

Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 08/02/2009

Reviewed on 07/31/2009

1 Identification of substance:

Product details:

Product name: 4-tert-Butyltoluene

Stock number: A18214

Manufacturer/Supplier:

Alfa Aesar, A Johnson Matthey Company
Johnson Matthey Catalog Company, Inc.
30 Bond Street
Ward Hill, MA 01835-8099
Emergency Phone: (978) 521-6300
CHEMTREC: (800) 424-9300
Web Site: www.alfa.com

Information Department: Health, Safety and Environmental Department

Emergency information:

During normal hours the Health, Safety and Environmental Department. After normal hours call Chemtrec at (800) 424-9300.

2 Composition/Data on components:

Chemical characterization:

Description: (CAS#)

4-tert-Butyltoluene (CAS# 98-51-1)

Identification number(s):

EINECS Number: 202-675-9

3 Hazards identification

Hazard description:



T Toxic
N Dangerous for the environment

Information pertaining to particular dangers for man and environment

R 22 Harmful if swallowed.

R 23 Toxic by inhalation.

R 36/37 Irritating to eyes and respiratory system.

R 51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Classification system

HMIS ratings (scale 0-4)

(Hazardous Materials Identification System)

HEALTH	2
FIRE	2
REACTIVITY	1

Health (acute effects) = 2

Flammability = 2

Reactivity = 1

GHS label elements



Danger

3.1/2 - Fatal if inhaled.

3.1/4 - Harmful if swallowed.

3.3/2A - Causes serious eye irritation.

3.8/3 - May cause respiratory irritation.

Warning

2.6/4 - Combustible liquid.



4.1/2 - Toxic to aquatic life with long lasting effects.

Prevention:

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Do not breathe dust/fume/gas/mist/vapours/spray.

Avoid breathing dust/fume/gas/mist/vapours/spray.

Wash thoroughly after handling.

Do no eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

Avoid release to the environment.

(Contd. on page 2)

USA

Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 08/02/2009

Reviewed on 07/31/2009

Product name: 4-tert-Butyltoluene

(Contd. of page 1)

Wear protective gloves/protective clothing/eye protection/face protection.
Wear respiratory protection.

Response:

IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Immediately call a POISON CENTER or doctor/physician.

Call a POISON CENTER or doctor/physician if you feel unwell.

Specific treatment is urgent (see on this label).

Rinse mouth.

If eye irritation persists: Get medical advice/attention.

In case of fire: Use for extinction: CO2, powder or water spray.

Collect spillage.

Storage:

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

Store in a well-ventilated place. Keep cool.

Store locked up.

Disposal:

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

4 First aid measures**After inhalation**

Supply fresh air. If required, provide artificial respiration. Keep patient warm.

Seek immediate medical advice.

After skin contact

Immediately wash with water and soap and rinse thoroughly.

Seek immediate medical advice.

After eye contact

Rinse opened eye for several minutes under running water. Then consult a doctor.

After swallowing Seek immediate medical advice.

5 Fire fighting measures**Suitable extinguishing agents**

Carbon dioxide, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

For safety reasons unsuitable extinguishing agents Water with full jet.

Special hazards caused by the material, its products of combustion or resulting gases:

In case of fire, the following can be released:

Carbon monoxide and carbon dioxide

Protective equipment:

Wear self-contained respirator.

Wear fully protective impervious suit.

6 Accidental release measures**Person-related safety precautions:**

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Keep away from ignition sources

Measures for environmental protection:

Do not allow material to be released to the environment without proper governmental permits.

Measures for cleaning/collecting:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

Keep away from ignition sources.

Additional information:

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7 Handling and storage**Handling**

Information for safe handling:

Keep container tightly sealed.

(Contd. on page 3)

Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 08/02/2009

Reviewed on 07/31/2009

Product name: 4-tert-Butyltoluene

(Contd. of page 2)

Store in cool, dry place in tightly closed containers.

Ensure good ventilation at the workplace.

Prevent formation of aerosols.

Information about protection against explosions and fires:

Keep ignition sources away.

Protect against electrostatic charges.

Fumes can combine with air to form an explosive mixture.

Storage**Requirements to be met by storerooms and receptacles:** No special requirements.**Information about storage in one common storage facility:** Store away from oxidizing agents.**Further information about storage conditions:**

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

8 Exposure controls and personal protection**Additional information about design of technical systems:**

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

Components with limit values that require monitoring at the workplace:

4-tert-Butyltoluene

	ppm
ACGIH TLV	1
Austria MAK	10
Denmark TWA	10
Finland TWA	10; 20-STEL (skin)
France VME	10
Germany MAK	10
Korea TLV	1
Netherlands MAC-TGG	1
Norway TWA	10
Switzerland MAK-W	10; 20-KZG-W
USA PEL	10

Components with limit values that require monitoring at the workplace: Not required.**Additional information:** No data**Personal protective equipment****General protective and hygienic measures**

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

Breathing equipment: Use suitable respirator when high concentrations are present.**Protection of hands:**

Check protective gloves prior to each use for their proper condition.

Impervious gloves

Material of gloves

The selection of suitable gloves not only depends on the material, but also on quality.

Quality will vary from manufacturer to manufacturer.

