Safety Data Sheet

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Issue Date:	24/03/2021	**Supercedes Date:**	21/03/2016

This Safety Data Sheet has been prepared in accordance with the Malaysia Occupational Safety and Health (Chemical Classification, Labelling and Safety Data Sheets) Regulations 2013.

IDENTIFICATION

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

Product Identification Numbers

80-6114-6814-3	80-6114-6815-0	80-6114-6816-8	80-6114-6817-6	80-6114-6818-4
80-6114-6825-9	80-6114-6826-7	80-6116-0620-5	80-6116-0621-3	80-6116-1277-3
DE-2729-1257-2	HB-0042-5141-7	HB-0042-5142-5	HB-0046-2251-8	HB-0046-3204-6
JE-4100-2569-4	KE-2351-0891-4	KE-2351-0892-2	KE-2351-0893-0	

1.2. Recommended use and restrictions on use

Recommended use
Electrical resin.

1.3. Supplier's details
ADDRESS: 3M Malaysia Sdn. Bhd., Level 8, Block F, Oasis Square, No.2, Jalan PJU 1A/7A, Ara Damansara 47301 Petaling, Jaya, Selangor
Telephone: 03-7884 2888
E Mail: 3mmyehsr@mmm.com
Website: www.3M.com.my

1.4. Emergency telephone number
+60 03-7884 2888

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:

28-7666-2, 28-7650-6

TRANSPORT INFORMATION

This product is a kit that consists of two or more different regulated materials packed in the same outer packaging (ship unit). The transportation classifications of the individual components appear in Section 14 of the attached SDSs.

Transportation classifications are provided as a customer service. As for shipping, YOU remain responsible for complying with all applicable laws and regulations, including proper transportation classification and packaging. 3M's transportation classifications are based on product formulation, packaging, 3M policies and 3M's understanding of applicable current regulations. 3M does not guarantee the accuracy of this classification information. This information applies only to transportation classification and not the packaging, labeling or marking requirements. The above information is only for reference. If you are shipping by air or ocean, YOU are advised to check & meet applicable regulatory requirements.

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 Malaysia SDSs are available at www.3M.com.my

Safety Data Sheet

Document Group:	28-7650-6	**Version Number:**	5.00
Issue Date:	10/03/2021	**Supercedes Date:**	14/03/2016

This Safety Data Sheet has been prepared in accordance with the Malaysia Occupational Safety and Health (Chemical Classification, Labelling and Safety Data Sheets) Regulations 2013.

SECTION 1: Identification

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

Product Identification Numbers
80-6114-6840-8 80-6116-1242-7

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 Malaysia Sdn. Bhd., Level 8, Block F, Oasis Square, No.2, Jalan PJU 1A/7A, Ara Damansara 47301 Petaling, Jaya, Selangor
Telephone: 03-7884 2888
E Mail: 3mmyehsr@mmm.com
Website: www.3M.com.my

1.4. Emergency telephone number
+60 03-7884 2888

SECTION 2: Hazard identification

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

2.2. Label elements
Signal word
Danger

Symbols

Exclamation mark | Health Hazard |

Pictograms

Hazard Statements

H319	Causes serious eye irritation.
H315	Causes skin 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 |
H373	May cause damage to organs through prolonged or repeated exposure: respiratory system |

Precautionary statements

General:

P102	Keep out of reach of children.
P101	If medical advice is needed, have product container or label at hand.

Prevention:

P260	Do not breathe dust/fume/gas/mist/vapors/spray.
P261	Avoid breathing dust/fume/gas/mist/vapors/spray.
P271	Use only outdoors or in a well-ventilated area.
P285	In case of inadequate ventilation wear respiratory protection.
P280B	Wear protective gloves and eye/face protection.
P280E	Wear protective gloves.

Response:

P304 + P341	IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
P342 + P311	If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
P332 + P313	If skin irritation occurs: Get medical advice/attention.

Storage:

P405	Store locked up.

Disposal:

P501	Dispose of contents/container in accordance with applicable local/regional/national/international regulations.

2.3. Other hazards

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

SECTION 3: Composition/information on ingredients

This material is a mixture.

Ingredient	C.A.S. No.	% by Wt
POLYETHER-HYDROCARBON-URETHANE POLYMER	154517-54-1	35 - 45
P,P'-METHYLENEBIS(PHENYL ISOCYANATE)	101-68-8	25 - 35
BENZENE, 1,1'-METHYLENEBIS[ISOCYANATO-, HOMOPOLYMER	39310-05-9	5 - 15
DIUNDECYL PHTHALATE	3648-20-2	0 - 15
DIUNDECYL PHTHALATE, BRANCHED AND LINEAR	85507-79-5	0 - 15
1,1'-METHYLENEBIS(ISOCYANATOBENZENE)	26447-40-5	< 2
4-VINYLCYCLOHEXENE	100-40-3	< 0.0005

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
No critical symptoms or effects. See Section 11.1, information on toxicological effects.

4.3. Indication of any immediate medical attention and special treatment required
Not applicable.

SECTION 5: Fire-fighting measures

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

5.2. Special hazards arising from the substance or mixture
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. Refer to other sections of this SDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment.

6.2. Environmental precautions
Avoid release to the environment. For larger spills, cover drains and build dikes to prevent entry into sewer systems or bodies of water.

6.3. Methods and material for containment and cleaning up
Contain spill. Pour isocyanate decontaminant solution (90% water, 8% concentrated ammonia, 2% detergent) on spill and allow to react for 10 minutes. Or pour water on spill and allow to react for more than 30 minutes. Cover with absorbent material. Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Remember, adding an absorbent material does not remove a physical, health, or environmental hazard. Collect as much of the spilled material as possible. Place in a container approved for transportation by appropriate authorities, but do not seal the container for 48 hours to avoid pressure build-up. Clean up residue with an appropriate solvent selected by a qualified and authorized person. Ventilate the area with fresh air. Read and follow safety precautions on the solvent label and SDS. Dispose of collected material as soon as possible in accordance with applicable local/regional/national/international regulations.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
For industrial/occupational use only. Not for consumer sale or use. Do not use in a confined area with minimal air exchange. 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.

