data on ingredients may not be reflected in this section because an ingredient is present below the threshold for labelling, an ingredient is not expected to be available for exposure, or the data is considered not relevant to the material as a whole.

12.1. Toxicity

Acute aquatic hazard:
GHS Acute 3: Harmful to aquatic life.

Chronic aquatic hazard:
GHS Chronic 3: Harmful to aquatic life with long lasting effects.

No product test data available.

Material	CAS Nbr	Organism	Type	Exposure	Test endpoint	Test result
Homopolymer	69102-90-5	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
1,1'-(Ethane-1,2-diyl)bis[pentabromobenzene]	84852-53-9	Activated sludge	Experimental	3 hours	NOEC	10 mg/l
1,1'-(Ethane-1,2-diyl)bis[pentabromobenzene]	84852-53-9	Green algae	Experimental	96 hours	EC50	>100 mg/l
1,1'-(Ethane-1,2-diyl)bis[pentabromobenzene]	84852-53-9	Rainbow trout	Experimental	96 hours	No tox obs at lmt of water sol	>100 mg/l
1,1'-(Ethane-1,2-diyl)bis[pentabromobenzene]	84852-53-9	Water flea	Experimental	48 hours	No tox obs at lmt of water sol	>100 mg/l
1,1'-(Ethane-1,2-diyl)bis[pentabromobenzene]	84852-53-9	Green algae	Experimental	96 hours	No tox obs at lmt of water sol	>100 mg/l
DIUNDECYL PHTHALATE, BRANCHED AND LINEAR	85507-79-5	Green algae	Estimated	72 hours	EC50	>100 mg/l
DIUNDECYL PHTHALATE, BRANCHED AND LINEAR	85507-79-5	Rainbow trout	Estimated	96 hours	LC50	>100 mg/l
DIUNDECYL PHTHALATE, BRANCHED AND LINEAR	85507-79-5	Sheepshead Minnow	Estimated	96 hours	LC50	>100 mg/l
DIUNDECYL PHTHALATE, BRANCHED AND LINEAR	85507-79-5	Green algae	Estimated	72 hours	NOEC	100 mg/l
DIUNDECYL PHTHALATE, BRANCHED AND LINEAR	85507-79-5	Rainbow trout	Estimated	155 days	NOEC	100 mg/l
Silicic acid, aluminum potassium sodium salt	12736-96-8	African clawed frog	Analogous Compound	96 hours	LC50	1,800 mg/l
Silicic acid, aluminum potassium sodium salt	12736-96-8	Fathead minnow	Analogous Compound	96 hours	LC50	>680 mg/l
Silicic acid, aluminum potassium sodium salt	12736-96-8	Green algae	Analogous Compound	72 hours	ErC50	130 mg/l
Silicic acid, aluminum potassium sodium salt	12736-96-8	Sediment organism	Analogous Compound	22 days	EC50	364.9 mg/l
Silicic acid, aluminum potassium sodium salt	12736-96-8	Water flea	Analogous Compound	48 hours	EC50	>100 mg/l
Silicic acid, aluminum	12736-96-8	Fathead minnow	Analogous Compound	30 days	NOEC	86.7 mg/l

