



MATERIAL SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Date of issue: 02/05/2013

Version 1.0

SECTION 1. Identification

Product identifier

Product number	808314
Product name	m-Toluidine for synthesis

Relevant identified uses of the substance or mixture and uses advised against

Identified uses	Intermediate for use under strictly controlled conditions, Chemical for synthesis
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Details of the supplier of the safety data sheet

Company	EMD Millipore Corporation 290 Concord Road, Billerica, MA 01821, United States of America SDS Phone Support: +1-978-715-1335 General Inquiries: +1-978-715-4321 Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5) e-mail: mm_sds@merckgroup.com
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Emergency telephone	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week
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SECTION 2. Hazards identification

GHS Classification

Acute toxicity, Category 3, Inhalation, H331
Acute toxicity, Category 3, Dermal, H311
Acute toxicity, Category 3, Oral, H301
Specific target organ systemic toxicity - repeated exposure, Category 2, H373
Acute aquatic toxicity, Category 1, H400
For the full text of the H-Statements mentioned in this Section, see Section 16.

GHS-Labeling

Hazard pictograms



Signal Word
Danger

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Hazard Statements

H301 + H311 + H331 Toxic if swallowed, in contact with skin or if inhaled.
H373 May cause damage to organs through prolonged or repeated exposure.
H400 Very toxic to aquatic life.

Precautionary Statements

P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P309 + P310 IF exposed or if you feel unwell: Immediately call a POISON CENTER or doctor/physician.

OSHA Hazards

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Other hazards

None known.

SECTION 3. Composition/information on ingredients

Formula	3-(CH ₃)C ₆ H ₄ NH ₂	C ₇ H ₉ N (Hill)
CAS-No.	108-44-1	
Molar mass	107.15 g/mol	

Hazardous ingredients

Chemical Name (Concentration)

CAS-No.

m-toluidine (>= 90 % - <= 100 %)

108-44-1

p-toluidine (>= 0.1 % - < 1 %)

106-49-0

SECTION 4. First aid measures

Description of first-aid measures

General advice

First aider needs to protect himself.

Inhalation

After inhalation: fresh air. If breathing stops: immediately apply artificial respiration, if necessary oxygen. Immediately call in physician.

Skin contact

After skin contact: wash off with plenty of water. Immediately remove contaminated clothing. If available swab with polyethylene glycol 400. Call a physician immediately.

Eye contact

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist.

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Ingestion

If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible.

Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed

Dizziness, Nausea, Vomiting, cardiovascular disorders, Headache, ataxia (impaired locomotor coordination), CNS disorders, confusion, impaired vision and hearing defect, Coma

Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Carbon dioxide (CO₂), Foam, Dry powder

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

Special hazards arising from the substance or mixture

Combustible material

Vapors are heavier than air and may spread along floors.

Forms explosive mixtures with air on intense heating.

Development of hazardous combustion gases or vapors possible in the event of fire.

Fire may cause evolution of:

nitrogen oxides

Advice for firefighters

Special protective equipment for fire-fighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information

Prevent fire extinguishing water from contaminating surface water or the ground water system.

Suppress (knock down) gases/vapors/mists with a water spray jet. Remove container from danger zone and cool with water.

SECTION 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

Environmental precautions

Do not empty into drains.

Methods and materials for containment and cleaning up

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Cover drains. Collect, bind, and pump off spills.
Observe possible material restrictions (see sections 7 and 10).
Take up with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

SECTION 7. Handling and storage

Precautions for safe handling

Work under hood. Do not inhale substance/mixture. Avoid generation of vapors/aerosols.

Observe label precautions.

Conditions for safe storage, including any incompatibilities

Tightly closed. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Store at +15°C to +25°C (+59°F to +77°F).

SECTION 8. Exposure controls/personal protection

Exposure limit(s)

Ingredients

Basis	Value	Threshold limits	Remarks
<i>m-toluidine 108-44-1</i>			
ACGIH	Time Weighted Average (TWA): Skin designation:	2 ppm	Can be absorbed through the skin.
OSHA_TRANS	PEL: Skin designation:	5 ppm 19 mg/m³	Can be absorbed through the skin.
Z1A	Time Weighted Average (TWA): Skin designation (Final Rule Limit applies):	2 ppm 9 mg/m³	Can be absorbed through the skin.
<i>p-toluidine 106-49-0</i>			
ACGIH	Time Weighted Average (TWA): Skin designation:	2 ppm	Can be absorbed through the skin.
OSHA_TRANS	PEL: Skin designation:	5 ppm 19 mg/m³	Can be absorbed through the skin.
Z1A	Skin designation (Final Rule Limit applies): Time Weighted Average (TWA):	2 ppm 9 mg/m³	Can be absorbed through the skin.

Engineering measures

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Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

Hygiene measures

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance.

Eye/face protection

Safety glasses

Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Other protective equipment:

protective clothing

Respiratory protection

required when vapors/aerosols are generated.

