

## SAFETY DATA SHEET

according to Regulation (EC) No. 453/2010

### HS-202

Revision Date: 22-Sep-2015

Revision Number: 5

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

##### 1.1. Product Identifier

Product Name HS-202  
Internal ID Code HM006686

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

Recommended Use Solvent

##### 1.3. Details of the supplier of the safety data sheet

Halliburton Energy Services  
Halliburton House, Howemoss Place  
Kirkhill Industrial Estate  
Dyce  
Aberdeen, AB21 0GN  
United Kingdom

[www.halliburton.com](http://www.halliburton.com)

For further information, please contact

E-Mail address: [fdunexchem@halliburton.com](mailto:fdunexchem@halliburton.com)

##### 1.4. Emergency telephone number

+44 8 08 189 0979 / 1-760-476-3961

| Emergency telephone - §45 - (EC)1272/2008 |                                                                                                                                               |
|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Europe                                    | 112                                                                                                                                           |
| Croatia                                   | Centar za kontrolu otrovanja (CKO): (+385 1) 23-48-342 (Poison Control Center (PCC) - Institute for Medical Research and Occupational Health) |
| Cyprus                                    | +210 7793777                                                                                                                                  |
| Denmark                                   | Poison Control Hotline (DK): +45 82 12 12 12                                                                                                  |
| France                                    | ORFILA (FR): + 01 45 42 59 59                                                                                                                 |
| Germany                                   | Poison Center Berlin (DE): +49 030 30686 790                                                                                                  |
| Italy                                     | Poison Center, Milan (IT): +39 02 6610 1029                                                                                                   |
| Netherlands                               | National Poisons Information Center (NL): +31 30 274 88 88 (NB: this service is only available to health professionals)                       |
| Norway                                    | Poisons Information (NO): + 47 22 591300                                                                                                      |
| Poland                                    | Poison Control and Information Centre, Warsaw (PL): +48 22 619 66 54; +48 22 619 08 97                                                        |
| Romania                                   | +40 21 318 36 06                                                                                                                              |
| Spain                                     | Poison Information Service (ES): +34 91 562 04 20                                                                                             |
| United Kingdom                            | NHS Direct (UK): +44 0845 46 47                                                                                                               |

#### SECTION 2: Hazards Identification

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

##### REGULATION (EC) No 1272/2008

|                                                    |                    |
|----------------------------------------------------|--------------------|
| Aspiration Category                                | Category 1 - H304  |
| Skin Corrosion / irritation                        | Category 2 - H315  |
| Serious Eye Damage / Eye Irritation                | Category 1 - H318  |
| Germ Cell Mutagenicity                             | Category 1B - H340 |
| Carcinogenicity                                    | Category 1B - H350 |
| Reproductive Toxicity                              | Category 1B - H360 |
| Specific Target Organ Toxicity - (Single Exposure) | Category 3 - H336  |

Chronic Aquatic Toxicity

Chronic 3 - H412

**2.2. Label Elements****Hazard Pictograms****Signal Word****Danger****Hazard Statements**

H304 - May be fatal if swallowed and enters airways

H315 - Causes skin irritation

H318 - Causes serious eye damage

H336 - May cause drowsiness or dizziness

H340 - May cause genetic defects

H350 - May cause cancer

H360 - May damage fertility or the unborn child

H412 - Harmful to aquatic life with long lasting effects

**Precautionary Statements - EU (§28, 1272/2008)**

P273 - Avoid release to the environment

P280 - Wear protective gloves/eye protection/face protection

P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician

P302 + P352 - IF ON SKIN: Wash with plenty of soap and 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

P308 + P313 - IF exposed or concerned: Get medical advice/attention

**Contains****Substances**

Cyclohexanone

n-Methylpyrrolidone

Light aromatic solvent

**CAS Number**

108-94-1

872-50-4

64742-95-6

**2.3. Other Hazards**

This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).