Eye protection: Safety glasses**Body protection:** Protective work clothing.**9 Physical and chemical properties:****General Information**

Form:	Liquid
Color:	Colorless
Odor:	Characteristic

Change in condition

Melting point/Melting range:	-63°C (-81°F)
Boiling point/Boiling range:	189-193°C (372-379°F)
Sublimation temperature / start:	Not determined

Flash point: 62°C (144°F)**Ignition temperature:** 510°C (950°F)**Decomposition temperature:** Not determined

(Contd. on page 4)

- USA

Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 08/02/2009

Reviewed on 07/31/2009

Product name: 4-tert-Butyltoluene

(Contd. of page 3)

Danger of explosion: Product does not present an explosion hazard.**Explosion limits:****Lower:** 0.7 Vol %
Upper: 7 Vol %**Vapor pressure at 20°C (68°F):** 0.8 hPa (1 mm Hg)**Density at 20°C (68°F):** 0.853 g/cm³**Solubility in / Miscibility with
Water at 20°C (68°F):** 6 g/l**10 Stability and reactivity****Thermal decomposition / conditions to be avoided:**

Decomposition will not occur if used and stored according to specifications.

Materials to be avoided: Oxidizing agents**Dangerous reactions** No dangerous reactions known**Dangerous products of decomposition:** Carbon monoxide and carbon dioxide**11 Toxicological information****Acute toxicity:****LD/LC50 values that are relevant for classification:**

Oral	LD50	778 mg/kg (mouse)
		1555 mg/kg (rat)
Dermal	LD50	16934 mg/kg (rabbit)
Inhalative	LC50/4H	1500 mg/m ³ /4H (rat)
Irritation of eyes	moderate	unknown mg (rabbit)

Primary irritant effect:**on the skin:** Causes mild irritant effect.**on the eye:** Irritating effect.**Sensitization:** No sensitizing effects known.**Subacute to chronic toxicity:****Subacute to chronic toxicity:**

The Registry of Toxic Effects of Chemical Substances (RTECS) reports the following effects in laboratory animals:

Peripheral Nerve and Sensation - spastic paralysis with or without sensory change.

Behavioral - excitement.

Behavioral - convulsions or effect on seizure threshold.

Behavioral - muscle weakness.

Behavioral - somnolence (general depressed activity).

Behavioral - ataxia.

Behavioral - tremor.

Nutritional and Gross Metabolic - body temperature decrease.

Brain and Coverings - recordings from specific areas of CNS.

Autonomic Nervous System - other (direct) parasympathomimetic.

Lungs, Thorax, or Respiration - acute pulmonary edema.

Lungs, Thorax, or Respiration - dyspnea.

Lungs, Thorax, or Respiration - respiratory depression

Liver - changes in liver weight.

Kidney, Ureter, Bladder - changes in bladder weight.

Blood - changes in leukocyte (WBC) count.

Gastrointestinal - nausea or vomiting.

Gastrointestinal - changes in structure or function of salivary glands.

Sense Organs and Special Senses (Eye) - conjunctive irritation.

Sense Organs and Special Senses (Taste) - change in function

Biochemical - Enzyme inhibition, induction, or change in blood or tissue levels - multiple enzyme effects.

Biochemical - Metabolism (Intermediary) - other proteins.

Biochemical - Neurotransmitters or modulators (putative) - catecholamine levels in CNS

Additional toxicological information:

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

USA

(Contd. on page 5)

Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 08/02/2009

Reviewed on 07/31/2009

Product name: 4-tert-Butyltoluene

(Contd. of page 4)

12 Ecological information:

Ecotoxical effects:

Remark: Toxic for fish

General notes:

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Also poisonous for fish and plankton in water bodies.

Do not allow material to be released to the environment without proper governmental permits.

Toxic for aquatic organisms

13 Disposal considerations

Product:

Recommendation Consult state, local or national regulations to ensure proper disposal.

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations.

14 Transport information

DOT regulations:



Hazard class: 6.1
Identification number: UN2667
Packing group: III
Proper shipping name (technical name): BUTYLTOLUENES
Label: 6.1
Remarks: Special marking with the symbol (fish and tree).

Land transport ADR/RID (cross-border)



ADR/RID class: 6.1 (T1) Toxic substances
Danger code (Kemler): 60
UN-Number: 2667
Packaging group: III
Special marking: Symbol (fish and tree)
Description of goods: 2667 BUTYLTOLUENES

Maritime transport IMDG:



IMDG Class: 6.1
UN Number: 2667
Label: 6.1
Packaging group: III
EMS Number: F-A, S-A
Marine pollutant: Yes (P)
Symbol (fish and tree)
Proper shipping name: BUTYLTOLUENES

Air transport ICAO-TI and IATA-DGR:



ICAO/IATA Class: 6.1
UN/ID Number: 2667

(Contd. on page 6)

- USA -

Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 08/02/2009

Reviewed on 07/31/2009

Product name: 4-tert-Butyltoluene

(Contd. of page 5)

Label	6.1
Packaging group:	III
Proper shipping name:	BUTYLTOLUENES

UN "Model Regulation": UN2667, BUTYLTOLUENES, 6.1, III

Environmental hazards: Environmentally hazardous substance, liquid; Marine Pollutant**15 Regulations****Product related hazard informations:****Hazard symbols:**

T Toxic

N Dangerous for the environment

Risk phrases:

22 Harmful if swallowed.

23 Toxic by inhalation.

36/37 Irritating to eyes and respiratory system.

51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Safety phrases:

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

36 Wear suitable protective clothing.

45 In case of accident or if you feel unwell, seek medical advice immediately.

61 Avoid release to the environment. Refer to special instructions/Safety data sheets

National regulations

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

All components of this product are listed on the Canadian Domestic Substances List (DSL).

Information about limitation of use: For use only by technically qualified individuals.**16 Other information:**

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing MSDS: Health, Safety and Environmental Department.**Contact:** Zachariah Holt**Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

P: Marine Pollutant

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

HMIS: Hazardous Materials Identification System (USA)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent