

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Mixture
Product name : Benzidines Standard
Product code : AL0-101244
Product group : Trade product

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.2.1. Relevant identified uses

Main use category : Laboratory Use
Industrial/Professional use spec : Industrial
For professional use only

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Phenova
6390 Joyce Dr. Suite 100
80403 Golden, CO - United States
T 1-866-942-2978 - F 1-866-283-0269
info@phenova.com - www.phenova.com

1.4. Emergency telephone number

Emergency number : ChemTel Assistance (US/Canada) 1-800-255-3924
ChemTel Assistance (International) +1 813-248-0585

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Carc. 1A H350
Aquatic Chronic 3 H412

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

Carc.Cat.1; R45
R52/53
Full text of R-phrases: see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

Labeling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



GHS08

Signal word (CLP) : Danger
Hazardous ingredients : benzidine, 3,3'-dichlorobenzidine, Methylene Chloride
Hazard statements (CLP) : H350 - May cause cancer
H412 - Harmful to aquatic life with long lasting effects
Precautionary statements (CLP) : P271 - Use only outdoors or in a well-ventilated area
P273 - Avoid release to the environment
P281 - Use personal protective equipment as required
P308+P313 - IF exposed or concerned: Get medical advice/attention
P405 - Store locked up

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EUH phrases : EUH208 - Contains 3,3'-dichlorobenzidine(91-94-1). May produce an allergic reaction

No labeling applicable

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Methylene Chloride (Component)	(CAS No) 75-09-2 (EC no) 200-838-9 (EC index no) 602-004-00-3	99.6	Carc. 2, H351
benzidine (Component)	(CAS No) 92-87-5 (EC no) 202-199-1 (EC index no) 612-042-00-2	0.2	Acute Tox. 4 (Oral), H302 Carc. 1A, H350 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
3,3'-dichlorobenzidine (Component)	(CAS No) 91-94-1 (EC no) 202-109-0 (EC index no) 612-068-00-4	0.2	Acute Tox. 4 (Dermal), H312 Skin Sens. 1, H317 Carc. 1B, H350 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

Name	Product identifier	Specific concentration limits
benzidine (Component)	(CAS No) 92-87-5 (EC no) 202-199-1 (EC index no) 612-042-00-2	(C >= 0.01) Carc. 1A, H350

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. IF exposed or concerned: Get medical advice/attention.

First-aid measures after inhalation : Allow victim to breathe fresh air. Allow the victim to rest.

First-aid measures after skin contact : Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse.

First-aid measures after eye contact : Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persist.

First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation : May cause cancer by inhalation.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Foam. Dry powder. Carbon dioxide. Water spray. Sand.

Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

No additional information available

5.3. Advice for firefighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection.

Emergency procedures : Ventilate area.

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6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.

Hygiene measures : Gently wash with plenty of soap and water. Remove/Take off immediately all contaminated clothing. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep container closed when not in use. Keep container tightly closed and in a well-ventilated place. Keep away from any flames or sparking source.

Incompatible products : Strong bases. Strong acids.

Incompatible materials : Sources of ignition. Direct sunlight.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Exposure controls

Appropriate engineering controls : Either local exhaust or general room ventilation is usually required.

Personal protective equipment : Avoid all unnecessary exposure. Gloves. Protective clothing. Protective goggles. Safety glasses.



Hand protection : Wear chemically resistant protective gloves. Wear suitable gloves resistant to chemical penetration.

Eye protection : Chemical goggles or safety glasses. Safety glasses.

Skin and body protection : Wear chemically protective gloves, lab coat or apron to prevent prolonged or repeated skin contact.

Respiratory protection : Wear appropriate mask.

Other information : Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Liquid

Color : Colorless.

Odor : characteristic.

pH : No data available

Melting point : No data available

Freezing point : No data available

Boiling point : No data available

Flash point : No data available

Auto-ignition temperature : No data available

Decomposition temperature : No data available

Flammability (solid, gas) : Non flammable

Relative density : No data available

Solubility : No data available

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Explosive properties : No data available
Oxidizing properties : No data available
Explosion limits : No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Not established.

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

fume. Carbon monoxide. Carbon dioxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

benzidine (92-87-5)	
LD50 oral rat	309 mg/kg (Rat; Literature study)
ATE CLP (oral)	309.000 mg/kg body weight
3,3'-dichlorobenzidine (91-94-1)	
LD50 oral rat	7070 mg/kg (Rat)
ATE CLP (oral)	7070.000 mg/kg body weight
ATE CLP (dermal)	1100.000 mg/kg body weight
Methylene Chloride (75-09-2)	
LD50 oral rat	> 2000 mg/kg (Rat; Literature study)
LD50 dermal rabbit	> 2000 mg/kg (Rabbit; Literature study)

Skin corrosion/irritation : Not classified
Based on available data, the classification criteria are not met

Serious eye damage/irritation : Not classified
Based on available data, the classification criteria are not met

Respiratory or skin sensitization : Not classified
Based on available data, the classification criteria are not met

Germ cell mutagenicity : Not classified
Based on available data, the classification criteria are not met

Carcinogenicity : May cause cancer.
May cause cancer

Reproductive toxicity : Not classified
Based on available data, the classification criteria are not met

Specific target organ toxicity (single exposure) : Not classified
Based on available data, the classification criteria are not met

Specific target organ toxicity (repeated exposure) : Not classified
Based on available data, the classification criteria are not met

Aspiration hazard : Not classified
Based on available data, the classification criteria are not met

Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met.

