

### SECTION 1: Identification

#### 1.1. Identification

Product form : Mixture  
 Trade name : ALBERDINGK® U 410

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

Use of the substance/mixture : binding information

#### 1.3. Supplier

##### Manufacturer

ALBERDINGK BOLEY INC  
 6008 West Gate City Boulevard  
 Greensboro, NC 27407 - USA  
 T +1-866-220-4750 - F 336-454-5007  
[Info@Alberdingkusa.com](mailto:Info@Alberdingkusa.com) - [www.alberdingk.com](http://www.alberdingk.com)

#### 1.4. Emergency telephone number

Emergency number : Emergency Contact (24-Hour-Number): Chemtrec 1800-424-9300 or 1-703-527-3887

### SECTION 2: Hazard(s) identification

#### 2.1. Classification of the substance or mixture

##### GHS-US classification

Reproductive toxicity H361 Suspected of damaging fertility or the unborn child  
 Category 2

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) : Warning  
 Hazard statements (GHS-US) : H361 - Suspected of damaging fertility or the unborn child  
 Precautionary statements (GHS-US) : P201 - Obtain special instructions before use.  
 P202 - Do not handle until all safety precautions have been read and understood.  
 P280 - Wear protective gloves/protective clothing/eye protection/face protection.  
 P308+P313 - If exposed or concerned: Get medical advice/attention.  
 P405 - Store locked up.  
 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

Other hazards not contributing to the classification : Not classified as PBT or vPvB.

#### 2.4. Unknown acute toxicity (GHS US)

Not applicable

### SECTION 3: Composition/Information on ingredients

#### 3.1. Substances

Not applicable

#### 3.2. Mixtures

Name	Product identifier	%	GHS-US classification
1-methyl-2-pyrrolidone	(CAS-No.) 872-50-4	4 - 5	Flam. Liq. 4, H227 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 Repr. 2, H361 STOT SE 3, H336

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Name	Product identifier	%	GHS-US classification
N-ethyl morpholine	(CAS-No.) 100-74-3	1 - 2	Flam. Liq. 3, H226 Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Inhalation), H332 Skin Irrit. 2, H315

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 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 : Suspected of damaging fertility or the unborn child.

#### 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

- Reactivity : No reliable data 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.

### 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

- Additional hazards when processed : Good ventilation of the workplace required.

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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.

Handling temperature : 5 - 30 °C

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

Technical measures : No additional information available.  
Storage conditions : Protect against frost. Keep container closed when not in use.  
Incompatible products : Strong bases. Strong acids.  
Incompatible materials : Sources of ignition.  
Maximum storage period : 6 months  
Storage temperature : 10 - 30 °C

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### 1-methyl-2-pyrrolidone (872-50-4)

Not applicable

#### N-ethyl morpholine (100-74-3)

ACGIH	Local name	N-Ethylmorpholine
ACGIH	ACGIH TWA (ppm)	5 ppm
ACGIH	Remark (ACGIH)	URT irr; eye dam
OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	94 mg/m <sup>3</sup>
OSHA	OSHA PEL (TWA) (ppm)	20 ppm

### 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.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state : Liquid  
Appearance : Liquid.  
Color : White to off-white  
Odor : characteristic  
Odor threshold : No data available  
pH : 7 - 8  
Melting point : 0 °C  
Freezing point : 0 °C

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Boiling point	: 100 °C
Flash point	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: Non flammable.
Vapor pressure	: 2.3 kPa
Relative vapor density at 20 °C	: No data available
Relative density	: No data available
Specific gravity / density	: 1 - 1.1 g/cm <sup>3</sup>
Solubility	: Soluble in water.
Log Pow	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: 20 - 200 mPa.s
Explosion limits	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available

### 9.2. Other information

Percent Solids : 39 - 41 %

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No reliable data available.

