

# SAFETY DATA SHEET

Creation Date 16-Nov-2010

Revision Date 18-Dec-2025

Revision Number 5

This safety data sheet was created pursuant to the requirements of: US OSHA Hazard Communication Standard 2024 (29 CFR 1910.1200)

## 1. Identification

**Product Name** o-Phenylenediamine

**Cat No. :** AC130550000; AC130550010; AC130550050; AC130552500

**CAS No** 95-54-5  
**Synonyms** 1,2-Diaminobenzene

**Recommended Use** Laboratory chemicals.  
**Uses advised against** Food, drug, pesticide or biocidal product use.

### Details of the supplier of the safety data sheet

#### Company

Fisher Scientific Company  
One Reagent Lane  
Fair Lawn, NJ 07410  
Tel: (201) 796-7100

Acros Organics  
One Reagent Lane  
Fair Lawn, NJ 07410

#### **Emergency Telephone Number**

For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11  
Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99  
**CHEMTREC** Tel. No. **US**:001-800-424-9300 / **Europe**:001-703-527-3887

## 2. Hazard(s) identification

### Classification

This chemical is considered hazardous according to [US] OSHA (29 CFR 1910.1200, 2024)

Acute oral toxicity	Category 3
Acute dermal toxicity	Category 4
Acute Inhalation Toxicity - Dusts and Mists	Category 4
Serious Eye Damage/Eye Irritation	Category 2
Skin Sensitization	Category 1
Germ Cell Mutagenicity	Category 2
Carcinogenicity	Category 2
Combustible dust	Yes

### Label Elements

**Signal Word**

Danger

#### Hazard Statements

May form combustible dust concentrations in air  
 Toxic if swallowed  
 Causes serious eye irritation  
 May cause an allergic skin reaction  
 Suspected of causing genetic defects  
 Suspected of causing cancer  
 Harmful in contact with skin or if inhaled



#### Precautionary Statements

##### Prevention

Wash face, hands and any exposed skin thoroughly after handling  
 Do not eat, drink or smoke when using this product  
 Obtain special instructions before use  
 Do not handle until all safety precautions have been read and understood  
 Avoid breathing dust/fume/gas/mist/vapors/spray  
 Use only outdoors or in a well-ventilated area  
 Contaminated work clothing should not be allowed out of the workplace  
 Wear protective gloves/protective clothing/eye protection/face protection

##### Response

IF exposed or concerned: Get medical attention/advice

##### Inhalation

IF INHALED: Remove person to fresh air and keep comfortable for breathing

##### Skin

IF ON SKIN: Wash with plenty of soap and water  
 Call a POISON CENTER or doctor if you feel unwell  
 Take off contaminated clothing and wash before reuse  
 If skin irritation or rash occurs: Get medical advice/attention

##### Eyes

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
 If eye irritation persists: Get medical advice/attention

##### Ingestion

IF SWALLOWED: Immediately call a POISON CENTER or doctor  
 Rinse mouth

##### Storage

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

##### Disposal

Dispose of contents/container to an approved waste disposal plant

##### Hazards not otherwise classified (HNOC)

Very toxic to aquatic life with long lasting effects

##### Hazards classified under paragraph (d)(1)(ii) of 1910.1200

No information available

WARNING. Cancer - <https://www.p65warnings.ca.gov/>.

### 3. Composition/information on Ingredients

Component	CAS No	Weight %
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o-Phenylenediamine	95-54-5	>95
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#### 4. First-aid measures

<b>General Advice</b>	Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.
<b>Eye Contact</b>	In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
<b>Skin Contact</b>	Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.
<b>Inhalation</b>	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.
<b>Ingestion</b>	Do NOT induce vomiting. Call a physician or poison control center immediately.
<b>Most important symptoms and effects</b>	May cause allergic skin reaction. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing
<b>Notes to Physician</b>	Treat symptomatically

#### 5. Fire-fighting measures

<b>Suitable Extinguishing Media</b>	Water spray. Carbon dioxide (CO <sub>2</sub> ). Dry chemical. Alcohol resistant foam.
<b>Unsuitable Extinguishing Media</b>	No information available
<b>Flash Point</b>	136 °C / 276.8 °F
<b>Method -</b>	No information available
<b>Autoignition Temperature</b>	540 °C / 1004 °F
<b>Explosion Limits</b>	
<b>Upper</b>	No data available
<b>Lower</b>	No data available
<b>Sensitivity to Mechanical Impact</b>	No information available
<b>Sensitivity to Static Discharge</b>	No information available

#### Specific Hazards Arising from the Chemical

Dust can form an explosive mixture with air. Fine dust dispersed in air may ignite. Do not allow run-off from fire-fighting to enter drains or water courses.

#### Hazardous Combustion Products

Nitrogen oxides (NO<sub>x</sub>). Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>).