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SECTION 12: Ecological information

12.1. Toxicity

Ecology - water : Harmful to aquatic life with long lasting effects.

benzidine (92-87-5)	
LC50 fish 1	4.35 mg/l (96 h; Salmo sp.)
EC50 Daphnia 1	0.6 mg/l (48 h; Daphnia magna; Chronic)
LC50 fish 2	7.4 mg/l 96 h; Salmo gairdneri (Oncorhynchus mykiss)
EC50 Daphnia 2	0.32 mg/l (Daphnia magna)
Threshold limit algae 1	20 mg/l (Microcystis aeruginosa)
3,3'-dichlorobenzidine (91-94-1)	
LC50 fish 1	1.8 mg/l (48 h; Oryzias latipes)
EC50 other aquatic organisms 1	4.3 mg/l (72 h; Scenedesmus subspicatus; Growth rate)
LC50 fish 2	0.5 mg/l (96 h; Lepomis macrochirus)
Threshold limit algae 1	0.32 mg/l (72 h; Scenedesmus subspicatus)
Methylene Chloride (75-09-2)	
LC50 fish 1	193 mg/l (96 h; Pimephales promelas; Flow-through system)
EC50 Daphnia 1	168.2 mg/l (48 h; Daphnia magna)
LC50 fish 2	220 mg/l (96 h; Lepomis macrochirus; Flow-through system)
Threshold limit algae 1	1450 mg/l (192 h; Scenedesmus quadricauda; Cell numbers)
Threshold limit algae 2	550 mg/l (192 h; Microcystis aeruginosa)

12.2. Persistence and degradability

Benzidines Standard	
Persistence and degradability	May cause long-term adverse effects in the environment.
benzidine (92-87-5)	
Persistence and degradability	Not readily biodegradable in water. Forming sediments in water. Non degradable in the soil. Adsorbs into the soil.
3,3'-dichlorobenzidine (91-94-1)	
Persistence and degradability	Inherently biodegradable. Not readily biodegradable in water. Photolysis in the air.
Methylene Chloride (75-09-2)	
Persistence and degradability	Not readily biodegradable in water. Biodegradable in the soil.

12.3. Bioaccumulative potential

Benzidines Standard	
Bioaccumulative potential	Not established.
benzidine (92-87-5)	
BCF fish 1	55 (Gambusia affinis)
BCF fish 2	38 - 42 (908 h; Lepomis macrochirus; Muscles)
BCF other aquatic organisms 1	2512 (Chlorophyta)
BCF other aquatic organisms 2	293 (Daphnia magna)
Log Pow	1.34 - 1.81
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).
3,3'-dichlorobenzidine (91-94-1)	
BCF fish 1	507 (168 h; Lepomis macrochirus)
BCF fish 2	43 - 213 (Cyprinus carpio; Test duration: 8 weeks)
BCF other aquatic organisms 1	940 (Algae)
Log Pow	3.02 - 3.78
Bioaccumulative potential	Potential for bioaccumulation (500 ≤ BCF ≤ 5000).
Methylene Chloride (75-09-2)	
BCF fish 1	2 - 40 (Cyprinus carpio; Test duration: 6 weeks)
Log Pow	1.25 (Experimental value)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).

12.4. Mobility in soil

Methylene Chloride (75-09-2)	
Surface tension	0.028 N/m (20 °C)
Ecology - soil	May be harmful to plant growth, blooming and fruit formation.

12.5. Results of PBT and vPvB assessment

No additional information available

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12.6. Other adverse effects

Additional information : Avoid release to the environment

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

UN-No. (ADR) : 2810

UN-No.(IATA) : 2810

14.2. UN proper shipping name

Proper Shipping Name (ADR) : TOXIC LIQUID, ORGANIC, N.O.S.

Proper Shipping Name (IATA) : TOXIC LIQUID, ORGANIC, N.O.S.

Proper Shipping Name (IMDG) : TOXIC LIQUID, ORGANIC, N.O.S.

Proper Shipping Name (ADN) : TOXIC LIQUID, ORGANIC, N.O.S.

Transport document description (ADR) : UN 2810 TOXIC LIQUID, ORGANIC, N.O.S. (dichloromethane(75-09-2)), 6.1, III, (D/E)

14.3. Packing group

Class (ADR) : 6.1

Classification code (ADR) : T1

Class (IATA) : 6.1

Class (IMDG) : 6.1

Class (ADN) : 6.1

Hazard labels (ADR) : 6.1



Hazard labels (IATA) : 6.1



14.4. Packing group

Packing group (ADR) : III

Packing group (IATA) : III

14.5. Environmental hazards

Other information : No supplementary information available.

14.6. Special precautions for user

14.6.1. Overland transport

Hazard identification number (Kemler No.) : 60

Classification code (ADR) : T1

Orange plates :



Special provision (ADR) : 274, 614

Transport category (ADR) : 2

Tunnel restriction code (ADR) : D/E

Limited quantities (ADR) : 100ml

Excepted quantities (ADR) : E4

14.6.2. Transport by sea

No additional information available

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14.6.3. Air transport

CAO packing instructions (IATA)	: 663
CAO max net quantity (IATA)	: 220L
PCA packing instructions (IATA)	: 655
PCA Limited quantities (IATA)	: Y642
PCA limited quantity max net quantity (IATA)	: 2L
PCA max net quantity (IATA)	: 60L
PCA Excepted quantities (IATA)	: E1
Special provision (IATA)	: A137
ERG code (IATA)	: 6L

14.6.4. Inland waterway transport

Carriage prohibited (ADN) : No

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

Contains no substances with Annex XVII restrictions
Contains no REACH candidate substance
Contains no REACH Annex XIV substances.

15.1.2. National regulations

No additional information available

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Data sources : REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labeling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

Other information : None.

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