This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

**SECTION 3: Composition/information on Ingredients****3.2. Mixtures**

Mixture

| Substances             | EINECS    | CAS Number | PERCENT (w/w) | EU - CLP Substance Classification                                                                                                                      | REACH No.         |
|------------------------|-----------|------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| Cyclohexanone          | 203-631-1 | 108-94-1   | 1 - 5%        | Acute Tox. 4 (H302)<br>Acute Tox. 4 (H312)<br>Acute Tox. 4 (H332)<br>Skin Irrit. 2 (H315)<br>Eye Corr. 1 (H318)<br>Flam. Liq. 3 (H226)                 | No data available |
| n-Methylpyrrolidone    | 212-828-1 | 872-50-4   | 1 - 5%        | Skin Irrit. 2 (H315)<br>Eye Irrit. 2 (H319)<br>Repr. 1 (H360)<br>STOT SE 3 (H335)                                                                      | No data available |
| Light aromatic solvent | 265-199-0 | 64742-95-6 | 60 - 100%     | Skin Irrit. 2 (H315)<br>Muta. 1 (H340)<br>Carc. 1B (H350)<br>STOT SE 3 (H336)<br>Asp. Tox. 1 (H304)<br>Aquatic Chronic 3 (H412)<br>Flam. Liq. 3 (H226) | No data available |

For the full text of the H-phrases mentioned in this Section, see Section 16

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

|                   |                                                                                                                                                                                 |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Inhalation</b> | If inhaled, move victim to fresh air and seek medical attention.                                                                                                                |
| <b>Eyes</b>       | In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.                                       |
| <b>Skin</b>       | In case of contact, immediately flush skin with plenty of soap and water for at least 15 minutes. Get medical attention. Remove contaminated clothing and launder before reuse. |
| <b>Ingestion</b>  | Get medical attention! If vomiting occurs, keep head lower than hips to prevent aspiration. Rinse mouth. Never give anything by mouth to an unconscious person.                 |

### 4.2. Most Important symptoms and effects, both acute and delayed

Aspiration into the lungs may cause chemical pneumonitis including coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal. Causes serious eye damage. Causes skin irritation. May cause drowsiness and dizziness. Carcinogen. May cause heritable genetic damage. Potential reproductive hazard.

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

**Notes to Physician** Treat symptomatically

## SECTION 5: Firefighting Measures

### 5.1. Extinguishing media

#### **Suitable Extinguishing Media**

Carbon dioxide, dry chemical, foam.

#### **Extinguishing media which must not be used for safety reasons**

None known.

### 5.2. Special hazards arising from the substance or mixture

#### **Special Exposure Hazards**

Vapors are heavier than air and may accumulate in low areas. Vapors may travel along the ground to be ignited at distant locations. Use water spray to cool fire exposed surfaces. Closed containers may explode in fire. Decomposition in fire may produce harmful gases.

### 5.3. Advice for firefighters

#### **Special Protective Equipment for Fire-Fighters**

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

## SECTION 6: Accidental release measures

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

Remove sources of ignition. Use appropriate protective equipment. Wear self-contained breathing apparatus in enclosed areas. Avoid breathing vapors. Avoid contact with skin, eyes and clothing. Ensure adequate ventilation. Evacuate all persons from the area.

See Section 8 for additional information

### 6.2. Environmental precautions

Prevent from entering sewers, waterways, or low areas.

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

Isolate spill and stop leak where safe. Remove ignition sources and work with non-sparking tools. Contain spill with sand or other inert materials. Scoop up and remove.

### 6.4. Reference to other sections

See Section 8 and 13 for additional information.

## SECTION 7: Handling and Storage

**7.1. Precautions for Safe Handling**

Remove sources of ignition. Avoid breathing vapors. Avoid contact with eyes, skin, or clothing. Ensure adequate ventilation. Wash hands after use. Launder contaminated clothing before reuse. Ground and bond containers when transferring from one container to another. Use appropriate protective equipment.

**Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice.

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

Store away from oxidizers. Keep from heat, sparks, and open flames.

