

## Safety Data Sheet

# 29 Mix aromatic primary amines in acetonitrile



Version : V2.0.0.1

Report No. : BWQ0494-2016-MSDS-US

Creation Date : 2025/11/16

Revision Date : -

**\*Prepared according to American OSHA HCS-2024 (29 CFR 1910.1200)**

## 1 Identification

### Product identifier

Product Name	29 Mix aromatic primary amines in acetonitrile
Cat No.	BWQ0494-2016
CAS No.	Not applicable
EC No.	Not applicable
Molecular Formula	Not applicable

### Recommended use of the product and restrictions on use

Relevant identified uses	Please consult manufacturer.
Uses advised against	Please consult manufacturer.

### Details of the supplier of the Safety Data Sheet

Name of the company	Weiyel Inc
Address of the company	Hedian Light Industrial Park, Chengguan Town, Shangcheng County, Xinyang City, Henan Province, China
Post code	465350
Telephone number	010-58103678
Fax number	010-84840368
E-mail address	info@weiyel.com

### Emergency phone number

Emergency phone number	010-58103678
------------------------	--------------

## 2 Hazard(s) identification

### Hazard classification according to 29 CFR 1910.1200

Flammable liquids	Category 2
Acute Toxicity - Oral	Category 4
Acute Toxicity - Dermal	Category 4
Serious eye damage/irritation	Category 2
Acute Toxicity - Inhalation	Category 4

### Label elements

Hazard pictograms	 
Signal word	<b>Danger</b>

### Hazard statements

H225	Highly flammable liquid and vapour
H302	Harmful if swallowed
H312	Harmful in contact with skin
H319	Causes serious eye irritation
H332	Harmful if inhaled

### Precautionary statements

#### ◆ Prevention

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233	Keep container tightly closed.
P240	Ground and bond container and receiving equipment.
P241	Use explosion-proof [electrical/ventilating/lighting] equipment.
P242	Use non-sparking tools.
P243	Take action to prevent static discharges.
P261	Avoid breathing gas/mist/vapour/spray.
P264	Wash hands and other parts of the body (if related) thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or with adequate ventilation.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.

#### ◆ Response

P321	Specific treatment (see related instructions on the label).
P330	Rinse mouth.
P302+P352	IF ON SKIN: Wash with plenty of water.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P362+P364	Take off contaminated clothing and wash it before reuse.
P370+P378	Small fire: dry chemical, CO <sub>2</sub> or alcohol-resistant foam; Large fire: alcohol-resistant foam; Fire involving tanks, rail tank cars or highway tanks: Fight fire from maximum distance or use unmanned master stream devices or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water [or shower].
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

#### ◆ Storage

P403+P235	Store in a well-ventilated place. Keep cool.
-----------	--

#### ◆ Disposal

P501	Dispose of contents/container in accordance with local/regional/national/
------	---

	international regulations.
--	----------------------------

### Other hazards

	Not applicable.
--	-----------------

### Hazard description

#### ◆ Physical and chemical hazards

	Highly flammable liquids, its vapor and air mixture can form explosive mixture.
--	---

#### ◆ Health hazards

Inhaled	Sore throat. Weakness. Abdominal pain. Laboured breathing. Convulsions. Unconsciousness. Vomiting. Symptoms may be delayed.
Ingestion	(Further see Inhalation).
Skin Contact	Redness.
Eye	Redness. Pain.

#### ◆ Environmental hazards

	Please refer to 12th chapter of SDS.
--	--------------------------------------

## 3 Composition/information on ingredients

### Substance/mixture

	Mixture
--	---------

Component	CAS No.	EC No.	Concentration (wt, %)
p-phenylenediamine	106-50-3	203-404-7	0.013
m-phenylenediamine	108-45-2	203-584-7	0.013
4-methyl-m-phenylenediamine	95-80-7	202-453-1	0.013
4,4'-oxydianiline	101-80-4	202-977-0	0.013
p,p'-Diaminodiphenyl	92-87-5	202-199-1	0.013
4,4'-methylenedianiline	101-77-9	202-974-4	0.013
Aniline	62-53-3	200-539-3	0.013
o-anisidine	90-04-0	201-963-1	0.013
o-toluidine	95-53-4	202-429-0	0.013
4,4'-methylenedi-o-toluidine	838-88-0	212-658-8	0.013
3,3'-dimethoxybenzidine	119-90-4	204-355-4	0.013
3,3'-Dimethyldiphenylamine	626-13-1	-	0.013
2,6-xylydine	87-62-7	201-758-7	0.013
Benzenamine, 2-[(4-aminophenyl)methyl]	1208-52-2	214-900-8	0.013
4-methoxy-m-phenylenediamine	615-05-4	210-406-1	0.013
6-methoxy-m-toluidine	120-71-8	204-419-1	0.013
2,4,5-trimethylaniline	137-17-7	205-282-0	0.013

<b>4,4'-thiodianiline</b>	139-65-1	205-370-9	0.013
<b>4-chloroaniline</b>	106-47-8	203-401-0	0.013
<b>2,4-xylydine</b>	95-68-1	202-440-0	0.013
<b>2-naphthylamine</b>	91-59-8	202-080-4	0.013
<b>2,2'-Diaminodiphenylmethane</b>	6582-52-1	-	0.013
<b>Biphenyl-4-ylamine</b>	92-67-1	202-177-1	0.013
<b>4-chloro-o-toluidine</b>	95-69-2	202-441-6	0.013
<b>5-nitro-o-toluidine</b>	99-55-8	202-765-8	0.013
<b>3,3'-dichlorobenzidine</b>	91-94-1	202-109-0	0.013
<b>4-aminoazobenzene</b>	60-09-3	200-453-6	0.013
<b>4,4'-methylenebis[2-chloroaniline]</b>	101-14-4	202-918-9	0.013
<b>o-Aminoazotoluene</b>	97-56-3	-	0.013
<b>Acetonitrile</b>	75-05-8	200-835-2	99.623

## 4 First-aid measures

### Description of first aid measures

<b>General advice</b>	Immediate medical attention is required. Show this safety data sheet (SDS) to the doctor in attendance.
<b>Eye contact</b>	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
<b>Skin contact</b>	Remove contaminated clothes. Rinse skin with plenty of water or shower. Refer for medical attention.
<b>Ingestion</b>	Rinse mouth. Induce vomiting (ONLY IN CONSCIOUS PERSONS!). Give plenty of water to drink. Refer for medical attention.
<b>Inhalation</b>	Fresh air, rest. Artificial respiration may be needed. Refer for medical attention.
<b>Protecting of first-aiders</b>	Ensure that medical personnel are aware of the substance involved. Take precautions to protect themselves and prevent spread of contamination.

