

SECTION 1: Identification

1.1. Identification

Product form : Mixture
Product name : 8270 App IX Mix 2
Product code : AL0-180102

1.2. Recommended use and restrictions on use

Use of the substance/mixture : Certified reference material for laboratory use only

1.3. Supplier

Phenova
6390 Joyce Dr. Suite 100
Golden, CO 80403 - 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: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Flammable liquids H226 Flammable liquid and vapor
Category 3
Carcinogenicity Category H350 May cause cancer
1A

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS US labeling

Hazard pictograms (GHS US) :



Signal word (GHS US) : Danger

Hazard statements (GHS US) : H226 - Flammable liquid and vapor
H350 - May cause cancer

Precautionary statements (GHS US) : P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 - Keep container tightly closed.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P308+P313 - If exposed or concerned: Get medical advice/attention.
P370+P378 - In case of fire: Use media other than water to extinguish.
P403+P235 - Store in a well-ventilated place. Keep cool.
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

2.3. Other hazards which do not result in classification

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

8270 App IX Mix 2

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	Conc.
Methylene Chloride (Component)	(CAS-No.) 75-09-2	98.3
2-Acetylaminofluorene (Component)	(CAS-No.) 53-96-3	0.1
4-aminobiphenyl (Component)	(CAS-No.) 92-67-1	0.1
4-dimethylaminoazobenzene (Component)	(CAS-No.) 60-11-7	0.1
3,3'-Dimethylbenzidine (Component)	(CAS-No.) 119-93-7	0.1
2-naphthylamine (Component)	(CAS-No.) 91-59-8	0.1
5-nitro-o-toluidine (Component)	(CAS-No.) 99-55-8	0.1
o-toluidine (Component)	(CAS-No.) 95-53-4	0.1
N-Nitrosodiethylamine (Component)	(CAS-No.) 55-18-5	0.1
N-Nitroso-N-methylethylamine (Component)	(CAS-No.) 10595-95-6	0.1
N-Nitrosomorpholine (Component)	(CAS-No.) 59-89-2	0.1
N-Nitrosopiperidine (Component)	(CAS-No.) 100-75-4	0.1
N-nitrosodibutylamine (Component)	(CAS-No.) 924-16-3	0.1
N-Nitrosopyrrolidine (Component)	(CAS-No.) 930-55-2	0.1

Full text of hazard classes and H-statements : see section 16

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 affected person to breathe fresh air. Allow the victim to rest.
First-aid measures after skin contact	: Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
First-aid measures after eye contact	: Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persists.
First-aid measures after ingestion	: Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

4.2. Most important symptoms and effects (acute and delayed)

Potential Adverse human health effects and symptoms	: Based on available data, the classification criteria are not met.
Symptoms/effects after inhalation	: May cause cancer by inhalation.

4.3. Immediate medical attention and special treatment, if necessary

No additional information available

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) 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. Specific hazards arising from the chemical

Fire hazard	: Flammable liquid and vapor.
Explosion hazard	: May form flammable/explosive vapor-air mixture.

8270 App IX Mix 2

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

5.3. Special protective equipment and precautions for fire-fighters

- 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.

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

- Additional hazards when processed : Handle empty containers with care because residual vapors are flammable.
- 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. No open flames. No smoking. Take precautionary measures against static discharge. Use only non-sparking tools. 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

- Technical measures : Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment.
- Storage conditions : Keep container tightly closed. 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. Heat sources.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8270 App IX Mix 2		
ACGIH	Local name	Dichloromethane
ACGIH	ACGIH TWA (ppm)	50 ppm
ACGIH	Remark (ACGIH)	COHb-emia; CNS impair
ACGIH	Regulatory reference	ACGIH 2018
OSHA	Remark (OSHA)	(2) See Table Z-2.
OSHA	Regulatory reference (US-OSHA)	OSHA
Methylene Chloride (75-09-2)		
ACGIH	Local name	Dichloromethane
ACGIH	ACGIH TWA (ppm)	50 ppm
ACGIH	Remark (ACGIH)	COHb-emia; CNS impair
ACGIH	Regulatory reference	ACGIH 2018