**7.3. Specific End Use(s)****Exposure Scenario**

No information available

**Other Guidelines**

No information available

## SECTION 8: Exposure Controls/Personal Protection

**8.1. Control parameters****Exposure Limits**

| Substances             | CAS Number | EU             | UK                                                                                      | Netherlands                | France                                                                                 |
|------------------------|------------|----------------|-----------------------------------------------------------------------------------------|----------------------------|----------------------------------------------------------------------------------------|
| Cyclohexanone          | 108-94-1   | Not applicable | TWA: 10 ppm<br>TWA: 41 mg/m <sup>3</sup><br>STEL: 20 ppm<br>STEL: 82 mg/m <sup>3</sup>  | STEL: 50 mg/m <sup>3</sup> | 10 ppm                                                                                 |
| n-Methylpyrrolidone    | 872-50-4   | Not applicable | TWA: 10 ppm<br>TWA: 40 mg/m <sup>3</sup><br>STEL: 75 ppm<br>STEL: 309 mg/m <sup>3</sup> | 40 mg/m <sup>3</sup>       | TWA: 40 mg/m <sup>3</sup><br>TWA: 10 ppm<br>STEL: 80 mg/m <sup>3</sup><br>STEL: 20 ppm |
| Light aromatic solvent | 64742-95-6 | Not applicable | Not applicable                                                                          | Not applicable             | Not applicable                                                                         |

| Substances             | CAS Number | Germany                                  | Spain                                                                                                      | Portugal                                                                                   | Finland                                                                                |
|------------------------|------------|------------------------------------------|------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| Cyclohexanone          | 108-94-1   | TWA: 20 ppm<br>TWA: 80 mg/m <sup>3</sup> | TWA: 10 ppm<br>TWA: 41 mg/m <sup>3</sup><br>20 ppm STEL<br>[VLA-EC]; 82 mg/m <sup>3</sup><br>STEL [VLA-EC] | TWA: 10 ppm<br>TWA: 40.8 mg/m <sup>3</sup><br>STEL: 20 ppm<br>STEL: 81.6 mg/m <sup>3</sup> | TWA: 10 ppm<br>TWA: 41 mg/m <sup>3</sup><br>STEL: 20 ppm<br>STEL: 82 mg/m <sup>3</sup> |
| n-Methylpyrrolidone    | 872-50-4   | TWA: 20 ppm<br>TWA: 82 mg/m <sup>3</sup> | TWA: 10 ppm<br>TWA: 40 mg/m <sup>3</sup><br>20 ppm STEL<br>[VLA-EC]; 80 mg/m <sup>3</sup><br>STEL [VLA-EC] | TWA: 10 ppm<br>TWA: 40 mg/m <sup>3</sup><br>STEL: 20 ppm<br>STEL: 80 mg/m <sup>3</sup>     | TWA: 10 ppm<br>TWA: 40 mg/m <sup>3</sup><br>STEL: 20 ppm<br>STEL: 80 mg/m <sup>3</sup> |
| Light aromatic solvent | 64742-95-6 | 50 ppm                                   | Not applicable                                                                                             | Not applicable                                                                             | Not applicable                                                                         |

| Substances             | CAS Number | Austria                                                                                | Ireland                                                                            | Switzerland                                                                              | Norway                                                                                  |
|------------------------|------------|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| Cyclohexanone          | 108-94-1   | TWA: 5 ppm<br>TWA: 20 mg/m <sup>3</sup><br>STEL" 20 ppm<br>STEL" 80 mg/m <sup>3</sup>  | 10 ppm TWA; 40.8 mg/m <sup>3</sup> TWA<br>20 ppm STEL; 81.6 mg/m <sup>3</sup> STEL | TWA: 25 ppm<br>TWA: 100 mg/m <sup>3</sup><br>STEL: 50 ppm<br>STEL: 200 mg/m <sup>3</sup> | TWA: 20 ppm<br>TWA: 80 mg/m <sup>3</sup><br>STEL: 30 ppm<br>STEL: 120 mg/m <sup>3</sup> |
| n-Methylpyrrolidone    | 872-50-4   | TWA: 10 ppm<br>TWA: 40 mg/m <sup>3</sup><br>STEL" 20 ppm<br>STEL" 80 mg/m <sup>3</sup> | 10 ppm TWA; 40 mg/m <sup>3</sup> TWA<br>20 ppm STEL; 80 mg/m <sup>3</sup> STEL     | TWA: 20 ppm<br>TWA: 80 mg/m <sup>3</sup><br>STEL: 40 ppm<br>STEL: 160 mg/m <sup>3</sup>  | TWA: 5 ppm<br>TWA: 20 mg/m <sup>3</sup><br>STEL: 20 ppm<br>STEL: 80 mg/m <sup>3</sup>   |
| Light aromatic solvent | 64742-95-6 | Not applicable                                                                         | Not applicable                                                                     | Not applicable                                                                           | Not applicable                                                                          |