### Most important symptoms/effects, acute and delayed

1	Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.
---	--

### Indication of any immediate medical attention and special treatment needed

1	Treat symptomatically.
2	Symptoms may be delayed.

## 5 Fire-fighting measures

### Extinguishing media

<b>Suitable extinguishing media</b>	Small fire: dry chemical, CO <sub>2</sub> or alcohol-resistant foam; Large fire: alcohol-resistant foam; Fire involving tanks, rail tank cars or highway tanks: Fight fire from maximum distance or use unmanned master stream devices or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out.
<b>Unsuitable extinguishing media</b>	Use of water spray when fighting fire may be inefficient.

### Specific hazards arising from the substance or mixture

1	Will form explosive mixtures with air.
2	Fire exposed containers may vent contents through pressure relief valves thereby increasing fire intensity and/or vapour concentration.
3	Vapours may travel to source of ignition and flash back.
4	Liquid and vapour are flammable.
5	Development of hazardous combustion gases or vapor possible in the event of fire.
6	May expansion or decompose explosively when heated or involved in fire.

### Special protective equipment and precautions for fire-fighters

1	As in any fire, wear self-contained breathing apparatus (MSHA/NIOSH approved or equivalent) and full protective gear.
2	Fight fire from a safe distance, with adequate cover.
3	Prevent fire extinguishing water from contaminating surface water or the ground water system.

## 6 Accidental release measures

### Personal precautions, protective equipment and emergency procedures

1	Avoid breathing vapours and contacting with skin and eye.
2	Beware of vapours accumulating to form explosive concentrations.
3	Vapours can accumulate in low areas.
4	Emergency personnel wear positive pressure self-contained breathing apparatus. Wear protective and anti-static clothing. Wear chemical impermeable gloves.
5	Use personal protective equipment, do not breathe gas/mist/vapour/spray.
6	Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.
7	Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

### Environmental precautions

1	Prevent further leakage or spillage if safe to do so.
2	Discharge into the environment must be avoided.

### Methods and materials for containment and cleaning up

1	It is recommended that emergency personnel wear positive pressure self-contained breathing apparatus and wear anti-static clothing.
2	In case of small amount of spillage, use clean non sparking tools to collect absorption materials.
3	In case of large amount of spillage, construct cofferdam or dig a hole to collect the spillage. Use foam cover to reduce evaporation. Water spray mist can reduce evaporation, but can not reduce the flammability of the leakage in the restricted space.
4	Collect absorbent material using a clean, non-sparking tool.
5	Cover with anti-solvent foam to reduce evaporation.
6	Cover with DRY earth, DRY sand or other non-combustible material followed with plastic sheet to minimize spreading or contact with rain.
7	Water spray reduces evaporation but does not reduce the flammability of spills in confined spaces.
8	Cut off the source of the leak as much as possible.
9	Keep leaks in a ventilated place.
10	Absorb spilled material in dry sand or inert absorbent. In case of large amount of spillage, contain a spill by bunding.

11	Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.
12	Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container.
13	Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

## 7 Handling and storage

### Precautions for safe handling

1	Avoid inhalation of vapors.
2	Use only non-sparking tools.
3	To prevent fire caused by electrostatic discharge steam, equipment on all metal parts should be grounded.
4	Use explosion proof equipment.
5	Handling is performed in a well ventilated place.
6	Wear suitable protective equipment.
7	Avoid contact with skin and eyes.
8	Keep away from heat/sparks/open flames/ hot surfaces.

### Conditions for safe storage, including any incompatibilities

1	Keep containers tightly closed.
2	Keep containers in a dry, cool and well-ventilated place.
3	Keep away from heat/sparks/open flames/hot surfaces.
4	Store away from incompatible materials and foodstuff containers.

## 8 Exposure controls/personal protection

### Control parameters

#### ◆ Occupational exposure limit values

Component	Country/Region	Limit value - Eight hours		Limit value - Short term	
		ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
p-phenylenediamine	Japan - JSOH(2024–2025)	-	0.1	-	-
	Permissible exposure standards for workers in the workplace	-	0.1	-	0.3
	Australia	-	0.1	-	-
	Canada - Ontario	-	0.1	-	-
	New Zealand	-	0.1	-	-
	USA - ACGIH	-	0.1	-	-
m-phenylenediamine	Japan - JSOH(2024–2025)	-	0.1	-	-
	Australia	-	0.1	-	-
	Canada - Ontario	-	0.1	-	-
	New Zealand	-	0.1	-	-

	USA - ACGIH	-	0.1	-	-
	Belgium	-	0.1	-	-
<b>4-methyl-m-phenylenediamine</b>	Austria	0.02	0.1	0.08	0.4
	Poland	-	0.04	-	0.1
	Romania	1	5	2	10
	Switzerland	0.02	0.1	-	-
<b>p,p'-Diaminodiphenyl</b>	Permissible exposure standards for workers in the workplace	-	-	-	-
	France	0.001	0.008	-	-
	Hungary	-	0.008	-	-
	Italy	-	-	0.001	-
<b>4,4'-methylenedianiline</b>	Japan - JSOH(2024-2025)	-	0.4	-	-
	Australia	0.1	0.81	-	-
	Canada - Ontario	-	0.04	-	-
	European Union	-	0.08	-	-
	New Zealand	0.002	0.0016	-	-
	USA - ACGIH	0.1	-	-	-
<b>Aniline</b>	Japan - JSOH(2024-2025)	1	3.8	-	-
	Permissible exposure standards for workers in the workplace	2	7.6	4	15.2
	Australia	2	7.6	-	-
	Canada - Ontario	2	-	-	-
	European Union	2	7.74	5	19.35
	New Zealand	1	4	2	8
<b>o-anisidine</b>	Japan - JSOH(2024-2025)	0.1	0.5	-	-
	Permissible exposure standards for workers in the workplace	0.1	0.5	0.3	1.5
	Australia	0.1	0.5	-	-
	Canada - Ontario	-	0.5	-	-
	New Zealand	0.1	0.5	-	-
	USA - ACGIH	-	0.5	-	-
<b>o-toluidine</b>	Japan - JSOH(2024-2025)	1	4.4	-	-