8270 App IX Mix 2

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Methylene Chloride (75-09-2)		
OSHA	Remark (OSHA)	(2) See Table Z-2.
OSHA	Regulatory reference (US-OSHA)	OSHA
2-Acetylaminofluorene (53-96-3)		
Not applicable		
4-aminobiphenyl (92-67-1)		
Not applicable		
4-dimethylaminoazobenzene (60-11-7)		
Not applicable		
3,3'-Dimethylbenzidine (119-93-7)		
Not applicable		
2-naphthylamine (91-59-8)		
Not applicable		
5-nitro-o-toluidine (99-55-8)		
ACGIH	Local name	5-Nitro-o-toluidine
ACGIH	ACGIH TWA (mg/m ³)	1 mg/m ³ (Inhalable fraction)
ACGIH	Remark (ACGIH)	Liver dam
ACGIH	Regulatory reference	ACGIH 2018
N-nitrosodibutylamine (924-16-3)		
Not applicable		
N-Nitrosodiethylamine (55-18-5)		
Not applicable		
N-Nitroso-N-methylethylamine (10595-95-6)		
Not applicable		
N-Nitrosomorpholine (59-89-2)		
Not applicable		
N-Nitrosopiperidine (100-75-4)		
Not applicable		
N-Nitrosopyrrolidine (930-55-2)		
Not applicable		
o-toluidine (95-53-4)		
ACGIH	ACGIH TWA (ppm)	2 ppm (o-Toluidine; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value)
OSHA	OSHA PEL (TWA) (mg/m ³)	22 mg/m ³
OSHA	OSHA PEL (TWA) (ppm)	5 ppm
OSHA	Regulatory reference (US-OSHA)	OSHA

8.2. Appropriate engineering controls

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

8.3. Individual protection measures/Personal protective equipment

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

8270 App IX Mix 2

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Skin and body protection:

Wear chemically protective gloves, lab coat or apron to prevent prolonged or repeated skin contact

Respiratory protection:

Wear appropriate mask

Personal protective equipment symbol(s):



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
	: Colorless
	: characteristic
Odor threshold	: No data available
pH	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: Flammable liquid and vapor.
Vapor pressure	: No data available
Relative vapor density at 20 °C	: No data available
Relative density	: No data available
Solubility	: No data available
Partition coefficient n-octanol/water (Log Pow)	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosion limits	: No data available
Explosive properties	: No data available
Oxidizing properties	: 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. Flammable liquid and vapor. May form flammable/explosive vapor-air mixture.

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures. Open flame. Overheating. Heat. Sparks.

8270 App IX Mix 2

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

fume. Carbon monoxide. Carbon dioxide. May release flammable gases.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

Methylene Chloride (75-09-2)	
LD50 oral rat	> 2000 mg/kg body weight (OECD 401: Acute Oral Toxicity, Rat, Male / female, Experimental value, Oral)
LD50 dermal rat	> 2000 mg/kg body weight (OECD 402: Acute Dermal Toxicity, 24 h, Rat, Male / female, Experimental value, Dermal)
2-Acetylaminofluorene (53-96-3)	
LD50 oral rat	810 mg/kg mouse
ATE US (oral)	810 mg/kg body weight
4-aminobiphenyl (92-67-1)	
LD50 oral rat	500 mg/kg (Rat, Oral)
ATE US (oral)	500 mg/kg body weight
4-dimethylaminoazobenzene (60-11-7)	
LD50 oral rat	200 mg/kg (Rat, Oral)
ATE US (oral)	200 mg/kg body weight
3,3'-Dimethylbenzidine (119-93-7)	
LD50 oral rat	404 mg/kg (Rat, Oral)
ATE US (oral)	404 mg/kg body weight
2-naphthylamine (91-59-8)	
LD50 oral rat	727 mg/kg (Rat, Oral)
ATE US (oral)	727 mg/kg body weight
5-nitro-o-toluidine (99-55-8)	
ATE US (oral)	100 mg/kg body weight
ATE US (dermal)	300 mg/kg body weight
ATE US (gases)	700 ppmV/4h
ATE US (vapors)	3 mg/l/4h
ATE US (dust, mist)	0.5 mg/l/4h
N-nitrosodibutylamine (924-16-3)	
LD50 oral rat	1200 mg/kg (Rat)
ATE US (oral)	1200 mg/kg body weight
N-Nitrosodiethylamine (55-18-5)	
LD50 oral rat	220 mg/kg (Rat, Oral)
ATE US (oral)	220 mg/kg body weight
N-Nitroso-N-methylethylamine (10595-95-6)	
LD50 oral rat	90 mg/kg (Rat)
ATE US (oral)	90 mg/kg body weight
N-Nitrosomorpholine (59-89-2)	
LD50 oral rat	282 mg/kg (Rat, Oral)
ATE US (oral)	282 mg/kg body weight
N-Nitrosopiperidine (100-75-4)	
LD50 oral rat	200 mg/kg (Rat, Oral)
ATE US (oral)	200 mg/kg body weight
N-Nitrosopyrrolidine (930-55-2)	
LD50 oral rat	900 mg/kg (Rat, Oral)
ATE US (oral)	900 mg/kg body weight

