Safety Data Sheet

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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™ High Power Brake Cleaner, PN 08880

Product Identification Numbers
60-4550-8249-9 60-4550-8252-3

1.2. Recommended use and restrictions on use

Recommended use
Automotive

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
Flammable Aerosol: Category 1.
Gas Under Pressure: Liquefied gas.
Acute Toxicity (oral): Category 4.
Serious Eye Damage/Irritation: Category 2.
Aspiration Hazard: Category 1.
Reproductive Toxicity: Category 2.
Carcinogenicity: Category 2.
Specific Target Organ Toxicity (single exposure): Category 1.
Specific Target Organ Toxicity (repeated exposure): Category 1.
Chronic Aquatic Toxicity: Category 3.

2.2. Label elements

Signal word
Danger

Symbols
Flame | Gas cylinder | Exclamation mark | Health Hazard |

Pictograms

Hazard Statements

H222	Extremely flammable aerosol.
H280	Contains gas under pressure; may explode if heated.
H302	Harmful if swallowed.
H319	Causes serious eye irritation.
H304	May be fatal if swallowed and enters airways.
H361	Suspected of damaging fertility or the unborn child.
H351	Suspected of causing cancer.
H370	Causes damage to organs: cardiovascular system | sensory organs |
H371	May cause damage to organs: sensory organs |
H372	Causes damage to organs through prolonged or repeated exposure: nervous system |
H373	May cause damage to organs through prolonged or repeated exposure: sensory organs |
H412	Harmful to aquatic life with long lasting effects.

Precautionary statements
General:

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

Prevention:

P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P211	Do not spray on an open flame or other ignition source.
P251	Do not pierce or burn, even after use.
P260	Do not breathe dust/fume/gas/mist/vapors/spray.
P281	Use personal protective equipment as required.

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.
P307 + P311	IF exposed: Call a POISON CENTER or doctor/physician.
P331	Do NOT induce vomiting.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

Storage:

P410 + P412	Protect from sunlight. Do not expose to temperatures exceeding 50C/122F.
P403	Store in a well-ventilated place.
P405	Store locked up.

Disposal:

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

2.3. Other hazards
May cause drowsiness or dizziness.

SECTION 3: Composition/information on ingredients

This material is a mixture.

Ingredient	C.A.S. No.	% by Wt
Heptane, branched, cyclic and linear	426260-76-6	30 - 60
2-METHYLHEXANE	591-76-4	10 30
3-METHYLHEXANE	589-34-4	10 30
Propane	74-98-6	10 - 30
Xylene	1330-20-7	10 - 30
2,3-DIMETHYLPENTANE	565-59-3	1 10
Ethylbenzene	100-41-4	1 - 10
Methyl Alcohol	67-56-1	5 - 10
3,3-Dimethylpentane	562-49-2	0 5
DIMETHYLCYCLOPENTANE	2532-58-3	0 5
Heptane	142-82-5	0 5
trans-1,2-Dimethylcyclopentane	822-50-4	0 5
TRANS-1,3-DIMETHYLCYCLOPENTANE	1759-58-6	0 5

Any remaining components do not contribute to the hazards of this material.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation:
Remove person to fresh air. 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:
Do not induce vomiting. Get immediate medical attention.

4.2. Most important symptoms and effects, both acute and delayed
See Section 11.1. Information on toxicological effects.

4.3. Indication of any immediate medical attention and special treatment required
This product contains methanol. If there is a reasonable suspicion of methanol poisoning, intravenous (IV) administration with either fomepizole (preferred) or ethanol (if fomepizole is unavailable) should be considered as part of the medical management. Exposure may increase myocardial irritability. Do not administer sympathomimetic drugs unless absolutely necessary.

SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media
Use a fire fighting agent suitable for the surrounding fire.

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
Toxic Vapor, Gas, Particulate	During Combustion

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

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Evacuate area. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Use only non-sparking tools. Ventilate the area with fresh air. For large spill, or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapors, in accordance with good industrial hygiene practice. Warning! A motor could be an ignition source and could cause flammable gases or vapors in the spill area to burn or explode. Refer to other sections of this SDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment.