	5)				
	Permissible exposure standards for workers in the workplace	5	22	10	33
	Australia	2	8.8	-	-
	Canada - Ontario	2	-	-	-
	European Union	0.1	0.5	-	-
	New Zealand	0.2	0.89	-	-
<b>4,4'-methylenedi-o-toluidine</b>	Austria	-	0.05	-	0.2
	Switzerland	-	0.05(inhalable aerosol)	-	-
<b>3,3'-dimethoxybenzidine</b>	Permissible exposure standards for workers in the workplace	-	-	-	-
	Austria	0.003	0.03	0.012	0.12
	Poland	-	0.2	-	-
	South Korea	-	0.01	-	-
	Switzerland	0.003	0.03	-	-
<b>2,6-xylylidine</b>	Denmark	0.5	2.5	1	5
	Finland	5	25	10	50
	Ireland	0.5	2.5	-	-
	Norway	1	5	-	-
	Singapore	0.5	2.5	-	-
<b>6-methoxy-m-toluidine</b>	Austria	-	0.5	-	2
	Switzerland	-	0.5	-	-
<b>4-chloroaniline</b>	Austria	0.04	0.2	0.12	0.8
	Germany (AGS)	0.06	0.3	0.12	0.6
	Hungary	-	0.2	-	0.8
	Poland	-	3	-	10
	Romania	-	2	-	5
	Switzerland	0.04	0.2(inhalable aerosol)	-	-
<b>2,4-xylylidine</b>	Austria	5	25	20	20
	Denmark	0.5	2.5	1	5
	Finland	5	25	10	50
	Ireland	0.5	2.5	-	-
	Norway	1	5	-	-
	Singapore	0.5	2.5	-	-
<b>2-naphthylamine</b>	Permissible exposure	-	-	-	-

	standards for workers in the workplace				
	France	0.001	0.005	-	-
	Hungary	-	0.005	-	-
	Italy	-	-	-	0.001
<b>Biphenyl-4-ylamine</b>	Permissible exposure standards for workers in the workplace	-	-	-	-
	France	0.001	0.007	-	-
	Hungary	-	10	-	-
	Italy	-	-	-	0.001
	Poland	-	0.001	-	-
<b>5-nitro-o-toluidine</b>	Canada - Ontario	-	1	-	-
	USA - ACGIH	-	1(inhalable fraction and vapor)	-	-
	Austria	-	0.5	-	2
	Belgium	-	1	-	-
	Ireland	-	1	-	-
	Switzerland	0.08	0.5	-	-
<b>3,3'-dichlorobenzidine</b>	Permissible exposure standards for workers in the workplace	-	-	-	-
	Austria	0.003	0.03	0.012	0.12
	Hungary	-	0.03	-	-
	Switzerland	0.003	0.03	-	-
<b>4,4'-methylenebis[2-chloroaniline]</b>	Japan - JSOH(2024-2025)	-	0.005	-	-
	Permissible exposure standards for workers in the workplace	0.02	0.218	0.06	0.654
	Australia	0.02	0.22	-	-
	Canada - Ontario	0.0005	0.005	-	-
	European Union	-	0.01	-	-
	New Zealand	-	0.005	-	-
<b>Acetonitrile</b>	Permissible exposure standards for workers in the workplace	40	67	60	100.5
	Australia	40	67	60	101

	Canada - Ontario	20	-	-	-
	European Union	40	70	-	-
	New Zealand	40	67	60	101
	USA - ACGIH	20	-	-	-

### Engineering controls

1	Ensure adequate ventilation, especially in confined areas.
2	Ensure that eyewash stations and safety showers are close to the workstation location.
3	Use explosion-proof electrical/ventilating/lighting/equipment.
4	Set up emergency exit and necessary risk-elimination area.

### Personal protection equipment

General requirement	
Eye protection	Must wear appropriate safety goggles.
Hand protection	Must wear anti static chemical protective gloves.
Respiratory protection	Must wear appropriate personal respiratory protective equipment.
Skin and body protection	Must wear anti static chemical protective clothing and anti static shoes.

## 9 Physical and chemical properties and safety characteristics

### Physical and chemical properties

Appearance (physical state, color, etc.)	colorless liquid
Odor	No information available
Odor threshold	No information available
pH	No information available
Melting point/freezing point(°C)	-46 ( Acetonitrile )
Initial boiling point and boiling range(°C)	82 ( Acetonitrile )
Flash point(Closed cup, °C)	2 ( Acetonitrile )
Evaporation rate	No information available
Flammability	No information available
Upper/lower explosive limits[%(v/v)]	Upper limit : 17 ( Acetonitrile ); Lower limit : 3 ( Acetonitrile )
Vapor pressure	9.9kPa ( 25°C,Acetonitrile )
Vapor density(Air = 1)	1.4 ( Acetonitrile )
Relative density(Water=1)	0.8 ( Acetonitrile )
Solubility	1000000mg/L ( 25 °C,Acetonitrile )
n-octanol/water partition coefficient	-0.3 ( Acetonitrile )
Auto-ignition temperature(°C)	524 ( Acetonitrile )
Decomposition temperature(°C)	No information available
Kinematic viscosity	No information available

## 10 Stability and reactivity

### | Stability and reactivity

<b>Reactivity</b>	Contact with incompatible substances can cause decomposition or other chemical reactions.
<b>Chemical stability</b>	Stable under proper operation and storage conditions.
<b>Possibility of hazardous reactions</b>	In contact with oxidants, anhydrides, metals, metal oxides / KMnO <sub>4</sub> metal salts, nitro-compounds may cause a fire or explosion. In contact with N-halogen compounds may cause a potensive explosive hazardous.
<b>Conditions to avoid</b>	Incompatible materials, heat, flame and spark.
<b>Incompatible materials</b>	Oxidants, halogen, anhydrides, acids, metals, metal oxides, potassium permanganate, nitro-compounds and metal salts. N - halogenated compounds, sulfuric acid and strong oxidants.
<b>Hazardous decomposition products</b>	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## 11 Toxicological information