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

SECTION 9. Physical and chemical properties

Physical state	liquid
Color	yellow
Odor	malodorous
Odor Threshold	No information available.
pH	7 at 68 °F (20 °C)
Melting point	-30 °C
Boiling point/boiling range	399 °F (204 °C) at 1,013 hPa
Flash point	194 °F (90 °C)
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	No information available.

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Upper explosion limit	No information available.
Vapor pressure	0.3 hPa at 68 °F (20 °C)
Relative vapor density	No information available.
Relative density	0.99 g/cm ³ at 68 °F (20 °C)
Water solubility	at 68 °F (20 °C) insoluble
Partition coefficient: n-octanol/water	log Pow: 1.40 (experimental) (Lit.) Bioaccumulation is not expected (log Pow <1).
Autoignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	No information available.
Explosive properties	No information available.
Ignition temperature	> 932 °F (> 500 °C)

SECTION 10. Stability and reactivity

Reactivity

Forms explosive mixtures with air on intense heating.

Chemical stability

Sensitivity to light

Sensitive to air.

Possibility of hazardous reactions

Risk of explosion with:

Nitric acid, mineral acids

Conditions to avoid

Strong heating.

A range from approx. 15 Kelvin below the flash point is to be rated as critical.

Incompatible materials

various plastics

Hazardous decomposition products

in the event of fire: See section 5.

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SECTION 11. Toxicological information

Information on toxicological effects

Likely route of exposure

Inhalation, Eye contact, Skin contact

Target Organs

Eyes

Skin

Blood

cardiovascular system

Acute oral toxicity

LD50 rat: 450 mg/kg (RTECS) (Regulation (EC) No 1272/2008, Annex VI)

Symptoms: Nausea, Vomiting

absorption

Acute inhalation toxicity

absorption

Acute dermal toxicity

absorption

Skin irritation

rabbit

Result: Irritations

(External MSDS) (Regulation (EC) No 1272/2008, Annex VI)

Eye irritation

rabbit

Result: Eye irritation

(External MSDS) (Regulation (EC) No 1272/2008, Annex VI)

Specific target organ systemic toxicity - single exposure

The substance or mixture is not classified as specific target organ toxicant, single exposure.

Specific target organ systemic toxicity - repeated exposure

May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard

Regarding the available data the classification criteria are not fulfilled.

Carcinogenicity

IARC	No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
OSHA	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
NTP	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen

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ACGIH by NTP.
Confirmed animal carcinogen with unknown relevance to humans.
p-toluidine 106-49-0

Further information

Systemic effects:

After absorption:

confusion, Dizziness, ataxia (impaired locomotor coordination), Headache, CNS disorders, Risk of methemoglobin formation., impaired vision and hearing defect, cardiovascular disorders,

Cardiac irregularities, Coma

Symptoms may be delayed.

Danger of cumulative effects.

Further data:

Handle in accordance with good industrial hygiene and safety practice.

SECTION 12. Ecological information

Ecotoxicity

Toxicity to fish

LC0 Danio rerio (zebra fish): 100 mg/l; 96 h (External MSDS)

Toxicity to bacteria

EC50 activated sludge: 1,571 mg/l

OECD Test Guideline 209

Persistence and degradability

Biodegradability

> 90 %

(External MSDS)

Readily biodegradable.

Bioaccumulative potential

Partition coefficient: n-octanol/water

log Pow: 1.40

(experimental)

(Lit.) Bioaccumulation is not expected (log Pow <1).

Mobility in soil

No information available.

Other adverse effects

Additional ecological information

Discharge into the environment must be avoided.

SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

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SECTION 14. Transport information

Land transport (DOT)

UN number	UN 1708
Proper shipping name	TOLUIDINES, LIQUID
Class	6.1
Packing group	II
Environmentally hazardous	--

Air transport (IATA)

UN number	UN 1708
Proper shipping name	TOLUIDINES, LIQUID
Class	6.1
Packing group	II
Environmentally hazardous	--
Special precautions for user	no

Sea transport (IMDG)

UN number	UN 1708
Proper shipping name	TOLUIDINES, LIQUID
Class	6.1
Packing group	II
Environmentally hazardous	--
Special precautions for user	yes
EmS	F-A S-A

SECTION 15. Regulatory information

United States of America

OSHA Hazards

Combustible Liquid
Toxic by ingestion
Target organ effects
Carcinogen

This information is based on 29 CFR 1910.1200 criteria prior to adoption of the GHS, and may deviate from the GHS information on the label and in section 2.

SARA 311/312 Hazards

Fire Hazard
Acute Health Hazard
Chronic Health Hazard

SARA 313

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

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SARA 302

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

Massachusetts Right To Know

Ingredients

m-toluidine

Pennsylvania Right To Know

Ingredients

m-toluidine

New Jersey Right To Know

Ingredients

m-toluidine

Notification status

TSCA: On TSCA Inventory

DSL: All components of this product are on the Canadian DSL.

SECTION 16. Other information

Training advice

Provide adequate information, instruction and training for operators.

Full text of H-Statements referred to under sections 2 and 3.

H301	Toxic if swallowed.
H311	Toxic in contact with skin.
H331	Toxic if inhaled.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.

Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at www.wikipedia.org.

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The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

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