

ALFAAA17837

## o-Tolidine

### SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

产品说明: Product Description:	联邻甲苯胺 o-Tolidine
Cat No. :	A17837
Synonyms	3,3'-Dimethylbenzidine
CAS No	119-93-7
Molecular Formula	C14 H16 N2
Supplier	Avocado Research Chemicals Ltd. (Part of Thermo Fisher Scientific) Shore Road, Heysham Lancashire, LA3 2XY, United Kingdom Office Tel: +44 (0) 1524 850506 Office Fax: +44 (0) 1524 850608
Emergency Telephone Number	For information <b>US</b> call: 001-800-227-6701 / <b>Europe</b> call: +32 14 57 52 11 Emergency Number <b>US</b> :001-201-796-7100 / <b>Europe</b> : +32 14 57 52 99 <b>CHEMTREC</b> Tel. No. <b>US</b> :001-800-424-9300 / <b>Europe</b> :001-703-527-3887
E-mail address	begel.sdsdesk@thermofisher.com
Recommended Use	Laboratory chemicals.
Uses advised against	No Information available

### SECTION 2. HAZARD IDENTIFICATION

<b>Physical State</b> Powder Solid	<b>Appearance</b> Light brown	<b>Odor</b> Characteristic
<b>Emergency Overview</b> Toxic to aquatic life with long lasting effects. Harmful if swallowed. May cause cancer. Sensitivity to light. Air sensitive.		

#### Classification of the substance or mixture

Acute Oral Toxicity	Category 4
Carcinogenicity	Category 1B
Acute aquatic toxicity	Category 2
Chronic aquatic toxicity	Category 2

#### Label Elements



Signal Word

Danger

**Hazard Statements**

H411 - Toxic to aquatic life with long lasting effects

H302 - Harmful if swallowed

H350 - May cause cancer

**Precautionary Statements****Prevention**

P201 - Obtain special instructions before use

P202 - Do not handle until all safety precautions have been read and understood

P264 - Wash face, hands and any exposed skin thoroughly after handling

P270 - Do not eat, drink or smoke when using this product

P280 - Wear protective gloves/protective clothing/eye protection/face protection

**Response**

P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell

P308 + P313 - IF exposed or concerned: Get medical advice/attention

P330 - Rinse mouth

**Storage**

P403 - Store in a well-ventilated place

**Disposal**

P501 - Dispose of contents/ container to an approved waste disposal plant

**Physical and Chemical Hazards**

None identified.

**Health Hazards**

Harmful if swallowed. May cause cancer.

**Environmental hazards**

Toxic to aquatic life with long lasting effects. .

**Other Hazards**

Toxic to terrestrial vertebrates. This product does not contain any known or suspected endocrine disruptors.

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Component	CAS No	Weight %
3,3'-Dimethylbenzidine	119-93-7	<=100

**SECTION 4. FIRST AID MEASURES****General Advice**

Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

**Eye Contact**

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

**Skin Contact**

Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

**Inhalation**

Remove to fresh air. If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.

**Ingestion**

Do NOT induce vomiting. Call a physician or poison control center immediately.

**Most important symptoms and effects**

None reasonably foreseeable.

**Self-Protection of the First Aider**

Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

**Notes to Physician**

Treat symptomatically.

**SECTION 5. FIRE-FIGHTING MEASURES****Suitable Extinguishing Media**

Water spray. Carbon dioxide (CO<sub>2</sub>). Dry chemical. Chemical foam.

**Extinguishing media which must not be used for safety reasons**

No information available.

**Specific Hazards Arising from the Chemical**

Thermal decomposition can lead to release of irritating gases and vapors.

**Protective Equipment and Precautions for Firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

**SECTION 6. ACCIDENTAL RELEASE MEASURES****Personal Precautions**

Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas.

**Environmental Precautions**

Do not flush into surface water or sanitary sewer system.

**Methods for Containment and Clean Up**

Sweep up and shovel into suitable containers for disposal. Avoid dust formation.

Refer to protective measures listed in Sections 8 and 13.

**SECTION 7. HANDLING AND STORAGE****Handling**

Wear personal protective equipment/face protection. Avoid dust formation. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe (dust, vapor, mist, gas). Do not ingest. If swallowed then seek immediate medical assistance.

**Storage**

Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Store under an inert atmosphere.

**Specific Use(s)**

Use in laboratories

**SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Control Parameters**

Component	China	Taiwan	Thailand	Hong Kong
3,3'-Dimethylbenzidine	Skin Ceiling: 0.02 mg/m <sup>3</sup>	:		-

## o-Tolidine

Component	ACGIH TLV	OSHA PEL	NIOSH	The United Kingdom	European Union
3,3'-Dimethylbenzidine	Skin		Ceiling: 0.02 mg/m <sup>3</sup>	-	

Legend

ACGIH - American Conference of Governmental Industrial Hygienists

NIOSH: NIOSH - National Institute for Occupational Safety and Health

**Monitoring methods**

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents. MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust

**Exposure Controls****Engineering Measures**

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source.