potassium sodium salt						
Silicic acid, aluminum potassium sodium salt	12736-96-8	Green algae	Analogous Compound	72 hours	NOEC	18 mg/l
Silicic acid, aluminum potassium sodium salt	12736-96-8	Water flea	Analogous Compound	21 days	NOEC	32 mg/l
Silicic acid, aluminum potassium sodium salt	12736-96-8	Bacteria	Analogous Compound	16 hours	EC50	950 mg/l
Silicic acid, aluminum potassium sodium salt	12736-96-8	Radish	Analogous Compound	23 days	EC50	4,000 mg/kg (Dry Weight)
Diantimony pentoxide	1314-60-9	Fathead minnow	Estimated	96 hours	LC50	19.1 mg/l
Diantimony pentoxide	1314-60-9	Fish	Estimated	96 hours	LC50	9.2 mg/l
Diantimony pentoxide	1314-60-9	Green algae	Estimated	72 hours	ErC50	>48.6 mg/l
Diantimony pentoxide	1314-60-9	Invertebrate	Estimated	96 hours	LC50	2.35 mg/l
Diantimony pentoxide	1314-60-9	Blackworm	Estimated	28 days	NOEC	149 mg/kg (Dry Weight)
Diantimony pentoxide	1314-60-9	Fathead minnow	Estimated	28 days	NOEC	1.5 mg/l
Diantimony pentoxide	1314-60-9	Green algae	Estimated	72 hours	NOEC	2.8 mg/l
Diantimony pentoxide	1314-60-9	Water flea	Estimated	21 days	NOEC	2.31 mg/l
Diantimony pentoxide	1314-60-9	Activated sludge	Estimated	4 hours	EC50	36 mg/l
Diantimony pentoxide	1314-60-9	Barley	Estimated	5 days	EC50	9,230 mg/kg (Dry Weight)
Diantimony pentoxide	1314-60-9	Soil microbes	Estimated	7 days	NOEC	3,900 mg/kg (Dry Weight)
Diantimony pentoxide	1314-60-9	Springtail	Estimated	28 days	NOEC	1,330 mg/kg (Dry Weight)
Castor oil	8001-79-4	Zebra Fish	Analogous Compound	96 hours	LC50	>100 mg/l
Castor oil	8001-79-4	Bacteria	Analogous Compound	16 hours	NOEC	10,000 mg/l
1,1'-Phenyliminodipropan-2-ol	3077-13-2	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
POLYPROPYLENE ETHER DIOL	25322-69-4	Green algae	Analogous Compound	72 hours	ErC50	>100 mg/l
POLYPROPYLENE ETHER DIOL	25322-69-4	Water flea	Analogous Compound	48 hours	EC50	105.8 mg/l
POLYPROPYLENE ETHER DIOL	25322-69-4	Zebra Fish	Analogous Compound	96 hours	LC50	>100 mg/l
POLYPROPYLENE ETHER DIOL	25322-69-4	Green algae	Analogous Compound	72 hours	NOEC	100 mg/l
POLYPROPYLENE ETHER DIOL	25322-69-4	Water flea	Analogous Compound	21 days	NOEC	>=10 mg/l
POLYPROPYLENE ETHER DIOL	25322-69-4	Activated sludge	Analogous Compound	3 hours	EC50	>1,000 mg/l
Oxydipropanol	25265-71-8	Goldfish	Experimental	96 hours	LC50	>5,000 mg/l
Oxydipropanol	25265-71-8	Green algae	Experimental	72 hours	EC50	>100 mg/l
Oxydipropanol	25265-71-8	Water flea	Experimental	48 hours	EC50	>100 mg/l
Oxydipropanol	25265-71-8	Green algae	Experimental	72 hours	NOEC	100 mg/l
Oxydipropanol	25265-71-8	Bacteria	Experimental	18 hours	EC10	1,000 mg/l
Oxydipropanol	25265-71-8	Bobwhite quail	Experimental	14 days	LD50	>2,000 mg per kg of

						bodyweight
Carbon black	1333-86-4	Green algae	Experimental	72 hours	No tox obs at lmt of water sol	>100 mg/l
Carbon black	1333-86-4	Zebra Fish	Experimental	96 hours	No tox obs at lmt of water sol	>100 mg/l
Carbon black	1333-86-4	Green algae	Experimental	72 hours	No tox obs at lmt of water sol	100 mg/l
Carbon black	1333-86-4	Activated sludge	Experimental	3 hours	NOEC	>800 mg/l
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica	68909-20-6	Algae or other aquatic plants	Estimated	72 hours	EC50	>100 mg/l
1,4-diazabicyclooctane	280-57-9	Bacteria	Experimental	17 hours	EC50	356 mg/l
1,4-diazabicyclooctane	280-57-9	Common Carp	Experimental	96 hours	LC50	>100 mg/l
1,4-diazabicyclooctane	280-57-9	Green algae	Experimental	72 hours	ErC50	180 mg/l
1,4-diazabicyclooctane	280-57-9	Water flea	Experimental	48 hours	EC50	>100 mg/l
1,4-diazabicyclooctane	280-57-9	Green algae	Experimental	72 hours	ErC10	79 mg/l