### | Acute toxicity

Component	LD <sub>50</sub> (oral)	LD <sub>50</sub> (dermal)	LC <sub>50</sub> (inhalation,4h)
<b>4,4'-methylenebis[2-chloroaniline]</b>	1140mg/kg(Rat)	> 5000mg/kg(Rabbit)	No information available
<b>o-anisidine</b>	1150mg/kg(Rat)	No information available	No information available
<b>p,p'-Diaminodiphenyl</b>	309mg/kg(Rat)	No information available	No information available
<b>4-chloro-o-toluidine</b>	1058mg/kg(Rat)	No information available	No information available
<b>2-naphthylamine</b>	727mg/kg(Rat)	No information available	No information available
<b>4,4'-methylenedianiline</b>	517mg/kg(Rat)	1000mg/kg(Rat)	No information available
<b>p-phenylenediamine</b>	80mg/kg(Rat)	No information available	0.92.mg/L(Rat)
<b>4-chloroaniline</b>	300mg/kg(Rat)	360mg/kg(Rabbit)	2.34mg/L(Rat)
<b>2,4-xylidine</b>	467mg/kg(Rat)	No information available	No information available
<b>2,6-xylidine</b>	840mg/kg(Rat)	No information available	No information available
<b>4-methoxy-m-phenylenediamine</b>	460mg/kg(Rat)	No information available	No information available
<b>Acetonitrile</b>	2460mg/kg(Rat)	> 2000mg/kg(Rabbit)	4.748mg/L(Rabbit)
<b>6-methoxy-m-toluidine</b>	1450mg/kg(Rat)	No information available	No information available
<b>m-phenylenediamine</b>	280mg/kg(Rat)	No information available	No information available
<b>Aniline</b>	250mg/kg(Rat)	837mg/kg(Rabbit)	No information available
<b>3,3'-dimethoxybenzidine</b>	1920mg/kg(Rat)	No information available	No information available
<b>4,4'-oxydianiline</b>	725mg/kg(Rat)	No information available	No information available
<b>o-toluidine</b>	670mg/kg(Rat)	3260mg/kg(Rabbit)	3.778mg/L(Rat)
<b>Biphenyl-4-ylamine</b>	500mg/kg(Rat)	No information available	No information available
<b>4,4'-thiodianiline</b>	900mg/kg(Rat)	No information available	No information available

### | Carcinogenicity

Component	List of carcinogens by the IARC Monographs	Report on Carcinogens by NTP	OSHA Carcinogen List
p-phenylenediamine	Category 3	Not Listed	Not Listed
m-phenylenediamine	Category 3	Not Listed	Not Listed
4-methyl-m-phenylenediamine	Category 2B	Category R	Not Listed
4,4'-oxydianiline	Category 2B	Category R	Not Listed
p,p'-Diaminodiphenyl	Category 1	Category K	Listed
4,4'-methylenedianiline	Category 2B	Category R	Not Listed
Aniline	Category 2A(Remark 1)	Not Listed	Not Listed
o-anisidine	Category 2A(Remark 2)	Category R	Not Listed
o-toluidine	Category 1	Category K	Not Listed
4,4'-methylenedi-o-toluidine	Category 2B	Not Listed	Not Listed
3,3'-dimethoxybenzidine	Category 2B	Category R	Not Listed
3,3'-Dimethyldiphenylamine	Not Listed	Not Listed	Not Listed
2,6-xylydine	Category 2B	Not Listed	Not Listed
Benzenamine, 2-[(4-aminophenyl)methyl]	Not Listed	Not Listed	Not Listed
4-methoxy-m-phenylenediamine	Category 2B	Not Listed	Not Listed
6-methoxy-m-toluidine	Category 2B	Category R	Not Listed
2,4,5-trimethylaniline	Category 3	Not Listed	Not Listed
4,4'-thiodianiline	Category 2B	Category R	Not Listed
4-chloroaniline	Category 2B	Not Listed	Not Listed
2,4-xylydine	Category 3	Not Listed	Not Listed
2-naphthylamine	Category 1	Category K	Listed
2,2'-Diaminodiphenylmethane	Not Listed	Not Listed	Not Listed
Biphenyl-4-ylamine	Category 1	Category K	Listed
4-chloro-o-toluidine	Category 2A	Category R	Not Listed
5-nitro-o-toluidine	Category 3	Not Listed	Not Listed
3,3'-dichlorobenzidine	Category 2B	Category R	Listed
4-aminoazobenzene	Category 2B	Not Listed	Not Listed
4,4'-methylenebis[2-chloroaniline]	Category 1(Remark 3)	Category R	Not Listed
o-Aminoazotoluene	Category 2B	Category R	Not Listed
Acetonitrile	Not Listed	Not Listed	Not Listed

Remark 1: see also Aniline hydrochloride; Remark 2: see also ortho-Anisidine hydrochloride; Remark 3: Overall evaluation upgraded to Group 1 based on mechanistic and other relevant data

## | Others

29 Mix aromatic primary amines in acetonitrile	
Skin corrosion/irritation	Based on available data, the classification criteria are not met
Serious eye damage/irritation	Causes serious eye irritation(Category 2)
Skin sensitization	Based on available data, the classification criteria are not met
Respiratory sensitization	Based on available data, the classification criteria are not met
Reproductive toxicity	Based on available data, the classification criteria are not met
STOT-single exposure	Based on available data, the classification criteria are not met
STOT-repeated exposure	Based on available data, the classification criteria are not met
Aspiration hazard	Based on available data, the classification criteria are not met
Germ cell mutagenicity	Based on available data, the classification criteria are not met