6.2. Environmental precautions
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
If possible, seal leaking container. Place leaking containers in a well-ventilated area, preferably an operating exhaust hood, or if necessary outdoors on an impermeable surface until appropriate packaging for the leaking container or its contents is available. Contain spill. Cover spill area with a fire-extinguishing foam. An appropriate aqueous film forming foam (AFFF) is recommended. Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Remember, adding an absorbent material does not remove a physical, health, or environmental hazard. Collect as much of the spilled material as possible using non-sparking tools. Place in a metal container approved for transportation by appropriate authorities. Clean up residue with an appropriate solvent selected by a qualified and authorized person. Ventilate the area with fresh air. Read and follow safety precautions on the solvent label and SDS. Seal the container. Dispose of collected material as soon as possible in accordance with applicable local/regional/national/international regulations.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Do not use in a confined area with minimal air exchange. Keep out of reach of children. Do not handle until all safety

precautions have been read and understood. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Do not spray on an open flame or other ignition source. Do not pierce or burn, even after use. Do not breathe dust/fume/gas/mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Avoid contact with oxidizing agents (eg. chlorine, chromic acid etc.) Use personal protective equipment (gloves, respirators, etc.) as required.

7.2. Conditions for safe storage including any incompatibilities

Store in a well-ventilated place. Keep container tightly closed. Protect from sunlight. Do not expose to temperatures exceeding 50C/122F. Store away from heat. Store away from acids. Store away from oxidizing agents.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

If a component is disclosed in section 3 but does not appear in the table below, an occupational exposure limit is not available for the component.

Ingredient	C.A.S. No.	Agency	Limit type	Additional Comments
Ethylbenzene	100-41-4	ACGIH	TWA:20 ppm	A3: Confirmed animal carcin.
Ethylbenzene	100-41-4	Malaysia OELs	TWA(8 hours):434 mg/m3(100 ppm)	
Xylene	1330-20-7	ACGIH	TWA:100 ppm;STEL:150 ppm	A4: Not class. as human carcin
Xylene	1330-20-7	Malaysia OELs	TWA(8 hours):434 mg/m3(100 ppm)	
Heptane	142-82-5	ACGIH	TWA:400 ppm;STEL:500 ppm	
Heptane	142-82-5	Malaysia OELs	TWA(8 hours):1640 mg/m3(400 ppm)	
Heptane, all isomers	562-49-2	ACGIH	TWA:400 ppm;STEL:500 ppm	
Heptane, all isomers	562-49-2	Malaysia OELs	TWA(8 hours):1640 mg/m3(400 ppm)	
2,3-DIMETHYLPENTANE	565-59-3	ACGIH	TWA:400 ppm;STEL:500 ppm	
Heptane, all isomers	565-59-3	Malaysia OELs	TWA(8 hours):1640 mg/m3(400 ppm)	
3-METHYLHEXANE	589-34-4	ACGIH	TWA:400 ppm;STEL:500 ppm	
Heptane, all isomers	589-34-4	Malaysia OELs	TWA(8 hours):1640 mg/m3(400 ppm)	
2-METHYLHEXANE	591-76-4	ACGIH	TWA:400 ppm;STEL:500 ppm	
Heptane, all isomers	591-76-4	Malaysia OELs	TWA(8 hours):1640 mg/m3(400 ppm)	
Methyl Alcohol	67-56-1	ACGIH	TWA:200 ppm;STEL:250 ppm	SKIN
Methyl Alcohol	67-56-1	Malaysia OELs	TWA(8 hours):262 mg/m3(200 ppm)	SKIN
Propane	74-98-6	ACGIH	Limit value not established:	simple asphyxiant
Propane	74-98-6	Malaysia OELs	TWA(8 hours):2500 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:
Full Face Shield
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

