

MATERIAL SAFETY DATA SHEET

ExxonMobil Chemical

PRODUCT NAME: TOLUENE

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MSDS NUMBER: HDHP-C-61600
REVISION: 1 February 2002

1 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

IDENTIFICATION OF THE SUBSTANCE: TOLUENE

CHEMICAL FAMILY: Aromatic hydrocarbon

PRODUCT DESCRIPTION:
Clear, colourless liquid

SUPPLIER: ExxonMobil Chemical New Zealand Ltd.
164 Beaumont Street
Freemans Bay
PO Box 8789, Auckland 1035
New Zealand
Telephone: (09) 302 9172
Facsimile: (09) 302 4766

EMERGENCY TELEPHONE NUMBER: 0800-808-444 (office hours)
0800-808-444 (outside office hours)

2 COMPOSITION/INFORMATION ON INGREDIENTS

CAS NUMBER: 108-88-3

| HEALTH HAZARDOUS COMPONENTS | SYMBOL/R-PHRASE OR OEL | Wt% |
|-----------------------------|---------------------------|-------|
| TOLUENE | Xn, R20 | 100.0 |

3 HAZARDS IDENTIFICATION

HEALTH HAZARDS
Harmful by inhalation

PHYSICAL AND CHEMICAL HAZARDS / FIRE AND EXPLOSION HAZARDS
o Extreme hazard. Leaks of gas or spills of liquid can readily form flammable mixtures at temperatures at or above the flash point.

Exxon Mobil Corporation includes ExxonMobil Chemical Company and the ExxonMobil Chemical Affiliates.

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- o Static Discharge. Product can accumulate static charges which can cause an incendiary electrical discharge.

4 FIRST AID MEASURES

INHALATION:

- o Using proper respiratory protection, immediately remove the affected victim from exposure. Administer artificial respiration if breathing is stopped. Keep at rest. Call for prompt medical attention.

SKIN CONTACT:

- o Flush with large amounts of water; use soap if available.
- o Remove grossly contaminated clothing, including shoes, and launder before reuse.

EYE CONTACT:

- o Flush eyes with large amounts of water until irritation subsides. If irritation persists, get medical attention.

INGESTION:

- o If swallowed, DO NOT induce vomiting. Keep at rest. Get prompt medical attention.

5 FIRE-FIGHTING MEASURES

FIRE FIGHTING PROCEDURES:

- o Use water spray to cool fire exposed surfaces and to protect personnel. Shut off "fuel" to fire. If a leak or spill has not ignited, use water spray to disperse the vapors and to protect men attempting to stop a leak.
- o Either allow fire to burn under controlled conditions or extinguish with foam or dry chemical. Try to cover liquid spills with foam.

SPECIAL FIRE PRECAUTIONS:

- o Avoid spraying water directly into storage containers due to danger of boilover.
- o See also Section 4 "FIRST AID MEASURES" as well as Section 10 "STABILITY AND REACTIVITY".

HAZARDOUS COMBUSTION PRODUCTS:

No unusual

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6 ACCIDENTAL RELEASE MEASURES

LAND SPILL:

- o Eliminate sources of ignition. Warn occupants of downwind areas of fire and explosion hazard. Prevent liquid from entering sewers, watercourses, or low areas.
- o Keep public away. Shut off source if possible to do so without hazard. Advise authorities if substance has entered a watercourse or sewer or has contaminated soil or vegetation. Take measures to minimize the effect on the ground water.
- o Contain spilled liquid with sand or earth.
- o Recover by pumping (use an explosion proof or hand pump) or with a suitable absorbent. If liquid is too viscous for pumping, scrape up with shovels or pails and place in suitable containers for recycle or disposal.
- o Consult an expert on disposal of recovered material and ensure conformity to local disposal regulations.
- o See Section 4 "FIRST AID MEASURES" as well as Section 10 "STABILITY AND REACTIVITY".

WATER SPILL:

- o Eliminate sources of ignition. Warn occupants and shipping in downwind areas of fire and explosion hazard and request them to stay clear.
- o Notify port or relevant authority and keep public away. Shut off source if possible to do so without hazard. Confine if possible.
- o Remove from surface by skimming or with suitable absorbents. If allowed by local authorities and environmental agencies sinking and/or suitable dispersants may be used in non-confined waters.
- o Consult an expert on disposal of any recovered material and ensure conformity to local disposal regulations.
- o See also Section 4 "FIRST AID MEASURES" and Section 10 "STABILITY AND REACTIVITY".