8270 App IX Mix 2

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

o-toluidine (95-53-4)	
LD50 oral rat	670 mg/kg (Rat)
LD50 dermal rabbit	3250 mg/kg (Rabbit)
ATE US (oral)	670 mg/kg body weight
ATE US (dermal)	3250 mg/kg body weight
ATE US (gases)	700 ppmV/4h
ATE US (vapors)	3 mg/l/4h
ATE US (dust, mist)	0.5 mg/l/4h

Skin corrosion/irritation	: Not classified
Serious eye damage/irritation	: Not classified
Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: Not classified
	Based on available data, the classification criteria are not met
Carcinogenicity	: May cause cancer.

Methylene Chloride (75-09-2)	
IARC group	2A - Probably carcinogenic to humans
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen

2-Acetylaminofluorene (53-96-3)	
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen

4-aminobiphenyl (92-67-1)	
IARC group	1 - Carcinogenic to humans
National Toxicology Program (NTP) Status	Known Human Carcinogens

4-dimethylaminoazobenzene (60-11-7)	
IARC group	2B - Possibly carcinogenic to humans
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen

3,3'-Dimethylbenzidine (119-93-7)	
IARC group	2B - Possibly carcinogenic to humans
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen

2-naphthylamine (91-59-8)	
IARC group	1 - Carcinogenic to humans
National Toxicology Program (NTP) Status	Known Human Carcinogens

5-nitro-o-toluidine (99-55-8)	
IARC group	3 - Not classifiable

N-nitrosodibutylamine (924-16-3)	
IARC group	2B - Possibly carcinogenic to humans
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen

N-Nitrosodiethylamine (55-18-5)	
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen

N-Nitroso-N-methylethylamine (10595-95-6)	
IARC group	2B - Possibly carcinogenic to humans

N-Nitrosomorpholine (59-89-2)	
IARC group	2B - Possibly carcinogenic to humans
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen

N-Nitrosopiperidine (100-75-4)	
IARC group	2B - Possibly carcinogenic to humans
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen

N-Nitrosopyrrolidine (930-55-2)	
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen

o-toluidine (95-53-4)	
IARC group	1 - Carcinogenic to humans
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen, Known Human Carcinogens

8270 App IX Mix 2

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Reproductive toxicity	: Not classified Based on available data, the classification criteria are not met
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified
Aspiration hazard	: Not classified
Potential Adverse human health effects and symptoms	: Based on available data, the classification criteria are not met.
Symptoms/effects after inhalation	: May cause cancer by inhalation.

SECTION 12: Ecological information

12.1. Toxicity

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

Methylene Chloride (75-09-2)

LC50 fish 1	193 mg/l (96 h, Pimephales promelas, Flow-through system, Fresh water, Experimental value)
EC50 Daphnia 1	168.2 mg/l (48 h, Daphnia magna)

3,3'-Dimethylbenzidine (119-93-7)

LC50 fish 1	56 mg/l (48 h, Oryzias latipes)
EC50 Daphnia 1	3.2 mg/l (24 h, Daphnia sp., Locomotor effect)

N-Nitrosodiethylamine (55-18-5)

LC50 fish 1	775 mg/l (96 h, Pimephales promelas)
-------------	--------------------------------------

o-toluidine (95-53-4)

LC50 fish 1	68 – 100 mg/l (LC50; 96 h; Leuciscus idus)
EC50 Daphnia 1	0.52 mg/l (EC50; 48 h)

12.2. Persistence and degradability

8270 App IX Mix 2

Persistence and degradability	May cause long-term adverse effects in the environment.
-------------------------------	---

Methylene Chloride (75-09-2)

Persistence and degradability	Biodegradable in the soil. Not readily biodegradable in water.
-------------------------------	--

4-aminobiphenyl (92-67-1)

Persistence and degradability	Biodegradability in water: no data available.
-------------------------------	---

