

### SECTION 1: Identification

#### 1.1. Identification

Product form : Mixture  
 Trade name : ALBERDINGK® U 4101

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

Use of the substance/mixture : binding agent  
 Restrictions on use : No information available

#### 1.3. Supplier

##### Supplier

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.alberdingkusa.com](http://www.alberdingkusa.com)

#### 1.4. Emergency telephone number

Emergency number : Emergency Contact (24-Hour Number): Chemtrec 1-800-424-9300 or 1-703-527-3887

### SECTION 2: Hazard(s) identification

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

##### GHS US classification

Skin corrosion/irritation Category 2 H315 Causes skin irritation  
 Serious eye damage/eye irritation Category 2A H319 Causes serious eye irritation

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) : H315 - Causes skin irritation  
 H319 - Causes serious eye irritation

Precautionary statements (GHS US) : P264 - Wash hands, forearms and face thoroughly after handling.  
 P280 - Wear protective gloves/protective clothing/eye protection/face protection.  
 P302+P352 - If on skin: Wash with plenty of water.  
 P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 P321 - Specific treatment (see supplemental first aid instruction on this label).  
 P332+P313 - If skin irritation occurs: Get medical advice/attention.  
 P337+P313 - If eye irritation persists: Get medical advice/attention.  
 P362+P364 - Take off contaminated clothing and wash it before reuse.

#### 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

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| Name               | Product identifier | %         | GHS US classification                                                                                                     |
|--------------------|--------------------|-----------|---------------------------------------------------------------------------------------------------------------------------|
| N-ethyl morpholine | (CAS-No.) 100-74-3 | 1.0 - 5.0 | Flam. Liq. 3, H226<br>Acute Tox. 4 (Oral), H302<br>Acute Tox. 4 (Dermal), H312<br>Skin Corr. 1C, H314<br>Eye Dam. 1, H318 |

\*Chemical name, CAS number and/or exact concentration have been withheld as a trade secret

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 : Remove person to fresh air and keep comfortable for breathing. Allow affected person to breathe fresh air. Allow the victim to rest.
- First-aid measures after skin contact : Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical advice/attention. Specific treatment (see supplemental first aid instruction on this label). Wash skin with plenty of water. Take off contaminated clothing. If skin irritation occurs: Get medical advice/attention.
- First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. If eye irritation persists: Get medical advice/attention.
- First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention. Call a poison center/doctor/physician if you feel unwell.

#### 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 skin contact : Causes skin irritation. Irritation.
- Symptoms/effects after eye contact : Causes serious eye irritation. Eye irritation.

#### 4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

### 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

- Hazardous decomposition products in case of fire : Toxic fumes may be released.

#### 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. Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

##### 6.1.1. For non-emergency personnel

- Emergency procedures : Ventilate spillage area. Evacuate unnecessary personnel. Avoid contact with skin and eyes.

##### 6.1.2. For emergency responders

- Protective equipment : Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection".
- Emergency procedures : Ventilate area.

#### 6.2. Environmental precautions

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

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### 6.3. Methods and material for containment and cleaning up

- Methods for cleaning up : Take up liquid spill into absorbent material. Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.
- Other information : Dispose of materials or solid residues at an authorized site.

### 6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection. For further information refer to section 13.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

- Additional hazards when processed : Good ventilation of the workplace required. N-ethyl morpholine is released when applied and dried.
- Precautions for safe handling : Ensure good ventilation of the work station. 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. Avoid contact with skin and eyes. Wear personal protective equipment.
- Handling temperature : 5 – 30 °C
- Hygiene measures : Do not eat, drink or smoke when using this product. Wash hands, forearms and face thoroughly after handling. Wash contaminated clothing before reuse. Always wash hands after handling the product.

### 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. Keep only in the original container in a cool, well ventilated place away from : Store in a well-ventilated place. Keep cool.
- Incompatible products : Strong bases. Strong acids.
- Incompatible materials : Sources of ignition. Direct sunlight.
- Maximum storage period : 6 months from date on CoA
- Storage temperature : 10 – 30 °C

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

|                                                   |                                                |
|---------------------------------------------------|------------------------------------------------|
| <b>ALBERDINGK® U 4101</b>                         |                                                |
| No additional information available               |                                                |
| <b>N-ethyl morpholine (100-74-3)</b>              |                                                |
| <b>USA - ACGIH - Occupational Exposure Limits</b> |                                                |
| Local name                                        | N-Ethylmorpholine                              |
| ACGIH TWA (mg/m <sup>3</sup> )                    | 24 mg/m <sup>3</sup> absorbed through the skin |
| ACGIH TWA (ppm)                                   | 5 ppm                                          |
| Remark (ACGIH)                                    | URT irr; eye dam                               |
| <b>USA - OSHA - Occupational Exposure Limits</b>  |                                                |
| Local name                                        | N-Ethylmorpholine                              |
| OSHA PEL (TWA) (mg/m <sup>3</sup> )               | 94 mg/m <sup>3</sup>                           |
| OSHA PEL (TWA) (ppm)                              | 20 ppm                                         |

### 8.2. Appropriate engineering controls

- Appropriate engineering controls : Ensure good ventilation of the work station.
- Environmental exposure controls : Avoid release to the environment.

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

#### Personal protective equipment:

Avoid all unnecessary exposure.

