

1. Identification

Product identifier	Azodye Mixture 1	
Other means of identification		
Item	M-AZODYE1A1	
Recommended use	For Laboratory Use Only	
Recommended restrictions	None known.	
Manufacturer/Importer/Supplier/Distributor information		
Manufacturer		
Company name	Chem Service, Inc.	
Address	660 Tower Lane West Chester, PA 19380 United States	
Telephone	Toll Free	800-452-9994
	Direct	610-692-3026
Website	www.chemservice.com	
E-mail	info@chemservice.com	
Emergency phone number	Chemtrec US	800-424-9300
	Chemtrec outside US	+1 703-527-3887

2. Hazard(s) identification

Physical hazards	Flammable liquids	Category 2
Health hazards	Acute toxicity, oral	Category 3
	Acute toxicity, dermal	Category 3
	Acute toxicity, inhalation	Category 3
	Serious eye damage/eye irritation	Category 2A
Environmental hazards	Hazardous to the aquatic environment, acute hazard	Category 2
	Hazardous to the aquatic environment, long-term hazard	Category 2
OSHA defined hazards	Not classified.	

Label elements

Signal word	Danger
Hazard statement	Highly flammable liquid and vapor. Toxic if swallowed. Toxic in contact with skin. Causes serious eye irritation. Toxic if inhaled. Toxic to aquatic life with long lasting effects.
Precautionary statement	
Prevention	Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Avoid breathing vapors. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Wear protective gloves/protective clothing. Wear protective gloves/eye protection/face protection.

Response	If swallowed: Immediately call a poison center/doctor. Rinse mouth. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a poison center/doctor. If eye irritation persists: Get medical advice/attention. Take off immediately all contaminated clothing and wash it before reuse. In case of fire: Use appropriate media to extinguish. Collect spillage.
Storage	Keep cool. Store in a well-ventilated place. Keep container tightly closed. Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	Static accumulating flammable liquid can become electrostatically charged even in bonded and grounded equipment. Sparks may ignite liquid and vapor. May cause flash fire or explosion.
Supplemental information	99.76% of the mixture consists of component(s) of unknown acute hazards to the aquatic environment. 99.76% of the mixture consists of component(s) of unknown long-term hazards to the aquatic environment.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
Acetonitrile		75-05-8	99.76
2,4,5-Trimethylaniline		137-17-7	0.01
2,4-Diaminotoluene		95-80-7	0.01
2,4-Dimethylaniline		95-68-1	0.01
2,6-Dimethylaniline		87-62-7	0.01
2-Methoxy-5-methylaniline		120-71-8	0.01
3,3'-Dichlorobenzidine		91-94-1	0.01
3,3'-Dimethoxybenzidine		119-90-4	0.01
3,3'-Dimethyl-4,4'-diaminodiphenyl methane		838-88-0	0.01
4,4'-Methylene bis(o-chloroaniline)		101-14-4	0.01
4,4'-Methylenedianiline		101-77-9	0.01
4,4'-Oxydianiline		101-80-4	0.01
4,4'-Thiodianiline		139-65-1	0.01
4-Aminobiphenyl		92-67-1	0.01
4-Chloro-2-methylaniline		95-69-2	0.01
4-Chloroaniline		106-47-8	0.01
4-Methoxy-1,3-phenylenediamine		615-05-4	0.01
5-Nitro-o-toluidine		99-55-8	0.01
Benzidine		92-87-5	0.01
b-Naphthylamine		91-59-8	0.01
o-Aminoazotoluene		97-56-3	0.01
o-Anisidine		90-04-0	0.01
o-Tolidine		119-93-7	0.01
o-Toluidine		95-53-4	0.01
p-Phenylazoaniline		60-09-3	0.01

4. First-aid measures

Inhalation

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a POISON CENTER or doctor/physician.

Skin contact

Take off immediately all contaminated clothing. Rinse skin with water/shower. Get medical advice/attention if you feel unwell. Get medical attention if irritation develops and persists. Wash contaminated clothing before reuse.