12.2. Persistence and degradability

Material	CAS Nbr	Test type	Duration	Study Type	Test result	Protocol
Homopolymer	69102-90-5	Data not available-insufficient	N/A	N/A	N/A	N/A
1,1'-(Ethane-1,2-diyl)bis[pentabromobenzene]	84852-53-9	Experimental Biodegradation	28 days	BOD	0 %BOD/ThOD	OECD 301C - MITI test (I)
DIUNDECYL PHTHALATE, BRANCHED AND LINEAR	85507-79-5	Experimental Biodegradation	28 days	CO2 evolution	66 %CO2 evolution/THCO2 evolution (does not pass 10-day window)	OECD 301B - Modified sturm or CO2
Silicic acid, aluminum potassium sodium salt	12736-96-8	Analogous Compound Hydrolysis		Hydrolytic half-life	60 days (t 1/2)	
Diantimony pentoxide	1314-60-9	Data not available-insufficient	N/A	N/A	N/A	N/A
Castor oil	8001-79-4	Analogous Compound Biodegradation	28 days	BOD	64 %BOD/ThOD	OECD 301D - Closed bottle test
1,1'-Phenyliminodipropan-2-ol	3077-13-2	Modeled Biodegradation	28 days	BOD	6 %BOD/ThOD	Catalogic™
POLYPROPYLENE ETHER DIOL	25322-69-4	Experimental Biodegradation	28 days	BOD	93.6 %BOD/ThOD	OECD 301F - Manometric respirometry
Oxydipropanol	25265-71-8	Experimental Biodegradation	28 days	BOD	84.4 %BOD/ThOD	OECD 301F - Manometric respirometry
Oxydipropanol	25265-71-8	Experimental Aquatic Inherent Biodegrad.	42 days	Dissolv. Organic Carbon Deplet	83.6 %removal of DOC	OECD 302A - Modified SCAS Test
Oxydipropanol	25265-71-8	Experimental Biodegradation	64 days	Dissolv. Organic Carbon Deplet	23.6 %removal of DOC	OECD 306(Misc)-Biodegrad. Seaw
Carbon black	1333-86-4	Data not available-insufficient	N/A	N/A	N/A	N/A

Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica	68909-20-6	Data not available-insufficient	N/A	N/A	N/A	N/A
1,4-diazabicyclooctane	280-57-9	Experimental Biodegradation	28 days	CO2 evolution	7 %CO2 evolution/THCO2 evolution	OECD 301B - Modified sturm or CO2

12.3 : Bioaccumulative potential

Material	CAS Nbr	Test type	Duration	Study Type	Test result	Protocol
Homopolymer	69102-90-5	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
1,1'-(Ethane-1,2-diyl)bis[pentabromobenzene]	84852-53-9	Experimental Bioconcentration		Log Kow	3.55	
DIUNDECYL PHTHALATE, BRANCHED AND LINEAR	85507-79-5	Modeled Bioconcentration		Bioaccumulation factor	7.4	Catalogic™
DIUNDECYL PHTHALATE, BRANCHED AND LINEAR	85507-79-5	Experimental Bioconcentration		Log Kow	10.33	
Silicic acid, aluminum potassium sodium salt	12736-96-8	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Diantimony pentoxide	1314-60-9	Analogous Compound BCF - Fish	23 days	Bioaccumulation factor	<=28.6	
Castor oil	8001-79-4	Modeled Bioconcentration		Bioaccumulation factor	7	Catalogic™
1,1'-Phenyliminodipropan-2-ol	3077-13-2	Modeled Bioconcentration		Bioaccumulation factor	2.8	Catalogic™
POLYPROPYLENE ETHER DIOL	25322-69-4	Experimental Bioconcentration		Log Kow	≤1.13	EC A.8 Partition Coefficient
Oxydipropanol	25265-71-8	Experimental BCF - Fish	42 days	Bioaccumulation factor	4.6	OECD305-Bioconcentration
Oxydipropanol	25265-71-8	Experimental Bioconcentration		Log Kow	-0.462	EC A.8 Partition Coefficient
Carbon black	1333-86-4	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica	68909-20-6	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
1,4-diazabicyclooctane	280-57-9	Experimental BCF - Fish	42 days	Bioaccumulation factor	<13	OECD305-Bioconcentration

12.4. Mobility in soil
Please contact manufacturer for more details

12.5 Other adverse effects
No information available.

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.

SECTION 14: Transport Information

International Regulations

UN No.: Not restricted for transport.
UN Proper shipping name: Not restricted for transport.

Transportation Class (IMO): None assigned
Transportation Class (IATA): None assigned
Other Dangerous Goods Descriptions (IMO): None assigned
Other Dangerous Goods Descriptions (IATA): None assigned
Packing Group: None assigned
Marine pollutant: None assigned

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Global inventory status
Contact 3M for more information. This product complies with Measures on Environmental Management of New Chemical Substances. All ingredients are listed on or exempt from on China IECSC inventory. The components of this product are in compliance with the chemical notification requirements of TSCA. All required components of this product are listed on the active portion of the TSCA Inventory.

This product may contain component(s) that are regulated by the following:
Workplace Safety and Health Act & Workplace Safety and Health (General Provisions) Regulations: this product is subject to SDS, labelling, PEL and other requirements in the Act/Regulations.

SECTION 16: Other information

DISCLAIMER: The information on this Safety Data Sheet is based on our experience and is correct to the best of our knowledge at the date of publication, but we do not accept any liability for any loss, damage or injury resulting from its use (except as required by law). The information may not be valid for any use not referred to in this Data Sheet or use of the product in combination with other materials. For these reasons, it is important that customers carry out their own test to satisfy themselves as to the suitability of the product for their own intended applications.

3M Singapore SDSs are available at www.3m.com.sg