## 12 Ecological information

## | Acute aquatic toxicity

Component	Fish	Crustaceans	Algae or other aquatic plants
4,4'-methylenebis[2-chloroaniline]	LC <sub>50</sub> : 0.61mg/L (96h)(Fish)	EC <sub>50</sub> : 0.92mg/L (48h)(Crustaceans)	ErC <sub>50</sub> : >0.85mg/L (72h)(Algae)
o-anisidine	LC <sub>50</sub> : 200mg/L (96h)(Fish)	EC <sub>50</sub> : 23mg/L (48h)(Crustaceans)	ErC <sub>50</sub> : >30mg/L (72h)(Algae)
p,p'-Diaminodiphenyl	LC <sub>50</sub> : 5.88mg/L (96h)(Fish)	EC <sub>50</sub> : 0.6mg/L (48h)(Crustaceans)	No information available
2-naphthylamine	LC <sub>50</sub> : 3.9mg/L (96h)(Fish)	EC <sub>50</sub> : 0.84mg/L (48h)(Crustaceans)	ErC <sub>50</sub> : 0.50mg/L (72h)(Algae)
4,4'-methylenedianiline	LC <sub>50</sub> : 21mg/L (96h)(Fish)	EC <sub>50</sub> : 2.5mg/L (48h)(Crustaceans)	ErC <sub>50</sub> : 12mg/L (72h)(Algae)
p-phenylenediamine	LC <sub>50</sub> : 3.9mg/L (96h)(Fish)	EC <sub>50</sub> : 0.28 mg/L (48h)(Crustaceans)	ErC <sub>50</sub> : 0.18mg/L (72h)(Algae)
4-aminoazobenzene	LC <sub>50</sub> : 0.35mg/L (96h)(Fish)	EC <sub>50</sub> : 0.46mg/L (48h)(Crustaceans)	ErC <sub>50</sub> : 2.9mg/L (72h)(Algae)
4-chloroaniline	LC <sub>50</sub> : 5.8mg/L (96h)(Fish)	EC <sub>50</sub> : 0.31mg/L (48h)(Crustaceans)	ErC <sub>50</sub> : 2.6mg/L (96h)(Algae)
2,4-xylidine	No information available	EC <sub>50</sub> : 9.9mg/L (48h)(Crustaceans)	ErC <sub>50</sub> : 28.6mg/L (72h)(Algae)
2,6-xylidine	LC <sub>50</sub> : >98mg/L (96h)(Fish)	EC <sub>50</sub> : 20mg/L (48h)(Crustaceans)	ErC <sub>50</sub> : >100mg/L (72h)(Algae)
Acetonitrile	LC <sub>50</sub> : > 100mg/L (96h)(Fish)	EC <sub>50</sub> : > 1000mg/L (48h)(Crustaceans)	ErC <sub>50</sub> : >700mg/L (72h)(Algae)
6-methoxy-m-toluidine	LC <sub>50</sub> : 12.27mg/L (96h)(Fish)	No information available	No information available
m-phenylenediamine	LC <sub>50</sub> : 512mg/L (96h)(Fish)	EC <sub>50</sub> : 2.0mg/L (48h)(Crustaceans)	ErC <sub>50</sub> : 2.87mg/L (96h)(Algae)
Aniline	LC <sub>50</sub> : 27mg/L (96h)(Fish)	EC <sub>50</sub> : 0.32mg/L (48h)(Crustaceans)	ErC <sub>50</sub> : 20mg/L (96h)(Algae)
4,4'-methylenedi-o-toluidine	LC <sub>50</sub> : 460mg/L (96h)(Fish)	No information available	No information available
4-methyl-m-phenylenediamine	LC <sub>50</sub> : 1170mg/L (96h)(Fish)	EC <sub>50</sub> : 15mg/L (48h)(Crustaceans)	ErC <sub>50</sub> : 9.54mg/L (96h)(Algae)

<b>4,4'-oxydianiline</b>	LC <sub>50</sub> : 22mg/L (96h)(Fish)	EC <sub>50</sub> : 0.99mg/L (48h)(Crustaceans)	ErC <sub>50</sub> : 28mg/L (72h)(Algae)
<b>3,3'-dichlorobenzidine</b>	LC <sub>50</sub> : 0.51mg/L (96h)(Fish)	EC <sub>50</sub> : 1.9mg/L (48h)(Crustaceans)	ErC <sub>50</sub> : 1.4mg/L (72h)(Algae)
<b>3,3'-dimethoxybenzidine</b>	LC <sub>50</sub> : 26mg/L (96h)(Fish)	No information available	ErC <sub>50</sub> : 14mg/L (72h)(Algae)
<b>o-toluidine</b>	LC <sub>50</sub> : 81.3mg/L (96h)(Fish)	EC <sub>50</sub> : 16mg/L (48h)(Crustaceans)	ErC <sub>50</sub> : 29.4mg/L (96h)(Algae)
<b>5-nitro-o-toluidine</b>	LC <sub>50</sub> : 70mg/L (96h)(Fish)	EC <sub>50</sub> : 22.5mg/L (48h)(Crustaceans)	ErC <sub>50</sub> : 15.4mg/L (96h)(Algae)

### Chronic aquatic toxicity

Component	Fish	Crustaceans	Algae or other aquatic plants
<b>4,4'-methylenebis[2-chloroaniline]</b>	No information available	NOEC : 0.0095mg/L(Crustaceans)	NOEC : 0.54mg/L(Algae)
<b>o-anisidine</b>	NOEC : 25mg/L(Fish)	NOEC : 0.25mg/L(Crustaceans)	NOEC : 7.5mg/L(Algae)
<b>2-naphthylamine</b>	No information available	NOEC : 0.014mg/L(Crustaceans)	NOEC : 0.16mg/L(Algae)
<b>4,4'-methylenedianiline</b>	No information available	NOEC : 0.0053mg/L(Crustaceans)	NOEC : 4.0mg/L(Algae)
<b>p-phenylenediamine</b>	No information available	NOEC : 0.043mg/L(Crustaceans)	NOEC : 0.01mg/L(Algae)
<b>4-aminoazobenzene</b>	No information available	NOEC : 0.0071mg/L(Crustaceans)	NOEC : 0.14mg/L(Algae)
<b>4-chloroaniline</b>	No information available	NOEC : 0.0032mg/L(Crustaceans)	NOEC : 0.32mg/L(Algae)
<b>2,6-xylydine</b>	No information available	NOEC : 2.2mg/L(Crustaceans)	NOEC : 32mg/L(Algae)
<b>Acetonitrile</b>	NOEC : 102mg/L(Fish)	NOEC : >960mg/L(Crustaceans)	NOEC : 700mg/L(Algae)
<b>m-phenylenediamine</b>	No information available	NOEC : 0.20mg/L(Crustaceans)	NOEC : 10mg/L(Algae)
<b>Aniline</b>	NOEC : 1.9mg/L(Fish)	NOEC : 0.0063mg/L(Crustaceans)	NOEC : 3.7mg/L(Algae)
<b>4-methyl-m-phenylenediamine</b>	No information available	NOEC : 0.52mg/L(Crustaceans)	NOEC : 1.0mg/L(Algae)
<b>3,3'-dichlorobenzidine</b>	No information available	NOEC : 0.21mg/L(Crustaceans)	NOEC : 0.15mg/L(Algae)
<b>3,3'-dimethoxybenzidine</b>	No information available	No information available	NOEC : 0.58mg/L(Algae)
<b>4,4'-oxydianiline</b>	NOEC : 5mg/L(Fish)	No information available	NOEC : 3.9mg/L(Algae)
<b>o-toluidine</b>	NOEC : 13mg/L(Fish)	NOEC : 0.013mg/L(Crustaceans)	NOEC : 6.4mg/L(Algae)