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	C.A.S. No.	Agency	Limit type	Additional Comments
4-VINYLCYCLOHEXENE	100-40-3	ACGIH	TWA:0.1 ppm	A3: Confirmed animal carcin.
4-VINYLCYCLOHEXENE	100-40-3	Malaysia OELs	TWA(8 hours):0.4 mg/m3(0.1 ppm)	

P,P'-METHYLENEBIS(PHENYL ISOCYANATE)	101-68-8	ACGIH	TWA:0.005 ppm	
P,P'-METHYLENEBIS(PHENYL ISOCYANATE)	101-68-8	Malaysia OELs	TWA(8 hours):0.051 mg/m3(0.005 ppm)	

ACGIH : American Conference of Governmental Industrial Hygienists
CMRG : Chemical Manufacturer's Recommended Guidelines
Malaysia OELs : Malaysia. Occupational Safety and Health (Use and Standards of Exposure of Chemicals Hazardous to Health) Regulations
TWA: Time-Weighted-Average
STEL: Short Term Exposure Limit
CEIL: Ceiling

8.2. Exposure controls

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

8.2.2. Personal protective equipment (PPE)

Eye/face protection

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

Skin/hand protection
Select and use gloves and/or protective clothing approved to relevant local standards to prevent skin contact based on the results of an exposure assessment. Selection should be based on use factors such as exposure levels, concentration of the substance or mixture, frequency and duration, physical challenges such as temperature extremes, and other use conditions. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible gloves/protective clothing. Note: Nitrile gloves may be worn over polymer laminate gloves to improve dexterity.
Gloves made from the following material(s) are recommended: Butyl Rubber
Fluoroelastomer
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 – Butyl rubber
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 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 Odor
Odor 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 (solid, gas)	Not Applicable
Flammable Limits(LEL)	*No Data Available*
Flammable Limits(UEL)	*No Data Available*
Vapor Pressure	*No Data Available*
Vapor Density and/or 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*
Viscosity/Kinematic Viscosity	700 - 900 mPa-s
Volatile Organic Compounds	
Percent volatile	
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*

Nanoparticles
This material does not contain nanoparticles.

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 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 labeling, an ingredient may not be available for exposure, or the data may not be relevant to the material as a whole.

11.1. Information on Toxicological effects

Signs and Symptoms of Exposure

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

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

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

May cause additional health effects (see below).

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

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

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

Additional Health Effects:

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

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

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

Acute Toxicity

Name	Route	Species	Value
Overall product	Ingestion		No data available; calculated ATE >5,000 mg/kg
POLYETHER-HYDROCARBON-URETHANE POLYMER	Dermal		LD50 estimated to be > 5,000 mg/kg
POLYETHER-HYDROCARBON-URETHANE POLYMER	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
DIUNDECYL PHTHALATE	Dermal	Rabbit	LD50 > 7,900 mg/kg
DIUNDECYL PHTHALATE	Ingestion	Rat	LD50 > 15,000 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
BENZENE, 1,1'-METHYLENEBIS[ISOCYANATO-, HOMOPOLYMER	Dermal	Rabbit	LD50 > 5,000 mg/kg
BENZENE, 1,1'-METHYLENEBIS[ISOCYANATO-, HOMOPOLYMER	Inhalation-Dust/Mist (4 hours)	Rat	LC50 0.368 mg/l
BENZENE, 1,1'-METHYLENEBIS[ISOCYANATO-, HOMOPOLYMER	Ingestion	Rat	LD50 31,600 mg/kg
1,1'-METHYLENEBIS(ISOCYANATOBENZENE)	Dermal	Rabbit	LD50 > 5,000 mg/kg
1,1'-METHYLENEBIS(ISOCYANATOBENZENE)	Inhalation-Dust/Mist (4 hours)	Rat	LC50 0.368 mg/l
1,1'-METHYLENEBIS(ISOCYANATOBENZENE)	Ingestion	Rat	LD50 31,600 mg/kg
4-VINYLCYCLOHEXENE	Dermal		LD50 estimated to be > 5,000 mg/kg
4-VINYLCYCLOHEXENE	Ingestion	Rat	LD50 6,300 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
P,P'-METHYLENEBIS(PHENYL ISOCYANATE)	official classification	Irritant
DIUNDECYL PHTHALATE, BRANCHED AND LINEAR	Rabbit	No significant irritation
BENZENE, 1,1'-METHYLENEBIS[ISOCYANATO-, HOMOPOLYMER	official classification	Irritant
1,1'-METHYLENEBIS(ISOCYANATOBENZENE)	official classification	Irritant
4-VINYLCYCLOHEXENE	Rabbit	Irritant

Serious Eye Damage/Irritation

Name	Species	Value
P,P'-METHYLENEBIS(PHENYL ISOCYANATE)	official classification	Severe irritant
DIUNDECYL PHTHALATE, BRANCHED AND LINEAR	Rabbit	Mild irritant
BENZENE, 1,1'-METHYLENEBIS[ISOCYANATO-, HOMOPOLYMER	official classification	Severe irritant
1,1'-METHYLENEBIS(ISOCYANATOBENZENE)	official classification	Severe irritant
4-VINYLCYCLOHEXENE	Rabbit	Mild irritant

Sensitization:

Skin Sensitization

Name	Species	Value
P,P'-METHYLENEBIS(PHENYL ISOCYANATE)	official classification	Sensitizing
DIUNDECYL PHTHALATE, BRANCHED AND LINEAR	Human	Not classified
BENZENE, 1,1'-METHYLENEBIS[ISOCYANATO-, HOMOPOLYMER	official	Sensitizing

	classification	
1,1'-METHYLENEBIS(ISOCYANATOBENZENE)	official classification	Sensitizing