4-dimethylaminoazobenzene (60-11-7)

Persistence and degradability	Biodegradability in water: no data available.
-------------------------------	---

3,3'-Dimethylbenzidine (119-93-7)

Persistence and degradability	Not readily biodegradable in water.
-------------------------------	-------------------------------------

2-naphthylamine (91-59-8)

Persistence and degradability	Not readily biodegradable in water.
ThOD	2.57 g O ₂ /g substance
BOD (% of ThOD)	0.57

N-nitrosodibutylamine (924-16-3)

Persistence and degradability	Biodegradability in water: no data available.
-------------------------------	---

N-Nitrosodiethylamine (55-18-5)

Persistence and degradability	Not readily biodegradable in water.
-------------------------------	-------------------------------------

8270 App IX Mix 2

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

N-Nitroso-N-methylethylamine (10595-95-6)	
Persistence and degradability	Biodegradability in water: no data available.
N-Nitrosomorpholine (59-89-2)	
Persistence and degradability	Biodegradability in water: no data available.
N-Nitrosopiperidine (100-75-4)	
Persistence and degradability	Biodegradability in water: no data available.
N-Nitrosopyrrolidine (930-55-2)	
Persistence and degradability	Biodegradability in water: no data available.
o-toluidine (95-53-4)	
Persistence and degradability	Readily biodegradable in water. Forming sediments in water. Photolysis in the air.
Biochemical oxygen demand (BOD)	1.43 g O ₂ /g substance
ThOD	2.54 g O ₂ /g substance
BOD (% of ThOD)	0.56

12.3. Bioaccumulative potential

8270 App IX Mix 2	
Bioaccumulative potential	Not established.
Methylene Chloride (75-09-2)	
BCF fish 1	2 – 40 (OECD 305: Bioconcentration: Flow-Through Fish Test, 6 week(s), Cyprinus carpio, Semi-static system, Fresh water, Experimental value, GLP)
Partition coefficient n-octanol/water (Log Pow)	1.25 (Experimental value, OECD 107: Partition Coefficient (n-octanol/water): Shake Flask Method, 20 °C)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).
4-aminobiphenyl (92-67-1)	
Partition coefficient n-octanol/water (Log Pow)	3.09 (Calculated)
Bioaccumulative potential	No bioaccumulation data available.
4-dimethylaminoazobenzene (60-11-7)	
Partition coefficient n-octanol/water (Log Pow)	4.58
Bioaccumulative potential	No bioaccumulation data available.
3,3'-Dimethylbenzidine (119-93-7)	
BCF fish 1	4.8 – 83 (Cyprinus carpio, Test duration: 8 weeks)
Partition coefficient n-octanol/water (Log Pow)	2.45 (Experimental value)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).
2-naphthylamine (91-59-8)	
BCF fish 1	32 (Pisces)
Partition coefficient n-octanol/water (Log Pow)	2.08 – 2.4
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).
5-nitro-o-toluidine (99-55-8)	
BCF fish 1	3.16 (672 h, Poecilia latipinna, QSAR)
Partition coefficient n-octanol/water (Log Pow)	1.96 (Estimated value)
Bioaccumulative potential	Bioaccumable.
N-nitrosodibutylamine (924-16-3)	
Bioaccumulative potential	No bioaccumulation data available.
N-Nitrosodiethylamine (55-18-5)	
BCF other aquatic organisms 1	1 (Estimated value)
Partition coefficient n-octanol/water (Log Pow)	0.48
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).
N-Nitroso-N-methylethylamine (10595-95-6)	
Bioaccumulative potential	No bioaccumulation data available.
N-Nitrosomorpholine (59-89-2)	
Partition coefficient n-octanol/water (Log Pow)	-0.44
Bioaccumulative potential	Not bioaccumulative.

8270 App IX Mix 2

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

N-Nitrosopiperidine (100-75-4)	
Bioaccumulative potential	No bioaccumulation data available.
N-Nitrosopyrrolidine (930-55-2)	
Bioaccumulative potential	No bioaccumulation data available.
o-toluidine (95-53-4)	
BCF fish 1	2.2 (BCF; 48 h)
BCF other aquatic organisms 1	5.9 (BCF)
Partition coefficient n-octanol/water (Log Pow)	1.29 – 1.4
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	Low potential for adsorption in soil. May be harmful to plant growth, blooming and fruit formation.