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
Specific Physical Form:	Aerosol
Appearance/Odor	Clear colorless; Solvent odor
Odor threshold	*No Data Available*
pH	*Not Applicable*
Melting point/Freezing point	*No Data Available*
Boiling point/Initial boiling point/Boiling range	*No Data Available*
Flash Point	>=-104.4 ºC
Evaporation rate	*No Data Available*
Flammability (solid, gas)	Not Applicable
Flammable Limits(LEL)	*No Data Available*
Flammable Limits(UEL)	*No Data Available*
Vapor Pressure	275,790.3 Pa [@ 21.1 ºC]
Vapor Density	>=1 [*Ref Std:*AIR=1]
Density	0.699 g/ml
Relative Density	0.699 [*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	*No Data Available*

Volatile Organic Compounds	699 g/l [*Test Method:*calculated SCAQMD rule 443.1]
Volatile Organic Compounds	100 % weight [*Test Method:*calculated per CARB title 2]
Percent volatile	100 % weight
VOC Less H2O & Exempt Solvents	699 g/l [*Test Method:*calculated SCAQMD rule 443.1]

SECTION 10: Stability and reactivity

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

10.2. Chemical stability
Stable.

10.3. Possibility of hazardous reactions
Hazardous polymerization will not occur.

10.4. Conditions to avoid
Heat
Sparks and/or flames

10.5. Incompatible materials
Strong acids
Strong oxidizing agents

10.6. Hazardous decomposition products

Substance	Condition
None known.	

Refer to section 5.2 for hazardous decomposition products during combustion.

SECTION 11: Toxicological information

The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. In addition, toxicological data on ingredients may not be reflected in the material classification and/or the signs and symptoms of exposure, because an ingredient may be present below the threshold for labeling, an ingredient may not be available for exposure, or the data may not be relevant to the material as a whole.

11.1. Information on Toxicological effects

Signs and Symptoms of Exposure

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

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

May cause additional health effects (see below).

Skin Contact:
May be harmful in contact with skin.

Mild Skin Irritation: Signs/symptoms may include localized redness, swelling, itching, and dryness. May cause additional health effects (see below).

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

Ingestion:
Harmful if swallowed. Chemical (Aspiration) Pneumonitis: Signs/symptoms may include coughing, gasping, choking, burning of the mouth, difficulty breathing, bluish colored skin (cyanosis), and may be fatal.

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

May cause additional health effects (see below).

Additional Health Effects:

Single exposure may cause target organ effects:
Auditory Effects: Signs/symptoms may include hearing impairment, balance dysfunction and ringing in the ears.

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

May cause blindness.

Cardiac Sensitization: Signs/symptoms may include irregular heartbeat (arrhythmia), faintness, chest pain, and may be fatal.

Prolonged or repeated exposure may cause target organ effects:
Auditory Effects: Signs/symptoms may include hearing impairment, balance dysfunction and ringing in the ears.

Neurological Effects: Signs/symptoms may include personality changes, lack of coordination, sensory loss, tingling or numbness of the extremities, weakness, tremors, and/or changes in blood pressure and heart rate.

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

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 ATE2,000 - 5,000 mg/kg
Overall product	Inhalation-Vapor(4 hr)		No data available; calculated ATE20 - 50 mg/l
Overall product	Ingestion		No data available; calculated ATE300 - 2,000 mg/kg
Heptane, branched, cyclic and linear	Dermal	Rabbit	LD50 > 2,000 mg/kg
Heptane, branched, cyclic and linear	Inhalation-Vapor (4 hours)	Rat	LC50 > 73.5 mg/l
Heptane, branched, cyclic and linear	Ingestion	Rat	LD50 > 5,000 mg/kg
3-METHYLHEXANE	Dermal	Rabbit	LD50 3,000 mg/kg
3-METHYLHEXANE	Inhalation-Vapor (4 hours)	Rat	LC50 > 80 mg/l