Respiratory Sensitization

Name	Species	Value
P,P'-METHYLENEBIS(PHENYL ISOCYANATE)	Human	Sensitizing
BENZENE, 1,1'-METHYLENEBIS[ISOCYANATO-, HOMOPOLYMER	Human	Sensitizing
1,1'-METHYLENEBIS(ISOCYANATOBENZENE)	Human	Sensitizing

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
DIUNDECYL PHTHALATE, BRANCHED AND LINEAR	In Vitro	Not mutagenic
BENZENE, 1,1'-METHYLENEBIS[ISOCYANATO-, HOMOPOLYMER	In Vitro	Some positive data exist, but the data are not sufficient for classification
1,1'-METHYLENEBIS(ISOCYANATOBENZENE)	In Vitro	Some positive data exist, but the data are not sufficient for classification
4-VINYLCYCLOHEXENE	In Vitro	Not mutagenic
4-VINYLCYCLOHEXENE	In vivo	Not mutagenic

Carcinogenicity

Name	Route	Species	Value
P,P'-METHYLENEBIS(PHENYL ISOCYANATE)	Inhalation	Rat	Some positive data exist, but the data are not sufficient for classification
BENZENE, 1,1'-METHYLENEBIS[ISOCYANATO-, HOMOPOLYMER	Inhalation	Rat	Some positive data exist, but the data are not sufficient for classification
1,1'-METHYLENEBIS(ISOCYANATOBENZENE)	Inhalation	Rat	Some positive data exist, but the data are not sufficient for classification
4-VINYLCYCLOHEXENE	Ingestion	Mouse	Carcinogenic

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
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
BENZENE, 1,1'-METHYLENEBIS[ISOCYANATO-, HOMOPOLYMER	Inhalation	Not classified for development	Rat	NOAEL 0.004 mg/l	during organogenesis
1,1'-METHYLENEBIS(ISOCYANATOBENZENE)	Inhalation	Not classified for development	Rat	NOAEL 0.004 mg/l	during organogenesis
4-VINYLCYCLOHEXENE	Ingestion	Not classified for male reproduction	Mouse	NOAEL 500 mg/kg/day	13 weeks
4-VINYLCYCLOHEXENE	Ingestion	Toxic to female reproduction	Mouse	NOAEL 600 mg/kg/day	13 weeks
4-VINYLCYCLOHEXENE	Inhalation	Toxic to female reproduction	Mouse	NOAEL 1.1 mg/l	13 weeks

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	
BENZENE, 1,1'-METHYLENEBIS[ISOCYANATO-, HOMOPOLYMER	Inhalation	respiratory irritation	May cause respiratory irritation	official classification	NOAEL Not available	
1,1'-METHYLENEBIS(ISOCYANATOBENZENE)	Inhalation	respiratory irritation	May cause respiratory irritation	official classification	NOAEL Not available	
4-VINYLCYCLOHEXENE	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL NA	

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
DIUNDECYL PHTHALATE, BRANCHED AND LINEAR	Ingestion	liver	Not classified	Rat	NOAEL 2,100 mg/kg/day	21 days
BENZENE, 1,1'-METHYLENEBIS[ISOCYANATO-, HOMOPOLYMER	Inhalation	respiratory system	Causes damage to organs through prolonged or repeated exposure	Rat	LOAEL 0.004 mg/l	13 weeks
1,1'-METHYLENEBIS(ISOCYANATOBENZENE)	Inhalation	respiratory system	Causes damage to organs through prolonged or repeated exposure	Rat	LOAEL 0.004 mg/l	13 weeks
4-VINYLCYCLOHEXENE	Inhalation	liver | kidney and/or bladder	Not classified	Rat	NOAEL 4.4 mg/l	13 weeks
4-VINYLCYCLOHEXENE	Ingestion	kidney and/or bladder	Not classified	Rat	NOAEL 800 mg/kg/day	13 weeks

Aspiration Hazard

Name	Value
4-VINYLCYCLOHEXENE	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

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 labeling, 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 #	Organism	Type	Exposure	Test Endpoint	Test Result
POLYETHER-HYDROCARBON-URETHANE POLYMER	154517-54-1		Data not available or insufficient for classification			N/A
P,P'-METHYLENE BIS(PHENYL ISOCYANATE)	101-68-8	Activated sludge	Estimated	3 hours	EC50	>100 mg/l
P,P'-METHYLENE BIS(PHENYL ISOCYANATE)	101-68-8	Green algae	Estimated	72 hours	EC50	>1,640 mg/l
P,P'-METHYLENE BIS(PHENYL ISOCYANATE)	101-68-8	Water flea	Estimated	24 hours	EC50	>1,000 mg/l
P,P'-METHYLENE BIS(PHENYL ISOCYANATE)	101-68-8	Zebra Fish	Estimated	96 hours	LC50	>1,000 mg/l
P,P'-METHYLENE BIS(PHENYL ISOCYANATE)	101-68-8	Green algae	Estimated	72 hours	NOEC	1,640 mg/l
P,P'-METHYLENE BIS(PHENYL ISOCYANATE)	101-68-8	Water flea	Estimated	21 days	NOEC	10 mg/l
BENZENE, 1,1'-METHYLENE BIS[ISOCYANATO-, HOMOPOLYMER	39310-05-9	Water flea	Estimated	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
DIUNDECYL PHTHALATE, BRANCHED AND LINEAR	85507-79-5	Green algae	Estimated	72 hours	EC50	>100 mg/l
DIUNDECYL PHTHALATE,	85507-79-5	Rainbow Trout	Estimated	96 hours	LC50	>100 mg/l