5-nitro-o-toluidine (99-55-8)	
Ecology - soil	Adsorbs into the soil.

o-toluidine (95-53-4)	
Surface tension	0.043 N/m

12.5. Other adverse effects

8270 App IX Mix 2	
Methylene Chloride (75-09-2)	
2-Acetylaminofluorene (53-96-3)	
4-aminobiphenyl (92-67-1)	
4-dimethylaminoazobenzene (60-11-7)	
3,3'-Dimethylbenzidine (119-93-7)	
2-naphthylamine (91-59-8)	
5-nitro-o-toluidine (99-55-8)	
N-nitrosodibutylamine (924-16-3)	
N-Nitrosodiethylamine (55-18-5)	
N-Nitroso-N-methylethylamine (10595-95-6)	
N-Nitrosomorpholine (59-89-2)	
N-Nitrosopiperidine (100-75-4)	
N-Nitrosopyrrolidine (930-55-2)	

8270 App IX Mix 2

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

o-toluidine (95-53-4)

Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Disposal methods

Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.
Additional information : Handle empty containers with care because residual vapors are flammable.
Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Transport document description : UN2810 Toxic, liquids, organic, n.o.s. (4-aminobiphenyl ; 2-naphthylamine ; o-toluidine), 6.1, III
UN-No.(DOT) : UN2810
Proper Shipping Name (DOT) : Toxic, liquids, organic, n.o.s.
4-aminobiphenyl ; 2-naphthylamine ; o-toluidine
Class (DOT) : 6.1 - Class 6.1 - Poisonous materials 49 CFR 173.132
Packing group (DOT) : III - Minor Danger
Hazard labels (DOT) : 6.1 - Poison



DOT Packaging Non Bulk (49 CFR 173.xxx) : 203
DOT Packaging Bulk (49 CFR 173.xxx) : 241
DOT Special Provisions (49 CFR 172.102) : IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized, except for UN2672 (also see Special Provision IP8 in Table 2 for UN2672).
T7 - 4 178.274(d)(2) Normal..... 178.275(d)(3)
TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = $97 / 1 + a (tr - tf)$ Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling.
TP28 - A portable tank having a minimum test pressure of 2.65 bar (265 kPa) may be used provided the calculated test pressure is 2.65 bar or less based on the MAWP of the hazardous material, as defined in 178.275 of this subchapter, where the test pressure is 1.5 times the MAWP.
DOT Packaging Exceptions (49 CFR 173.xxx) : 153
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 60 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 220 L
DOT Vessel Stowage Location : A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.
DOT Vessel Stowage Other : 40 - Stow "clear of living quarters"
Emergency Response Guide (ERG) Number : 153
Other information : No supplementary information available.

Transportation of Dangerous Goods

Not applicable

Transport by sea

Transport document description (IMDG) : UN 2810 TOXIC LIQUID, ORGANIC, N.O.S. (4-aminobiphenyl ; 2-naphthylamine ; o-toluidine), 6.1, III

8270 App IX Mix 2

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

UN-No. (IMDG)	: 2810
Proper Shipping Name (IMDG)	: TOXIC LIQUID, ORGANIC, N.O.S.
Class (IMDG)	: 6.1 - Toxic substances
Packing group (IMDG)	: III - substances presenting low danger
Limited quantities (IMDG)	: 5 L

Air transport

Transport document description (IATA)	: UN 2810 Toxic liquid, organic, n.o.s. (4-aminobiphenyl ; 2-naphthylamine ; o-toluidine), 6.1, III
UN-No. (IATA)	: 2810
Proper Shipping Name (IATA)	: Toxic liquid, organic, n.o.s.
Class (IATA)	: 6.1 - Toxic Substances
Packing group (IATA)	: III - Minor Danger

SECTION 15: Regulatory information

15.1. US Federal regulations

Methylene Chloride (75-09-2)

Listed on the United States TSCA (Toxic Substances Control Act) inventory
Subject to reporting requirements of United States SARA Section 313

Listed on EPA Hazardous Air Pollutant (HAPS)

EPA TSCA Regulatory Flag	R - R - indicates a substance that is the subject of a TSCA section 6 risk management rule.
CERCLA RQ	1000 lb

2-Acetylaminofluorene (53-96-3)

Listed on the United States TSCA (Toxic Substances Control Act) inventory
Subject to reporting requirements of United States SARA Section 313

Listed on EPA Hazardous Air Pollutant (HAPS)