#### 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.

#### NFPA

<b>Health</b>	<b>Flammability</b>	<b>Instability</b>	<b>Physical hazards</b>
3	1	0	N/A

#### 6. Accidental release measures

<b>Personal Precautions</b>	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.
<b>Environmental Precautions</b>	Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

**Methods for Containment and Clean Up** Sweep up and shovel into suitable containers for disposal. Avoid dust formation.

## 7. Handling and Storage

<b>Handling</b>	Wear personal protective equipment/face protection. Avoid dust formation. Do not get in eyes, on skin, or on clothing. Do not ingest. If swallowed then seek immediate medical assistance. Use only under a chemical fume hood. Do not breathe (dust, vapor, mist, gas).
<b>Storage.</b>	Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Keep under nitrogen. Incompatible Materials. Acids. Strong oxidizing agents.

## 8. Exposure controls / personal protection

### Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH	Mexico OEL (TWA)
o-Phenylenediamine	TWA: 0.1 mg/m <sup>3</sup>			TWA: 0.1 mg/m <sup>3</sup>

### Legend

ACGIH - American Conference of Governmental Industrial Hygienists

<b>Engineering Measures</b>	Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.
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### Personal Protective Equipment

<b>Eye/face Protection</b>	Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
<b>Skin and body protection</b>	Wear appropriate protective gloves and clothing to prevent skin exposure.
<b>Respiratory Protection</b>	Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
<b>Recommended Filter type:</b>	Particulates filter conforming to EN 143.
<b>Hygiene Measures</b>	Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical and chemical properties

### Appearance

#### Physical State

#### Color

#### Odor

#### Odor Threshold

#### Property

#### Melting Point/Range

#### Softening Point

#### Boiling Point/Range

Solid
Light cream
No information available
No information available
<b>Values</b>
100 - 103 °C / 212 - 217.4 °F
No data available
256 - 258 °C / 492.8 - 496.4 °F

#### Remarks

#### • Method

<b>Flash Point</b>	136 °C / 276.8 °F	<b>Method</b> - No information available
<b>Flammability (liquid)</b>	Not applicable	Solid
<b>Flammability (solid,gas)</b>	No information available	
<b>Explosion Limits</b>	<b>Lower</b> 1.5	
<b>Autoignition Temperature</b>	540 °C / 1004 °F	
<b>Decomposition Temperature</b>	> 500°C	
<b>pH</b>	No information available	
<b>Viscosity</b>	Not applicable	Solid
<b>Water Solubility</b>	54 g/l (20°C)	
<b>Solubility in other solvents</b>	No information available	
<b>Partition Coefficient (n-octanol/water)</b>		
<b>Component</b>	<b>log Pow</b>	
o-Phenylenediamine	0.17	
<b>Vapor Pressure</b>	.13 mbar @ 20 °C	
<b>Density / Specific Gravity</b>	No data available	
<b>Bulk Density</b>	No data available	
<b>Vapor Density</b>	Not applicable	Solid
<b>Particle characteristics</b>	No data available	
<b>Other Information</b>		
<b>Molecular Formula</b>	C6 H8 N2	
<b>Molecular Weight</b>	108.14	
<b>Evaporation Rate</b>	Not applicable - Solid	

## 10. Stability and reactivity

<b>Reactive Hazard</b>	None known, based on information available
<b>Stability</b>	Stable under normal conditions. Air sensitive.
<b>Conditions to Avoid</b>	Exposure to air. Incompatible products.
<b>Incompatible Materials</b>	Acids, Strong oxidizing agents
<b>Hazardous Decomposition Products</b>	Nitrogen oxides (NOx), Carbon monoxide (CO), Carbon dioxide (CO <sub>2</sub> )
<b>Hazardous Polymerization</b>	Hazardous polymerization does not occur.
<b>Hazardous Reactions</b>	None under normal processing.

## 11. Toxicological information

### Information on expected route of exposure

<b>Inhalation</b>	Not an expected route of exposure.
<b>Ingestion</b>	May be harmful if swallowed.
<b>Eyes</b>	Avoid contact with eyes.
<b>Skin</b>	Avoid contact with skin.

### Toxicology data for the components

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
o-Phenylenediamine	LD50 = 510 mg/kg ( Rat )	LD50 > 5000 mg/kg ( Rat )	LC50 = 0.15 mg/L ( Rat ) 4 h

<b>Toxicologically Synergistic Products</b>	No information available
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- (b) skin corrosion/irritation; No data available
- (c) serious eye damage/irritation; Category 2
- (d) respiratory or skin sensitization;  
 Respiratory No data available  
 Skin Category 1  
 No information available
- (e) germ cell mutagenicity; Category 2  
 Possible risk of irreversible effects
- (f) carcinogenicity; Category 2  
 Limited evidence of a carcinogenic effect The table below indicates whether each agency has listed any ingredient as a carcinogen

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
o-Phenylenediamine	95-54-5	Group 2B	Not listed	A3	X	A3

ACGIH: (American Conference of Governmental Industrial Hygienists)

A1 - Known Human Carcinogen  
 A2 - Suspected Human Carcinogen  
 A3 - Animal Carcinogen  
 ACGIH: (American Conference of Governmental Industrial Hygienists)

- (g) reproductive toxicity; No data available
- (h) STOT-single exposure; No data available
- (i) STOT-repeated exposure; No data available  
 Target Organs No information available.
- (j) aspiration hazard; Not applicable  
 Solid
- Symptoms / effects,both acute and delayed** Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing.
- Other Adverse Effects** The toxicological properties have not been fully investigated.
- Endocrine Disrupting Properties** This product does not contain any known or suspected endocrine disruptors.

