1,3-Diethylbenzene

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

Product Description: 1,3-Diethylbenzene
Cat No.: 43369
CAS-No: 141-93-5
Molecular Formula: C10 H14
Supplier: Alfa Aesar
Avocado Research Chemicals, Ltd.
Shore Road
Port of Heysham Industrial Park
Heysham, Lancashire LA3 2XY
United Kingdom
Office Tel: +44 (0) 1524 850506
Office Fax: +44 (0) 1524 850608

Emergency Telephone Number
Call Carechem 24 at
+44 (0) 1865 407333 (English only);
+44 (0) 1235 239670 (Multi-language)

E-mail address
uktech@alfa.com
www.alfa.com
Product Safety Department

Recommended Use
Laboratory chemicals.
Uses advised against
No Information available

SECTION 2. HAZARD IDENTIFICATION

Physical State
Liquid
Appearance
Colorless
Odor
No information available

Emergency Overview
Flammable liquid and vapor. Causes serious eye irritation. Toxic to aquatic life with long lasting effects. May be fatal if swallowed and enters airways. Causes skin irritation. May cause respiratory irritation.

Classification of the substance or mixture

<table>
<thead>
<tr>
<th>Classification</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammable liquids</td>
<td>3</td>
</tr>
<tr>
<td>Aspiration Toxicity</td>
<td>1</td>
</tr>
<tr>
<td>Skin Corrosion/Irritation</td>
<td>2</td>
</tr>
<tr>
<td>Serious Eye Damage/Eye Irritation</td>
<td>2</td>
</tr>
<tr>
<td>Specific target organ toxicity - (single exposure)</td>
<td>3</td>
</tr>
<tr>
<td>Acute aquatic toxicity</td>
<td>2</td>
</tr>
<tr>
<td>Chronic aquatic toxicity</td>
<td>2</td>
</tr>
</tbody>
</table>

Label Elements
**Signal Word**

**Danger**

**Hazard Statements**

- **H226** - Flammable liquid and vapor
- **H319** - Causes serious eye irritation
- **H411** - Toxic to aquatic life with long lasting effects
- **H304** - May be fatal if swallowed and enters airways
- **H315** - Causes skin irritation
- **H335** - May cause respiratory irritation

**Precautionary Statements**

**Prevention**

- **P210** - Keep away from heat/sparks/open flames/hot surfaces. - No smoking
- **P240** - Ground/bond container and receiving equipment
- **P242** - Use only non-sparking tools
- **P243** - Take precautionary measures against static discharge
- **P261** - Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray
- **P264** - Wash face, hands and any exposed skin thoroughly after handling
- **P271** - Use only outdoors or in a well-ventilated area
- **P280** - Wear protective gloves/ protective clothing/ eye protection/ face protection

**Response**

- **P301 + P310** - IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician
- **P303 + P361 + P353** - IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower
- **P304 + P340** - IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing
- **P305 + P351 + P338** - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
- **P312** - Call a POISON CENTER or doctor/ physician if you feel unwell
- **P331** - Do NOT induce vomiting
- **P363** - Wash contaminated clothing before reuse
- **P370 + P378** - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction

**Storage**

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

**Disposal**

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

**Physical and Chemical Hazards**

Vapors may cause flash fire or explosion. Flammable Liquid.

**Health Hazards**

Causes serious eye irritation. Aspiration hazard if swallowed - can enter lungs and cause damage. Causes skin irritation. May cause respiratory irritation.

**Environmental hazards**

Toxic to aquatic life with long lasting effects. Is not likely mobile in the environment due its low water solubility. Spillage unlikely to penetrate soil. The product is insoluble and floats on water. The product evaporates slowly.

### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>m-Diethyl benzene</td>
<td>141-93-5</td>
<td>&lt;=100</td>
</tr>
</tbody>
</table>

### SECTION 4. FIRST AID MEASURES
General Advice
If symptoms persist, call a physician.

Eye Contact
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact
Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.

Inhalation
Move to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur. Risk of serious damage to the lungs.

Ingestion
Clean mouth with water and drink afterwards plenty of water. Do not induce vomiting. Call a physician or Poison Control Center immediately. If vomiting occurs naturally, have victim lean forward.

Most important symptoms and effects
Breathing difficulties. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

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
Carbon dioxide (CO₂). Dry powder. Water spray. In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion. Cool closed containers exposed to fire with water spray.

Extinguishing media which must not be used for safety reasons
No information available.

Specific Hazards Arising from the Chemical
Flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.

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.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions
Ensure adequate ventilation. Use personal protective equipment. Remove all sources of ignition. Take precautionary measures against static discharges.

Environmental Precautions
Do not flush into surface water or sanitary sewer system.

Methods for Containment and Clean Up
Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.
Refer to protective measures listed in Sections 8 and 13.

SECTION 7. HANDLING AND STORAGE

Handling
Wear personal protective equipment. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Take precautionary measures against static discharges.

Storage
Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.