BRANCHED AND LINEAR						
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
1,1'-METHYLENE BIS(ISOCYANATOBENZENE)	26447-40-5	Water flea	Estimated		EC50	>100 mg/l
4-VINYLCYCLOHEXENE	100-40-3	Green algae	Experimental	72 hours	EC50	>4.1 mg/l
4-VINYLCYCLOHEXENE	100-40-3	Medaka	Experimental	96 hours	LC50	4.6 mg/l
4-VINYLCYCLOHEXENE	100-40-3	Water flea	Experimental	48 days	EC50	1.9 mg/l
4-VINYLCYCLOHEXENE	100-40-3	Green algae	Experimental	72 hours	NOEC	2.2 mg/l
4-VINYLCYCLOHEXENE	100-40-3	Water flea	Experimental	21 days	NOEC	0.23 mg/l

12.2. Persistence and degradability

Material	CAS No.	Test Type	Duration	Study Type	Test Result	Protocol
POLYETHER-HYDROCARBON-URETHANE POLYMER	154517-54-1	Data not availbl-insufficient			N/A	
P,P'-METHYLENE BIS(PHENYL ISOCYANATE)	101-68-8	Estimated Hydrolysis		Hydrolytic half-life	20 hours (t 1/2)	Non-standard method
BENZENE, 1,1'-METHYLENE BIS[ISOCYANATO-, HOMOPOLYMER	39310-05-9	Estimated Hydrolysis		Hydrolytic half-life	<2 hours (t 1/2)	Non-standard method

BENZENE, 1,1'-METHYLENE BIS[ISOCYANATO-, HOMOPOLYMER	39310-05-9	Estimated Biodegradation	28 days	Biological Oxygen Demand	0 % weight	OECD 301C - MITI (I)
DIUNDECYL PHTHALATE	3648-20-2	Experimental Biodegradation	28 days	Carbon dioxide evolution	76 % weight	Non-standard method
DIUNDECYL PHTHALATE, BRANCHED AND LINEAR	85507-79-5	Experimental Biodegradation	28 days	Carbon dioxide evolution	66 % weight	OECD 301B - Mod. Sturm or CO2
1,1'-METHYLENE BIS(ISOCYANATOBENZENE)	26447-40-5	Estimated Hydrolysis		Hydrolytic half-life	<2 hours (t 1/2)	Non-standard method
1,1'-METHYLENE BIS(ISOCYANATOBENZENE)	26447-40-5	Estimated Biodegradation	28 days	Biological Oxygen Demand	0 % weight	OECD 301C - MITI (I)
4-VINYLCYCLOHEXENE	100-40-3	Estimated Photolysis		Photolytic half-life (in air)	4.3 hours (t 1/2)	Non-standard method
4-VINYLCYCLOHEXENE	100-40-3	Experimental Biodegradation	28 days	Biological Oxygen Demand	0 % weight	OECD 301C - MITI (I)

12.3. Bioaccumulative potential

Material	CAS No.	Test Type	Duration	Study Type	Test Result	Protocol
POLYETHER-HYDROCARBON-URETHANE POLYMER	154517-54-1	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
P,P'-METHYLENE BIS(PHENYL ISOCYANATE)	101-68-8	Experimental BCF-Carp	28 days	Bioaccumulation Factor	200	OECD 305E-Bioaccum Fl-thru fis
BENZENE, 1,1'-METHYLENE BIS[ISOCYANATO-, HOMOPOLYMER	39310-05-9	Estimated BCF-Carp	28 days	Bioaccumulation Factor	200	Non-standard method
DIUNDECYL PHTHALATE	3648-20-2	Estimated Bioconcentration		Bioaccumulation Factor	7.4	Est: Bioconcentration factor
DIUNDECYL PHTHALATE,	85507-79-5	Estimated Bioconcentrati		Bioaccumulation Factor	7.4	Est: Bioconcentration factor

BRANCHED AND LINEAR		on				
1,1'-METHYLENE BIS(ISOCYANATOBENZENE)	26447-40-5	Estimated BCF-Carp	28 days	Bioaccumulation Factor	200	Non-standard method
4-VINYLCYCLOHEXENE	100-40-3	Experimental BCF-Carp	56 days	Bioaccumulation Factor	211	Non-standard method

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

According to the Environmental Quality (Scheduled Wastes) Regulations 2005, scheduled waste has to be sent to a prescribed premise for recycling, treatment or disposal. Please approach Kualiti Alam for proper schedule waste classification and disposal.

SECTION 14: Transport Information

Not hazardous for transportation.

Marine Transport (IMDG)

UN Number: None assigned.
Proper Shipping Name: None assigned.
Technical Name: None assigned.
Hazard Class/Division: None assigned.
Subsidiary Risk: None assigned.
Packing Group: None assigned.
Limited Quantity: None assigned.
Marine Pollutant: None assigned.
Marine Pollutant Technical Name: None assigned.
Other Dangerous Goods Descriptions:
None assigned.

Air Transport (IATA)

UN Number: None assigned.
Proper Shipping Name: None assigned.
Technical Name: None assigned.
Hazard Class/Division: None assigned.
Subsidiary Risk: None assigned.
Packing Group: None assigned.
Limited Quantity: None assigned.
Marine Pollutant: None assigned.
Marine Pollutant Technical Name: None assigned.

Other Dangerous Goods Descriptions:
None assigned.

Transportation classifications are provided as a customer service. As for shipping, YOU remain responsible for complying with all applicable laws and regulations, including proper transportation classification and packaging. 3M's transportation classifications are based on product formulation, packaging, 3M policies and 3M's understanding of applicable current regulations. 3M does not guarantee the accuracy of this classification information. This information applies only to transportation classification and not the packaging, labeling or marking requirements. The above information is only for reference. If you are shipping by air or ocean, YOU are advised to check & meet applicable regulatory requirements.

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.

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 Malaysia SDSs are available at www.3M.com.my

Safety Data Sheet

Document Group:	28-7666-2	**Version Number:**	5.00
Issue Date:	24/03/2021	**Supercedes Date:**	14/03/2016

This Safety Data Sheet has been prepared in accordance with the Malaysia Occupational Safety and Health (Chemical Classification, Labelling and Safety Data Sheets) Regulations 2013.