#### Hand protection:

nitrile rubber gloves

#### Eye protection:

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Chemical goggles or safety glasses. Safety glasses

### Skin and body protection:

Wear suitable protective clothing

### 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                    |
| Appearance                                      | : Liquid.                   |
| Color                                           | : White to off-white        |
| Odor                                            | : characteristic            |
| Odor threshold                                  | : No data available         |
| pH                                              | : 7 – 8.5                   |
| Melting point                                   | : ≈ 0 °C                    |
| Freezing point                                  | : 0 °C                      |
| 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 at RT           |
| 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                                      | : Miscible with water.      |
| 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                              | : 50 – 750 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

The product is non-reactive under normal conditions of use, storage and transport.

### 10.2. Chemical stability

No additional information available

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### 10.3. Possibility of hazardous reactions

Not established.

### 10.4. Conditions to avoid

Extremely high or low temperatures.

### 10.5. Incompatible materials

Strong acids. Strong bases.

### 10.6. Hazardous decomposition products

No additional information.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity (oral) : Not classified

Acute toxicity (dermal) : Not classified

Acute toxicity (inhalation) : Not classified

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

|               |            |
|---------------|------------|
| LD50 oral rat | 1110 mg/kg |
|---------------|------------|

|                    |            |
|--------------------|------------|
| LD50 dermal rabbit | 1980 mg/kg |
|--------------------|------------|

Skin corrosion/irritation : Causes skin irritation.  
pH: 7 – 8.5

Serious eye damage/irritation : Causes serious eye irritation.  
pH: 7 – 8.5

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

Specific target organ toxicity – single exposure : Not classified

Specific target organ toxicity – repeated exposure : Not classified

Aspiration hazard : Not classified

Viscosity, kinematic : No data available

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

Symptoms/effects after skin contact : Causes skin irritation. Irritation.

Symptoms/effects after eye contact : Causes serious eye irritation. Eye irritation.

## SECTION 12: Ecological information

### 12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.

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

|             |                                                                                               |
|-------------|-----------------------------------------------------------------------------------------------|
| LC50 fish 1 | 277 mg/l (DIN 38412-15, 96 h, Leuciscus idus, Static system, Fresh water, Experimental value) |
|-------------|-----------------------------------------------------------------------------------------------|

|                |                                                                                |
|----------------|--------------------------------------------------------------------------------|
| EC50 Daphnia 1 | 804 mg/l (48 h, Daphnia magna, Static system, Fresh water, Experimental value) |
|----------------|--------------------------------------------------------------------------------|

|               |                                                                                                              |
|---------------|--------------------------------------------------------------------------------------------------------------|
| ErC50 (algae) | 291.2 mg/l (DIN 38412-9, 96 h, Desmodesmus subspicatus, Static system, Fresh water, Experimental value, GLP) |
|---------------|--------------------------------------------------------------------------------------------------------------|

### 12.2. Persistence and degradability

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|                               |                  |
|-------------------------------|------------------|
| Persistence and degradability | Not established. |
|-------------------------------|------------------|

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

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

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### 12.3. Bioaccumulative potential

| ALBERDINGK® U 4101                              |                                                                                                                         |
|-------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| Bioaccumulative potential                       | Not established.                                                                                                        |
| N-ethyl morpholine (100-74-3)                   |                                                                                                                         |
| Partition coefficient n-octanol/water (Log Pow) | 0.08 (Practical experience/observation, OECD 107: Partition Coefficient (n-octanol/water): Shake Flask Method, 24.6 °C) |
| Bioaccumulative potential                       | Low potential for bioaccumulation (Log Kow < 4).                                                                        |

### 12.4. Mobility in soil

| N-ethyl morpholine (100-74-3)                   |                             |
|-------------------------------------------------|-----------------------------|
| Partition coefficient n-octanol/water (Log Koc) | 0.85 – 1.13 (log Koc, QSAR) |
| Ecology - soil                                  | Highly mobile in soil.      |

### 12.5. Other adverse effects

Other information : Avoid release to the environment.

## SECTION 13: Disposal considerations

### 13.1. Disposal methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.  
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

Other information : No supplementary information available.

### Transportation of Dangerous Goods

### Transport by sea

### Air transport

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

Polymer Exempt (PE) on US TSCA (Toxic Substances Control Act) Inventory

### 15.2. International regulations

#### CANADA

| ALBERDINGK® U 4101                                    |  |
|-------------------------------------------------------|--|
| Listed on the Canadian DSL (Domestic Substances List) |  |
| N-ethyl morpholine (100-74-3)                         |  |
| Listed on the Canadian DSL (Domestic Substances List) |  |

### EU-Regulations

### National regulations

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Simplified Notification (SN) on Chinese IECSC (Inventory of Existing Chemical Substances)  
Exempt from listing on the AICS (Australian Inventory of Chemical Substances)

### 15.3. US State regulations

**⚠ WARNING:** This product can expose you to N-ethyl morpholine, 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).

| Component                    | State or local regulations                                 |
|------------------------------|------------------------------------------------------------|
| N-ethyl morpholine(100-74-3) | U.S. - New Jersey - Right to Know Hazardous Substance List |

### SECTION 16: Other information

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Revision date : 06/12/2020

Other information : None.

Full text of H-phrases:

|      |                                         |
|------|-----------------------------------------|
| H226 | Flammable liquid and vapour             |
| H302 | Harmful if swallowed                    |
| H312 | Harmful in contact with skin            |
| H314 | Causes severe skin burns and eye damage |
| H315 | Causes skin irritation                  |
| H318 | Causes serious eye damage               |
| H319 | Causes serious eye irritation           |

SDS US (GHS HazCom 2012)

Date of revision