Eye contact

Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

Ingestion	Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
Most important symptoms/effects, acute and delayed	Convulsions. Nausea, vomiting. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim warm. Keep victim under observation. Symptoms may be delayed.
General information	Take off immediately all contaminated clothing. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Alcohol resistant foam. Carbon dioxide (CO ₂). Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. This product is a poor conductor of electricity and can become electrostatically charged. If sufficient charge is accumulated, ignition of flammable mixtures can occur. To reduce potential for static discharge, use proper bonding and grounding procedures. This liquid may accumulate static electricity when filling properly grounded containers. Static electricity accumulation may be significantly increased by the presence of small quantities of water or other contaminants. Material will float and may ignite on surface of water. During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	Highly flammable liquid and vapor.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Avoid inhalation of vapors and spray mists. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Use appropriate containment to avoid environmental contamination. Transfer by mechanical means such as vacuum truck to a salvage tank or other suitable container for recovery or safe disposal. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. Take precautionary measures against static discharge. Use only non-sparking tools. This material is classified as a water pollutant under the Clean Water Act and should be prevented from contaminating soil or from entering sewage and drainage systems which lead to waterways. Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water. Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.
Environmental precautions	Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS. Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground. Use appropriate containment to avoid environmental contamination.

7. Handling and storage

Precautions for safe handling

Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Explosion-proof general and local exhaust ventilation. Minimize fire risks from flammable and combustible materials (including combustible dust and static accumulating liquids) or dangerous reactions with incompatible materials. Handling operations that can promote accumulation of static charges include but are not limited to: mixing, filtering, pumping at high flow rates, splash filling, creating mists or sprays, tank and container filling, tank cleaning, sampling, gauging, switch loading, vacuum truck operations. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Do not taste or swallow. Avoid inhalation of vapors and spray mists. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. When using, do not eat, drink or smoke. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Avoid release to the environment. Wash contaminated clothing before reuse. Observe good industrial hygiene practices.

For additional information on equipment bonding and grounding, refer to the Canadian Electrical Code in Canada, (CSA C22.1), or the American Petroleum Institute (API) Recommended Practice 2003, "Protection Against Ignitions Arising out of Static, Lightning, and Stray Currents" or National Fire Protection Association (NFPA) 77, "Recommended Practice on Static Electricity" or National Fire Protection Association (NFPA) 70, "National Electrical Code".

Conditions for safe storage, including any incompatibilities

Store locked up. Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Eliminate sources of ignition. Avoid spark promoters. Ground/bond container and equipment. These alone may be insufficient to remove static electricity. Store in a cool, dry place out of direct sunlight. Store in original tightly closed container. Store in a well-ventilated place. Keep in an area equipped with sprinklers. Store away from incompatible materials (see Section 10 of the SDS). Store in refrigerator (0°C to 5°C).

8. Exposure controls/personal protection

Occupational exposure limits

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Components	Type	Value
4,4'-Methylenedianiline (CAS 101-77-9)	STEL	0.1 ppm
	TWA	0.01 ppm

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
2,4,5-Trimethylaniline (CAS 137-17-7)	PEL	19 mg/m3
		5 ppm
Acetonitrile (CAS 75-05-8)	PEL	70 mg/m3
		40 ppm
o-Anisidine (CAS 90-04-0)	PEL	0.5 mg/m3
o-Toluidine (CAS 95-53-4)	PEL	22 mg/m3
		5 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
2,4-Dimethylaniline (CAS 95-68-1)	TWA	0.5 ppm	Inhalable fraction and vapor.
2,6-Dimethylaniline (CAS 87-62-7)	TWA	0.5 ppm	Inhalable fraction and vapor.
4,4'-Methylene bis(o-chloroaniline) (CAS 101-14-4)	TWA	0.01 ppm	
4,4'-Methylenedianiline (CAS 101-77-9)	TWA	0.1 ppm	
5-Nitro-o-toluidine (CAS 99-55-8)	TWA	1 mg/m3	Inhalable fraction.
Acetonitrile (CAS 75-05-8)	TWA	20 ppm	
o-Anisidine (CAS 90-04-0)	TWA	0.5 mg/m3	

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
o-Toluidine (CAS 95-53-4)	TWA	2 ppm	

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
2,4-Dimethylaniline (CAS 95-68-1)	TWA	10 mg/m3 2 ppm
2,6-Dimethylaniline (CAS 87-62-7)	TWA	10 mg/m3 2 ppm
4,4'-Methylene bis(o-chloroaniline) (CAS 101-14-4)	TWA	0.003 mg/m3
Acetonitrile (CAS 75-05-8)	TWA	34 mg/m3 20 ppm
o-Anisidine (CAS 90-04-0)	TWA	0.5 mg/m3
o-Tolidine (CAS 119-93-7)	Ceiling	0.02 mg/m3

US. Workplace Environmental Exposure Level (WEEL) Guides

Components	Type	Value
2,4-Diaminotoluene (CAS 95-80-7)	TWA	0.025 mg/m3 0.005 ppm

Biological limit values

No biological exposure limits noted for the ingredient(s).