| Substances             | CAS Number | Italy                                                                                      | Poland                                                  | Hungary                                                     | Czech Republic            |
|------------------------|------------|--------------------------------------------------------------------------------------------|---------------------------------------------------------|-------------------------------------------------------------|---------------------------|
| Cyclohexanone          | 108-94-1   | TWA: 10 ppm<br>TWA: 40.8 mg/m <sup>3</sup><br>STEL: 20 ppm<br>STEL: 81.6 mg/m <sup>3</sup> | TWA: 40 mg/m <sup>3</sup><br>STEL: 80 mg/m <sup>3</sup> | TWA: 40.8 mg/m <sup>3</sup><br>STEL: 81.6 mg/m <sup>3</sup> | TWA: 40 mg/m <sup>3</sup> |
| n-Methylpyrrolidone    | 872-50-4   | Not applicable                                                                             | TWA: 40 mg/m <sup>3</sup><br>STEL: 80 mg/m <sup>3</sup> | Not applicable                                              | TWA: 40 mg/m <sup>3</sup> |
| Light aromatic solvent | 64742-95-6 | Not applicable                                                                             | Not applicable                                          | Not applicable                                              | Not applicable            |

| Substances          | CAS Number | Denmark                                  | Romania                                                                                    | Croatia                                                                                    | Cyprus                                                                                     |
|---------------------|------------|------------------------------------------|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| Cyclohexanone       | 108-94-1   | TWA: 10 ppm<br>TWA: 41 mg/m <sup>3</sup> | TWA: 10 ppm<br>TWA: 40.8 mg/m <sup>3</sup><br>STEL: 20 ppm<br>STEL: 81.6 mg/m <sup>3</sup> | TWA: 10 ppm<br>TWA: 40.8 mg/m <sup>3</sup><br>STEL: 20 ppm<br>STEL: 81.6 mg/m <sup>3</sup> | TWA: 10 ppm<br>TWA: 40.8 mg/m <sup>3</sup><br>STEL: 20 ppm<br>STEL: 81.6 mg/m <sup>3</sup> |
| n-Methylpyrrolidone | 872-50-4   | TWA: 5 ppm<br>TWA: 20 mg/m <sup>3</sup>  | TWA: 10 ppm<br>TWA: 40 mg/m <sup>3</sup><br>STEL: 20 ppm<br>STEL: 80 mg/m <sup>3</sup>     | TWA: 10 ppm<br>TWA: 40 mg/m <sup>3</sup><br>STEL: 20 ppm<br>STEL: 80 mg/m <sup>3</sup>     | TWA: 40 mg/m <sup>3</sup><br>TWA: 10 ppm<br>STEL: 80 mg/m <sup>3</sup><br>STEL: 20 ppm     |

|                        |            |                |                |                |                |
|------------------------|------------|----------------|----------------|----------------|----------------|
| Light aromatic solvent | 64742-95-6 | Not applicable | Not applicable | Not applicable | Not applicable |
|------------------------|------------|----------------|----------------|----------------|----------------|

**Derived No Effect Level (DNEL)**

No information available.

**Worker****General Population****Predicted No Effect Concentration (PNEC)**

No information available.

**8.2. Exposure controls****Engineering Controls**

Use in a well ventilated area. Local exhaust ventilation should be used in areas without good cross ventilation.

**Personal protective equipment**

If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

**Respiratory Protection**

Organic vapor respirator.

**Hand Protection**

Impervious rubber gloves.

**Skin Protection**

Rubber apron.

**Eye Protection**

Chemical goggles; also wear a face shield if splashing hazard exists.

**Other Precautions**

Eyewash fountains and safety showers must be easily accessible.

