



SAFETY DATA SHEET

Section 1. Identification

GHS product identifier :
Document product code :
Other means of identification : Not available.
Product type : Liquid.

Relevant identified uses of the substance or mixture and uses advised against

Supplier/Manufacturer :

Emergency telephone number (with hours of operation) :

Section 2. Hazard(s) identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture :
FLAMMABLE LIQUIDS - Category 2
SKIN CORROSION/IRRITATION - Category 2
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A
CARCINOGENICITY - Category 2
TOXIC TO REPRODUCTION (Unborn child) - Category 2
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
ASPIRATION HAZARD - Category 1
AQUATIC HAZARD (ACUTE) - Category 1
AQUATIC HAZARD (LONG-TERM) - Category 1

GHS label elements

Hazard pictograms :



Signal word : Danger



Section 2. Hazard(s) identification

- Hazard statements** :
- H225 - Highly flammable liquid and vapor.
 - H304 - May be fatal if swallowed and enters airways.
 - H315 - Causes skin irritation.
 - H319 - Causes serious eye irritation.
 - H336 - May cause drowsiness or dizziness.
 - H351 - Suspected of causing cancer.
 - H361d - Suspected of damaging the unborn child.
 - H373 - May cause damage to organs through prolonged or repeated exposure. (hearing organs)
 - H410 - Very toxic to aquatic life with long lasting effects.

Precautionary statements

- Prevention** :
- 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 and eye or face protection.
 - P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
 - P271 - Use only outdoors or in a well-ventilated area.
 - P273 - Avoid release to the environment.
 - P260 - Do not breathe vapor.
 - P264 - Wash thoroughly after handling.

- Response** :
- P391 - Collect spillage.
 - P308 + P313 - IF exposed or concerned: Get medical advice or attention.
 - P304 + P340, P312 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor if you feel unwell.
 - P301 + P310, P331 - IF SWALLOWED: Immediately call a POISON CENTER or doctor. Do NOT induce vomiting.
 - P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
 - P302 + P352 - IF ON SKIN: Wash with plenty of water.
 - P332 + P313 - If skin irritation occurs: Get medical advice or attention.
 - P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 - P337 + P313 - If eye irritation persists: Get medical advice or attention.

- Storage** :
- P405 - Store locked up.
 - P403 + P233 - Store in a well-ventilated place. Keep container tightly closed.

- Disposal** :
- P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

- Hazards not otherwise classified (US)** :
- None known.

Section 3. Composition/information on ingredients

- Substance/mixture** : Mixture
- Other means of identification** : Not available.

Ingredient name	% (w/w)	CAS number
Heptane, branched, cyclic and linear	30 - 60	426260-76-6
Acetone	15 - 40	67-64-1
n-Heptane*	10 - 30	142-82-5
Toluene	1 - < 3	108-88-3
Butanone	0.5 - 1.5	78-93-3
4-Methylpentan-2-one	0.1 - 1	108-10-1

Section 3. Composition/information on ingredients

*n-Heptane may be present at a higher concentration and replace Heptane, branched, cyclic and linear, depending on the time of the year.

United States: The exact percentage (concentration) in the composition has been withheld as a trade secret in accordance with paragraph (i) of §1910.1200.

Canada: The exact percentage (concentration) in the composition has been withheld as a trade secret in accordance with the amended HPR as of April 2018.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 20 minutes. Get medical attention.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Flush contaminated skin with plenty of water. Continue to rinse for at least 20 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.
- Skin contact** : Causes skin irritation.
- Ingestion** : Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:
pain or irritation
watering
redness

Section 4. First aid measures

- Inhalation** : Adverse symptoms may include the following:
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Skin contact** : Adverse symptoms may include the following:
irritation
redness
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Ingestion** : Adverse symptoms may include the following:
nausea or vomiting
reduced fetal weight
increase in fetal deaths
skeletal malformations

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

- Suitable extinguishing media** : Use dry chemical, CO₂, water spray (fog) or foam.
- Unsuitable extinguishing media** : Do not use water jet.

Specific hazards arising from the chemical : Highly flammable liquid and vapor. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. This material is very toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide



Section 5. Fire-fighting measures

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not swallow. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.