### Persistence and degradability

Component	Persistence (water/soil)	Persistence (air)
<b>p-phenylenediamine</b>	Low(Half-life = 56 days)	Low(Half-life = 0.12 days)
<b>m-phenylenediamine</b>	Low(Half-life = 56 days)	Low(Half-life = 0.12 days)

<b>4,4'-oxydianiline</b>	High(Half-life = 360 days)	Low(Half-life = 0.13 days)
<b>4,4'-methylenedianiline</b>	Low(Half-life = 14 days)	Low(Half-life = 0.11 days)
<b>o-anisidine</b>	High(Half-life = 360 days)	Low(Half-life = 0.22 days)
<b>o-toluidine</b>	Low(Half-life = 14 days)	Low(Half-life = 0.16 days)
<b>4,4'-methylenedi-o-toluidine</b>	High	High
<b>3,3'-dimethoxybenzidine</b>	High(Half-life = 360 days)	Low(Half-life = 0.14 days)
<b>2,6-xylydine</b>	High(Half-life = 360 days)	Low(Half-life = 0.14 days)
<b>6-methoxy-m-toluidine</b>	High(Half-life = 360 days)	Low(Half-life = 0.12 days)
<b>4,4'-thiodianiline</b>	Low(Half-life = 56 days)	Low(Half-life = 0.15 days)
<b>2,4-xylydine</b>	High	High
<b>Biphenyl-4-ylamine</b>	Low(Half-life = 14 days)	Low(Half-life = 0.25 days)
<b>5-nitro-o-toluidine</b>	Low(Half-life = 56 days)	Low(Half-life = 0.83 days)
<b>3,3'-dichlorobenzidine</b>	High(Half-life = 360 days)	Low(Half-life = 0.38 days)
<b>4-aminoazobenzene</b>	Low(Half-life = 56 days)	Low(Half-life = 0.4 days)
<b>4,4'-methylenebis[2-chloroaniline]</b>	High(Half-life = 360 days)	Low(Half-life = 0.12 days)
<b>o-Aminoazotoluene</b>	Low(Half-life = 56 days)	Low(Half-life = 0.34 days)

### Bioaccumulative potential

Component	Bioaccumulative potential	Comments
<b>p-phenylenediamine</b>	Low	BCF=38
<b>m-phenylenediamine</b>	Low	BCF=24
<b>4,4'-oxydianiline</b>	Low	Log Kow=1.36
<b>4,4'-methylenedianiline</b>	Low	BCF=15
<b>o-anisidine</b>	Low	Log Kow=1.18
<b>o-toluidine</b>	Low	Log Kow=1.32
<b>4,4'-methylenedi-o-toluidine</b>	Low	Log Kow=3.2761
<b>3,3'-dimethoxybenzidine</b>	Low	Log Kow=1.81
<b>2,6-xylydine</b>	Low	BCF=96.2
<b>6-methoxy-m-toluidine</b>	Low	BCF=4.6
<b>4,4'-thiodianiline</b>	Low	Log Kow=2.18
<b>2,4-xylydine</b>	Low	BCF=10
<b>Biphenyl-4-ylamine</b>	Low	Log Kow=2.8
<b>5-nitro-o-toluidine</b>	Low	Log Kow=1.87
<b>3,3'-dichlorobenzidine</b>	Medium	BCF=940
<b>4-aminoazobenzene</b>	Low	BCF=42.4
<b>4,4'-methylenebis[2-chloroaniline]</b>	Low	BCF=398

<b>o-Aminoazotoluene</b>	Medium	Log Kow=4.2887
--------------------------	--------	----------------

### | Mobility in soil

Component	log Koc	Remark
<b>p-phenylenediamine</b>	1.53	20 °C
<b>m-phenylenediamine</b>	0.70	20 °C
<b>4,4'-oxydianiline</b>	1.66	25 °C
<b>4,4'-methylenedianiline</b>	3.848	
<b>o-anisidine</b>	1.512	
<b>o-toluidine</b>	1.68	20 °C
<b>4,4'-methylenedi-o-toluidine</b>	3.76	20 °C
<b>3,3'-dimethoxybenzidine</b>	3.160	
<b>2,6-xylydine</b>	2.088	
<b>6-methoxy-m-toluidine</b>	1.722	
<b>4,4'-thiodianiline</b>	3.695	
<b>2,4-xylydine</b>	2.079	
<b>Biphenyl-4-ylamine</b>	3.228	
<b>5-nitro-o-toluidine</b>	1.931	
<b>3,3'-dichlorobenzidine</b>	3.874	
<b>4-aminoazobenzene</b>	2.723	
<b>4,4'-methylenebis[2-chloroaniline]</b>	3.57	20 °C
<b>o-Aminoazotoluene</b>	3.160	
<b>Acetonitrile</b>	0.653	

### 13 Disposal considerations

#### | Disposal considerations

<b>Waste chemicals</b>	Before disposal should refer to the relevant national and local laws and regulation. Recommend the use of incineration disposal.
<b>Contaminated packaging</b>	Containers may still present chemical hazard when empty. Keep away from hot and ignition source of fire. Return to supplier for recycling if possible.
<b>Disposal recommendations</b>	Refer to section waste chemicals and contaminated packaging.