3-METHYLHEXANE	Ingestion	Rat	LD50 17,000 mg/kg
Xylene	Dermal	Rabbit	LD50 > 4,200 mg/kg
Xylene	Inhalation-Vapor (4 hours)	Rat	LC50 29 mg/l
Xylene	Ingestion	Rat	LD50 3,523 mg/kg
Propane	Inhalation-Gas (4 hours)	Rat	LC50 > 200,000 ppm
2-METHYLHEXANE	Dermal	Rabbit	LD50 3,000 mg/kg
2-METHYLHEXANE	Inhalation-Vapor (4 hours)	Rat	LC50 > 80 mg/l
2-METHYLHEXANE	Ingestion	Rat	LD50 17,000 mg/kg
Methyl Alcohol	Dermal		LD50 estimated to be 1,000 - 2,000 mg/kg
Methyl Alcohol	Inhalation-Vapor		LC50 estimated to be 10 - 20 mg/l
Methyl Alcohol	Ingestion		LD50 estimated to be 50 - 300 mg/kg
Ethylbenzene	Dermal	Rabbit	LD50 15,433 mg/kg
Ethylbenzene	Inhalation-Vapor (4 hours)	Rat	LC50 17.4 mg/l
Ethylbenzene	Ingestion	Rat	LD50 4,769 mg/kg
2,3-DIMETHYLPENTANE	Dermal	Rabbit	LD50 > 2,000 mg/kg
2,3-DIMETHYLPENTANE	Inhalation-Vapor (4 hours)	Rat	LC50 > 73.5 mg/l
2,3-DIMETHYLPENTANE	Ingestion	Rat	LD50 > 5,000 mg/kg
Heptane	Dermal	Rabbit	LD50 3,000 mg/kg
Heptane	Inhalation-Vapor (4 hours)	Rat	LC50 103 mg/l
Heptane	Ingestion	Rat	LD50 > 15,000 mg/kg
3,3-Dimethylpentane	Dermal	Rabbit	LD50 > 2,000 mg/kg
3,3-Dimethylpentane	Inhalation-Vapor (4 hours)	Rat	LC50 > 73.5 mg/l
3,3-Dimethylpentane	Ingestion	Rat	LD50 > 5,000 mg/kg
DIMETHYLCYCLOPENTANE	Ingestion		LD50 estimated to be 300 - 2,000 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
Heptane, branched, cyclic and linear	Rabbit	Mild irritant
3-METHYLHEXANE	Rabbit	Minimal irritation
Xylene	Rabbit	Mild irritant
Propane	Rabbit	Minimal irritation
2-METHYLHEXANE	Rabbit	Minimal irritation
Methyl Alcohol	Rabbit	Mild irritant
Ethylbenzene	Rabbit	Mild irritant
2,3-DIMETHYLPENTANE	Rabbit	Mild irritant
Heptane	Human	Mild irritant
3,3-Dimethylpentane	Rabbit	Mild irritant

Serious Eye Damage/Irritation

Name	Species	Value
Heptane, branched, cyclic and linear	Rabbit	Mild irritant
3-METHYLHEXANE	Rabbit	No significant irritation
Xylene	Rabbit	Mild irritant
Propane	Rabbit	Mild irritant
2-METHYLHEXANE	Rabbit	No significant irritation
Methyl Alcohol	Rabbit	Moderate irritant

Ethylbenzene	Rabbit	Moderate irritant
2,3-DIMETHYLPENTANE	Rabbit	Mild irritant
Heptane	Professional judgement	Moderate irritant
3,3-Dimethylpentane	Rabbit	Mild irritant

Skin Sensitization

Name	Species	Value
Methyl Alcohol	Guinea pig	Not classified
Ethylbenzene	Human	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
Xylene	In Vitro	Not mutagenic
Xylene	In vivo	Not mutagenic
Propane	In Vitro	Not mutagenic
Methyl Alcohol	In Vitro	Some positive data exist, but the data are not sufficient for classification
Methyl Alcohol	In vivo	Some positive data exist, but the data are not sufficient for classification
Ethylbenzene	In vivo	Not mutagenic
Ethylbenzene	In Vitro	Some positive data exist, but the data are not sufficient for classification
Heptane	In Vitro	Not mutagenic