Section 7. Handling and storage

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

United States

Occupational exposure limits

Ingredient name	Exposure limits
Heptane, branched, cyclic and linear	ACGIH TLV (United States, 3/2019). TWA: 400 ppm 8 hours. TWA: 1640 mg/m ³ 8 hours. STEL: 500 ppm 15 minutes. STEL: 2050 mg/m ³ 15 minutes.
Acetone	ACGIH TLV (United States, 3/2019). TWA: 250 ppm 8 hours. STEL: 500 ppm 15 minutes. NIOSH REL (United States, 10/2016). TWA: 250 ppm 10 hours. TWA: 590 mg/m ³ 10 hours. OSHA PEL (United States, 5/2018). TWA: 1000 ppm 8 hours. TWA: 2400 mg/m ³ 8 hours.
n-Heptane	ACGIH TLV (United States, 3/2019). TWA: 400 ppm 8 hours. TWA: 1640 mg/m ³ 8 hours. STEL: 500 ppm 15 minutes. STEL: 2050 mg/m ³ 15 minutes. NIOSH REL (United States, 10/2016). TWA: 85 ppm 10 hours. TWA: 350 mg/m ³ 10 hours. CEIL: 440 ppm 15 minutes. CEIL: 1800 mg/m ³ 15 minutes. OSHA PEL (United States, 5/2018). TWA: 500 ppm 8 hours. TWA: 2000 mg/m ³ 8 hours.
Toluene	OSHA PEL Z2 (United States, 2/2013). TWA: 200 ppm 8 hours. CEIL: 300 ppm AMP: 500 ppm 10 minutes. NIOSH REL (United States, 10/2016). TWA: 100 ppm 10 hours. TWA: 375 mg/m ³ 10 hours.



Section 8. Exposure controls/personal protection

Butanone	<p>STEL: 150 ppm 15 minutes. STEL: 560 mg/m³ 15 minutes. ACGIH TLV (United States, 3/2019). TWA: 20 ppm 8 hours.</p> <p>ACGIH TLV (United States, 3/2019). TWA: 200 ppm 8 hours. TWA: 590 mg/m³ 8 hours. STEL: 300 ppm 15 minutes. STEL: 885 mg/m³ 15 minutes. NIOSH REL (United States, 10/2016). TWA: 200 ppm 10 hours. TWA: 590 mg/m³ 10 hours. STEL: 300 ppm 15 minutes. STEL: 885 mg/m³ 15 minutes. OSHA PEL (United States, 5/2018). TWA: 200 ppm 8 hours. TWA: 590 mg/m³ 8 hours.</p>
4-Methylpentan-2-one	<p>ACGIH TLV (United States, 3/2019). TWA: 20 ppm 8 hours. STEL: 75 ppm 15 minutes. NIOSH REL (United States, 10/2016). TWA: 50 ppm 10 hours. TWA: 205 mg/m³ 10 hours. STEL: 75 ppm 15 minutes. STEL: 300 mg/m³ 15 minutes. OSHA PEL (United States, 5/2018). TWA: 100 ppm 8 hours. TWA: 410 mg/m³ 8 hours.</p>

Canada

Occupational exposure limits

Ingredient name	Exposure limits
Heptane, branched, cyclic and linear	<p>CA Alberta Provincial (Canada, 6/2018). 15 min OEL: 2050 mg/m³ 15 minutes. 8 hrs OEL: 1640 mg/m³ 8 hours. 8 hrs OEL: 400 ppm 8 hours. 15 min OEL: 500 ppm 15 minutes. CA British Columbia Provincial (Canada, 5/2019). TWA: 400 ppm 8 hours. STEL: 500 ppm 15 minutes. CA Ontario Provincial (Canada, 1/2018). TWA: 400 ppm 8 hours. STEL: 500 ppm 15 minutes.</p>
Acetone	<p>CA Alberta Provincial (Canada, 6/2018). 8 hrs OEL: 1200 mg/m³ 8 hours. 15 min OEL: 1800 mg/m³ 15 minutes. 8 hrs OEL: 500 ppm 8 hours. 15 min OEL: 750 ppm 15 minutes. CA British Columbia Provincial (Canada, 5/2019). TWA: 250 ppm 8 hours. STEL: 500 ppm 15 minutes.</p>



Section 8. Exposure controls/personal protection

n-Heptane

CA Ontario Provincial (Canada, 1/2018).

TWA: 250 ppm 8 hours.

STEL: 500 ppm 15 minutes.

CA Quebec Provincial (Canada, 1/2014).

TWAEV: 500 ppm 8 hours.