### 14 Transport information

#### | Label and Mark

<b>Transporting Label</b>	
---------------------------	---

#### | IMDG-CODE

UN number	1648
UN proper shipping name	ACETONITRILE
Transport hazard class	3
Transport subsidiary hazard class	None
Packing group	II
Marine pollutant ( Yes or no )	No

#### IATA-DGR

UN number	1648
UN proper shipping name	ACETONITRILE
Transport hazard class	3
Transport subsidiary hazard class	None
Packing group	II

#### UN-ADR

UN number	1648
UN proper shipping name	ACETONITRILE
Transport hazard class	3
Transport subsidiary hazard class	None
Packing group	II

#### Transport in bulk according to IMO instruments

- ◆ Transport in bulk according to Annex II of MARPOL and the IBC code

	Not Available
--	---------------

- ◆ Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

	Not Available
--	---------------

- ◆ Transport in bulk in accordance with the IGC Code

	Not Available
--	---------------

#### Others

Precautions for transport	<p>Shipment of the goods vehicle exhaust pipe must be equipped with fire retardant devices, prohibit using mechanical equipment and tools of which easy to produce sparks. Transit should be anti-exposure, anti-rain, anti-high temperature.</p> <p>Transportation used tank (tank) cars should be grounded chain, tank can be installed to reduce the partition hole static electricity shocks. Strictly prohibited shipping or transportation with oxidants, acids, food and food additives etc. When bulk transport, Prohibit the use of cement or wooden boats. Transport vehicles should be equipped with the appropriate variety and quantity of fire equipment and emergency equipment leakage during transport. Before transport, should be preceded by checking whether container integrity, sealing. The transport unit must be placarded and marked in accordance with relevant transporting requirements.</p>
---------------------------	--

## International chemical inventory

Component	A	B	C	D	E	F	G	H	I	J	K	L	M
p-phenylenediamine	√	√	√	√	√	√	√	√	√	√	√	√	√
m-phenylenediamine	√	√	√	√	√	√	√	√	√	√	√	√	√
4-methyl-m-phenylenediamine	√	√	√	√	√	√	√	√	√	×	√	√	√
4,4'-oxydianiline	√	√	√	×	√	√	√	√	√	×	√	√	√
p,p'-Diaminodiphenyl	√	√	√	×	√	√	×	√	×	×	√	√	√
4,4'-methylenedianiline	√	√	√	√	√	√	√	√	√	√	√	√	√
Aniline	√	√	√	√	√	√	√	√	√	√	√	√	√
o-anisidine	√	√	√	√	√	√	√	√	√	×	√	√	√
o-toluidine	√	√	√	√	√	√	√	√	√	×	√	√	√
4,4'-methylenedi-o-toluidine	√	√	√	×	×	×	×	×	√	×	×	√	√
3,3'-dimethoxybenzidine	√	√	√	√	×	√	√	√	√	×	√	√	√
3,3'-Dimethyldiphenylamine	×	×	×	×	×	×	×	×	×	×	×	√	√
2,6-xylydine	√	√	√	√	√	√	√	√	√	×	√	√	√
Benzenamine, 2-[(4-aminophenyl)methyl]	√	√	√	√	√	√	√	√	√	×	×	√	√
4-methoxy-m-phenylenediamine	×	√	√	√	√	×	√	√	√	×	√	√	√
6-methoxy-m-toluidine	√	√	√	×	×	√	√	×	√	√	×	√	√
2,4,5-trimethylaniline	×	√	×	×	×	×	×	×	×	×	×	√	√
4,4'-thiodianiline	√	√	√	×	×	×	√	×	√	×	×	√	√
4-chloroaniline	√	√	√	√	√	√	√	√	√	×	√	√	√
2,4-xylydine	√	√	√	×	√	√	√	√	√	×	√	√	√
2-naphthylamine	√	√	×	√	√	√	√	×	×	×	√	√	√
2,2'-Diaminodiphenylmethane	√	√	√	×	×	×	×	√	×	×	×	√	√
Biphenyl-4-ylamine	√	√	√	×	√	√	√	×	×	×	√	√	√
4-chloro-o-toluidine	×	√	√	×	×	×	×	√	√	×	×	√	√
5-nitro-o-toluidine	√	√	√	×	×	√	√	√	√	×	√	√	√
3,3'-dichlorobenzidine	√	√	√	×	√	√	√	√	√	√	√	√	√
4-aminoazobenzene	√	√	√	√	√	√	√	√	√	×	√	√	√
4,4'-methylenebis[2-chloroaniline]	√	√	√	√	√	√	√	√	√	×	√	√	√
o-Aminoazotoluene	√	√	√	√	√	√	√	√	√	×	√	√	√
Acetonitrile	√	√	√	√	√	√	√	√	√	√	√	√	√

- [A] China Inventory of Existing Chemical Substances(IECSC)  
 [B] European Inventory of Existing Commercial Chemical Substances(EC inventory)  
 [C] United States Toxic Substances Control Act Inventory(TSCA)  
 [D] Canadian Domestic Substances List(DSL)  
 [E] New Zealand Inventory of Chemicals(NZIoC)

- [F] Philippines Inventory of Chemicals and Chemical Substances(PICCS)  
 [G] Korea Existing Chemicals Inventory(KECL)  
 [H] Australian. Inventory of Industrial Chemical (AIICS)  
 [I] Japan Inventory of Existing & New Chemical Substances(ENCS)  
 [J] Thailand Existing Chemicals Inventory(TECI)  
 [K] Mexico National Inventory of Chemical Substances (INSQ)  
 [L] Russia Inventory of Existing Substances(DRAFT)  
 [M] Inventory of Existing Chemical Substances in Taiwan, China (TCSI)

### List of Chemical Substances under International Conventions

Component	A	B	C
p-phenylenediamine	x	x	x
m-phenylenediamine	x	x	x
4-methyl-m-phenylenediamine	x	x	x
4,4'-oxydianiline	x	x	x
p,p'-Diaminodiphenyl	x	x	x
4,4'-methylenedianiline	x	x	x
Aniline	x	x	x
o-anisidine	x	x	x
o-toluidine	x	x	x
4,4'-methylenedi-o-toluidine	x	x	x
3,3'-dimethoxybenzidine	x	x	x
3,3'-Dimethyldiphenylamine	x	x	x
2,6-xylidine	x	x	x
Benzenamine, 2-[(4-aminophenyl)methyl]-	x	x	x
4-methoxy-m-phenylenediamine	x	x	x
6-methoxy-m-toluidine	x	x	x
2,4,5-trimethylaniline	x	x	x
4,4'-thiodianiline	x	x	x
4-chloroaniline	x	x	x
2,4-xylidine	x	x	x
2-naphthylamine	x	x	x
2,2'-Diaminodiphenylmethane	x	x	x
Biphenyl-4-ylamine	x	x	x
4-chloro-o-toluidine	x	x	x
5-nitro-o-toluidine	x	x	x
3,3'-dichlorobenzidine	x	x	x
4-aminoazobenzene	x	x	x
4,4'-methylenebis[2-chloroaniline]	x	x	x