Exposure guidelines**US - California OELs: Skin designation**

2,4-Dimethylaniline (CAS 95-68-1)	Can be absorbed through the skin.
2,6-Dimethylaniline (CAS 87-62-7)	Can be absorbed through the skin.
3,3'-Dichlorobenzidine (CAS 91-94-1)	Can be absorbed through the skin.
4,4'-Methylene bis(o-chloroaniline) (CAS 101-14-4)	Can be absorbed through the skin.
4,4'-Methylenedianiline (CAS 101-77-9)	Can be absorbed through the skin.
4-Aminobiphenyl (CAS 92-67-1)	Can be absorbed through the skin.
Acetonitrile (CAS 75-05-8)	Can be absorbed through the skin.
Benzidine (CAS 92-87-5)	Can be absorbed through the skin.
o-Anisidine (CAS 90-04-0)	Can be absorbed through the skin.
o-Toluidine (CAS 95-53-4)	Can be absorbed through the skin.

US - Minnesota Haz Subs: Skin designation applies

2,4,5-Trimethylaniline (CAS 137-17-7)	Skin designation applies.
2,4-Diaminotoluene (CAS 95-80-7)	Skin designation applies.
3,3'-Dichlorobenzidine (CAS 91-94-1)	Skin designation applies.
4,4'-Methylene bis(o-chloroaniline) (CAS 101-14-4)	Skin designation applies.
4,4'-Methylenedianiline (CAS 101-77-9)	Skin designation applies.
4-Aminobiphenyl (CAS 92-67-1)	Skin designation applies.
Acetonitrile (CAS 75-05-8)	Skin designation applies.
Benzidine (CAS 92-87-5)	Skin designation applies.
o-Anisidine (CAS 90-04-0)	Skin designation applies.
o-Tolidine (CAS 119-93-7)	Skin designation applies.
o-Toluidine (CAS 95-53-4)	Skin designation applies.

US - Tennessee OELs: Skin designation

2,4-Dimethylaniline (CAS 95-68-1)	Can be absorbed through the skin.
2,6-Dimethylaniline (CAS 87-62-7)	Can be absorbed through the skin.
4,4'-Methylene bis(o-chloroaniline) (CAS 101-14-4)	Can be absorbed through the skin.
o-Anisidine (CAS 90-04-0)	Can be absorbed through the skin.
o-Toluidine (CAS 95-53-4)	Can be absorbed through the skin.

US ACGIH Threshold Limit Values: Skin designation

2,4-Dimethylaniline (CAS 95-68-1)	Can be absorbed through the skin.
2,6-Dimethylaniline (CAS 87-62-7)	Can be absorbed through the skin.
3,3'-Dichlorobenzidine (CAS 91-94-1)	Can be absorbed through the skin.
4,4'-Methylene bis(o-chloroaniline) (CAS 101-14-4)	Can be absorbed through the skin.
4,4'-Methylenedianiline (CAS 101-77-9)	Can be absorbed through the skin.
4-Aminobiphenyl (CAS 92-67-1)	Can be absorbed through the skin.

Acetonitrile (CAS 75-05-8)
Benzidine (CAS 92-87-5)
o-Anisidine (CAS 90-04-0)
o-Tolidine (CAS 119-93-7)
o-Toluidine (CAS 95-53-4)

Can be absorbed through the skin.
Can be absorbed through the skin.
Can be absorbed through the skin.
Can be absorbed through the skin.
Can be absorbed through the skin.

US NIOSH Pocket Guide to Chemical Hazards: Skin designation

2,4-Dimethylaniline (CAS 95-68-1)
2,6-Dimethylaniline (CAS 87-62-7)
4,4'-Methylene bis(o-chloroaniline) (CAS 101-14-4)
o-Anisidine (CAS 90-04-0)
o-Tolidine (CAS 119-93-7)
o-Toluidine (CAS 95-53-4)

Can be absorbed through the skin.
Can be absorbed through the skin.
Can be absorbed through the skin.
Can be absorbed through the skin.
Can be absorbed through the skin.
Can be absorbed through the skin.