CERCLA RQ	1 lb
-----------	------

4-aminobiphenyl (92-67-1)

Listed on the United States TSCA (Toxic Substances Control Act) inventory
Subject to reporting requirements of United States SARA Section 313

Listed on EPA Hazardous Air Pollutant (HAPS)

CERCLA RQ	1 lb
-----------	------

4-dimethylaminoazobenzene (60-11-7)

Listed on the United States TSCA (Toxic Substances Control Act) inventory
Subject to reporting requirements of United States SARA Section 313

Listed on EPA Hazardous Air Pollutant (HAPS)

CERCLA RQ	10 lb
-----------	-------

3,3'-Dimethylbenzidine (119-93-7)

Listed on the United States TSCA (Toxic Substances Control Act) inventory
Subject to reporting requirements of United States SARA Section 313

Listed on EPA Hazardous Air Pollutant (HAPS)

CERCLA RQ	10 lb
-----------	-------

2-naphthylamine (91-59-8)

Not listed on the United States TSCA (Toxic Substances Control Act) inventory
Subject to reporting requirements of United States SARA Section 313

CERCLA RQ	10 lb
-----------	-------

5-nitro-o-toluidine (99-55-8)

Listed on the United States TSCA (Toxic Substances Control Act) inventory
Subject to reporting requirements of United States SARA Section 313

CERCLA RQ	100 lb
-----------	--------

N-nitrosodibutylamine (924-16-3)

Listed on the United States TSCA (Toxic Substances Control Act) inventory
Subject to reporting requirements of United States SARA Section 313

CERCLA RQ	10 lb
-----------	-------

8270 App IX Mix 2

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

N-Nitrosodiethylamine (55-18-5)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
CERCLA RQ	1 lb
N-Nitroso-N-methylethylamine (10595-95-6)	
Not listed on the United States TSCA (Toxic Substances Control Act) inventory	
N-Nitrosomorpholine (59-89-2)	
Not listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
Listed on EPA Hazardous Air Pollutant (HAPS)	
CERCLA RQ	1 lb
N-Nitrosopiperidine (100-75-4)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
CERCLA RQ	10 lb
N-Nitrosopyrrolidine (930-55-2)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Not subject to reporting requirements of the United States SARA Section 313	
EPA TSCA Regulatory Flag	S - S - indicates a substance that is identified in a final Significant New Use Rule.
CERCLA RQ	1 lb
o-toluidine (95-53-4)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
Listed on EPA Hazardous Air Pollutant (HAPS)	
CERCLA RQ	100 lb

15.2. International regulations

CANADA

Methylene Chloride (75-09-2)	
Listed on the Canadian DSL (Domestic Substances List)	
2-Acetylaminofluorene (53-96-3)	
Listed on the Canadian NDSL (Non-Domestic Substances List)	
4-aminobiphenyl (92-67-1)	
Listed on the Canadian NDSL (Non-Domestic Substances List)	
4-dimethylaminoazobenzene (60-11-7)	
Listed on the Canadian DSL (Domestic Substances List)	
3,3'-Dimethylbenzidine (119-93-7)	
Listed on the Canadian DSL (Domestic Substances List)	
2-naphthylamine (91-59-8)	
Listed on the Canadian DSL (Domestic Substances List)	
5-nitro-o-toluidine (99-55-8)	
Listed on the Canadian NDSL (Non-Domestic Substances List)	
N-nitrosodibutylamine (924-16-3)	
Listed on the Canadian NDSL (Non-Domestic Substances List)	
N-Nitrosodiethylamine (55-18-5)	
Listed on the Canadian DSL (Domestic Substances List)	
N-Nitroso-N-methylethylamine (10595-95-6)	
Not listed on the Canadian DSL (Domestic Substances List)/NDSL (Non-Domestic Substances List)	
N-Nitrosomorpholine (59-89-2)	
Not listed on the Canadian DSL (Domestic Substances List)/NDSL (Non-Domestic Substances List)	
N-Nitrosopiperidine (100-75-4)	
Listed on the Canadian NDSL (Non-Domestic Substances List)	

8270 App IX Mix 2

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

N-Nitrosopyrrolidine (930-55-2)

Listed on the Canadian NDSL (Non-Domestic Substances List)

o-toluidine (95-53-4)

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

No additional information available

National regulations

Methylene Chloride (75-09-2)