### 10.2. Chemical stability

Stable under normal conditions. 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

1-methyl-2-pyrrolidone (872-50-4)	
LD50 oral rat	3914 mg/kg (Rat; Equivalent or similar to OECD 401; Literature study; 4150 mg/kg bodyweight; Rat; Experimental value)
ATE US (oral)	3914 mg/kg body weight
N-ethyl morpholine (100-74-3)	
LD50 oral rat	1780 mg/kg (Rat, Oral)
ATE US (oral)	1780 mg/kg body weight
ATE US (gases)	4500 ppmV/4h
ATE US (vapors)	11 mg/l/4h
ATE US (dust, mist)	1.5 mg/l/4h

Skin corrosion/irritation : Not classified  
pH: 7 - 8

Serious eye damage/irritation : Not classified  
pH: 7 - 8

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Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Suspected of damaging fertility or the unborn child.
Specific target organ toxicity – single exposure	: Not classified
Specific target organ toxicity – 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	: Suspected of damaging fertility or the unborn child.

## SECTION 12: Ecological information

### 12.1. Toxicity

1-methyl-2-pyrrolidone (872-50-4)	
LC50 fish 1	3048 mg/l (LC50; 96 h; Salmo gairdneri)
EC50 Daphnia 1	4897 mg/l (EC50; 48 h; Daphnia magna)
Threshold limit algae 1	> 500 mg/l (EC50)
Threshold limit algae 2	600.5 mg/l (EC50; DIN 38412-9; 72 h; Desmodesmus subspicatus; Static system; Fresh water; Experimental value)

### 12.2. Persistence and degradability

ALBERDINGK® U 410	
Persistence and degradability	Not established.
1-methyl-2-pyrrolidone (872-50-4)	
Persistence and degradability	Readily biodegradable in water. Inherently biodegradable. Biodegradable in the soil. Highly mobile in soil. Photodegradation in the air.
Biochemical oxygen demand (BOD)	1.07 g O <sub>2</sub> /g substance
Chemical oxygen demand (COD)	1.56 g O <sub>2</sub> /g substance
ThOD	1.9 g O <sub>2</sub> /g substance
BOD (% of ThOD)	0.56
N-ethyl morpholine (100-74-3)	
Persistence and degradability	Biodegradability in water: no data available.

### 12.3. Bioaccumulative potential

ALBERDINGK® U 410	
Bioaccumulative potential	Not established.
1-methyl-2-pyrrolidone (872-50-4)	
Log Pow	-0.73 - -0.46 (Experimental value; Experimental value; OECD 107: Partition Coefficient (n-octanol/water): Shake Flask Method)
Bioaccumulative potential	Not bioaccumulative.
N-ethyl morpholine (100-74-3)	
Log Pow	0.14
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).

### 12.4. Mobility in soil

1-methyl-2-pyrrolidone (872-50-4)	
Surface tension	0.407 N/m
Log Koc	Koc,20.94; Calculated value; log Koc; 1.32; Calculated value

### 12.5. Other adverse effects

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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. Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

Ecology - waste materials : Avoid release to the environment.

### SECTION 14: Transport information

#### Department of Transportation (DOT)

In accordance with DOT

Other information : No supplementary information available.

#### Transportation of Dangerous Goods

#### Transport by sea

#### Air transport

### SECTION 15: Regulatory information

#### 15.1. US Federal regulations

##### ALBERDINGK® U 410

Listed on the United States TSCA (Toxic Substances Control Act) inventory

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

Chemical(s) subject to the reporting requirements of Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372.

1-methyl-2-pyrrolidone	CAS-No. 872-50-4	4 - 5%
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#### 15.2. International regulations

##### CANADA

##### ALBERDINGK® U 410

Listed on the Canadian DSL (Domestic Substances List)

##### N-ethyl morpholine (100-74-3)

Listed on the Canadian DSL (Domestic Substances List)

#### EU-Regulations

No additional information available

#### National regulations

No additional information available

#### 15.3. US State regulations

**⚠ WARNING** This product can expose you to 1-methyl-2-pyrrolidone, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

1-methyl-2-pyrrolidone (872-50-4)				No significant risk level (NSRL)	Maximum allowable dose level (MADL)
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	Yes	No	No		

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**N-ethyl morpholine (100-74-3)**

U.S. - New Jersey - Right to Know Hazardous Substance List

### SECTION 16: Other information

Other information : None.

Full text of H-phrases:

H226	Flammable liquid and vapour
H227	Combustible liquid
H302	Harmful if swallowed
H315	Causes skin irritation
H319	Causes serious eye irritation
H332	Harmful if inhaled
H336	May cause drowsiness or dizziness
H361	Suspected of damaging fertility or the unborn child

SDS US (GHS HazCom 2012)

*This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product*