US WEEL Guides: Skin designation

2,4-Diaminotoluene (CAS 95-80-7)

Can be absorbed through the skin.

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

2,4,5-Trimethylaniline (CAS 137-17-7)
o-Anisidine (CAS 90-04-0)
o-Toluidine (CAS 95-53-4)

Can be absorbed through the skin.
Can be absorbed through the skin.
Can be absorbed through the skin.

Appropriate engineering controls

Explosion-proof general and local exhaust ventilation. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station. Eye wash fountain and emergency showers are recommended.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection

Wear appropriate chemical resistant gloves.

Other

Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.

Respiratory protection

If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Dust & vapor respirator.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

When using do not smoke. Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Physical state

Liquid.

Form

Liquid.

Color

Not available.

Odor

Not available.

Odor threshold

Not available.

pH

Not available.

Melting point/freezing point

-49 °F (-45 °C) estimated

Initial boiling point and boiling range

178.88 °F (81.6 °C) estimated

Flash point

42.0 °F (5.6 °C) estimated

Evaporation rate

Not available.

Flammability (solid, gas)

Not applicable.

Upper/lower flammability or explosive limits

Flammability limit - lower (%)

3 % estimated

Flammability limit - upper (%)

16 % estimated

Explosive limit - lower (%)

Not available.

Explosive limit - upper (%)	Not available.
Vapor pressure	118.4 hPa estimated
Vapor density	Not available.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	975.2 °F (524 °C) estimated
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Density	0.78765 g/cm3 estimated
Explosive properties	Not explosive.
Flammability class	Flammable IB estimated
Oxidizing properties	Not oxidizing.
Percent volatile	99.81 % estimated
Specific gravity	0.79 estimated
VOC	99.82 % estimated

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Toxic if inhaled.
Skin contact	Toxic in contact with skin.
Eye contact	Causes serious eye irritation.
Ingestion	Toxic if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics	Convulsions. Nausea, vomiting. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.
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Information on toxicological effects

Acute toxicity	Toxic if inhaled. Toxic in contact with skin. Toxic if swallowed.
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Components	Species	Test Results
2,4-Diaminotoluene (CAS 95-80-7)		
Acute		
Dermal		
LD50	Rat	463 mg/kg, 24 Hours
Oral		
LD50	Rat	73 mg/kg

Components	Species	Test Results
2,4-Dimethylaniline (CAS 95-68-1)		
<u>Acute</u>		
Inhalation		
LC50	Rat	1.53 mg/l, 4 Hours
3,3'-Dichlorobenzidine (CAS 91-94-1)		
<u>Acute</u>		
Oral		
LD50	Rat	3.82 g/kg
3,3'-Dimethoxybenzidine (CAS 119-90-4)		
<u>Acute</u>		
Oral		
LD50	Rat	1920 mg/kg
3,3'-Dimethyl-4,4'-diaminodiphenylmethane (CAS 838-88-0)		
<u>Acute</u>		
Oral		
LD50	Rat	1600 - 2000 mg/kg
4,4'-Methylene bis(o-chloroaniline) (CAS 101-14-4)		
<u>Acute</u>		
Dermal		
LD50	Rat	> 2000 mg/kg, 24 Hours
Oral		
LD50	Rat	1140 mg/kg
4,4'-Methylenedianiline (CAS 101-77-9)		
<u>Acute</u>		
Oral		
LD50	Rat	120 mg/kg
4-Aminobiphenyl (CAS 92-67-1)		
<u>Acute</u>		
Oral		
LD50	Rat	500 mg/kg
4-Chloroaniline (CAS 106-47-8)		
<u>Acute</u>		
Dermal		
LD50	Rabbit	> 200 mg/kg, 24 Hours
Inhalation		
LC50	Rat	2.34 mg/l, 4 Hours
Oral		
LD50	Rat	50 - 500 mg/kg
4-Methoxy-1,3-phenylenediamine (CAS 615-05-4)		
<u>Acute</u>		
Oral		
LD50	Rat	460 mg/kg
Benzidine (CAS 92-87-5)		
<u>Acute</u>		
Oral		
LD50	Rat	309 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Prolonged skin contact may cause temporary irritation.
Serious eye damage/eye irritation Causes serious eye irritation.