Listed on IARC (International Agency for Research on Cancer)
Listed as carcinogen on NTP (National Toxicology Program)
Listed on EPA Hazardous Air Pollutant (HAPS)

2-Acetylaminofluorene (53-96-3)

Listed as carcinogen on NTP (National Toxicology Program)
Listed on EPA Hazardous Air Pollutant (HAPS)

4-aminobiphenyl (92-67-1)

Listed on IARC (International Agency for Research on Cancer)
Listed as carcinogen on NTP (National Toxicology Program)
Listed on EPA Hazardous Air Pollutant (HAPS)

4-dimethylaminoazobenzene (60-11-7)

Listed on IARC (International Agency for Research on Cancer)
Listed as carcinogen on NTP (National Toxicology Program)
Listed on EPA Hazardous Air Pollutant (HAPS)

3,3'-Dimethylbenzidine (119-93-7)

Listed on IARC (International Agency for Research on Cancer)
Listed as carcinogen on NTP (National Toxicology Program)
Listed on EPA Hazardous Air Pollutant (HAPS)

2-naphthylamine (91-59-8)

Listed on IARC (International Agency for Research on Cancer)
Listed as carcinogen on NTP (National Toxicology Program)

N-nitrosodibutylamine (924-16-3)

Listed on IARC (International Agency for Research on Cancer)
Listed as carcinogen on NTP (National Toxicology Program)

N-Nitrosodiethylamine (55-18-5)

Listed on IARC (International Agency for Research on Cancer)
Listed as carcinogen on NTP (National Toxicology Program)

N-Nitroso-N-methylethylamine (10595-95-6)

Listed on IARC (International Agency for Research on Cancer)

N-Nitrosomorpholine (59-89-2)

Listed on IARC (International Agency for Research on Cancer)
Listed as carcinogen on NTP (National Toxicology Program)
Listed on EPA Hazardous Air Pollutant (HAPS)

N-Nitrosopiperidine (100-75-4)

Listed on IARC (International Agency for Research on Cancer)
Listed as carcinogen on NTP (National Toxicology Program)

N-Nitrosopyrrolidine (930-55-2)

Listed on IARC (International Agency for Research on Cancer)
Listed as carcinogen on NTP (National Toxicology Program)

o-toluidine (95-53-4)

Listed on IARC (International Agency for Research on Cancer)
Listed as carcinogen on NTP (National Toxicology Program)
Listed on EPA Hazardous Air Pollutant (HAPS)

15.3. US State regulations

8270 App IX Mix 2

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Methylene Chloride (75-09-2)					
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	No	No	No	50 µg/day	
2-Acetylaminofluorene (53-96-3)					
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	No	No	No	0.2 µg/day	
4-aminobiphenyl (92-67-1)					
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	No	No	No	0.03 µg/day	
4-dimethylaminoazobenzene (60-11-7)					
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	No	No	No	0.2 µg/day	
3,3'-Dimethylbenzidine (119-93-7)					
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	No	No	No	0.044 µg/day	
2-naphthylamine (91-59-8)					
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	No	No	No	0.4 µg/day	
N-nitrosodibutylamine (924-16-3)					
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	No	No	No	0.06 µg/day	
N-Nitrosodiethylamine (55-18-5)					
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	No	No	No	0.02 µg/day	

8270 App IX Mix 2

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

N-Nitroso-N-methylethylamine (10595-95-6)					
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	No	No	No	0.03 µg/day	
N-Nitrosomorpholine (59-89-2)					
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	No	No	No	0.1 µg/day	
N-Nitrosopiperidine (100-75-4)					
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	No	No	No	0.07 µg/day	
N-Nitrosopyrrolidine (930-55-2)					
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	No	No	No	0.3 µg/day	
o-toluidine (95-53-4)					
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	No	No	No	4 µg/day	

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.

Full text of H-phrases:

H226	Flammable liquid and vapor
H350	May cause cancer

Phenova US SDS REV

Copyright 2015 Phenova, Inc. License granted to make paper copies for internal use. The information contained in this Safety Data Sheet is based on our current knowledge. The information contained in this document should be used only as a guide for appropriate safety precautions and should not be considered to be all inclusive. Users should make their own investigation to determine the suitability of the information for their particular purposes. The document does not represent any guarantee of the properties of the product. Phenova, Inc. shall not be held liable for any damage resulting from the handling or use of this product. Visit the Terms and Conditions of Sale link at www.phenova.com for additional terms and conditions of sale.