

### SECTION 1: Identification

#### 1.1. Identification

Product form : Mixture  
Product name : APPIX Cal Mix A  
Product code : AL0-130858

#### 1.2. Recommended use and restrictions on use

No additional information available

#### 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](mailto:info@phenova.com) - [www.phenova.com](http://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 vapour  
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 vapour  
H350 - May cause cancer

Precautionary statements (GHS-US) : 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

### SECTION 3: Composition/Information on ingredients

#### 3.1. Substances

Not applicable

#### 3.2. Mixtures

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Name	Product identifier	Conc.
Methylene Chloride (Component)	(CAS-No.) 75-09-2	97.7
Aramite (Component)	(CAS-No.) 140-57-8	0.2
4,4'-methylenebis(2-chlorobenzeneamine) (Component)	(CAS-No.) 101-14-4	0.2
2-Acetylaminofluorene (Component)	(CAS-No.) 53-96-3	0.1
4-aminobiphenyl (Component)	(CAS-No.) 92-67-1	0.1
3,3'-Dimethylbenzidine (Component)	(CAS-No.) 119-93-7	0.1
4-dimethylaminoazobenzene (Component)	(CAS-No.) 60-11-7	0.1
naphtho(1,2,3,4-def)chrysene (Component)	(CAS-No.) 192-65-4	0.1
2-naphthylamine (Component)	(CAS-No.) 91-59-8	0.1
5-nitro-o-toluidine (Component)	(CAS-No.) 99-55-8	0.1
N-nitrosodibutylamine (Component)	(CAS-No.) 924-16-3	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-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 you feel unwell, seek medical advice (show the label where possible).
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 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	: Not expected to present a significant hazard under anticipated conditions of normal use.

#### 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

No additional information available

#### 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.

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### 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.

#### 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.

#### 7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep only in the original container in a cool, well ventilated place away from : Keep container closed when not in use.

Incompatible products : Strong bases. Strong acids.

Incompatible materials : Sources of ignition. Direct sunlight.

### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

APPIX Cal Mix A		
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

#### 2-Acetylaminofluorene (53-96-3)

Not applicable

#### 4-aminobiphenyl (92-67-1)

Not applicable

#### Aramite (140-57-8)

Not applicable

#### naphtho(1,2,3,4-def)chrysene (192-65-4)

Not applicable

#### 4-dimethylaminoazobenzene (60-11-7)

Not applicable

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

Not applicable

#### 4,4'-methylenebis(2-chlorobenzamine) (101-14-4)

ACGIH	Local name	MBOCA
ACGIH	ACGIH TWA (ppm)	0.01 ppm

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<b>4,4'-methylenebis(2-chlorobenzeneamine) (101-14-4)</b>		
ACGIH	Remark (ACGIH)	Bladder cancer; MeHb-emia
ACGIH	Regulatory reference	ACGIH 2018
<b>2-naphthylamine (91-59-8)</b>		
Not applicable		
<b>5-nitro-o-toluidine (99-55-8)</b>		
ACGIH	Local name	5-Nitro-o-toluidine
ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup> (Inhalable fraction)
ACGIH	Remark (ACGIH)	Liver dam
ACGIH	Regulatory reference	ACGIH 2018
<b>N-nitrosodibutylamine (924-16-3)</b>		
Not applicable		
<b>N-Nitrosodiethylamine (55-18-5)</b>		
Not applicable		
<b>N-Nitroso-N-methylethylamine (10595-95-6)</b>		
Not applicable		
<b>N-Nitrosomorpholine (59-89-2)</b>		
Not applicable		
<b>N-Nitrosopiperidine (100-75-4)</b>		
Not applicable		
<b>N-Nitrosopyrrolidine (930-55-2)</b>		
Not applicable		
<b>Methylene Chloride (75-09-2)</b>		
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

### 8.2. Appropriate engineering controls

No additional information available

### 8.3. Individual protection measures/Personal protective equipment

#### Personal protective equipment:

Avoid all unnecessary exposure.

#### Hand protection:

Wear protective gloves.

#### Eye protection:

Chemical goggles or safety glasses

#### Respiratory protection:

Wear appropriate mask

#### Other information:

Do not eat, drink or smoke during use.