Respiratory or skin sensitization

Respiratory sensitization Not a respiratory sensitizer.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity Not classifiable as to carcinogenicity to humans.

IARC Monographs. Overall Evaluation of Carcinogenicity

2,4,5-Trimethylaniline (CAS 137-17-7)	3 Not classifiable as to carcinogenicity to humans.
2,4-Diaminotoluene (CAS 95-80-7)	2B Possibly carcinogenic to humans.
2,4-Dimethylaniline (CAS 95-68-1)	3 Not classifiable as to carcinogenicity to humans.
2,6-Dimethylaniline (CAS 87-62-7)	2B Possibly carcinogenic to humans.
2-Methoxy-5-methylaniline (CAS 120-71-8)	2B Possibly carcinogenic to humans.
3,3'-Dichlorobenzidine (CAS 91-94-1)	2B Possibly carcinogenic to humans.
3,3'-Dimethoxybenzidine (CAS 119-90-4)	2B Possibly carcinogenic to humans.
3,3'-Dimethyl-4,4'-diaminodiphenylmethane (CAS 838-88-0)	2B Possibly carcinogenic to humans.
4,4'-Methylene bis(o-chloroaniline) (CAS 101-14-4)	1 Carcinogenic to humans.
4,4'-Methylenedianiline (CAS 101-77-9)	2B Possibly carcinogenic to humans.
4,4'-Oxydianiline (CAS 101-80-4)	2B Possibly carcinogenic to humans.
4,4'-Thiodianiline (CAS 139-65-1)	2B Possibly carcinogenic to humans.
4-Aminobiphenyl (CAS 92-67-1)	1 Carcinogenic to humans.
4-Chloro-2-methylaniline (CAS 95-69-2)	2A Probably carcinogenic to humans.
4-Chloroaniline (CAS 106-47-8)	2B Possibly carcinogenic to humans.
4-Methoxy-1,3-phenylenediamine (CAS 615-05-4)	2B Possibly carcinogenic to humans.
5-Nitro-o-toluidine (CAS 99-55-8)	3 Not classifiable as to carcinogenicity to humans.
Benzidine (CAS 92-87-5)	1 Carcinogenic to humans.
b-Naphthylamine (CAS 91-59-8)	1 Carcinogenic to humans.
o-Aminoazotoluene (CAS 97-56-3)	2B Possibly carcinogenic to humans.
o-Anisidine (CAS 90-04-0)	2B Possibly carcinogenic to humans.
o-Tolidine (CAS 119-93-7)	2B Possibly carcinogenic to humans.
o-Toluidine (CAS 95-53-4)	1 Carcinogenic to humans.
p-Phenylazoaniline (CAS 60-09-3)	2B Possibly carcinogenic to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

3,3'-Dichlorobenzidine (CAS 91-94-1)	Cancer
4,4'-Methylenedianiline (CAS 101-77-9)	Cancer
4-Aminobiphenyl (CAS 92-67-1)	Cancer
Benzidine (CAS 92-87-5)	Cancer
b-Naphthylamine (CAS 91-59-8)	Cancer

US. National Toxicology Program (NTP) Report on Carcinogens

2,4-Diaminotoluene (CAS 95-80-7)	Reasonably Anticipated to be a Human Carcinogen.
2-Methoxy-5-methylaniline (CAS 120-71-8)	Reasonably Anticipated to be a Human Carcinogen.
3,3'-Dichlorobenzidine (CAS 91-94-1)	Reasonably Anticipated to be a Human Carcinogen.
3,3'-Dimethoxybenzidine (CAS 119-90-4)	Reasonably Anticipated to be a Human Carcinogen.
4,4'-Methylene bis(o-chloroaniline) (CAS 101-14-4)	Reasonably Anticipated to be a Human Carcinogen.
4,4'-Methylenedianiline (CAS 101-77-9)	Reasonably Anticipated to be a Human Carcinogen.
4,4'-Oxydianiline (CAS 101-80-4)	Reasonably Anticipated to be a Human Carcinogen.
4,4'-Thiodianiline (CAS 139-65-1)	Reasonably Anticipated to be a Human Carcinogen.
4-Aminobiphenyl (CAS 92-67-1)	Known To Be Human Carcinogen.
4-Chloro-2-methylaniline (CAS 95-69-2)	Reasonably Anticipated to be a Human Carcinogen.
Benzidine (CAS 92-87-5)	Known To Be Human Carcinogen.
b-Naphthylamine (CAS 91-59-8)	Known To Be Human Carcinogen.
o-Aminoazotoluene (CAS 97-56-3)	Reasonably Anticipated to be a Human Carcinogen.
o-Tolidine (CAS 119-93-7)	Reasonably Anticipated to be a Human Carcinogen.
o-Toluidine (CAS 95-53-4)	Known To Be Human Carcinogen.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure Not classified.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Not an aspiration hazard.