**Environmental Exposure Controls** Do not allow material to contaminate ground water system**SECTION 9: Physical and Chemical Properties****9.1. Information on basic physical and chemical properties****Physical State:** Liquid**Color:** Colorless Clear**Odor:** Aromatic hydrocarbon**Odor Threshold:** No information available**Property****Values****Remarks/ - Method****pH:**

No data available

**Freezing Point/Range**

No data available

**Melting Point/Range**

No data available

**Boiling Point/Range**

No data available

**Flash Point**

62 °C / 144 °F

**Flammability (solid, gas)**

No data available

**upper flammability limit**

12.6

**lower flammability limit**

1.9

**Evaporation rate**

No data available

**Vapor Pressure**

No data available

**Vapor Density**

No data available

**Specific Gravity**

No data available

**Water Solubility**

Insoluble in water

**Solubility in other solvents**

No data available

**Partition coefficient: n-octanol/water**

No data available

**Autoignition Temperature**

471 °C / 880 °F

**Decomposition Temperature**

No data available

**Viscosity**

No data available

**Explosive Properties**

No information available

**Oxidizing Properties**

No information available

**9.2. Other information****VOC Content (%)**

No data available

**SECTION 10: Stability and Reactivity****10.1. Reactivity**

Not expected to be reactive.

**10.2. Chemical Stability**

Stable

**10.3. Possibility of Hazardous Reactions**

Will Not Occur

#### **10.4. Conditions to Avoid**

None anticipated

#### **10.5. Incompatible Materials**

Strong oxidizers.

#### **10.6. Hazardous Decomposition Products**

Toxic fumes. Carbon monoxide and carbon dioxide.

## **SECTION 11: Toxicological Information**

### **11.1. Information on Toxicological Effects**

#### **Acute Toxicity**

##### **Inhalation**

May cause respiratory irritation. May cause central nervous system depression including headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness.

##### **Eye Contact**

Causes serious eye damage

##### **Skin Contact**

Causes skin irritation. May be absorbed through the skin and produce effects similar to those caused by inhalation and/or ingestion.

##### **Ingestion**

Irritation of the mouth, throat, and stomach. May cause abdominal pain, vomiting, nausea, and diarrhea. Aspiration into the lungs may cause chemical pneumonitis including coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal.

#### **Chronic Effects/Carcinogenicity**

Prolonged or repeated exposure may cause reproductive system damage. This product is a carcinogen. May cause heritable genetic damage.

### **Toxicology data for the components**

| Substances             | CAS Number | LD50 Oral                                                   | LD50 Dermal                                                   | LC50 Inhalation                                                |
|------------------------|------------|-------------------------------------------------------------|---------------------------------------------------------------|----------------------------------------------------------------|
| Cyclohexanone          | 108-94-1   | 800 mg/kg (Rat)<br>1620 mg/kg (Rat)                         | 948 mg/kg (Rabbit)<br>> 794 mg/kg (Rabbit)                    | 10.7 mg/L (Rat) 4h<br>8000 ppm (Rat) 4h<br>> 6.2 mg/L (Rat) 4h |
| n-Methylpyrrolidone    | 872-50-4   | 3598 mg/kg (Rat)<br>3500 mg/kg (Rabbit)<br>4150 mg/kg (Rat) | 2500 mg/kg (Rat)<br>2000 mg/kg (Rabbit)<br>> 5000 mg/kg (Rat) | 3.1 mg/L (Rat) 4h<br>> 5.1 mg/L (Rat)                          |
| Light aromatic solvent | 64742-95-6 | 8400 mg/kg (Rat)<br>>5000 mg/kg (Rat)                       | >2000 mg/kg (Rabbit)                                          | 5.2 mg/L (Rat) 4h<br>3400 ppm (Rat) 4h<br>>8.53 mg/L (Rat) 4h  |

| Substances             | CAS Number | Skin corrosion/irritation                 |
|------------------------|------------|-------------------------------------------|
| Cyclohexanone          | 108-94-1   | May cause mild skin irritation.           |
| n-Methylpyrrolidone    | 872-50-4   | Causes moderate skin irritation.          |
| Light aromatic solvent | 64742-95-6 | Causes moderate skin irritation. (Rabbit) |

| Substances             | CAS Number | Eye damage/irritation            |
|------------------------|------------|----------------------------------|
| Cyclohexanone          | 108-94-1   | May cause severe eye irritation. |
| n-Methylpyrrolidone    | 872-50-4   | Causes moderate eye irritation.  |
| Light aromatic solvent | 64742-95-6 | Non-irritating to rabbit's eye   |