7 HANDLING AND STORAGE

STORAGE TEMPERATURE (DegC) : Ambient
TRANSPORT TEMPERATURE (DegC) : Ambient
LOADING/UNLOADING TEMPERATURE (DegC) : Ambient
VISCOSITY (cSt) : 0.64

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STORAGE/TRANSPORT PRESSURE (kPa) : Atmospheric
ELECTROSTATIC ACCUMULATION HAZARD? Yes, use proper grounding procedure

USUAL SHIPPING CONTAINERS:

Rail wagons, tank trucks, tankers, barges, drums

MATERIALS AND COATINGS SUITABLE: Carbon Steel
Stainless Steel
Polyester
Teflon

MATERIALS AND COATINGS UNSUITABLE: Natural Rubber
Butyl Rubber
E P D M
Polystyrene, Polyethylene
Polypropylene, Polyvinyl chloride
Polyacrylonitrile

Compatibility with Plastic Materials can vary; we therefore recommend that compatibility is tested prior to use.

STORAGE / HANDLING, GENERAL NOTES

- o Keep container closed. Handle containers with care. Open slowly in order to control possible pressure release. Store in a cool, well-ventilated place away from incompatible materials.
- o DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight.
- o Material will accumulate static charges which may cause an electrical spark (ignition source). Use proper bonding and/or grounding procedures.
- o DO NOT pressurize, cut, heat, or weld containers. Empty product containers may contain product residue. DO NOT reuse empty containers without commercial cleaning or reconditioning.

ADDITIONAL WARNINGS

Container remains hazardous when empty. Continue to observe all precautions.

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8 EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROL MEASURES / VENTILATION

The use of local exhaust ventilation is recommended to control process emissions near the source. Laboratory samples should be handled in a lab hood. Provide mechanical ventilation of confined spaces. Use explosion-proof ventilation equipment.

OCCUPATIONAL EXPOSURE LIMITS

This product consists of a single substance with the following recognised or recommended OEL value(s):

Toluene;
TWA: 50 ppm (188 mg/m³) (SKIN), ACGIH (2000).

PERSONAL PROTECTION

GENERAL ADVICE

The use and choice of Personal Protection equipment is related to the hazard of the product, the workplace, and the way the product is handled. In general, we recommend as a minimum safety precaution that safety glasses with side-shields and workclothes protecting arms, legs and body be used. In addition, any person visiting an area where this product is handled or processed should at least wear safety glasses with side-shields.

SPECIAL ADVICE

Based on and limited to ExxonMobil Chemical's experience of this product as such, the following special advice is believed to provide satisfactory protection for the industrial user or handler.

RESPIRATORY PROTECTION

Where concentrations in air may exceed the limits given in this section, it is recommended to use a half face filter mask to protect from overexposure by inhalation. Suitable filter material depends on the amount and type of chemicals being handled in the workplace, but filter material of type "A" or similar may be considered for use.

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HAND PROTECTION

When handling this product, it is recommended to wear chemical resistant gloves. The choice of suitable protective gloves depends on work conditions and what chemicals are handled, but we have positive experience with gloves made of PVA. Note that PVA degrades when in contact with water. Gloves should be replaced immediately if sign of degradation is observed.

EYE PROTECTION

See general advice.

SKIN/BODY PROTECTION

See general advice.

9 PHYSICAL AND CHEMICAL PROPERTIES

These are indicative values only. Please refer also to the product specification sheet.

PHYSICAL STATE: Liquid

FORM/COLOUR: Clear, colourless liquid

ODOR: Aromatic hydrocarbon odour

| | | |
|-------------------------------------|--------------------------|----------------|
| PH () (DegC): | | Not applicable |
| FREEZ./MELT/ POINT: | -95 DegC | ASTM D2386 |
| BOILING POINT RANGE: | between 110 and 111 DegC | ASTM D850 |
| FLASHPOINT (TCC ASTM D56): | 5 DegC | |
| AUTOIGNITION TEMPERATURE: | > 530 DegC | |
| EXPLOSIVE LIMITS (in air): | between 1.3 and 6.7 Vol% | |
| VAPOR PRESSURE (38 DegC): | 7 kPa | Exxon Cope |
| DENSITY (15 DegC): | 0.865 kg/dm3 | ASTM D4052 |
| SPECIFIC GRAVITY (15.0 / 15.0): | 0.865 kg/dm3 | ASTM D4052 |
| VAPOR DENSITY (101.3 kPa/air=1): | > 1.00 | |
| SOLUBILITY IN WATER (25 DegC): | 0.05 Wt% | EEC A.6 |
| IS MATERIAL HYGROSCOPIC: | No | |
| VISCOSITY (25 DegC): | 0.64 cSt | ASTM D445 |
| EVAPORATION RATE (n-Bu Acetate= 1): | 2.400 | |
| COEFF. OF THERMAL EXPANSION (Liq.): | 0.00106 DegC | vol/vol/deg C |
| MOLECULAR WEIGHT: | 92 | |

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10 STABILITY AND REACTIVITY

HAZARDOUS POLYMERIZATION? No
CONDITIONS TO AVOID POLYMERIZATION:
Not Applicable.