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### 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)	: Non flammable.
Vapor pressure	: No data available
Relative vapor density at 20 °C	: No data available
Relative density	: No data available
Solubility	: No data available
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.

#### 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

#### 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

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<b>Aramite (140-57-8)</b>	
LD50 oral rat	3900 mg/kg (Rat, Oral)
ATE US (oral)	3900 mg/kg body weight
<b>4-dimethylaminoazobenzene (60-11-7)</b>	
LD50 oral rat	200 mg/kg (Rat, Oral)
ATE US (oral)	200 mg/kg body weight
<b>3,3'-Dimethylbenzidine (119-93-7)</b>	
LD50 oral rat	404 mg/kg (Rat, Oral)
ATE US (oral)	404 mg/kg body weight
<b>4,4'-methylenebis(2-chlorobenzeneamine) (101-14-4)</b>	
LD50 oral rat	2000 mg/kg body weight (OECD 423: Acute Oral Toxicity – Acute Toxic Class Method, Rat, Female, Experimental value, Oral, 14 day(s))
LD50 dermal rat	> 2000 mg/kg body weight (OECD 402: Acute Dermal Toxicity, 24 h, Rat, Male / female, Experimental value, Dermal, 14 day(s))
ATE US (oral)	2000 mg/kg body weight
<b>2-naphthylamine (91-59-8)</b>	
LD50 oral rat	727 mg/kg (Rat, Oral)
ATE US (oral)	727 mg/kg body weight
<b>5-nitro-o-toluidine (99-55-8)</b>	
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
<b>N-nitrosodibutylamine (924-16-3)</b>	
LD50 oral rat	1200 mg/kg (Rat)
ATE US (oral)	1200 mg/kg body weight
<b>N-Nitrosodiethylamine (55-18-5)</b>	
LD50 oral rat	220 mg/kg (Rat, Oral)
ATE US (oral)	220 mg/kg body weight
<b>N-Nitroso-N-methylethylamine (10595-95-6)</b>	
LD50 oral rat	90 mg/kg (Rat)
ATE US (oral)	90 mg/kg body weight
<b>N-Nitrosomorpholine (59-89-2)</b>	
LD50 oral rat	282 mg/kg (Rat, Oral)
ATE US (oral)	282 mg/kg body weight
<b>N-Nitrosopiperidine (100-75-4)</b>	
LD50 oral rat	200 mg/kg (Rat, Oral)
ATE US (oral)	200 mg/kg body weight
<b>N-Nitrosopyrrolidine (930-55-2)</b>	
LD50 oral rat	900 mg/kg (Rat, Oral)
ATE US (oral)	900 mg/kg body weight
<b>Methylene Chloride (75-09-2)</b>	
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)

Skin corrosion/irritation	: Not classified
Serious eye damage/irritation	: Not classified
Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: May cause cancer.

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<b>2-Acetylaminofluorene (53-96-3)</b>	
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen
<b>4-aminobiphenyl (92-67-1)</b>	
IARC group	1 - Carcinogenic to humans
National Toxicology Program (NTP) Status	Known Human Carcinogens
<b>Aramite (140-57-8)</b>	
IARC group	2B - Possibly carcinogenic to humans
<b>naphtho(1,2,3,4-def)chrysene (192-65-4)</b>	
IARC group	3 - Not classifiable
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen
<b>4-dimethylaminoazobenzene (60-11-7)</b>	
IARC group	2B - Possibly carcinogenic to humans
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen
<b>3,3'-Dimethylbenzidine (119-93-7)</b>	
IARC group	2B - Possibly carcinogenic to humans
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen
<b>4,4'-methylenebis(2-chlorobenzeneamine) (101-14-4)</b>	
IARC group	1 - Carcinogenic to humans
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen
<b>2-naphthylamine (91-59-8)</b>	
IARC group	1 - Carcinogenic to humans
National Toxicology Program (NTP) Status	Known Human Carcinogens
<b>5-nitro-o-toluidine (99-55-8)</b>	
IARC group	3 - Not classifiable
<b>N-nitrosodibutylamine (924-16-3)</b>	
IARC group	2B - Possibly carcinogenic to humans
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen
<b>N-Nitrosodiethylamine (55-18-5)</b>	
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen
<b>N-Nitroso-N-methylethylamine (10595-95-6)</b>	
IARC group	2B - Possibly carcinogenic to humans
<b>N-Nitrosomorpholine (59-89-2)</b>	
IARC group	2B - Possibly carcinogenic to humans
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen
<b>N-Nitrosopiperidine (100-75-4)</b>	
IARC group	2B - Possibly carcinogenic to humans
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen
<b>N-Nitrosopyrrolidine (930-55-2)</b>	
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen
<b>Methylene Chloride (75-09-2)</b>	
IARC group	2A - Probably carcinogenic to humans
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen

Reproductive toxicity : Not classified

Specific target organ toxicity – single exposure : Not classified

Specific target organ toxicity – repeated exposure : Not classified

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Aspiration hazard	: Not classified
Potential Adverse human health effects and symptoms	: Based on available data, the classification criteria are not met.
Symptoms/effects	: Not expected to present a significant hazard under anticipated conditions of normal use.

### SECTION 12: Ecological information

#### 12.1. Toxicity

Aramite (140-57-8)	
LC50 fish 1	0.32 mg/l (96 h, <i>Salmo gairdneri</i> )
EC50 Daphnia 1	0.16 mg/l (48 h, <i>Daphnia magna</i> )
3,3'-Dimethylbenzidine (119-93-7)	
LC50 fish 1	56 mg/l (48 h, <i>Oryzias latipes</i> )
EC50 Daphnia 1	3.2 mg/l (24 h, <i>Daphnia sp.</i> , Locomotor effect)
4,4'-methylenebis(2-chlorobenzeneamine) (101-14-4)	
LC50 fish 1	0.606 mg/l (OECD 203: Fish, Acute Toxicity Test, 96 h, <i>Oryzias latipes</i> , Semi-static system, Fresh water, Experimental value, GLP)
EC50 Daphnia 1	0.916 mg/l (OECD 202: <i>Daphnia sp.</i> Acute Immobilisation Test, 48 h, <i>Daphnia magna</i> , Semi-static system, Fresh water, Experimental value, GLP)
ErC50 (algae)	> 1.89 mg/l (OECD 201: Alga, Growth Inhibition Test, 72 h, <i>Pseudokirchneriella subcapitata</i> , Static system, Fresh water, Experimental value, GLP)

N-Nitrosodiethylamine (55-18-5)	
LC50 fish 1	775 mg/l (96 h, <i>Pimephales promelas</i> )

Methylene Chloride (75-09-2)	
LC50 fish 1	193 mg/l (96 h, <i>Pimephales promelas</i> , Flow-through system, Fresh water, Experimental value)
EC50 Daphnia 1	168.2 mg/l (48 h, <i>Daphnia magna</i> )

#### 12.2. Persistence and degradability

APPIX Cal Mix A	
Persistence and degradability	Not established.
4-aminobiphenyl (92-67-1)	
Persistence and degradability	Biodegradability in water: no data available.
Aramite (140-57-8)	
Persistence and degradability	Biodegradability in water: no data available.
naphtho(1,2,3,4-def)chrysene (192-65-4)	
Persistence and degradability	Biodegradability in soil: no data available. 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.
4,4'-methylenebis(2-chlorobenzeneamine) (101-14-4)	
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 <sub>2</sub> /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.



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<b>N-Nitroso-N-methylethylamine (10595-95-6)</b>	
Persistence and degradability	Biodegradability in water: no data available.
<b>N-Nitrosomorpholine (59-89-2)</b>	
Persistence and degradability	Biodegradability in water: no data available.
<b>N-Nitrosopiperidine (100-75-4)</b>	
Persistence and degradability	Biodegradability in water: no data available.
<b>N-Nitrosopyrrolidine (930-55-2)</b>	
Persistence and degradability	Biodegradability in water: no data available.
<b>Methylene Chloride (75-09-2)</b>	
Persistence and degradability	Biodegradable in the soil. Not readily biodegradable in water.

