SAFETY DATA SHEETS

According to Globally Harmonized System of Classification and Labelling of Chemicals (GHS) - Sixth revised edition

Version: 1.0

Creation Date: Aug 10, 2017

Revision Date: Aug 10, 2017

1. Identification

1.1 GHS Product identifier

Product name	1,3,5-trimethylbenzene

1.2 Other means of identification

Product number	-
Other names	2,4,6-Me3-Ph

1.3 Recommended use of the chemical and restrictions on use

Identified uses	For industry use only. Fuels and fuel additives,Intermediates,Paint additives and coating additives not described by other categories,Solvents (for cleaning or degreasing),Solvents (which become part of product formulation or mixture)
Uses advised against	no data available

2. Hazard identification

2.1 Classification of the substance or mixture

Flammable liquids, Category 3

Specific target organ toxicity – single exposure, Category 3

Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 2

2.2 GHS label elements, including precautionary statements

Pictogram(s)	
Signal word	Warning
Hazard statement(s)	H226 Flammable liquid and vapour
	H335 May cause respiratory irritation
	H411 Toxic to aquatic life with long lasting effects
Precautionary statement(s) Prevention	
	P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
	P233 Keep container tightly closed.
	P240 Ground and bond container and receiving equipment.
	P241 Use explosion-proof [electrical/ventilating/lighting/...] equipment.
	P242 Use non-sparking tools.
	P243 Take action to prevent static discharges.
	P280 Wear protective gloves/protective clothing/eye protection/face protection.
	P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
	P271 Use only outdoors or in a well-ventilated area.
	P273 Avoid release to the environment.
Response	P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
	P370+P378 In case of fire: Use ... to extinguish.
	P304+P340 IF INHALED: Remove person to fresh air and

keep comfortable for breathing.

P312 Call a POISON CENTER/doctor/…if you feel unwell.

P391 Collect spillage.

Storage

P403+P235 Store in a well-ventilated place. Keep cool.

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

P405 Store locked up.

Disposal

P501 Dispose of contents/container to ...

2.3 Other hazards which do not result in classification

none

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3. Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
1,3,5-trimethylbenzene	1,3,5-trimethylbenzene	108-67-8	none	100%

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4. First-aid measures

4.1 Description of necessary first-aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

Fresh air, rest. Refer for medical attention.

In case of skin contact

Remove contaminated clothes. Rinse skin with plenty of water or shower.

In case of eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

If swallowed

Rinse mouth. Do NOT induce vomiting. Refer for medical attention .

4.2 Most important symptoms/effects, acute and delayed

Excerpt from ERG Guide 129 [Flammable Liquids (Water-Miscible / Noxious)]: May cause toxic effects if inhaled or absorbed through skin. Inhalation or contact with material may irritate or burn skin and eyes. Fire will produce irritating, corrosive and/or toxic gases. Vapors may cause dizziness or suffocation. Runoff from fire control or dilution water may cause pollution. (ERG, 2016)

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR as necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. /Aromatic hydrocarbons and related compounds/

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5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

This chemical is a flammable liquid. Poisonous gases are produced in fire. Small fires: dry chemical, carbon dioxide, water spray, or alcohol foam. Large fires: water spray, fog, or alcohol foam. Move container from fire if you can do so without risk. Spray cooling water on containers that are exposed to flames until well after fire is out. For massive fire in cargo area, use unmanned hose holder or monitoring nozzles; if this is impossible, withdraw from area and let fire burn. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tank due to fire. Isolate for one-half mile in all directions if tank car or truck is involved in fire. Vapors are heavier than air and will collect in low

areas. Vapors may travel long distances to ignition sources and flashback. Vapors in confined areas may explode when exposed to fire. Containers may explode in fire. Storage containers and parts of containers may rocket great distances, in many directions. If material or contaminated runoff enters waterways, notify downstream users of potentially contaminated waters. Notify local health and fire officials and pollution control agencies. From a secure, explosion-proof location, use water spray to cool exposed containers. If cooling streams are ineffective (venting sound increases in volume and pitch, tank discolors, or shows any signs of deforming), withdraw immediately to a secure position. If employees are expected to fight fires, they must be trained and equipped in OSHA 1910.156.