| Substances             | CAS Number | Skin Sensitization                                                          |
|------------------------|------------|-----------------------------------------------------------------------------|
| Cyclohexanone          | 108-94-1   | Did not cause sensitization on laboratory animals (guinea pig)              |
| n-Methylpyrrolidone    | 872-50-4   | Patch test on human volunteers did not demonstrate sensitization properties |
| Light aromatic solvent | 64742-95-6 | Did not cause sensitization on laboratory animals (guinea pig)              |

| Substances             | CAS Number | Respiratory Sensitization                                 |
|------------------------|------------|-----------------------------------------------------------|
| Cyclohexanone          | 108-94-1   | Not confirmed to cause skin or respiratory sensitization. |
| n-Methylpyrrolidone    | 872-50-4   | No information available                                  |
| Light aromatic solvent | 64742-95-6 | No information available                                  |

| Substances          | CAS Number | Mutagenic Effects                                                                            |
|---------------------|------------|----------------------------------------------------------------------------------------------|
| Cyclohexanone       | 108-94-1   | In vivo tests did not show mutagenic effects. In vitro tests did not show mutagenic effects. |
| n-Methylpyrrolidone | 872-50-4   | In vitro tests did not show mutagenic effects In vivo tests did not show mutagenic effects.  |

|                        |            |                                                                                              |
|------------------------|------------|----------------------------------------------------------------------------------------------|
| Light aromatic solvent | 64742-95-6 | Some in vivo tests have shown mutagenic effects. In vitro tests have shown mutagenic effects |
|------------------------|------------|----------------------------------------------------------------------------------------------|

| Substances             | CAS Number | Carcinogenic Effects                                                           |
|------------------------|------------|--------------------------------------------------------------------------------|
| Cyclohexanone          | 108-94-1   | Did not show carcinogenic or teratogenic effects in animal experiments (mouse) |
| n-Methylpyrrolidone    | 872-50-4   | Not regarded as carcinogenic.                                                  |
| Light aromatic solvent | 64742-95-6 | Contains a known or suspected carcinogen                                       |

| Substances             | CAS Number | Reproductive toxicity                                                                                                        |
|------------------------|------------|------------------------------------------------------------------------------------------------------------------------------|
| Cyclohexanone          | 108-94-1   | This product does not contain any known or suspected reproductive hazards                                                    |
| n-Methylpyrrolidone    | 872-50-4   | Fetotoxic and teratogenic effects observed in experimental animals at concentrations that did not produce maternal toxicity. |
| Light aromatic solvent | 64742-95-6 | No data of sufficient quality are available.                                                                                 |

| Substances             | CAS Number | STOT - single exposure                                                   |
|------------------------|------------|--------------------------------------------------------------------------|
| Cyclohexanone          | 108-94-1   | No observed cross-reactivity with human tissues                          |
| n-Methylpyrrolidone    | 872-50-4   | May cause disorder and damage to the Respiratory system.                 |
| Light aromatic solvent | 64742-95-6 | May cause headache, dizziness, and other central nervous system effects. |

| Substances             | CAS Number | STOT - repeated exposure                                                                                           |
|------------------------|------------|--------------------------------------------------------------------------------------------------------------------|
| Cyclohexanone          | 108-94-1   | No significant toxicity observed in animal studies at concentration requiring classification.                      |
| n-Methylpyrrolidone    | 872-50-4   | No significant toxicity observed in animal studies at concentration requiring classification.                      |
| Light aromatic solvent | 64742-95-6 | No significant toxicity observed in animal studies at concentration requiring classification. (similar substances) |

| Substances             | CAS Number | Aspiration hazard                            |
|------------------------|------------|----------------------------------------------|
| Cyclohexanone          | 108-94-1   | Not applicable                               |
| n-Methylpyrrolidone    | 872-50-4   | Not applicable                               |
| Light aromatic solvent | 64742-95-6 | May be fatal if swallowed and enters airways |