Carcinogenicity

Name	Route	Species	Value
Xylene	Dermal	Rat	Not carcinogenic
Xylene	Ingestion	Multiple animal species	Not carcinogenic
Xylene	Inhalation	Human	Some positive data exist, but the data are not sufficient for classification
Methyl Alcohol	Inhalation	Multiple animal species	Not carcinogenic
Ethylbenzene	Inhalation	Multiple animal species	Carcinogenic

Reproductive Toxicity

Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test Result	Exposure Duration
Xylene	Inhalation	Not classified for female reproduction	Human	NOAEL Not available	occupational exposure
Xylene	Ingestion	Not classified for development	Mouse	NOAEL Not available	during organogenesis
Xylene	Inhalation	Not classified for development	Multiple animal species	NOAEL Not available	during gestation
Methyl Alcohol	Ingestion	Not classified for male reproduction	Rat	NOAEL 1,600 mg/kg/day	21 days
Methyl Alcohol	Ingestion	Toxic to development	Mouse	LOAEL	during

				4,000 mg/kg/day	organogenesis
Methyl Alcohol	Inhalation	Toxic to development	Mouse	NOAEL 1.3 mg/l	during organogenesis
Ethylbenzene	Inhalation	Not classified for development	Rat	NOAEL 4.3 mg/l	premating & during gestation

Lactation

Name	Route	Species	Value
Xylene	Ingestion	Mouse	Not classified for effects on or via lactation

Target Organ(s)

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
Heptane, branched, cyclic and linear	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL not available	
3-METHYLHEXANE	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Rat	NOAEL 4 mg/l	4 hours
3-METHYLHEXANE	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Not available	NOAEL Not available	not available
3-METHYLHEXANE	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Not available	NOAEL Not available	
Xylene	Inhalation	auditory system	Causes damage to organs	Rat	LOAEL 6.3 mg/l	8 hours
Xylene	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	
Xylene	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Human	NOAEL Not available	
Xylene	Inhalation	eyes	Not classified	Rat	NOAEL 3.5 mg/l	not available
Xylene	Inhalation	liver	Not classified	Multiple animal species	NOAEL Not available	
Xylene	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Multiple animal species	NOAEL Not available	
Xylene	Ingestion	eyes	Not classified	Rat	NOAEL 250 mg/kg	not applicable
Propane	Inhalation	cardiac sensitization	Causes damage to organs	Human	NOAEL Not available	
Propane	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	
Propane	Inhalation	respiratory irritation	Not classified	Human	NOAEL Not available	
2-METHYLHEXANE	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Rat	NOAEL 4 mg/l	4 hours
2-METHYLHEXANE	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Not available	NOAEL Not available	not available
2-METHYLHEXANE	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Not available	NOAEL Not available	
Methyl Alcohol	Inhalation	blindness	Causes damage to organs	Human	NOAEL Not available	occupational exposure
Methyl Alcohol	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	not available
Methyl Alcohol	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL Not available	6 hours
Methyl Alcohol	Ingestion	blindness	Causes damage to organs	Human	NOAEL Not available	poisoning and/or abuse