TWAEV: 1190 mg/m³ 8 hours.

STEV: 1000 ppm 15 minutes.

STEV: 2380 mg/m³ 15 minutes.

CA Saskatchewan Provincial (Canada, 7/2013).

STEL: 750 ppm 15 minutes.

TWA: 500 ppm 8 hours.

CA Alberta Provincial (Canada, 6/2018).

15 min OEL: 2050 mg/m³ 15 minutes.

8 hrs OEL: 1640 mg/m³ 8 hours.

8 hrs OEL: 400 ppm 8 hours.

15 min OEL: 500 ppm 15 minutes.

CA British Columbia Provincial (Canada, 5/2019).

TWA: 400 ppm 8 hours.

STEL: 500 ppm 15 minutes.

CA Ontario Provincial (Canada, 1/2018).

TWA: 400 ppm 8 hours.

STEL: 500 ppm 15 minutes.

CA Quebec Provincial (Canada, 1/2014).

TWAEV: 400 ppm 8 hours.

TWAEV: 1640 mg/m³ 8 hours.

STEV: 500 ppm 15 minutes.

STEV: 2050 mg/m³ 15 minutes.

CA Saskatchewan Provincial (Canada, 7/2013).

STEL: 500 ppm 15 minutes.

TWA: 400 ppm 8 hours.

Toluene

CA Alberta Provincial (Canada, 6/2018).

Absorbed through skin.

8 hrs OEL: 50 ppm 8 hours.

8 hrs OEL: 188 mg/m³ 8 hours.

CA British Columbia Provincial (Canada, 5/2019).

TWA: 20 ppm 8 hours.

CA Ontario Provincial (Canada, 1/2018).

TWA: 20 ppm 8 hours.

CA Quebec Provincial (Canada, 1/2014).

Absorbed through skin.

TWAEV: 50 ppm 8 hours.

TWAEV: 188 mg/m³ 8 hours.

CA Saskatchewan Provincial (Canada, 7/2013). Absorbed through skin.

STEL: 60 ppm 15 minutes.

TWA: 50 ppm 8 hours.

Butanone

CA Alberta Provincial (Canada, 6/2018).

15 min OEL: 300 ppm 15 minutes.

8 hrs OEL: 200 ppm 8 hours.

8 hrs OEL: 590 mg/m³ 8 hours.

15 min OEL: 885 mg/m³ 15 minutes.



Section 8. Exposure controls/personal protection

4-Methylpentan-2-one

CA British Columbia Provincial (Canada, 5/2019).

TWA: 50 ppm 8 hours.

STEL: 100 ppm 15 minutes.

CA Ontario Provincial (Canada, 1/2018).

TWA: 200 ppm 8 hours.

STEL: 300 ppm 15 minutes.

CA Quebec Provincial (Canada, 1/2014).

TWAEV: 50 ppm 8 hours.

TWAEV: 150 mg/m³ 8 hours.

STEV: 100 ppm 15 minutes.

STEV: 300 mg/m³ 15 minutes.

CA Saskatchewan Provincial (Canada, 7/2013).

STEL: 300 ppm 15 minutes.

TWA: 200 ppm 8 hours.

CA Alberta Provincial (Canada, 6/2018).

8 hrs OEL: 205 mg/m³ 8 hours.

8 hrs OEL: 50 ppm 8 hours.

15 min OEL: 75 ppm 15 minutes.

15 min OEL: 307 mg/m³ 15 minutes.

CA British Columbia Provincial (Canada, 5/2019).

TWA: 20 ppm 8 hours.

STEL: 75 ppm 15 minutes.

CA Ontario Provincial (Canada, 1/2018).

TWA: 20 ppm 8 hours.

STEL: 75 ppm 15 minutes.

CA Quebec Provincial (Canada, 1/2014).

TWAEV: 50 ppm 8 hours.

TWAEV: 205 mg/m³ 8 hours.

STEV: 75 ppm 15 minutes.

STEV: 307 mg/m³ 15 minutes.

CA Saskatchewan Provincial (Canada, 7/2013).

STEL: 75 ppm 15 minutes.

TWA: 50 ppm 8 hours.

Appropriate engineering controls

- : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls

- : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

Individual protection measures

Hygiene measures

- : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.