SECTION 1: Identification

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

Product Identification Numbers
80-6114-6841-6 80-6116-1288-0

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 Malaysia Sdn. Bhd., Level 8, Block F, Oasis Square, No.2, Jalan PJU 1A/7A, Ara Damansara 47301 Petaling, Jaya, Selangor
Telephone: 03-7884 2888
E Mail: 3mmyehsr@mmm.com
Website: www.3M.com.my

1.4. Emergency telephone number
+60 03-7884 2888

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

General:

P102	Keep out of reach of children.
P101	If medical advice is needed, have product container or label at hand.

Prevention:

P280B	Wear protective gloves and eye/face protection.
P280A	Wear 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/physician.

Storage:

P405	Store locked up.

Disposal:

P501	Dispose of contents/container in accordance with applicable local/regional/national/international regulations.

2.3. Other hazards

None known

SECTION 3: Composition/information on ingredients

This material is a mixture.

Ingredient	C.A.S. No.	% by Wt
DIUNDECYL PHTHALATE, BRANCHED AND LINEAR	85507-79-5	10 - 30
HOMOPOLYMER	69102-90-5	20 - 30
Bis(pentabromo Phenyl)ethane	84852-53-9	22 - 25
ALUMINUM POTASSIUM SODIUM SILICATE	12736-96-8	1 - 10
ANTIMONY PENTAOXIDE	1314-60-9	5 - 10
Castor oil	8001-79-4	1 - 10
N,N-DI(2-HYDROXYPROPYL)ANILINE	3077-13-2	4 - 10
POLYPROPYLENE ETHER DIOL	25322-69-4	5 - 10
DIPROPYLENE GLYCOL	25265-71-8	3 - 6
Carbon Black	1333-86-4	< 2
Hydrocinnamic acid, 3,5-di-tert-butyl-4-hydroxy-, octadecyl ester	2082-79-3	< 1
Silanamine, 1,1,1-trimethyl-N-	68909-20-6	0.5 - 1

(trimethylsilyl)-, hydrolysis products with silica		
TRIETHYLENEDIAMINE	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 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
No critical symptoms or effects. See Section 11.1, information on toxicological effects.

4.3. Indication of any immediate medical attention and special treatment required
Not applicable

SECTION 5: Fire-fighting measures

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

5.2. Special hazards arising from the substance or mixture
None inherent in this product.

Hazardous Decomposition or By-Products

Substance	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
Evacuate area. Ventilate the area with fresh air. For large spill, or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapors, in accordance with good industrial hygiene practice. Refer to other sections of this SDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment.

6.2. Environmental precautions
Avoid release to the environment. For larger spills, cover drains and build dikes to prevent entry into sewer systems or bodies of water.

6.3. Methods and material for containment and cleaning up
Contain spill. Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Remember, adding an absorbent material does not remove a physical, health, or environmental hazard. Collect as much of the spilled material as possible. Place in a closed container approved for transportation by appropriate authorities. Clean up residue with an appropriate solvent selected by a qualified and authorized person. Ventilate the area with fresh air. Read and follow safety precautions on the solvent label and SDS. Seal the container. Dispose of collected material as soon as possible in accordance with applicable local/regional/national/international regulations.

SECTION 7: Handling and storage

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

7.2. Conditions for safe storage including any incompatibilities
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	C.A.S. No.	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	Malaysia OELs	TWA(8 hours):3.5 mg/m3	

ACGIH : American Conference of Governmental Industrial Hygienists
CMRG : Chemical Manufacturer's Recommended Guidelines
Malaysia OELs : Malaysia. Occupational Safety and Health (Use and Standards of Exposure of Chemicals Hazardous to Health) Regulations
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 vapors and particulates

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

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Liquid
Color	Black
Odor	Pungent Odor
Odor 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 (solid, gas)	Not Applicable
Flammable Limits(LEL)	*No Data Available*
Flammable Limits(UEL)	*No Data Available*
Vapor Pressure	< 186,158.4 Pa [@ 55 ºC]
Vapor Density and/or 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*
Viscosity/Kinematic Viscosity	5,500 mPa-s
Volatile Organic Compounds	
Percent volatile	
VOC Less H2O & Exempt Solvents	12.9 g/l
Molecular weight	*No Data Available*

Nanoparticles
This material contains nanoparticles.

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 polymerization 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 labeling, an ingredient may not be available for exposure, or the data may not be relevant to the material as a whole.

11.1. Information on Toxicological effects

Signs and Symptoms of Exposure

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

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

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

Additional Health Effects:

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		No data available; calculated ATE >12.5 mg/l

	hr)		
Overall product	Ingestion		No data available; calculated ATE >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 > 2,000 mg/kg
N,N-DI(2-HYDROXYPROPYL)ANILINE	Dermal	Rabbit	LD50 > 2,000 mg/kg
N,N-DI(2-HYDROXYPROPYL)ANILINE	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
DIPROPYLENE GLYCOL	Dermal	Rabbit	LD50 > 5,010 mg/kg
DIPROPYLENE GLYCOL	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 2.34 mg/l
DIPROPYLENE GLYCOL	Ingestion	Rat	LD50 > 14,800 mg/kg
Carbon Black	Dermal	Rabbit	LD50 > 3,000 mg/kg
Carbon Black	Ingestion	Rat	LD50 > 8,000 mg/kg
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica	Dermal	Rabbit	LD50 > 5,000 mg/kg
TRIETHYLENEDIAMINE	Dermal	Rabbit	LD50 > 3,200 mg/kg
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 0.691 mg/l
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica	Ingestion	Rat	LD50 > 5,110 mg/kg
TRIETHYLENEDIAMINE	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 5.05 mg/l
TRIETHYLENEDIAMINE	Ingestion	Rat	LD50 1,870 mg/kg
Hydrocinnamic acid, 3,5-di-tert-butyl-4-hydroxy-, octadecyl ester	Dermal	Rat	LD50 > 2,000 mg/kg
Hydrocinnamic acid, 3,5-di-tert-butyl-4-hydroxy-, octadecyl ester	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 1.8 mg/l
Hydrocinnamic acid, 3,5-di-tert-butyl-4-hydroxy-, octadecyl ester	Ingestion	Rat	LD50 > 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	Rabbit	No significant irritation
N,N-DI(2-HYDROXYPROPYL)ANILINE	Professional judgement	Minimal irritation
Castor oil	Human	Minimal irritation
DIPROPYLENE GLYCOL	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
TRIETHYLENEDIAMINE	Rabbit	Mild irritant
Hydrocinnamic acid, 3,5-di-tert-butyl-4-hydroxy-, octadecyl ester	Rabbit	Minimal irritation