Chronic effects Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity Toxic to aquatic life with long lasting effects.

Components		Species	Test Results
2,4-Diaminotoluene (CAS 95-80-7)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	1.6 mg/l, 48 hours
Fish	LC50	Medaka, high-eyes (Oryzias latipes)	797 - 1040 mg/l, 96 hours
2,4-Dimethylaniline (CAS 95-68-1)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	5.6 - 17 mg/l, 48 hours
3,3'-Dichlorobenzidine (CAS 91-94-1)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	0.81 - 1.36 mg/l, 48 hours
Fish	LC50	Fathead minnow (Pimephales promelas)	0.82 - 1.34 mg/l, 96 hours
4-Chloroaniline (CAS 106-47-8)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	0.12 - 0.78 mg/l, 48 hours
Fish	LC50	Zebra danio (Danio rerio)	0.0003 - 0.0003 mg/l, 96 hours
5-Nitro-o-toluidine (CAS 99-55-8)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	22.5 mg/l, 48 hours
Fish	LC50	Fathead minnow (Pimephales promelas)	19 - 50 mg/l, 96 hours
Acetonitrile (CAS 75-05-8)			
Aquatic			
Fish	LC50	Fathead minnow (Pimephales promelas)	> 100 mg/l, 96 hours
Benzidine (CAS 92-87-5)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	0.2 - 1.5 mg/l, 48 hours
Fish	LC50	Lake trout, siscowet (Salvelinus namaycush)	4.35 mg/l, 96 hours
o-Anisidine (CAS 90-04-0)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	6.8 mg/l, 48 hours

* Estimates for product may be based on additional component data not shown.

Persistence and degradability

Bioaccumulative potential

Partition coefficient n-octanol / water (log Kow)

2,4,5-Trimethylaniline	2.27
2,4-Diaminotoluene	0.337
2,4-Dimethylaniline	1.68
2,6-Dimethylaniline	1.84
2-Methoxy-5-methylaniline	1.74
3,3'-Dichlorobenzidine	3.51
3,3'-Dimethoxybenzidine	1.81
4,4'-Methylene bis(o-chloroaniline)	3.94
4,4'-Methylenedianiline	1.59
4,4'-Oxydianiline	2.06
4-Aminobiphenyl	2.8
4-Chloroaniline	1.83
5-Nitro-o-toluidine	1.96
Acetonitrile	-0.34
Benzidine	1.34
o-Aminoazotoluene	3.92

Partition coefficient n-octanol / water (log Kow)	
o-Anisidine	1.18
o-Tolidine	2.34
o-Toluidine	1.32
p-Phenylazoaniline	2.623

Mobility in soil No data available.

Other adverse effects The product contains volatile organic compounds which have a photochemical ozone creation potential.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

US RCRA Hazardous Waste P List: Reference

4-Chloroaniline (CAS 106-47-8) P024

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT

UN number	UN1648
UN proper shipping name	Acetonitrile, solution (Acetonitrile RQ = 5012 LBS), MARINE POLLUTANT (4,4'-Methylenedianiline, o-Anisidine)
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	3
Packing group	II
Environmental hazards	
Marine pollutant	Yes
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	IB2, T7, TP2
Packaging exceptions	150
Packaging non bulk	202
Packaging bulk	242

IATA

UN number	UN1648
UN proper shipping name	Acetonitrile solution (Acetonitrile)
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	Yes
ERG Code	3L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Other information	
Passenger and cargo aircraft	Allowed with restrictions.
Cargo aircraft only	Allowed with restrictions.