Methyl Alcohol	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	poisoning and/or abuse
Ethylbenzene	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	
Ethylbenzene	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Human and animal	NOAEL Not available	
Ethylbenzene	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Professional judgement	NOAEL Not available	
2,3-DIMETHYLPENTANE	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	
Heptane	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	
Heptane	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Human	NOAEL Not available	
Heptane	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	
3,3-Dimethylpentane	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
Xylene	Inhalation	nervous system	Causes damage to organs through prolonged or repeated exposure	Rat	LOAEL 0.4 mg/l	4 weeks
Xylene	Inhalation	auditory system	May cause damage to organs though prolonged or repeated exposure	Rat	LOAEL 7.8 mg/l	5 days
Xylene	Inhalation	liver	Not classified	Multiple animal species	NOAEL Not available	
Xylene	Inhalation	heart | endocrine system | gastrointestinal tract | hematopoietic system | muscles | kidney and/or bladder | respiratory system	Not classified	Multiple animal species	NOAEL 3.5 mg/l	13 weeks
Xylene	Ingestion	auditory system	Not classified	Rat	NOAEL 900 mg/kg/day	2 weeks
Xylene	Ingestion	kidney and/or bladder	Not classified	Rat	NOAEL 1,500 mg/kg/day	90 days
Xylene	Ingestion	liver	Not classified	Multiple animal species	NOAEL Not available	
Xylene	Ingestion	heart | skin | endocrine system | bone, teeth, nails, and/or hair | hematopoietic system | immune system | nervous system | respiratory system	Not classified	Mouse	NOAEL 1,000 mg/kg/day	103 weeks
Methyl Alcohol	Inhalation	liver	Not classified	Rat	NOAEL 6.55 mg/l	4 weeks
Methyl Alcohol	Inhalation	respiratory system	Not classified	Rat	NOAEL 13.1 mg/l	6 weeks
Methyl Alcohol	Ingestion	liver | nervous system	Not classified	Rat	NOAEL 2,500 mg/kg/day	90 days
Ethylbenzene	Inhalation	kidney and/or	Some positive data exist, but the	Rat	NOAEL 1.1	2 years

		bladder	data are not sufficient for classification		mg/l	
Ethylbenzene	Inhalation	liver	Some positive data exist, but the data are not sufficient for classification	Mouse	NOAEL 1.1 mg/l	103 weeks
Ethylbenzene	Inhalation	hematopoietic system	Not classified	Rat	NOAEL 3.4 mg/l	28 days
Ethylbenzene	Inhalation	auditory system	Not classified	Rat	NOAEL 2.4 mg/l	5 days
Ethylbenzene	Inhalation	endocrine system	Not classified	Mouse	NOAEL 3.3 mg/l	103 weeks
Ethylbenzene	Inhalation	gastrointestinal tract	Not classified	Rat	NOAEL 3.3 mg/l	2 years
Ethylbenzene	Inhalation	bone, teeth, nails, and/or hair | muscles	Not classified	Multiple animal species	NOAEL 4.2 mg/l	90 days
Ethylbenzene	Inhalation	heart | immune system | respiratory system	Not classified	Multiple animal species	NOAEL 3.3 mg/l	2 years
Ethylbenzene	Ingestion	liver | kidney and/or bladder	Not classified	Rat	NOAEL 680 mg/kg/day	6 months
Heptane	Inhalation	liver | nervous system | kidney and/or bladder	Not classified	Rat	NOAEL 12 mg/l	26 weeks

Aspiration Hazard

Name	Value
Heptane, branched, cyclic and linear	Aspiration hazard
3-METHYLHEXANE	Aspiration hazard
Xylene	Aspiration hazard
2-METHYLHEXANE	Aspiration hazard
Ethylbenzene	Aspiration hazard
2,3-DIMETHYLPENTANE	Aspiration hazard
Heptane	Aspiration hazard
3,3-Dimethylpentane	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:
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 #	Organism	Type	Exposure	Test Endpoint	Test Result
Heptane, branched, cyclic and	426260-76-6		Data not available or insufficient for			