Section 8. Exposure controls/personal protection

- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Appearance

- Physical state** : Liquid.
- Color** : Red.
- Odor** : Solvent. [Strong]
- Odor threshold** : Not available.
- pH** : Not available.
- Melting/freezing point** : Not available.
- Initial boiling point and boiling range** : Not available.
- Flash point** : Closed cup: -23°C (-9.4°F)
- Evaporation rate** : Not available.
- Flammability (solid, gas)** : Not available.
- Lower and upper explosive (flammable) limits** : Not available.
- Vapor pressure** : Not available.
- Vapor density** : >1 [Air = 1]
- Relative density** : 0.77
- Solubility** : Insoluble.
- Solubility in water** : Not available.
- Partition coefficient: n-octanol/water** : Not available.
- Auto-ignition temperature** : Not available.



Section 9. Physical and chemical properties

- Decomposition temperature** : Not available.
- Viscosity** : Dynamic (room temperature): 250 mPa·s (250 cP)
- Flow time (ISO 2431)** : Not available.
- VOC = Volatile Organic Compound** :

Section 10. Stability and reactivity

- Reactivity** : No specific test data related to reactivity available for this product or its ingredients.
- Chemical stability** : The product is stable.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- Conditions to avoid** : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.
- Incompatible materials** : Strong oxidizing and reducing agents, acids, bases, halogenated compounds.
- Hazardous decomposition products** : During a fire, irritating and toxic gases such as carbon monoxide, carbon dioxide and other toxic and irritating compounds such as formaldehyde, methanol, acetic acid, hydrogen peroxide, methane and ethylene oxide may form, depending on the fire conditions.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Acetone	LD50 Oral	Rat	5800 mg/kg	-
n-Heptane	LC50 Inhalation Gas.	Rat	48000 ppm	4 hours
	LC50 Inhalation Vapor	Rat	103 g/m ³	4 hours
	LC50 Inhalation Vapor	Rat	49 g/m ³	4 hours
Toluene	LD50 Dermal	Rabbit	6480 mg/kg	-
Butanone	LD50 Oral	Rat	2737 mg/kg	-
4-Methylpentan-2-one	LD50 Oral	Rat	2080 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Acetone	Eyes - Mild irritant	Rabbit	-	10 µL	-
	Eyes - Moderate irritant	Rabbit	-	24 hours 20 mg	-
	Eyes - Severe irritant	Rabbit	-	20 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
Toluene	Skin - Mild irritant	Rabbit	-	395 mg	-
	Eyes - Mild irritant	Rabbit	-	0.5 minutes 100 mg	-
	Eyes - Mild irritant	Rabbit	-	870 µg	-



Section 11. Toxicological information

Butanone	Eyes - Severe irritant	Rabbit	-	24 hours 2 mg	-
	Skin - Mild irritant	Pig	-	24 hours 250 µL	-
4-Methylpentan-2-one	Skin - Mild irritant	Rabbit	-	435 mg	-
	Skin - Moderate irritant	Rabbit	-	24 hours 20 mg	-
	Skin - Moderate irritant	Rabbit	-	500 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 14 mg	-
4-Methylpentan-2-one	Eyes - Moderate irritant	Rabbit	-	24 hours 100 µL	-
	Eyes - Severe irritant	Rabbit	-	40 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-

Sensitization

There is no data available.

Mutagenicity

There is no data available.

Carcinogenicity

Classification

Product/ingredient name	OSHA	IARC	NTP
Toluene	-	3	-
4-Methylpentan-2-one	-	2B	-

Reproductive toxicity

There is no data available.

Teratogenicity

There is no data available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
Heptane, branched, cyclic and linear	Category 3	-	Narcotic effects
Acetone	Category 3	-	Narcotic effects
n-Heptane	Category 3	-	Narcotic effects
Toluene	Category 3	-	Narcotic effects
Butanone	Category 3	-	Narcotic effects
4-Methylpentan-2-one	Category 3	-	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
Toluene	Category 2	-	hearing organs



Section 11. Toxicological information

Aspiration hazard

Name	Result
Heptane, branched, cyclic and linear	ASPIRATION HAZARD - Category 1
n-Heptane	ASPIRATION HAZARD - Category 1
Toluene	ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure : Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.
- Skin contact** : Causes skin irritation.
- Ingestion** : Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways.