Serious Eye Damage/Irritation

Name	Species	Value
DIUNDECYL PHTHALATE, BRANCHED AND LINEAR	Rabbit	Mild irritant
POLYPROPYLENE ETHER DIOL	Rabbit	No significant irritation
N,N-DI(2-HYDROXYPROPYL)ANILINE	Professional judgement	Corrosive

Castor oil	Rabbit	Mild irritant
DIPROPYLENE GLYCOL	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
TRIETHYLENEDIAMINE	Rabbit	Corrosive
Hydrocinnamic acid, 3,5-di-tert-butyl-4-hydroxy-, octadecyl ester	Rabbit	Mild irritant

Sensitization:

Skin Sensitization

Name	Species	Value
DIUNDECYL PHTHALATE, BRANCHED AND LINEAR	Human	Not classified
Castor oil	Human	Not classified
DIPROPYLENE GLYCOL	Guinea pig	Not classified
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica	Human and animal	Not classified
Hydrocinnamic acid, 3,5-di-tert-butyl-4-hydroxy-, octadecyl ester	Human and animal	Not classified

Respiratory Sensitization

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

Germ Cell Mutagenicity

Name	Route	Value
DIUNDECYL PHTHALATE, BRANCHED AND LINEAR	In Vitro	Not mutagenic
Castor oil	In Vitro	Not mutagenic
Castor oil	In vivo	Not mutagenic
DIPROPYLENE GLYCOL	In Vitro	Not mutagenic
DIPROPYLENE GLYCOL	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
Hydrocinnamic acid, 3,5-di-tert-butyl-4-hydroxy-, octadecyl ester	In Vitro	Not mutagenic
Hydrocinnamic acid, 3,5-di-tert-butyl-4-hydroxy-, octadecyl ester	In vivo	Not mutagenic

Carcinogenicity

Name	Route	Species	Value
DIPROPYLENE GLYCOL	Ingestion	Multiple animal species	Not carcinogenic
Carbon Black	Dermal	Mouse	Not carcinogenic
Carbon Black	Ingestion	Mouse	Not carcinogenic
Carbon Black	Inhalation	Rat	Carcinogenic
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica	Not Specified	Mouse	Some positive data exist, but the data are not sufficient for classification
Hydrocinnamic acid, 3,5-di-tert-butyl-4-hydroxy-, octadecyl ester	Ingestion	Mouse	Not 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	during gestation

				mg/kg/day	
DIPROPYLENE GLYCOL	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
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica	Ingestion	Not classified for development	Rat	NOAEL 1,350 mg/kg/day	during organogenesis
Hydrocinnamic acid, 3,5-di-tert-butyl-4-hydroxy-, octadecyl ester	Ingestion	Not classified for female reproduction	Rat	NOAEL 421 mg/kg/day	2 generation
Hydrocinnamic acid, 3,5-di-tert-butyl-4-hydroxy-, octadecyl ester	Ingestion	Not classified for male reproduction	Rat	NOAEL 375 mg/kg/day	2 generation
Hydrocinnamic acid, 3,5-di-tert-butyl-4-hydroxy-, octadecyl ester	Ingestion	Not classified for development	Rat	NOAEL 421 mg/kg/day	2 generation

Target Organ(s)

Specific Target Organ Toxicity - single exposure
For the component/components, either no data are currently available or the data are not sufficient for classification.

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
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
DIPROPYLENE GLYCOL	Ingestion	respiratory system	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 470 mg/kg/day	105 weeks
DIPROPYLENE GLYCOL	Ingestion	heart	Not classified	Rat	NOAEL 470 mg/kg/day	105 weeks
DIPROPYLENE GLYCOL	Ingestion	endocrine system | liver	Not classified	Rat	NOAEL 3,040 mg/kg/day	105 weeks
DIPROPYLENE GLYCOL	Ingestion	kidney and/or bladder	Not classified	Rat	NOAEL 115 mg/kg/day	105 weeks
DIPROPYLENE GLYCOL	Ingestion	skin | 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 | silicosis	Not classified	Human	NOAEL Not available	occupational exposure
Hydrocinnamic acid, 3,5-di-tert-butyl-4-hydroxy-, octadecyl ester	Ingestion	liver | kidney and/or bladder | heart | endocrine system | respiratory system	Not classified	Rat	NOAEL 300 mg/kg/day	28 days

Hydrocinnamic acid, 3,5-di-tert-butyl-4-hydroxy-, octadecyl ester	Ingestion	hematopoietic system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days

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 labeling, 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

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

No product test data available

Material	Cas #	Organism	Type	Exposure	Test Endpoint	Test Result
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
HOMOPOLYMER	69102-90-5		Data not available or insufficient for classification			N/A
Bis(pentabromo Phenyl)ethane	84852-53-9	Activated sludge	Experimental	3 hours	NOEC	10 mg/l
Bis(pentabromo	84852-53-9	Green algae	Experimental	96 hours	EC50	>100 mg/l