### 12.3. Bioaccumulative potential

<b>APPIX Cal Mix A</b>	
Bioaccumulative potential	Not established.
<b>4-aminobiphenyl (92-67-1)</b>	
Log Pow	3.09 (Calculated)
Bioaccumulative potential	No bioaccumulation data available.
<b>Aramite (140-57-8)</b>	
Log Pow	4.82
Bioaccumulative potential	Bioaccumable.
<b>naphtho(1,2,3,4-def)chrysene (192-65-4)</b>	
Log Pow	7.28 (Estimated value)
Bioaccumulative potential	Bioaccumable.
<b>4-dimethylaminoazobenzene (60-11-7)</b>	
Log Pow	4.58
Bioaccumulative potential	No bioaccumulation data available.
<b>3,3'-Dimethylbenzidine (119-93-7)</b>	
BCF fish 1	4.8 - 83 (Cyprinus carpio, Test duration: 8 weeks)
Log Pow	2.45 (Experimental value)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).
<b>4,4'-methylenebis(2-chlorobenzamine) (101-14-4)</b>	
BCF fish 1	114 - 398 (Cyprinus carpio, Test duration: 6 weeks)
Log Pow	2.5 (Experimental value, OECD 117: Partition Coefficient (n-octanol/water), HPLC method)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).
<b>2-naphthylamine (91-59-8)</b>	
BCF fish 1	32 (Pisces)
Log Pow	2.08 - 2.4
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).
<b>5-nitro-o-toluidine (99-55-8)</b>	
BCF fish 1	3.16 (672 h, Poecilia latipinna, QSAR)
Log Pow	1.96 (Estimated value)
Bioaccumulative potential	Bioaccumable.
<b>N-nitrosodibutylamine (924-16-3)</b>	
Bioaccumulative potential	No bioaccumulation data available.
<b>N-Nitrosodiethylamine (55-18-5)</b>	
BCF other aquatic organisms 1	1 (Estimated value)
Log Pow	0.48
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).
<b>N-Nitroso-N-methylethylamine (10595-95-6)</b>	
Bioaccumulative potential	No bioaccumulation data available.
<b>N-Nitrosomorpholine (59-89-2)</b>	
Log Pow	-0.44

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<b>N-Nitrosomorpholine (59-89-2)</b>	
Bioaccumulative potential	Not bioaccumulative.
<b>N-Nitrosopiperidine (100-75-4)</b>	
Bioaccumulative potential	No bioaccumulation data available.
<b>N-Nitrosopyrrolidine (930-55-2)</b>	
Bioaccumulative potential	No bioaccumulation data available.
<b>Methylene Chloride (75-09-2)</b>	
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)
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).

### 12.4. Mobility in soil

<b>naphtho(1,2,3,4-def)chrysene (192-65-4)</b>	
Ecology - soil	Adsorbs into the soil.

<b>4,4'-methylenebis(2-chlorobenzamine) (101-14-4)</b>	
Surface tension	73.3 mN/m (20 °C, 90 vol %, OECD 115: Surface Tension of Aqueous Solutions)
Log Koc	3.56 (log Koc, OECD 121: Estimation of the Adsorption Coefficient (Koc) on Soil and on Sewage Sludge using High Performance Liquid Chromatography (HPLC), Experimental value, GLP)
Ecology - soil	Low potential for mobility in soil.

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

<b>Methylene Chloride (75-09-2)</b>	
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.

### 12.5. Other adverse effects

<b>APPIX Cal Mix A</b>	
<b>2-Acetylaminofluorene (53-96-3)</b>	
<b>4-aminobiphenyl (92-67-1)</b>	
<b>Aramite (140-57-8)</b>	
<b>naphtho(1,2,3,4-def)chrysene (192-65-4)</b>	
<b>4-dimethylaminoazobenzene (60-11-7)</b>	
<b>3,3'-Dimethylbenzidine (119-93-7)</b>	
<b>4,4'-methylenebis(2-chlorobenzamine) (101-14-4)</b>	
<b>2-naphthylamine (91-59-8)</b>	
<b>5-nitro-o-toluidine (99-55-8)</b>	

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<b>N-nitrosodibutylamine (924-16-3)</b>	
<b>N-Nitrosodiethylamine (55-18-5)</b>	
<b>N-Nitroso-N-methylethylamine (10595-95-6)</b>	
<b>N-Nitrosomorpholine (59-89-2)</b>	
<b>N-Nitrosopiperdine (100-75-4)</b>	
<b>N-Nitrosopyrrolidine (930-55-2)</b>	
<b>Methylene Chloride (75-09-2)</b>	