Specific Use(s)
Use in laboratories

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

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. MDHS70 General methods for sampling airborne gases and vapours MDHS 88 Volatile organic compounds in air. Laboratory method using diffusive samplers, solvent desorption and gas chromatography MDHS 96 Volatile organic compounds in air - Laboratory method using pumped solid sorbent tubes, solvent desorption and gas chromatography

Exposure Controls

Engineering Measures
Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating/lighting/equipment. 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

<table>
<thead>
<tr>
<th>Eye Protection</th>
<th>Hand Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goggles (European standard - EN 166)</td>
<td>Protective gloves</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Glove material</th>
<th>Breakthrough time</th>
<th>Glove thickness</th>
<th>EU standard</th>
<th>Glove comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viton (R)</td>
<td>&gt;30 minutes</td>
<td>0.4 mm</td>
<td>EN 374</td>
<td>(minimum requirement)</td>
</tr>
</tbody>
</table>

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
Long sleeved clothing

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
In case of insufficient ventilation wear suitable respiratory equipment

Recommended Filter type: Multi-purpose/ABEK conforming to EN14387
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. 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

Appearance
Colorless

Physical State
Liquid

Odor
No information available

Odor Threshold
No data available

pH
No information available

Melting Point/Range
No data available

Softening Point
No data available

Boiling Point/Range
182 °C / 359.6 °F

Flash Point
55 °C / 131 °F Method - No information available

Evaporation Rate
No data available

Flammability (solid,gas)
Not applicable

Explosion Limits
Lower 0.8 Vol %

Upper 5.1 Vol %

Vapor Pressure
1.3 hPa @ 20 °C

Vapor Density
No data available (Air = 1.0)

Specific Gravity / Density
0.86 g/cm3 @ 20 °C

Bulk Density
Not applicable Liquid

Water Solubility
Immiscible

Solubility in other solvents
No information available

Partition Coefficient (n-octanol/water)
No information available

Autoignition Temperature
450 °C / 842 °F

Decomposition Temperature
No data available

Viscosity
No data available

Explosive Properties
No information available explosive air/vapour mixtures possible

Oxidizing Properties
No information available

Molecular Formula
C10 H14

Molecular Weight
134.22

Refractive index
1.495

SECTION 10. STABILITY AND REACTIVITY

Stability
Stable under normal conditions.

Hazardous Reactions
None under normal processing.

Hazardous Polymerization
No information available.

Conditions to Avoid
Keep away from open flames, hot surfaces and sources of ignition.

Materials to avoid
Oxidizing agents.

Hazardous Decomposition Products
Carbon monoxide (CO). Carbon dioxide (CO₂).

SECTION 11. TOXICOLOGICAL INFORMATION
Product Information

(a) acute toxicity;

(b) skin corrosion/irritation; Category 2

(c) serious eye damage/irritation; Category 2

(d) respiratory or skin sensitization;
   Respiratory No data available
   Skin No data available

(e) germ cell mutagenicity; No data available

(f) carcinogenicity; No data available
   There are no known carcinogenic chemicals in this product

(g) reproductive toxicity; No data available

(h) STOT-single exposure; Category 3
   Results / Target organs Respiratory system

(i) STOT-repeated exposure; No data available
   Target Organs None known.

(j) aspiration hazard; Category 1

Symptoms / effects, both acute and delayed Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting delayed

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.

<table>
<thead>
<tr>
<th>Component</th>
<th>Freshwater Fish</th>
<th>Water Flea</th>
<th>Freshwater Algae</th>
<th>Microtox</th>
</tr>
</thead>
<tbody>
<tr>
<td>m-Diethyl benzene</td>
<td>LC50: 4.05 - 4.25 mg/L, 96h flow-through (Pimephales promelas)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Persistence and Degradability

Persistence Immiscible with water, May persist, based on information available.

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

Bioaccumulative Potential May have some potential to bioaccumulate
Mobility in soil: Spillage unlikely to penetrate soil. The product is insoluble and floats on water. The product evaporates slowly. It is not likely mobile in the environment due to its low water solubility. Spillage unlikely to penetrate soil.

Endocrine Disruptor Information: This product does not contain any known or suspected endocrine disruptors.

Persistent Organic Pollutant: This product does not contain any known or suspected substance.

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. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep product and empty container away from heat and sources of ignition.

Other Information: Do not dispose of waste into sewer. Waste codes should be assigned by the user based on the application for which the product was used. Can be incinerated, when in compliance with local regulations. Do not let this chemical enter the environment. Do not empty into drains.

SECTION 14. TRANSPORT INFORMATION

Road and Rail Transport

UN-No: UN2049
Proper Shipping Name: DIETHYLBENZENE
Hazard Class: 3
Packing Group: III

IMDG/IMO

UN-No: UN2049
Proper Shipping Name: DIETHYLBENZENE
Hazard Class: 3
Packing Group: III

IATA

UN-No: UN2049
Proper Shipping Name: DIETHYLBENZENE
Hazard Class: 3
Packing Group: III

Special Precautions for User: No special precautions required.

SECTION 15. REGULATORY INFORMATION

International Inventories: X = listed

<table>
<thead>
<tr>
<th>Component</th>
<th>The Inventory of Hazardous Chemicals (2015 Edition)</th>
<th>List of Dangerous Goods GB 12268 - 2012</th>
<th>Taiwan Toxic Chemicals Substances Inventory</th>
<th>IECSC</th>
<th>EINECS</th>
<th>TSCA</th>
<th>DSL</th>
<th>PICCS</th>
<th>ENCS</th>
<th>AICS</th>
<th>KECL</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
</tbody>
</table>
National Regulations

SECTION 16. OTHER INFORMATION

Prepared By
Health, Safety and Environmental Department
Revision Date 29-Jun-2018
Revision Summary SDS authoring systems update, replaces ChemGes SDS No. 141-93-5.

Training Advice
Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Legend

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

Key literature references and sources for data
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