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : Adverse symptoms may include the following:
pain or irritation
watering
redness
- Inhalation** : Adverse symptoms may include the following:
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Skin contact** : Adverse symptoms may include the following:
irritation
redness
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Ingestion** : Adverse symptoms may include the following:
nausea or vomiting
reduced fetal weight
increase in fetal deaths
skeletal malformations

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

- Potential immediate effects** : No known significant effects or critical hazards.
- Potential delayed effects** : No known significant effects or critical hazards.

Long term exposure

- Potential immediate effects** : No known significant effects or critical hazards.
- Potential delayed effects** : No known significant effects or critical hazards.

Section 11. Toxicological information

Potential chronic health effects

- General** : May cause damage to organs through prolonged or repeated exposure.
- Carcinogenicity** : Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.
- Mutagenicity** : No known significant effects or critical hazards.
- Reproductive toxicity** : Suspected of damaging the unborn child.

Numerical measures of toxicity

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
Acetone	5800	N/A	N/A	N/A	N/A
n-Heptane	N/A	N/A	48000	103	N/A
Toluene	N/A	N/A	N/A	49	N/A
Butanone	2737	6480	N/A	N/A	N/A
4-Methylpentan-2-one	2080	N/A	N/A	11	N/A

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Acetone	Acute EC50 7200000 µg/L Fresh water	Algae - Selenastrum sp.	96 hours
	Acute LC50 6000000 µg/L Fresh water	Crustaceans - Gammarus pulex	48 hours
	Acute LC50 6900 mg/L Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 5600 ppm Fresh water	Fish - Poecilia reticulata	96 hours
	Chronic NOEC 4.95 mg/L Marine water	Algae - Ulva pertusa	96 hours
	Chronic NOEC 0.016 ml/L Fresh water	Crustaceans - Daphniidae	21 days
	Chronic NOEC 0.1 ml/L Fresh water	Daphnia - Daphnia magna - Neonate	21 days
n-Heptane	Chronic NOEC 5 µg/L Marine water	Fish - Gasterosteus aculeatus - Larvae	42 days
	Acute LC50 375000 µg/L Fresh water	Fish - Oreochromis mossambicus	96 hours
	Acute EC50 11600 µg/L Fresh water	Crustaceans - Gammarus pseudolimnaeus - Adult	48 hours
Toluene	Acute EC50 6000 µg/L Fresh water	Daphnia - Daphnia magna - Juvenile (Fledgling, Hatchling, Weanling)	48 hours
	Chronic NOEC 2 mg/L Fresh water	Daphnia - Daphnia magna	21 days
Butanone	Acute EC50 >500000 µg/L Marine water	Algae - Skeletonema costatum	96 hours
	Acute EC50 5091000 µg/L Fresh water	Daphnia - Daphnia magna - Larvae	48 hours
4-Methylpentan-2-one	Acute LC50 3220000 µg/L Fresh water	Fish - Pimephales promelas	96 hours
	Acute LC50 505000 µg/L Fresh water	Fish - Pimephales promelas	96 hours
	Chronic NOEC 78 mg/L Fresh water	Daphnia - Daphnia magna	21 days
	Chronic NOEC 168 mg/L Fresh water	Fish - Pimephales promelas - Embryo	33 days



Section 12. Ecological information

Persistence and degradability

There is no data available.

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Acetone	-0.23	-	low
n-Heptane	4.66	552	high
Toluene	2.73	90	low
Butanone	0.3	-	low
4-Methylpentan-2-one	1.9	-	low

Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling empty containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

United States - RCRA Toxic hazardous waste "U" List







Ingredient	CAS #	Status	Reference number
Toluene	108-88-3	Listed	U220
Acetone	67-64-1	Listed	U002
Butanone	78-93-3	Listed	U159

Section 14. Transport information

	DOT Classification	TDG Classification	IMDG	IATA
UN number	UN1133	UN1133	UN1133	UN1133
UN proper shipping name	ADHESIVES	ADHESIVES	ADHESIVES	ADHESIVES



Section 14. Transport information

Transport hazard class(es)	3 	3  	3  	3 
Packing group	II	II	II	II
Environmental hazards	No.	Yes.	Yes.	Yes. The environmentally hazardous substance mark is not required.

AERG : 128

Additional information

- DOT Classification** : **Reportable quantity** 17482.5 lbs / 7937.1 kg [2723.1 gal / 10307.9 L]. Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.
Special provisions 383
- TDG Classification** : Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.18-2.19 (Class 3), 2.7 (Marine pollutant mark). The marine pollutant mark is not required when transported by road or rail.
- IMDG** : The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.
Emergency schedules F-E, S-D
- IATA** : The environmentally hazardous substance mark may appear if required by other transportation regulations.