**Personal protective equipment**

**Eye Protection** Goggles (European standard - EN 166)

**Hand Protection** Protective gloves

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Nitrile rubber	See manufacturers	-	EN 374	(minimum requirement)
Neoprene	recommendations			
Natural rubber				
PVC				

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

**Skin and body protection** Wear appropriate protective gloves and clothing to prevent skin exposure

**Respiratory Protection** When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.  
To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

**Large scale/emergency use** Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced  
**Recommended Filter type:** Particulates filter conforming to EN 143

**Small scale/Laboratory use** Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.  
**Recommended half mask:-** Particle filtering: EN149:2001  
When RPE is used a face piece Fit Test should be conducted

**Hygiene Measures** Handle in accordance with good industrial hygiene and safety practice.

**Environmental exposure controls** Prevent product from entering drains. Do not allow material to contaminate ground water system.

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

## o-Tolidine

<b>Appearance</b>	Light brown	
<b>Physical State</b>	Powder Solid	
<b>Odor</b>	Characteristic	
<b>Odor Threshold</b>	No data available	
<b>pH</b>	Not applicable	
<b>Melting Point/Range</b>	125 - 132 °C / 257 - 269.6 °F	
<b>Softening Point</b>	No data available	
<b>Boiling Point/Range</b>	300.5 °C / 572.9 °F	
<b>Flash Point</b>	244 °C / 471.2 °F	<b>Method -</b> No information available
<b>Evaporation Rate</b>	Not applicable	Solid
<b>Flammability (solid,gas)</b>	No information available	
<b>Explosion Limits</b>	No data available	
<b>Vapor Pressure</b>	No data available	
<b>Vapor Density</b>	Not applicable	Solid
<b>Specific Gravity / Density</b>	No data available	
<b>Bulk Density</b>	No data available	
<b>Water Solubility</b>	No information available	
<b>Solubility in other solvents</b>	No information available	
<b>Partition Coefficient (n-octanol/water)</b>		
<b>Component</b>	<b>log Pow</b>	
3,3'-Dimethylbenzidine	2.34	
<b>Autoignition Temperature</b>	No data available	
<b>Decomposition Temperature</b>	No data available	
<b>Viscosity</b>	Not applicable	Solid
<b>Explosive Properties</b>	No information available	
<b>Oxidizing Properties</b>	No information available	
<b>Molecular Formula</b>	C14 H16 N2	
<b>Molecular Weight</b>	212.29	

## SECTION 10. STABILITY AND REACTIVITY

<b>Stability</b>	Air sensitive, Light sensitive.
<b>Hazardous Reactions</b>	None under normal processing.
<b>Hazardous Polymerization</b>	Hazardous polymerization does not occur.
<b>Conditions to Avoid</b>	Exposure to air. Exposure to light. Incompatible products.
<b>Materials to avoid</b>	Strong oxidizing agents. Strong acids. Strong bases.

**Hazardous Decomposition Products** Nitrogen oxides (NOx). Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>).

## SECTION 11. TOXICOLOGICAL INFORMATION

## Product Information

## (a) acute toxicity;

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
3,3'-Dimethylbenzidine	LD50 = 404 mg/kg ( Rat )		

(b) skin corrosion/irritation; No data available

## o-Tolidine

(c) serious eye damage/irritation; No data available

(d) respiratory or skin sensitization;

Respiratory No data available

Skin No data available

(e) germ cell mutagenicity; No data available

Animal experiments showed mutagenic and teratogenic effects

(f) carcinogenicity; Category 1B

Limited evidence of a carcinogenic effect The table below indicates whether each agency has listed any ingredient as a carcinogen

Component	EU	UK	Germany	IARC
3,3'-Dimethylbenzidine	Carc Cat. 1B		Cat. 2	Group 2B

(g) reproductive toxicity; No data available

(h) STOT-single exposure; No data available

(i) STOT-repeated exposure; No data available

Target Organs None known.

(j) aspiration hazard; Not applicable  
Solid

Symptoms / effects, both acute and delayed No information available

## SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity effects

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
3,3'-Dimethylbenzidine		EC50: 3.2 mg/L/24h		

Persistence and Degradability

Persistence

Degradation in sewage treatment plant

Not readily biodegradable

Persistence is unlikely.

Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

Bioaccumulative Potential

Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
3,3'-Dimethylbenzidine	2.34	No data available

Mobility in soil

Endocrine Disruptor Information  
Persistent Organic Pollutant

This product does not contain any known or suspected endocrine disruptors  
This product does not contain any known or suspected substance

## o-Tolidine

**Ozone Depletion Potential** This product does not contain any known or suspected substance

**SECTION 13. DISPOSAL CONSIDERATIONS**

**Waste from Residues/Unused Products** Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

**Contaminated Packaging** Dispose of this container to hazardous or special waste collection point.

**Other Information** Do not flush to sewer. Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains. Do not let this chemical enter the environment.

**SECTION 14. TRANSPORT INFORMATION**Road and Rail Transport

**UN-No** UN3077  
**Proper Shipping Name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.  
**Technical Shipping Name** 3,3'-Dimethylbenzidine  
**Hazard Class** 9  
**Packing Group** III

IMDG/IMO

**UN-No** UN3077  
**Proper Shipping Name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.  
**Technical Shipping Name** 3,3'-Dimethylbenzidine  
**Hazard Class** 9  
**Packing Group** III

IATA

**UN-No** UN3077  
**Proper Shipping Name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.  
**Technical Shipping Name** 3,3'-Dimethylbenzidine  
**Hazard Class** 9  
**Packing Group** III

**Special Precautions for User** No special precautions required

**SECTION 15. REGULATORY INFORMATION****International Inventories**

China, X = listed, Australia, U.S.A. (TSCA), Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Australia (AICS), Korea (KECL), China (IECSC), Japan (ENCS), Philippines (PICCS), Taiwan (TCSI), Japan (ISHL), New Zealand (NZIoC), Japan (ISHL).

Component	The Inventory of Hazardous Chemicals (2015 Edition)	List of dangerous goods GB 12268 - 2012	TCSI	IECSC	EINECS	TSCA	DSL	PICCS	ENCS	ISHL	AICS	KECL
3,3'-Dimethylbenzidine	X	-	X	X	204-358-0	X	X	X	X	X	X	KE-11235

**National Regulations**

Component	Toxic Chemical Substances Control Act
3,3'-Dimethylbenzidine 119-93-7 ( ≤100 )	Class I (1 wt%) TRQ = 50 kg

## SECTION 16. OTHER INFORMATION

**Prepared By** Health, Safety and Environmental Department  
**Creation Date** 22-Sep-2009  
**Revision Date** 27-Apr-2024  
**Revision Summary** New emergency telephone response service provider.

**Training Advice**  
 Chemical incident response training.

Legend

<b>CAS</b> - Chemical Abstracts Service	<b>TSCA</b> - United States Toxic Substances Control Act Section 8(b) Inventory
<b>EINECS/ELINCS</b> - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances	<b>DSL/NDL</b> - Canadian Domestic Substances List/Non-Domestic Substances List
<b>PICCS</b> - Philippines Inventory of Chemicals and Chemical Substances	<b>ENCS</b> - Japanese Existing and New Chemical Substances
<b>IECSC</b> - Chinese Inventory of Existing Chemical Substances	<b>AICS</b> - Australian Inventory of Chemical Substances
<b>KECL</b> - Korean Existing and Evaluated Chemical Substances	<b>NZIoC</b> - New Zealand Inventory of Chemicals
<b>WEL</b> - Workplace Exposure Limit	<b>TWA</b> - Time Weighted Average
<b>ACGIH</b> - American Conference of Governmental Industrial Hygienists	<b>IARC</b> - International Agency for Research on Cancer
<b>DNEL</b> - Derived No Effect Level	<b>PNEC</b> - Predicted No Effect Concentration
<b>RPE</b> - Respiratory Protective Equipment	<b>LD50</b> - Lethal Dose 50%
<b>LC50</b> - Lethal Concentration 50%	<b>EC50</b> - Effective Concentration 50%
<b>NOEC</b> - No Observed Effect Concentration	<b>POW</b> - Partition coefficient Octanol:Water
<b>PBT</b> - Persistent, Bioaccumulative, Toxic	<b>vPvB</b> - very Persistent, very Bioaccumulative
<b>ICAO/IATA</b> - International Civil Aviation Organization/International Air Transport Association	<b>IMO/IMDG</b> - International Maritime Organization/International Maritime Dangerous Goods Code
<b>ADR</b> - European Agreement Concerning the International Carriage of Dangerous Goods by Road	<b>MARPOL</b> - International Convention for the Prevention of Pollution from Ships
<b>OECD</b> - Organisation for Economic Co-operation and Development	<b>ATE</b> - Acute Toxicity Estimate
<b>BCF</b> - Bioconcentration factor	<b>VOC</b> - (Volatile Organic Compound)

**Key literature references and sources for data**

<https://echa.europa.eu/information-on-chemicals>  
 Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The 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, unless specified in the text

**End of Safety Data Sheet**