5.2 Specific hazards arising from the chemical

Excerpt from ERG Guide 129 [Flammable Liquids (Water-Miscible / Noxious)]: HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks). Vapor explosion hazard indoors, outdoors or in sewers. Those substances designated with a (P) may polymerize explosively when heated or involved in a fire. Runoff to sewer may create fire or explosion hazard. Containers may explode when heated. Many liquids are lighter than water. (ERG, 2016)

5.3 Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

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6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2 Environmental precautions

Personal protection: filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Do NOT wash away into sewer. Do NOT let this chemical enter the environment. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

6.3 Methods and materials for containment and cleaning up

Evacuate and restrict persons not wearing protective equipment from area of spill or leak until cleanup is complete. Remove all ignition sources. Ventilate area of spill or leak. Absorb liquids in vermiculite, dry sand, earth, peat, carbon, or similar material and deposit in sealed containers. Keep this chemical out of a confined space ... because of the possibility of an explosion ... It may be necessary to contain and dispose of this chemical as a hazardous waste. If material or contaminated runoff enters waterways, notify downstream users of potentially contaminated waters. Contact your Department of Environmental Protection or your regional office of the federal EPA for specific recommendations. If employees are required to clean up spills, they must be properly trained and equipped. OSHA 1910.120(q) may be applicable.

7. Handling and storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Avoid exposure - obtain special instructions before use.Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Fireproof. Separated from strong oxidants. Well closed. Keep in a well-ventilated room.Prior to working with this chemical you should be trained on its proper handling and storage. This chemical must be stored to avoid contact with oxidizers (such as perchlorates, peroxides, permanganates, chlorates, and nitrates), and strong oxidizers (such as chlorine, bromine, and fluorine) since violent reactions occur. Store in tightly closed containers in a cool, well-ventilated area away from heat. Sources of ignition such as smoking and open flames are prohibited where this chemical is used, handled, or stored in a manner that could create a potential fire or explosion hazard. Metal containers involving the transfer of 5 gallons or more of this chemical should be grounded and bonded. Drums must be equipped with self-closing valves, pressure vacuum bungs, and flame arresters. Use only nonsparking tools and equipment, especially when opening and closing containers of this chemical.

8. Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

Recommended Exposure Limit: 10 Hr Time-Weighted Avg: 25 ppm (125 mg/cu m).

Biological limit values

no data available

8.2 Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Wear impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique(without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Respiratory protection

Wear dust mask when handling large quantities.

Thermal hazards

no data available

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9. Physical and chemical properties

Physical state	colorless liquid with a peculiar odor
Colour	Clear, colorless liquid
Odour	Peculiar odor
Melting point/ freezing	27°C(lit.)

point	
Boiling point or initial boiling point and boiling range	164°C
Flammability	Class II Flammable LiquidFlammable.
Lower and upper explosion limit / flammability limit	no data available
Flash point	50°C(lit.)
Auto-ignition temperature	1039 deg F (559°C)
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	In water:2.9 g/L (20 °C)
Partition coefficient n-octanol/water (log value)	log Kow = 3.42
Vapour pressure	14 mm Hg (55 °C)
Density and/or relative density	0.864
Relative vapour density	4.1 (vs air)
Particle characteristics	no data available

10. Stability and reactivity

10.1 Reactivity

no data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

MODERATE, VIA HEAT, FLAMES, OXIDIZERSTRIMETHYLBENZENE is incompatible with the following: Oxidizers, nitric acid (NIOSH, 2016).

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Forms explosive mixture with air. Strong oxidizers cause fire and explosion hazard. Violent reaction with nitric acid.

10.6 Hazardous decomposition products

The substance decomposes on burning producing toxic and irritating fumes.

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11. Toxicological information

Acute toxicity

- Oral: no data available
- Inhalation: no data available
- Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

no data available

Reproductive toxicity

no data available

STOT-single exposure

no data available

STOT-repeated exposure

no data available

Aspiration hazard

no data available

12. Ecological information

12.1 Toxicity

- Toxicity to fish: no data available
- Toxicity to daphnia and other aquatic invertebrates: EC50 Daphnia magna /(Water flea)/ 50 mg/L 24 hr, toxic effect: increased mortality and reduced reproduction rates
- Toxicity to algae: EC50; Species: Scenedesmus subspicatus (Green algae, Log growth phase); Conditions: freshwater, static, 24°C, pH 8.0-9.3; Concentration: 25000 ug/L for 48 hr; Effect: decreased population biomass
- Toxicity to microorganisms: no data available

12.2 Persistence and degradability

AEROBIC: Dissolved air flotation effluent from a class B petroleum refinery contained 1,3,5-trimethylbenzene at 43 ng/g; greater than 99% removal was shown following activated sludge treatment(1). 1,3,5-Trimethylbenzene at 100 mg/L was not biodegraded over a 14 day period using an activated sludge inoculum(2). Complete removal of 1,3,5-trimethylbenzene (at 0.035 ug/mL soil extract) from sandy loam soil samples contaminated with jet fuel was reported within 5 days; sterile samples with 1,3,5-trimethylbenzene at 0.035 ug/mL soil extract also showed complete removal of this compound within 5 days, probably by evaporation(3). During a 24 hour time period, 500 mg/L of 1,3,5-trimethylbenzene was toxic to the microbes in 2 out of 3 activated sludge inocula(4). 1,3,5-Trimethylbenzene was not biodegraded over a 7.5 day incubation period using an activated sludge inoculum(4).

12.3 Bioaccumulative potential

BCF values of 23-342 and 42-328 were measured in carp for 1,3,5-trimethylbenzene concentrations of 150 and 15 ug/L, respectively(1). According to a classification scheme(2), BCF values of zero to 30 are low and from 100 to 1,000 are high(SRC).

12.4 Mobility in soil

The Koc of 1,3,5-trimethylbenzene has been measured at a range of 501-1,445(1-4). According to a classification scheme(5), this Koc range suggests that 1,3,5-

trimethylbenzene is expected to have low mobility in soil. 1,3,5-Trimethylbenzene was detected in soil leachate samples following the addition of crude oil to the surface of a soil trough filled with sand(6).

12.5 Other adverse effects

no data available

13. Disposal considerations

13.1 Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

14. Transport information

14.1 UN Number

ADR/RID: UN2325 IMDG: UN2325 IATA: UN2325

14.2 UN Proper Shipping Name

ADR/RID: 1,3,5-TRIMETHYLBENZENE
IMDG: 1,3,5-TRIMETHYLBENZENE
IATA: 1,3,5-TRIMETHYLBENZENE

14.3 Transport hazard class(es)

ADR/RID: 3 IMDG: 3 IATA: 3

14.4 Packing group, if applicable

ADR/RID: III IMDG: III IATA: III

14.5 Environmental hazards

ADR/RID: yes IMDG: yes IATA: yes

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

no data available

15. Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
1,3,5-trimethylbenzene	1,3,5-trimethylbenzene	108-67-8	none
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.

16. Other information

Information on revision

Creation Date	Aug 10, 2017
Revision Date	Aug 10, 2017

Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

References

- IPCS - The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home
- HSDB - Hazardous Substances Data Bank, website: https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm
- IARC - International Agency for Research on Cancer, website: http://www.iarc.fr/
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en
- CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple
- ChemIDplus, website: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: http://www.phmsa.dot.gov/hazmat/library/erg
- Germany GESTIS-database on hazard substance, website: http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp
- ECHA - European Chemicals Agency, website: https://echa.europa.eu/

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present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. We as supplier shall not be held liable for any damage resulting from handling or from contact with the above product.