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to IMO instruments : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 5(a)2 proposed significant new use rules:** N-methyl-2-pyrrolidone
TSCA 8(a) PAIR: n-Heptane; 2-Methoxy-1-methylethyl acetate
TSCA 8(a) CDR Exempt/Partial exemption: Not determined
Clean Water Act (CWA) 307: Toluene
Clean Water Act (CWA) 311: Toluene; Xylene

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

Section 15. Regulatory information

DEA List II Chemicals : Listed
(Essential Chemicals)

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification

: FLAMMABLE LIQUIDS - Category 2
SKIN CORROSION/IRRITATION - Category 2
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A
CARCINOGENICITY - Category 2
TOXIC TO REPRODUCTION (Unborn child) - Category 2
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
ASPIRATION HAZARD - Category 1

Composition/information on ingredients

Name	%	Classification
Heptane, branched, cyclic and linear	≥25 - ≤50	FLAMMABLE LIQUIDS - Category 2 SKIN CORROSION/IRRITATION - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3 ASPIRATION HAZARD - Category 1
Acetone	≥25 - ≤50	FLAMMABLE LIQUIDS - Category 2 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
n-Heptane	≥10 - ≤25	FLAMMABLE LIQUIDS - Category 2 SKIN CORROSION/IRRITATION - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
Toluene	≥1 - ≤3	ASPIRATION HAZARD - Category 1 FLAMMABLE LIQUIDS - Category 2 SKIN CORROSION/IRRITATION - Category 2 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A TOXIC TO REPRODUCTION (Unborn child) - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
Butanone	≥1 - ≤3	ASPIRATION HAZARD - Category 1 FLAMMABLE LIQUIDS - Category 2 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
4-Methylpentan-2-one	≤0.3	FLAMMABLE LIQUIDS - Category 2 ACUTE TOXICITY (inhalation) - Category 4 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A CARCINOGENICITY - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3



Section 15. Regulatory information

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	Toluene	108-88-3	≥1 - ≤3
Supplier notification	Toluene	108-88-3	≥1 - ≤3

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

- Massachusetts** : The following components are listed: n-Heptane; Toluene; Acetone; Butanone
- New York** : The following components are listed: Toluene; Acetone; Butanone; 4-Methylpentan-2-one
- New Jersey** : The following components are listed: n-Heptane; Toluene; Acetone; Butanone; 4-Methylpentan-2-one
- Pennsylvania** : The following components are listed: n-Heptane; Toluene; Acetone; Butanone; 4-Methylpentan-2-one

California Prop. 65

⚠ WARNING: This product can expose you to chemicals including 4-Methylpentan-2-one, which is known to the State of California to cause cancer and birth defects or other reproductive harm. This product can expose you to chemicals including Toluene, Methanol and N-methyl-2-pyrrolidone, which are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Ingredient name	No significant risk level	Maximum acceptable dosage level
Toluene	-	Yes.
Methanol	-	Yes.
4-Methylpentan-2-one	-	-
N-methyl-2-pyrrolidone	-	Yes.

*n-Heptane may be present at a higher concentration and replace Heptane, branched, cyclic and linear, depending on the time of the year.

Canadian lists

- Canadian NPRI** : The following components are listed: Heptane, branched, cyclic and linear; n-Heptane; Toluene; Acetone; Butanone
- CEPA Toxic substances** : None of the components are listed.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Section 15. Regulatory information

Inventory list

- Canada** : All components are listed or exempted.
United States (TSCA 8b) : All components are active or exempted.

Section 16. Other information

Procedure used to derive the classification

Classification	Justification
FLAMMABLE LIQUIDS - Category 2	On basis of test data
SKIN CORROSION/IRRITATION - Category 2	Calculation method
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A	Calculation method
CARCINOGENICITY - Category 2	Calculation method
TOXIC TO REPRODUCTION (Unborn child) - Category 2	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2	Calculation method
ASPIRATION HAZARD - Category 1	Expert judgment
AQUATIC HAZARD (ACUTE) - Category 1	Calculation method
AQUATIC HAZARD (LONG-TERM) - Category 1	Calculation method

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Prepared by : KMK Regulatory Services Inc.

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
N/A = Not available
SGG = Segregation Group
UN = United Nations

Internal code : 261-074

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