## 12. Ecological information

### Ecotoxicity

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

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
o-Phenylenediamine	EC50: = 0.16 mg/L, 96h (Pseudokirchneriella subcapitata) EC50: = 4 mg/L, 72h (Desmodesmus)	LC50: = 24 mg/L, 96h static (Brachydanio rerio) LC50: = 44 mg/L, 96h static (Pimephales promelas)	EC50 = 48.2 mg/L 60 h	EC50: = 0.87 mg/L, 48h (Daphnia magna)

	subspicatus)			
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**Persistence and Degradability** Persistence is unlikely

**Bioaccumulation/ Accumulation** No information available.

**Mobility** . Will likely be mobile in the environment due to its water solubility.

Component	log Pow
o-Phenylenediamine	0.17

**13. Disposal considerations**

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

**14. Transport information**

**DOT**

**UN-No** UN1673  
**Proper Shipping Name** PHENYLENEDIAMINES  
**Hazard Class** 6.1  
**Packing Group** III

**TDG**

**UN-No** UN1673  
**Proper Shipping Name** PHENYLENEDIAMINES  
**Hazard Class** 6.1  
**Subsidiary Hazard Class** III

**IATA**

**UN-No** UN1673  
**Proper Shipping Name** PHENYLENEDIAMINES  
**Hazard Class** 6.1  
**Packing Group** III

**IMDG/IMO**

**UN-No** UN1673  
**Proper Shipping Name** PHENYLENEDIAMINES  
**Hazard Class** 6.1  
**Packing Group** III

**15. Regulatory Information**

**United States of America Inventory**

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
o-Phenylenediamine	95-54-5	X	ACTIVE	-

**Legend:**

**TSCA** US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

X - Listed

'-' - Not Listed

**TSCA - Per 40 CFR 751, Regulation of Certain Chemical Substances & Mixtures, Under TSCA Section 6(h) (PBT)** Not applicable

**TSCA 12(b) - Notices of Export** Not applicable

**International Inventories**

Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
o-Phenylenediamine	95-54-5	X	-	202-430-6	X	X	X	X	X	KE-02174

KECL - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)

### U.S. Federal Regulations

#### SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

Component	CAS No	Weight %	SARA 313 - Threshold Values %	SARA 313 - Reporting thresholds
o-Phenylenediamine	95-54-5	>95	1.0 %	-

#### SARA 311/312 Hazard Categories

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

**CWA (Clean Water Act)** Not applicable

**Clean Air Act** Not applicable

**OSHA - Occupational Safety and Health Administration** Not applicable

#### CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

**California Proposition 65** This product contains the following Proposition 65 chemicals.

Component	CAS No	California Prop. 65	Prop 65 NSRL	Category
o-Phenylenediamine	95-54-5	Carcinogen	26 µg/day	Carcinogen

### U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
o-Phenylenediamine	X	X	-	-	-

#### U.S. Department of Transportation

Reportable Quantity (RQ): N  
 DOT Marine Pollutant N  
 DOT Severe Marine Pollutant N

**U.S. Department of Homeland Security** This product does not contain any DHS chemicals.

### Other International Regulations

**Mexico - Grade** No information available

### Authorisation/Restrictions according to EU REACH

Component	CAS No	REACH (1907/2006) -	REACH (1907/2006) -	REACH Regulation (EC
o-Phenylenediamine	95-54-5	-	-	-

		Annex XIV - Substances Subject to Authorization	Annex XVII - Restrictions on Certain Dangerous Substances	1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
o-Phenylenediamine	95-54-5	-	Use restricted. See entry 75. (see link for restriction details)	-

**REACH links**

<https://echa.europa.eu/substances-restricted-under-reach>

**Safety, health and environmental regulations/legislation specific for the substance or mixture**

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
o-Phenylenediamine	95-54-5	Listed	Not applicable	Not applicable	Not applicable

**Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?**

Not applicable

**Other International Regulations**

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
o-Phenylenediamine	95-54-5	Not applicable	Not applicable	Not applicable	Not applicable

## 16. Other Information

**Prepared By**

Product stewardship (Regulatory Affairs)  
Thermo Fisher Scientific  
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**Revision Summary**

Updated to the U.S. Department of Labor's Occupational Safety and Health Administration (OSHA) which published its Final Rule in the Federal Register revising the Hazard Communication Standard (HCS/HazCom), 29 CFR 1910.1200 (2024) (HCS §1910.1200, 2024), May 20, 2024, effective July 19, 2024.

**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 SDS**