STABILITY: Stable
CONDITIONS TO AVOID INSTABILITY:
Not Applicable.

MATERIALS AND CONDITIONS TO AVOID (INCOMPATIBILITY):
Strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS:
None

11 TOXICOLOGICAL INFORMATION

ACUTE:

INHALATION:

- o Vapor concentrations above recommended exposure levels may be irritating to the eyes and the respiratory tract, may cause headaches and dizziness, could be anesthetic and may have other central nervous system effects.

Negligible hazard at ambient temperature (-18 to 38 Deg C).

SKIN CONTACT:

- o Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.
 - o Occasional brief contact with the liquid will not result in significant skin discomfort unless evaporation is impeded.
- Toluene has been shown to be slightly irritating but not sufficiently to trigger a EU classification.

EYE CONTACT:

- o Will cause eye discomfort, but will not injure eye tissue.

INGESTION:

- o Small amounts of liquid aspirated into the respiratory system during ingestion or from vomiting may cause bronchopneumonia or pulmonary edema.

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o Low order of toxicity.

Additional information is available on special request

12 ECOLOGICAL INFORMATION

ENVIRONMENTAL MOBILITY

This substance is highly volatile and will rapidly evaporate to the air if released into the water.

ENVIRONMENTAL DEGRADABILITY

This substance biodegrades rapidly and is "readily" biodegradable according to OECD guidelines.

This substance can degrade rapidly in air.

This substance is expected to be removed in a wastewater treatment facility.

ECOTOXICITY AND BIOACCUMULATION

Expected to be harmful to aquatic organisms.

13 DISPOSAL CONSIDERATIONS

The following advice only applies to the product as supplied. Combination with other materials may well indicate another route of disposal. If in doubt, contact local ExxonMobil Chemical Company supplier or local Authorities.

Empty drums should be taken for recycling, recovery or disposal through a suitably qualified or licensed contractor.

Care should in any case be taken to ensure compliance with national and local regulations.

This product is NOT suitable for disposal by either landfill or via municipal sewers, drains, natural streams or rivers.

This product is ashless and can be burned directly in appropriate equipment.

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14 TRANSPORT INFORMATION

LAND

CLASS: 3
HAZCHEM CODE: 3YE

PG: II

UN NUMBER: 1294
SUBSIDIARY RISK:

TRANSPORT DOCUMENT NAME:

TOLUENE, CLASS 3, UN 1294, PG II , (5 DegC c.c.)

SEA - IMDG (PACKAGED GOODS AND BLCs)

CLASS: 3
MARINE POLLUTANT: NO
RISK LABEL: 3

PG: II

UN NUMBER: 1294
EMS NUMBER: 3-07
SUBSIDIARY RISK:

TRANSPORT DOCUMENT NAME:

TOLUENE, Class 3, UN 1294, PG II , (5 DegC c.c.)

AIR (ICAO/IATA)

CLASS: 3

PG: II

UN NUMBER: 1294

PROPER SHIPPING NAME:
TOLUENE

15 REGULATORY INFORMATION

CLASSIFICATION AND LABELLING ACCORDING TO EUROPEAN DIRECTIVES

CLASSIFICATION/SYMBOL: HIGHLY FLAMMABLE/F

CLASSIFICATION/SYMBOL: HARMFUL/Xn

GOVERNING DIRECTIVE:

Dangerous Substances Directive 67/548/EC, as modified.

LABEL NAME:

TOLUENE

NATURE OF SPECIAL RISK

R11 Highly flammable

R20 Harmful by inhalation

SAFETY ADVICE

S07/09

Keep container tightly closed and in a well ventilated place

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| | |
|------|--|
| S16 | Keep away from sources of ignition-No Smoking |
| S25 | Avoid contact with eyes |
| S29 | Do not empty into drains |
| S33 | Take precautionary measures against static discharges |
| S43A | In case of fire use sand, earth, chemical powder or foam |

16 OTHER INFORMATION

REVISION SUMMARY:

Since 1 May 2001, this MSDS has been revised in Section(s):
14

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is to the best of ExxonMobil Chemical Company's knowledge and believed accurate and reliable as of the date indicated. However, no representation, warranty or guarantee is made as to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability and completeness of such information for his own particular use.

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