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.  
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. (4,4'-methylenebis(2-chlorobenzeneamine) ; 4-aminobiphenyl ; 2-naphthylamine), 6.1, III  
UN-No.(DOT) : UN2810  
Proper Shipping Name (DOT) : Toxic, liquids, organic, n.o.s.  
4,4'-methylenebis(2-chlorobenzeneamine) ; 4-aminobiphenyl ; 2-naphthylamine  
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 Symbols : G - Identifies PSN requiring a technical name  
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

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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. (4,4'-methylenebis(2-chlorobenzeneamine) ; 4-aminobiphenyl ; 2-naphthylamine), 6.1, III
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

### Air transport

Transport document description (IATA)	: UN 2810 Toxic liquid, organic, n.o.s. (4,4'-methylenebis(2-chlorobenzeneamine) ; 4-aminobiphenyl ; 2-naphthylamine), 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

#### 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

#### Aramite (140-57-8)

Not listed on the United States TSCA (Toxic Substances Control Act) inventory

#### naphtho(1,2,3,4-def)chrysene (192-65-4)

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

#### 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

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<b>3,3'-Dimethylbenzidine (119-93-7)</b>	
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
<b>4,4'-methylenebis(2-chlorobenzamine) (101-14-4)</b>	
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
<b>2-naphthylamine (91-59-8)</b>	
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
<b>5-nitro-o-toluidine (99-55-8)</b>	
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
<b>N-nitrosodibutylamine (924-16-3)</b>	
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
<b>N-Nitrosodiethylamine (55-18-5)</b>	
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
<b>N-Nitroso-N-methylethylamine (10595-95-6)</b>	
Not listed on the United States TSCA (Toxic Substances Control Act) inventory	
<b>N-Nitrosomorpholine (59-89-2)</b>	
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
<b>N-Nitrosopiperidine (100-75-4)</b>	
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
<b>N-Nitrosopyrrolidine (930-55-2)</b>	
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
<b>Methylene Chloride (75-09-2)</b>	
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

### 15.2. International regulations

#### CANADA

<b>2-Acetylaminofluorene (53-96-3)</b>	
Listed on the Canadian NDSL (Non-Domestic Substances List)	
<b>4-aminobiphenyl (92-67-1)</b>	
Listed on the Canadian NDSL (Non-Domestic Substances List)	

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<b>Aramite (140-57-8)</b>
Not listed on the Canadian DSL (Domestic Substances List)/NDSL (Non-Domestic Substances List)
<b>naphtho(1,2,3,4-def)chrysene (192-65-4)</b>
Not listed on the Canadian DSL (Domestic Substances List)/NDSL (Non-Domestic Substances List)
<b>4-dimethylaminoazobenzene (60-11-7)</b>
Listed on the Canadian DSL (Domestic Substances List)
<b>3,3'-Dimethylbenzidine (119-93-7)</b>
Listed on the Canadian DSL (Domestic Substances List)
<b>4,4'-methylenebis(2-chlorobenzeneamine) (101-14-4)</b>
Listed on the Canadian DSL (Domestic Substances List)
<b>2-naphthylamine (91-59-8)</b>
Listed on the Canadian DSL (Domestic Substances List)
<b>5-nitro-o-toluidine (99-55-8)</b>
Listed on the Canadian NDSL (Non-Domestic Substances List)
<b>N-nitrosodibutylamine (924-16-3)</b>
Listed on the Canadian NDSL (Non-Domestic Substances List)
<b>N-Nitrosodiethylamine (55-18-5)</b>
Listed on the Canadian DSL (Domestic Substances List)
<b>N-Nitroso-N-methylethylamine (10595-95-6)</b>
Not listed on the Canadian DSL (Domestic Substances List)/NDSL (Non-Domestic Substances List)
<b>N-Nitrosomorpholine (59-89-2)</b>
Not listed on the Canadian DSL (Domestic Substances List)/NDSL (Non-Domestic Substances List)
<b>N-Nitrosopiperidine (100-75-4)</b>
Listed on the Canadian NDSL (Non-Domestic Substances List)
<b>N-Nitrosopyrrolidine (930-55-2)</b>
Listed on the Canadian NDSL (Non-Domestic Substances List)
<b>Methylene Chloride (75-09-2)</b>
Listed on the Canadian DSL (Domestic Substances List)