Phenyl)ethane						
Bis(pentabromo Phenyl)ethane	84852-53-9	Rainbow Trout	Experimental	96 hours	No tox obs at lmt of water sol	>100 mg/l
Bis(pentabromo Phenyl)ethane	84852-53-9	Water flea	Experimental	48 hours	No tox obs at lmt of water sol	>100 mg/l
Bis(pentabromo Phenyl)ethane	84852-53-9	Green Algae	Experimental	96 hours	No tox obs at lmt of water sol	>100 mg/l
ALUMINUM POTASSIUM SODIUM SILICATE	12736-96-8	Green algae	Estimated	96 hours	EC50	>100 mg/l
ALUMINUM POTASSIUM SODIUM SILICATE	12736-96-8	Zebra Fish	Estimated	96 hours	LC50	>100 mg/l
ALUMINUM POTASSIUM SODIUM SILICATE	12736-96-8	Green algae	Estimated	72 hours	NOEC	100 mg/l
ALUMINUM POTASSIUM SODIUM SILICATE	12736-96-8	Water flea	Estimated	21 days	NOEC	100 mg/l
ANTIMONY PENTAOXIDE	1314-60-9	Fish other	Estimated	96 hours	LC50	9.2 mg/l
ANTIMONY PENTAOXIDE	1314-60-9	Green algae	Estimated	72 hours	EC50	>48.6 mg/l
ANTIMONY PENTAOXIDE	1314-60-9	Fathead Minnow	Estimated	28 days	NOEC	1.5 mg/l
ANTIMONY PENTAOXIDE	1314-60-9	Green algae	Estimated	72 hours	NOEC	2.8 mg/l
ANTIMONY PENTAOXIDE	1314-60-9	Water flea	Estimated	21 days	NOEC	2.32 mg/l
Castor oil	8001-79-4	Bacteria	Estimated	16 hours	NOEC	10,000 mg/l
Castor oil	8001-79-4	Zebra Fish	Estimated	96 hours	LC50	>100 mg/l
N,N-DI(2-HYDROXYPROPYL)ANILINE	3077-13-2		Data not available or insufficient for classification			N/A
POLYPROPYLENE ETHER DIOL	25322-69-4	Activated sludge	Experimental	3 hours	EC50	>1,000 mg/l
POLYPROPYLENE ETHER DIOL	25322-69-4	Green algae	Experimental	72 hours	EC50	>100 mg/l
POLYPROPYLENE ETHER DIOL	25322-69-4	Water flea	Experimental	48 hours	EC50	105.8 mg/l
POLYPROPYLENE ETHER DIOL	25322-69-4	Zebra Fish	Experimental	96 hours	LC50	>100 mg/l

POLYPROPYLENE ETHER DIOL	25322-69-4	Green algae	Experimental	72 hours	NOEC	>100 mg/l
POLYPROPYLENE ETHER DIOL	25322-69-4	Water flea	Experimental	21 days	NOEC	>=10 mg/l
DIPROPYLENE GLYCOL	25265-71-8	Bacteria	Experimental	18 hours	EC10	1,000 mg/l
DIPROPYLENE GLYCOL	25265-71-8	Goldfish	Experimental	96 hours	LC50	>5,000 mg/l
DIPROPYLENE GLYCOL	25265-71-8	Green algae	Experimental	72 hours	EC50	>100 mg/l
DIPROPYLENE GLYCOL	25265-71-8	Water flea	Experimental	48 hours	EC50	>100 mg/l
DIPROPYLENE GLYCOL	25265-71-8	Green algae	Experimental	72 hours	NOEC	100 mg/l
Carbon Black	1333-86-4	Activated sludge	Experimental	3 hours	EC50	>=100 mg/l
Carbon Black	1333-86-4		Data not available or insufficient for classification			N/A
Hydrocinnamic acid, 3,5-di-tert-butyl-4-hydroxy-, octadecyl ester	2082-79-3	Activated sludge	Experimental	3 hours	EC50	>100 mg/l
Hydrocinnamic acid, 3,5-di-tert-butyl-4-hydroxy-, octadecyl ester	2082-79-3	Bluegill	Experimental	96 hours	No tox obs at lmt of water sol	>100 mg/l
Hydrocinnamic acid, 3,5-di-tert-butyl-4-hydroxy-, octadecyl ester	2082-79-3	Green algae	Experimental	72 hours	No tox obs at lmt of water sol	>100 mg/l
Hydrocinnamic acid, 3,5-di-tert-butyl-4-hydroxy-, octadecyl ester	2082-79-3	Water flea	Experimental	24 hours	No tox obs at lmt of water sol	>100 mg/l
Hydrocinnamic acid, 3,5-di-tert-butyl-4-hydroxy-, octadecyl ester	2082-79-3	Green algae	Experimental	72 hours	No tox obs at lmt of water sol	>100 mg/l
Hydrocinnamic acid, 3,5-di-tert-butyl-4-hydroxy-, octadecyl ester	2082-79-3	Water flea	Experimental	21 days	No tox obs at lmt of water sol	>100 mg/l
Silanamine, 1,1,1-trimethyl-N-	68909-20-6	Algae	Estimated	72 hours	EC50	>100 mg/l

(trimethylsilyl)-, hydrolysis products with silica						
TRIETHYLENEDIAMINE	280-57-9	Bacteria	Experimental	17 hours	EC50	356 mg/l
TRIETHYLENEDIAMINE	280-57-9	Common Carp	Experimental	96 hours	LC50	>100 mg/l
TRIETHYLENEDIAMINE	280-57-9	Green Algae	Experimental	72 hours	EC50	180 mg/l
TRIETHYLENEDIAMINE	280-57-9	Water flea	Experimental	48 hours	EC50	>100 mg/l
TRIETHYLENEDIAMINE	280-57-9	Green Algae	Experimental	72 hours	EC10	79 mg/l