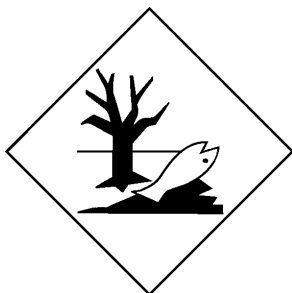
IMDG

UN number	UN1648
UN proper shipping name	ACETONITRILE SOLUTION (Acetonitrile), MARINE POLLUTANT (4,4'-Methylenedianiline, o-Toluidine)

Transport hazard class(es)**Class** 3**Subsidiary risk** -**Packing group** II**Environmental hazards****Marine pollutant** Yes**EmS** F-E, S-D**Special precautions for user** Read safety instructions, SDS and emergency procedures before handling.

4,4'-Methylenedianiline

o-Toluidine

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not established.**DOT****IATA; IMDG****Marine pollutant****General information**

IMDG Regulated Marine Pollutant. DOT Regulated Marine Pollutant.

15. Regulatory information**US federal regulations**

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

4-Chloro-2-methylaniline (CAS 95-69-2)

0.1 % One-Time Export Notification only.

Benzidine (CAS 92-87-5)

0.1 % One-Time Export Notification only.

TSCA Chemical Action Plans, Chemicals of Concern

Benzidine (CAS 92-87-5)

Dyes Derived from Benzidine and Its Congeners

CERCLA Hazardous Substance List (40 CFR 302.4)

2,4-Diaminotoluene (CAS 95-80-7)

Listed.

3,3'-Dichlorobenzidine (CAS 91-94-1)

Listed.

3,3'-Dimethoxybenzidine (CAS 119-90-4)

Listed.

3,3'-Dimethyl-4,4'-diaminodiphenylmethane (CAS 838-88-0)	Listed.
4,4'-Methylene bis(o-chloroaniline) (CAS 101-14-4)	Listed.
4,4'-Methylenedianiline (CAS 101-77-9)	Listed.
4,4'-Oxydianiline (CAS 101-80-4)	Listed.
4,4'-Thiodianiline (CAS 139-65-1)	Listed.
4-Aminobiphenyl (CAS 92-67-1)	Listed.
4-Chloroaniline (CAS 106-47-8)	Listed.
5-Nitro-o-toluidine (CAS 99-55-8)	Listed.
Acetonitrile (CAS 75-05-8)	Listed.
Benzidine (CAS 92-87-5)	Listed.
b-Naphthylamine (CAS 91-59-8)	Listed.
o-Aminoazotoluene (CAS 97-56-3)	Listed.
o-Anisidine (CAS 90-04-0)	Listed.
o-Tolidine (CAS 119-93-7)	Listed.
o-Toluidine (CAS 95-53-4)	Listed.
p-Phenylazoaniline (CAS 60-09-3)	Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

3,3'-Dichlorobenzidine (CAS 91-94-1)	Cancer
4,4'-Methylenedianiline (CAS 101-77-9)	Cancer
4-Aminobiphenyl (CAS 92-67-1)	Cancer
Benzidine (CAS 92-87-5)	Cancer
b-Naphthylamine (CAS 91-59-8)	Cancer
3,3'-Dichlorobenzidine (CAS 91-94-1)	Skin sensitization
4,4'-Methylenedianiline (CAS 101-77-9)	Liver
Benzidine (CAS 92-87-5)	Acute toxicity
b-Naphthylamine (CAS 91-59-8)	Acute toxicity
4,4'-Methylenedianiline (CAS 101-77-9)	Skin sensitization

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories	Immediate Hazard - Yes
	Delayed Hazard - No
	Fire Hazard - Yes
	Pressure Hazard - No
	Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Acetonitrile	75-05-8	99.76