### EU-Regulations

No additional information available

### National regulations

<b>2-Acetylaminofluorene (53-96-3)</b>
Listed as carcinogen on NTP (National Toxicology Program) Listed on EPA Hazardous Air Pollutant (HAPS)
<b>4-aminobiphenyl (92-67-1)</b>
Listed on IARC (International Agency for Research on Cancer) Listed as carcinogen on NTP (National Toxicology Program) Listed on EPA Hazardous Air Pollutant (HAPS)
<b>Aramite (140-57-8)</b>
Listed on IARC (International Agency for Research on Cancer)
<b>naphtho(1,2,3,4-def)chrysene (192-65-4)</b>
Listed as carcinogen on NTP (National Toxicology Program)
<b>4-dimethylaminoazobenzene (60-11-7)</b>
Listed on IARC (International Agency for Research on Cancer) Listed as carcinogen on NTP (National Toxicology Program) Listed on EPA Hazardous Air Pollutant (HAPS)

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<b>3,3'-Dimethylbenzidine (119-93-7)</b>
Listed on IARC (International Agency for Research on Cancer) Listed as carcinogen on NTP (National Toxicology Program) Listed on EPA Hazardous Air Pollutant (HAPS)
<b>4,4'-methylenebis(2-chlorobenzamine) (101-14-4)</b>
Listed on IARC (International Agency for Research on Cancer) Listed as carcinogen on NTP (National Toxicology Program) Listed on EPA Hazardous Air Pollutant (HAPS)
<b>2-naphthylamine (91-59-8)</b>
Listed on IARC (International Agency for Research on Cancer) Listed as carcinogen on NTP (National Toxicology Program)
<b>N-nitrosodibutylamine (924-16-3)</b>
Listed on IARC (International Agency for Research on Cancer) Listed as carcinogen on NTP (National Toxicology Program)
<b>N-Nitrosodiethylamine (55-18-5)</b>
Listed on IARC (International Agency for Research on Cancer) Listed as carcinogen on NTP (National Toxicology Program)
<b>N-Nitroso-N-methylethylamine (10595-95-6)</b>
Listed on IARC (International Agency for Research on Cancer)
<b>N-Nitrosomorpholine (59-89-2)</b>
Listed on IARC (International Agency for Research on Cancer) Listed as carcinogen on NTP (National Toxicology Program) Listed on EPA Hazardous Air Pollutant (HAPS)
<b>N-Nitrosopiperidine (100-75-4)</b>
Listed on IARC (International Agency for Research on Cancer) Listed as carcinogen on NTP (National Toxicology Program)
<b>N-Nitrosopyrrolidine (930-55-2)</b>
Listed on IARC (International Agency for Research on Cancer) Listed as carcinogen on NTP (National Toxicology Program)
<b>Methylene Chloride (75-09-2)</b>
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

<b>2-Acetylaminofluorene (53-96-3)</b>					
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	
<b>4-aminobiphenyl (92-67-1)</b>					
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	
<b>Aramite (140-57-8)</b>					
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	20 µg/day	

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<b>naphtho(1,2,3,4-def)chrysene (192-65-4)</b>					
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		
<b>4-dimethylaminoazobenzene (60-11-7)</b>					
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	
<b>3,3'-Dimethylbenzidine (119-93-7)</b>					
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	
<b>4,4'-methylenebis(2-chlorobenzeneamine) (101-14-4)</b>					
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	0.5 µg/day	
<b>2-naphthylamine (91-59-8)</b>					
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	
<b>N-nitrosodibutylamine (924-16-3)</b>					
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	
<b>N-Nitrosodiethylamine (55-18-5)</b>					
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	
<b>N-Nitroso-N-methylethylamine (10595-95-6)</b>					
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	



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<b>N-Nitrosomorpholine (59-89-2)</b>					
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	
<b>N-Nitrosopiperidine (100-75-4)</b>					
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	
<b>N-Nitrosopyrrolidine (930-55-2)</b>					
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	
<b>Methylene Chloride (75-09-2)</b>					
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	

### SECTION 16: Other information

Revision date : 09/11/2019

Other information : None.

Full text of H-phrases:

H226	Flammable liquid and vapour
H350	May cause cancer

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