12.2. Persistence and degradability

Material	CAS No.	Test Type	Duration	Study Type	Test Result	Protocol
DIUNDECYL PHTHALATE, BRANCHED AND LINEAR	85507-79-5	Experimental Biodegradation	28 days	Carbon dioxide evolution	66 % weight	OECD 301B - Mod. Sturm or CO2
HOMOPOLYMER	69102-90-5	Data not availbl-insufficient			N/A	
Bis(pentabromo Phenyl)ethane	84852-53-9	Experimental Biodegradation	28 days	Biological Oxygen Demand	0 % BOD/ThBOD	OECD 301C - MITI (I)
ALUMINUM POTASSIUM SODIUM SILICATE	12736-96-8	Data not availbl-insufficient			N/A	
ANTIMONY PENTAOXIDE	1314-60-9	Data not availbl-insufficient			N/A	
Castor oil	8001-79-4	Estimated Biodegradation	28 days	Biological Oxygen Demand	64 % weight	OECD 301D - Closed Bottle Test
N,N-DI(2-HYDROXYPROPYL)ANILINE	3077-13-2	Estimated Biodegradation	28 days	Biological Oxygen Demand	6 % weight	OECD 301C - MITI (I)
POLYPROPYLENE ETHER DIOL	25322-69-4	Experimental Biodegradation	28 days	Biological Oxygen Demand	89 % weight	OECD 301F - Manometric Respiro
DIPROPYLENE GLYCOL	25265-71-8	Experimental Biodegradation	28 days	Biological Oxygen Demand	84.4 % BOD/ThBOD	OECD 301F - Manometric Respiro
Carbon Black	1333-86-4	Data not availbl-insufficient			N/A	
Hydrocinnamic acid, 3,5-di-tert-butyl-4-hydroxy-,	2082-79-3	Experimental Biodegradation	28 days	Biological Oxygen Demand	21 % BOD/ThBOD	OECD 301C - MITI (I)

octadecyl ester						
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica	68909-20-6	Data not availbl-insufficient			N/A	
TRIETHYLENEDIAMINE	280-57-9	Experimental Biodegradation	28 days	Carbon dioxide evolution	7 % weight	OECD 301B - Mod. Sturm or CO2

12.3. Bioaccumulative potential

Material	CAS No.	Test Type	Duration	Study Type	Test Result	Protocol
DIUNDECYL PHTHALATE, BRANCHED AND LINEAR	85507-79-5	Estimated Bioconcentration		Bioaccumulation Factor	7.4	Est: Bioconcentration factor
HOMOPOLYMER	69102-90-5	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Bis(pentabromo Phenyl)ethane	84852-53-9	Experimental Bioconcentration		Log of Octanol/H2O part. coeff	3.55	Non-standard method
ALUMINUM POTASSIUM SODIUM SILICATE	12736-96-8	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
ANTIMONY PENTAOXIDE	1314-60-9	Estimated BCF - Other	23 days	Bioaccumulation Factor	<=28.6	Non-standard method
Castor oil	8001-79-4	Estimated Bioconcentration		Bioaccumulation Factor	7.4	Est: Bioconcentration factor
N,N-DI(2-HYDROXYPROPYL)ANILINE	3077-13-2	Estimated Bioconcentration		Bioaccumulation Factor	2.8	Est: Bioconcentration factor
POLYPROPYLENE ETHER DIOL	25322-69-4	Experimental Bioconcentration		Log of Octanol/H2O part. coeff	<0.9	Non-standard method
DIPROPYLENE GLYCOL	25265-71-8	Experimental BCF-Carp	42 days	Bioaccumulation Factor	4.6	OECD 305E-Bioaccum Fl-thru fis
Carbon Black	1333-86-4	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Hydrocinnamic acid, 3,5-di-tert-butyl-4-hydroxy-, octadecyl ester	2082-79-3	Experimental BCF-Carp	42 days	Bioaccumulation Factor	<12	OECD 305E-Bioaccum Fl-thru fis
Silanamine, 1,1,1-trimethyl-N-	68909-20-6	Data not available or insufficient for	N/A	N/A	N/A	N/A

(trimethylsilyl)-, hydrolysis products with silica		classification				
TRIETHYLENEDIAMINE	280-57-9	Experimental BCF-Carp	42 days	Bioaccumulation Factor	<13	OECD 305E-Bioaccum Fl-thru fis

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

According to the Environmental Quality (Scheduled Wastes) Regulations 2005, scheduled waste has to be sent to a prescribed premise for recycling, treatment or disposal. Please approach Kualiti Alam for proper schedule waste classification and disposal.

SECTION 14: Transport Information

Not hazardous for transportation.

Marine Transport (IMDG)

UN Number: None assigned.
Proper Shipping Name: None assigned.
Technical Name: None assigned.
Hazard Class/Division: None assigned.
Subsidiary Risk: None assigned.
Packing Group: None assigned.
Limited Quantity: None assigned.
Marine Pollutant: None assigned.
Marine Pollutant Technical Name: None assigned.
Other Dangerous Goods Descriptions:
None assigned.

Air Transport (IATA)

UN Number: None assigned.
Proper Shipping Name: None assigned.
Technical Name: None assigned.
Hazard Class/Division: None assigned.
Subsidiary Risk: None assigned.
Packing Group: None assigned.
Limited Quantity: None assigned.
Marine Pollutant: None assigned.
Marine Pollutant Technical Name: None assigned.
Other Dangerous Goods Descriptions:
None assigned.

Transportation classifications are provided as a customer service. As for shipping, YOU remain responsible for complying

with all applicable laws and regulations, including proper transportation classification and packaging. 3M's transportation classifications are based on product formulation, packaging, 3M policies and 3M's understanding of applicable current regulations. 3M does not guarantee the accuracy of this classification information. This information applies only to transportation classification and not the packaging, labeling or marking requirements. The above information is only for reference. If you are shipping by air or ocean, YOU are advised to check & meet applicable regulatory requirements.

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.

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 Malaysia SDSs are available at www.3M.com.my