linear			classification			
2-METHYLHEXANE	591-76-4	Rainbow Trout	Estimated	96 hours	Lethal Level 50%	18.4 mg/l
2-METHYLHEXANE	591-76-4	Water flea	Estimated	48 hours	Effect Concentration 50%	0.4 mg/l
2-METHYLHEXANE	591-76-4		Data not available or insufficient for classification			
3-METHYLHEXANE	589-34-4		Data not available or insufficient for classification			
Propane	74-98-6		Data not available or insufficient for classification			
Xylene	1330-20-7	Green Algae	Estimated	73 hours	Effect Concentration 50%	4.36 mg/l
Xylene	1330-20-7	Rainbow Trout	Estimated	96 hours	Lethal Concentration 50%	2.6 mg/l
Xylene	1330-20-7	Water flea	Estimated	48 hours	Effect Concentration 50%	3.82 mg/l
Xylene	1330-20-7	Green Algae	Estimated	73 hours	Effect Conc. 10% - Growth Rate	1.9 mg/l
Xylene	1330-20-7	Water flea	Estimated	7 days	No obs Effect Conc	0.96 mg/l
Xylene	1330-20-7	Rainbow Trout	Experimental	56 days	No obs Effect Conc	>1.3 mg/l
2,3-DIMETHYLPENTANE	565-59-3		Data not available or insufficient for classification			
Ethylbenzene	100-41-4	Atlantic Silverside	Experimental	96 hours	Lethal Concentration 50%	5.1 mg/l
Ethylbenzene	100-41-4	Green Algae	Experimental	96 hours	Effect Concentration 50%	3.6 mg/l
Ethylbenzene	100-41-4	Mysid Shrimp	Experimental	96 hours	Lethal Concentration 50%	2.6 mg/l
Ethylbenzene	100-41-4	Rainbow Trout	Experimental	96 hours	Lethal Concentration 50%	4.2 mg/l
Ethylbenzene	100-41-4	Water flea	Experimental	48 hours	Effect Concentration 50%	1.8 mg/l
Ethylbenzene	100-41-4	Water flea	Experimental	7 days	No obs Effect	0.96 mg/l

					Conc	
Methyl Alcohol	67-56-1	Algae or other aquatic plants	Experimental	96 hours	Effect Concentration 50%	16.9 mg/l
Methyl Alcohol	67-56-1	Bluegill	Experimental	96 hours	Lethal Concentration 50%	15,400 mg/l
Methyl Alcohol	67-56-1	Green Algae	Experimental	96 hours	Effect Concentration 50%	22,000 mg/l
Methyl Alcohol	67-56-1	Water flea	Experimental	24 hours	Effect Concentration 50%	20,803 mg/l
Methyl Alcohol	67-56-1	Algae or other aquatic plants	Experimental	96 hours	No obs Effect Conc	9.96 mg/l
Methyl Alcohol	67-56-1	Water flea	Experimental	21 days	No obs Effect Conc	122 mg/l
3,3-Dimethylpentane	562-49-2		Data not available or insufficient for classification			
DIMETHYLCYCLOPENTANE	2532-58-3		Data not available or insufficient for classification			
Heptane	142-82-5	Water flea	Experimental	48 hours	Effect Concentration 50%	1.5 mg/l
Heptane	142-82-5	Water flea	Estimated	21 days	No obs Effect Conc	0.17 mg/l
trans-1,2-Dimethylcyclopentane	822-50-4		Data not available or insufficient for classification			
TRANS-1,3-DIMETHYLCYCLOPENTANE	1759-58-6		Data not available or insufficient for classification			

12.2. Persistence and degradability

Material	CAS No.	Test Type	Duration	Study Type	Test Result	Protocol
Heptane, branched, cyclic and linear	426260-76-6	Data not availbl-insufficient			N/A	
2-METHYLHEXANE	591-76-4	Estimated Photolysis		Photolytic half-life (in air)	4.3 days (t 1/2)	Other methods
3-METHYLHEXANE	589-34-4	Estimated Photolysis		Photolytic half-life (in air)	4.2 days (t 1/2)	Other methods
3-METHYLHEXANE	589-34-4	Estimated Biodegradation	28 days	Biological Oxygen Demand	81 % BOD/ThBOD	OECD 301F - Manometric Respiro