<b>o-Aminoazotoluene</b>	x	x	x
<b>Acetonitrile</b>	x	x	x

【A】 The Montreal Protocol on Substances that Deplete the Ozone Layer

【B】 Stockholm Convention on Persistent Organic Pollutants (POPs)

【C】 Rotterdam Convention on the prior informed consent procedure for certain hazardous chemicals and pesticides in international trade

## US chemical inventory

Component	A	B	C	D	E	F	G	H
<b>p-phenylenediamine</b>	√	x	√	√	√	√	√	x
<b>m-phenylenediamine</b>	x	x	x	√	√	x	√	x
<b>4-methyl-m-phenylenediamine</b>	√	x	√	√	√	√	√	√
<b>4,4'-oxydianiline</b>	x	x	x	√	√	√	√	√
<b>p,p'-Diaminodiphenyl</b>	√	x	√	√	√	√	√	√
<b>4,4'-methylenedianiline</b>	√	x	√	√	√	√	√	√
<b>Aniline</b>	√	√	√	√	√	√	√	√
<b>o-anisidine</b>	√	x	√	√	√	√	√	√
<b>o-toluidine</b>	√	x	√	√	√	√	√	√
<b>4,4'-methylenedi-o-toluidine</b>	x	x	x	√	√	√	x	√
<b>3,3'-dimethoxybenzidine</b>	√	x	√	√	√	√	√	√
<b>3,3'-Dimethyldiphenylamine</b>	x	x	x	x	x	x	x	x
<b>2,6-xylylidine</b>	x	x	x	√	√	√	√	√
<b>Benzenamine, 2-[(4-aminophenyl)methyl]-</b>	x	x	x	x	x	x	x	x
<b>4-methoxy-m-phenylene diamine</b>	x	x	x	√	√	√	√	√
<b>6-methoxy-m-toluidine</b>	x	x	x	√	√	√	√	√
<b>2,4,5-trimethylaniline</b>	x	x	x	√	x	x	x	x
<b>4,4'-thiodianiline</b>	x	x	x	√	√	√	√	√
<b>4-chloroaniline</b>	x	x	√	√	√	√	√	√
<b>2,4-xylylidine</b>	x	x	x	x	x	x	x	x
<b>2-naphthylamine</b>	x	x	√	√	√	√	√	√
<b>2,2'-Diaminodiphenylmethane</b>	x	x	x	x	x	x	x	x
<b>Biphenyl-4-ylamine</b>	√	x	√	√	√	√	√	√
<b>4-chloro-o-toluidine</b>	x	x	x	√	√	√	x	√
<b>5-nitro-o-toluidine</b>	x	x	√	√	√	√	√	x
<b>3,3'-dichlorobenzidine</b>	√	x	√	√	√	√	√	√
<b>4-aminoazobenzene</b>	x	x	x	√	√	√	√	√
<b>4,4'-methylenebis[2-chloroaniline]</b>	√	x	√	x	√	√	√	√

<b>o-Aminoazotoluene</b>	x	x	x	√	√	√	√	√
<b>Acetonitrile</b>	√	x	√	√	√	√	√	x

- [A] US Clean Air Act (CAA)- Section 112, Hazardous Air Pollutants  
 [B] US SARA 302- Extremely Hazardous Substance List  
 [C] US CERCLA- Hazardous Substances List  
 [D] US Massachusetts Right-to-Know Substance List  
 [E] US New Jersey Right to Know Hazardous Substance List  
 [F] US Pennsylvania Right to Know Hazardous Substance List  
 [G] US New York City Right-to-Know Hazardous Substance List  
 [H] US California Proposition 65 List

Note:

- “√” Indicates that the substance included in the regulations.  
 “x” No data or not included in the regulations.

## 16 Other information

### Information on revision

<b>Creation Date</b>	2025/11/16
<b>Revision Date</b>	-
<b>Reason for revision</b>	-

### Reference

- [1] IPCS: The International Chemical SafetyCards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>.  
 [2] IARC, website: <http://www.iarc.fr/>.  
 [3] OECD: The Global Portal to Information on Chemical Substances, website: <https://www.echemportal.org/echemportal/>.  
 [4] CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>.  
 [5] NLM: ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>.  
 [6] EPA: Integrated Risk Information System, website: <http://cfpub.epa.gov/iris/>.  
 [7] U.S. Department of Transportation: ERG, website: <http://www.phmsa.dot.gov/hazmat/library/erg>.  
 [8] Germany GESTIS-database on hazard substance, website: <http://gestis-en.itrust.de/>.

### Abbreviations and acronyms

CAS	Chemical Abstracts Service	UN	The United Nations
PC-STEL	Short term exposure limit	OECD	Organization for Economic Co-operation and Development
PC-TWA	Time Weighted Average	IMDG-CODE	International Maritime Dangerous Goods CODE
MAC	Maximum Allowable Concentration	IARC	International Agency for Research on Cancer
DNEL	Derived No Effect Level	ICAO	International Civil Aviation Organization
PNEC	Predicted No Effect Concentration	IATA	International Air Transportation Association
NOEC	No Observed Effect Concentration	ACGIH	American Conference of Governmental Industrial Hygienists
LC <sub>50</sub>	Lethal Concentration 50%	NFPA	National Fire Protection Association
LD <sub>50</sub>	Lethal Dose 50%	NTP	National Toxicology Program
EC <sub>50</sub>	Effective Concentration 50%	PBT	Persistent, Bioaccumulative, Toxic
EC <sub>x</sub>	Effective Concentration X%	vPvB	very Persistent, very Bioaccumulative
P <sub>OW</sub>	Partition coefficient Octanol: Water	CMR	Carcinogens, mutagens or substances toxic to reproduction
BCF	Bioconcentration factor	RPE	Respiratory Protective Equipment
ED	Endocrine disruptor	HCS	Hazard Communication Standard

### Disclaimer

This Safety Data Sheet (SDS) was prepared according to OSHA HCS-2024. The data included was derived from international authoritative database and provided by the enterprise. Other information was based on the present state of our knowledge. We try to ensure the correctness of all information. However, due to the diversity of information sources and the limitations of our knowledge, this document is only for user's reference. Users should make their independent judgment of suitability of this information for their particular purposes. We do not assume

responsibility for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.