## SECTION 12: Ecological Information

### 12.1. Toxicity Ecotoxicity Effects

| Substances             | CAS Number | Toxicity to Algae                                                                                  | Toxicity to Fish                                                                                                                                                                                                            | Toxicity to Microorganisms              | Toxicity to Invertebrates                                                    |
|------------------------|------------|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|------------------------------------------------------------------------------|
| Cyclohexanone          | 108-94-1   | EC50 20 mg/L (Chlorella vulgaris)<br>EC03 (8d) 370 mg/L (Scenedesmus quadricauda)                  | LC50 481-578 mg/L (Pimephales promelas)<br>LC50 (96h) 732 mg/L (Pimephales promelas)                                                                                                                                        | No information available                | EC50 (24h) 800 mg/l (Daphnia magna)                                          |
| n-Methylpyrrolidone    | 872-50-4   | EC50 (72h) 600.5 mg/L (Desmodesmus subspicatus)<br>EC50 (72h) > 500 mg/L (Desmodesmus subspicatus) | LC50 (96h) 832 mg/L (Lepomis macrochirus)<br>LC50 (96h) 4000 mg/L (Leuciscus idus)<br>LC50 (96h) 1072 mg/L (Pimephales promelas)<br>LC50 (96h) 1400 mg/L (Poecilia reticulata)<br>LC50 (96h) 500 mg/L (Oncorhynchus mykiss) | EC50 (0.5h) 600 mg/L (Activated sludge) | EC50 (48h) 4897 mg/L (Daphnia magna)<br>EC50 (24h) 1000 mg/L (Daphnia magna) |
| Light aromatic solvent | 64742-95-6 | EL50 (72h) 3.1 mg/L (Pseudokirchnerella subcapitata)                                               | LC50 (96h) 1.03 mg/L (Oncorhynchus mykiss)                                                                                                                                                                                  | No information available                | EC50 (48h) 1.2 mg/L (Daphnia magna)                                          |

### 12.2. Persistence and degradability

| Substances             | CAS Number | Persistence and Degradability     |
|------------------------|------------|-----------------------------------|
| Cyclohexanone          | 108-94-1   | Readily biodegradable (87% @ 28d) |
| n-Methylpyrrolidone    | 872-50-4   | (73% @ 28d)                       |
| Light aromatic solvent | 64742-95-6 | (77.05% @ 28d)                    |

### 12.3. Bioaccumulative potential

| Substances             | CAS Number | Log Pow                        |
|------------------------|------------|--------------------------------|
| Cyclohexanone          | 108-94-1   | 0.86                           |
| n-Methylpyrrolidone    | 872-50-4   | -0.46<br>BCF = 3.16            |
| Light aromatic solvent | 64742-95-6 | 3.20 - 3.63<br>BCF = 119 - 142 |

## 12.4. Mobility in soil

| Substances             | CAS Number | Mobility        |
|------------------------|------------|-----------------|
| Cyclohexanone          | 108-94-1   | KOC = 15.15     |
| n-Methylpyrrolidone    | 872-50-4   | KOC = 20.94     |
| Light aromatic solvent | 64742-95-6 | KOC = 372 - 617 |

## 12.5. Results of PBT and vPvB assessment

This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT). This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

| Substances             | PBT and vPvB assessment |
|------------------------|-------------------------|
| Cyclohexanone          | Not PBT/vPvB            |
| n-Methylpyrrolidone    | Not PBT/vPvB            |
| Light aromatic solvent | Not PBT/vPvB            |

## 12.6. Other adverse effects

### Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

## SECTION 13: Disposal Considerations

### 13.1. Waste treatment methods

#### Disposal Method

Disposal should be made in accordance with federal, state, and local regulations.

#### Contaminated Packaging

Follow all applicable national or local regulations.