Propane	74-98-6	Experimental Photolysis		Photolytic half-life (in air)	27.5 days (t 1/2)	Other methods
Xylene	1330-20-7	Experimental Biodegradation	28 days	Biological Oxygen Demand	90-98 % BOD/ThBOD	OECD 301F - Manometric Respiro
2,3-DIMETHYLPENTANE	565-59-3	Estimated Photolysis		Photolytic half-life (in air)	4.25 days (t 1/2)	Other methods
2,3-DIMETHYLPENTANE	565-59-3	Estimated Biodegradation	28 days	Biological Oxygen Demand	17 % BOD/ThBOD	OECD 301C - MITI (I)
Ethylbenzene	100-41-4	Experimental Photolysis		Photolytic half-life (in air)	4.26 days (t 1/2)	Other methods
Ethylbenzene	100-41-4	Experimental Biodegradation	28 days	Carbon dioxide evolution	70-80 % weight	Other methods
Methyl Alcohol	67-56-1	Experimental Biodegradation	14 days	Biological Oxygen Demand	92 % BOD/ThBOD	OECD 301C - MITI (I)
3,3-Dimethylpentane	562-49-2	Estimated Biodegradation	28 days	Biological Oxygen Demand	45 % BOD/ThBOD	OECD 301F - Manometric Respiro
DIMETHYLCYCLOPENTANE	2532-58-3	Data not availbl-insufficient			N/A	
Heptane	142-82-5	Experimental Photolysis		Photolytic half-life (in air)	4.24 days (t 1/2)	Other methods
Heptane	142-82-5	Experimental Biodegradation	28 days	Biological Oxygen Demand	101 % BOD/ThBOD	OECD 301C - MITI (I)
trans-1,2-Dimethylcyclopentane	822-50-4	Data not availbl-insufficient			N/A	
TRANS-1,3-DIMETHYLCYCLOPENTANE	1759-58-6	Data not availbl-insufficient			N/A	

12.3. Bioaccumulative potential

Material	CAS No.	Test Type	Duration	Study Type	Test Result	Protocol
Heptane, branched, cyclic and linear	426260-76-6	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
2-METHYLHEXANE	591-76-4	Estimated Bioconcentration		Bioaccumulation Factor	138.04	Est: Bioconcentration factor
3-METHYLHEXANE	589-34-4	Estimated Bioconcentration		Bioaccumulation Factor	148	Est: Bioconcentration factor
Propane	74-98-6	Experimental Bioconcentration		Log of Octanol/H2O part. coeff	2.36	Other methods
Xylene	1330-20-7	Experimental	56 days	Bioaccumulatio	25.9	Other methods

		BCF - Rainbow Tr		n Factor		
2,3-DIMETHYLPENTANE	565-59-3	Estimated Bioconcentration		Bioaccumulation Factor	229	Other methods
Ethylbenzene	100-41-4	Experimental BCF - Other	42 days	Bioaccumulation Factor	1	Other methods
Methyl Alcohol	67-56-1	Experimental Bioconcentration		Log of Octanol/H2O part. coeff	-0.77	Other methods
3,3-Dimethylpentane	562-49-2	Estimated Bioconcentration		Bioaccumulation Factor	389	Est: Bioconcentration factor
DIMETHYLCYCLOPENTANE	2532-58-3	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Heptane	142-82-5	Estimated Bioconcentration		Bioaccumulation Factor	105	Est: Bioconcentration factor
trans-1,2-Dimethylcyclopentane	822-50-4	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
TRANS-1,3-DIMETHYLCYCLOPENTANE	1759-58-6	Data not available or insufficient for classification	N/A	N/A	N/A	N/A

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

Marine Transport (IMDG)

UN Number:UN1950
Proper Shipping Name:AEROSOLS, FLAMMABLE
Technical Name: None assigned.
Hazard Class/Division:2.1
Subsidiary Risk: None assigned.
Packing Group: None assigned.

Limited Quantity: Yes
Marine Pollutant: None assigned.
Marine Pollutant Technical Name: None assigned.
Other Dangerous Goods Descriptions:
None assigned.

Air Transport (IATA)

UN Number:UN1950
Proper Shipping Name:AEROSOLS, FLAMMABLE
Technical Name: None assigned.
Hazard Class/Division:2.1
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 product are in compliance with the new substance notification requirements of CEPA. 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.

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