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

- 2,4-Diaminotoluene (CAS 95-80-7)
- 3,3'-Dichlorobenzidine (CAS 91-94-1)
- 3,3'-Dimethoxybenzidine (CAS 119-90-4)
- 3,3'-Dimethyl-4,4'-diaminodiphenylmethane (CAS 838-88-0)
- 4,4'-Methylene bis(o-chloroaniline) (CAS 101-14-4)
- 4,4'-Methylenedianiline (CAS 101-77-9)
- 4,4'-Oxydianiline (CAS 101-80-4)
- 4,4'-Thiodianiline (CAS 139-65-1)
- 4-Aminobiphenyl (CAS 92-67-1)
- Acetonitrile (CAS 75-05-8)
- Benzidine (CAS 92-87-5)
- b-Naphthylamine (CAS 91-59-8)
- o-Aminoazotoluene (CAS 97-56-3)
- o-Anisidine (CAS 90-04-0)
- o-Tolidine (CAS 119-93-7)
- o-Toluidine (CAS 95-53-4)
- p-Phenylazoaniline (CAS 60-09-3)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.**US state regulations**

WARNING: This product contains a chemical known to the State of California to cause cancer.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

2,4,5-Trimethylaniline (CAS 137-17-7)	Listed: October 24, 1997
2,4-Diaminotoluene (CAS 95-80-7)	Listed: January 1, 1988
2,6-Dimethylaniline (CAS 87-62-7)	Listed: January 1, 1991
2-Methoxy-5-methylaniline (CAS 120-71-8)	Listed: January 1, 1988
3,3'-Dichlorobenzidine (CAS 91-94-1)	Listed: October 1, 1987
3,3'-Dimethoxybenzidine (CAS 119-90-4)	Listed: January 1, 1988
3,3'-Dimethyl-4,4'-diaminodiphenylmethane (CAS 838-88-0)	Listed: April 1, 1988
4,4'-Methylene bis(o-chloroaniline) (CAS 101-14-4)	Listed: July 1, 1987
4,4'-Methylenedianiline (CAS 101-77-9)	Listed: January 1, 1988
4,4'-Oxydianiline (CAS 101-80-4)	Listed: January 1, 1988
4,4'-Thiodianiline (CAS 139-65-1)	Listed: April 1, 1988
4-Aminobiphenyl (CAS 92-67-1)	Listed: February 27, 1987
4-Chloro-2-methylaniline (CAS 95-69-2)	Listed: January 1, 1990
	Listed: May 15, 1998
4-Chloroaniline (CAS 106-47-8)	Listed: October 1, 1994
4-Methoxy-1,3-phenylenediamine (CAS 615-05-4)	Listed: October 1, 1990
Benzidine (CAS 92-87-5)	Listed: February 27, 1987
b-Naphthylamine (CAS 91-59-8)	Listed: February 27, 1987
o-Aminoazotoluene (CAS 97-56-3)	Listed: July 1, 1987
o-Anisidine (CAS 90-04-0)	Listed: July 1, 1987
o-Tolidine (CAS 119-93-7)	Listed: January 1, 1988
o-Toluidine (CAS 95-53-4)	Listed: January 1, 1988
p-Phenyazoaniline (CAS 60-09-3)	Listed: January 1, 1990

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

2,4,5-Trimethylaniline (CAS 137-17-7)
2,4-Diaminotoluene (CAS 95-80-7)
2,6-Dimethylaniline (CAS 87-62-7)
2-Methoxy-5-methylaniline (CAS 120-71-8)
3,3'-Dichlorobenzidine (CAS 91-94-1)
3,3'-Dimethoxybenzidine (CAS 119-90-4)
3,3'-Dimethyl-4,4'-diaminodiphenylmethane (CAS 838-88-0)
4,4'-Methylene bis(o-chloroaniline) (CAS 101-14-4)
4,4'-Methylenedianiline (CAS 101-77-9)
4,4'-Oxydianiline (CAS 101-80-4)
4,4'-Thiodianiline (CAS 139-65-1)
4-Aminobiphenyl (CAS 92-67-1)
4-Chloro-2-methylaniline (CAS 95-69-2)
4-Chloroaniline (CAS 106-47-8)
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b-Naphthylamine (CAS 91-59-8)
o-Aminoazotoluene (CAS 97-56-3)
o-Anisidine (CAS 90-04-0)
o-Tolidine (CAS 119-93-7)
o-Toluidine (CAS 95-53-4)
p-Phenyazoaniline (CAS 60-09-3)

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	No
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	No

Country(s) or region	Inventory name	On inventory (yes/no)*
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	No
New Zealand	New Zealand Inventory	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	No

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 01-14-2019

Version # 01

NFPA ratings
Health: 3
Flammability: 3
Instability: 0

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