## SECTION 14: Transport Information

### IMDG/IMO

|                             |                |
|-----------------------------|----------------|
| UN Number:                  | Not restricted |
| UN Proper Shipping Name:    | Not restricted |
| Transport Hazard Class(es): | Not applicable |
| Packing Group:              | Not applicable |
| Environmental Hazards:      | Not applicable |

### RID

|                             |                |
|-----------------------------|----------------|
| UN Number:                  | Not restricted |
| UN Proper Shipping Name:    | Not restricted |
| Transport Hazard Class(es): | Not applicable |
| Packing Group:              | Not applicable |
| Environmental Hazards:      | Not applicable |

### ADR

|                             |                |
|-----------------------------|----------------|
| UN Number:                  | Not restricted |
| UN Proper Shipping Name:    | Not restricted |
| Transport Hazard Class(es): | Not applicable |
| Packing Group:              | Not applicable |
| Environmental Hazards:      | Not applicable |

### IATA/ICAO

|                             |                |
|-----------------------------|----------------|
| UN Number:                  | Not restricted |
| UN Proper Shipping Name:    | Not restricted |
| Transport Hazard Class(es): | Not applicable |
| Packing Group:              | Not applicable |
| Environmental Hazards:      | Not applicable |

### 14.1. UN Number:

Not restricted



**14.2. UN Proper Shipping Name:** Not restricted

**14.3. Transport Hazard Class(es):** Not applicable

**14.4. Packing Group:** Not applicable

**14.5. Environmental Hazards:** Not applicable

**14.6. Special Precautions for User:** None

**14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:** Not applicable

## SECTION 15: Regulatory Information

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

#### International Inventories

**EINECS Inventory**

This product, and all its components, complies with EINECS

**US TSCA Inventory**

All components listed on inventory or are exempt.

**Canadian DSL Inventory**

All components listed on inventory or are exempt.

#### Legend

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

**DSL/NDL** - Canadian Domestic Substances List/Non-Domestic Substances List

**Germany, Water Endangering Classes (WGK)** WGK 2: Hazard to waters.

| Substances             | CAS Number | REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances | REACH (1907/2006) - Annex XIV - Substances Subject to Authorization |
|------------------------|------------|-------------------------------------------------------------------------------|---------------------------------------------------------------------|
| n-Methylpyrrolidone    | 872-50-4   | Use restricted. See item 30.                                                  | Not applicable                                                      |
| Light aromatic solvent | 64742-95-6 | Use restricted. See item 28.<br>Use restricted. See item 29.                  | Not applicable                                                      |

### 15.2. Chemical Safety Assessment

No information available

## SECTION 16: Other Information

#### **Full text of H-Statements referred to under sections 2 and 3**

H226 - Flammable liquid and vapor

H302 - Harmful if swallowed

H304 - May be fatal if swallowed and enters airways

H312 - Harmful in contact with skin

H315 - Causes skin irritation

H318 - Causes serious eye damage

H319 - Causes serious eye irritation

H332 - Harmful if inhaled

H335 - May cause respiratory irritation

H336 - May cause drowsiness or dizziness

H340 - May cause genetic defects

H350 - May cause cancer

H360 - May damage fertility or the unborn child

H412 - Harmful to aquatic life with long lasting effects

#### **Key or legend to abbreviations and acronyms**

bw – body weight

CAS – Chemical Abstracts Service

CLP – REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Classification, Labelling and Packaging of substances and mixtures

EC – European Commission

EC10 – Effective Concentration 10%

EC50 – Effective Concentration 50%

EEC – European Economic Community

ErC50 – Effective Concentration growth rate 50%

IBC Code – International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk

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LC50 – Lethal Concentration 50%

LD50 – Lethal Dose 50%

LL0 – Lethal Loading 0%

LL50 – Lethal Loading 50%

MARPOL – International Convention for the Prevention of Pollution from Ships

mg/kg – milligram/kilogram

mg/L – milligram/liter

NIOSH – National Institute for Occupational Safety and Health

NOEC – No Observed Effect Concentration

NTP – National Toxicology Program

OEL – Occupational Exposure Limit

PBT – Persistent Bioaccumulative and Toxic

PC – Chemical Product category

PEL – Permissible Exposure Limit

ppm – parts per million

PROC – Process category

REACH – REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals

STEL – Short Term Exposure Limit

SU – Sector of Use category

#### Key literature references and sources for data

[www.ChemADVISOR.com/](http://www.ChemADVISOR.com/)

Revision Date: 22-Sep-2015

#### Revision Note

SDS sections updated: 1

**This safety data sheet complies with the requirements of Regulation (EC) No. 453/2010**

#### Disclaimer Statement

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**End of Safety Data Sheet**