1 Identification of the substance/mixture and of the company/undertaking

Product details
Trade name: 3,3,5-trimethylcyclohexan-1-one
CAS No.: 873-94-9
EC No.: 212-855-9
Pre-Registration number 17-2119485606-28-0000
Relevant identified uses of the substance or mixture and uses advised against
No further relevant information available
Application of the substance / the preparation
Use as monomer for the manufacture of polymers.
Use in manufacture of bulk, large scale chemicals (including petroleum products
Manufacturer/Supplier:
Prasol Chemicals Ltd.,
Prasol House, Plot No.A-17/2/3,
T.T.C. Indl. Area,
Khairne M.I.D.C.,
Navi Mumbai - 400 710
Maharashtra, India.
Tel: +91-22-27782555
Fax: +91-22-27782430
Further information obtainable from:
e-mail:sales@prasolchem.com; inquiry@prasolchem.com
Emergency telephone number: Not available at present

2 Hazards identification

Classification of the substance or mixture
Classification according to Regulation (EC) No 1272/2008
GHS07
Eye Irrit. 2 H319 Causes serious eye irritation.
STOT SE 3 H335 May cause respiratory irritation
Classification according to Directive 67/548/EEC or Directive 1999/45/EC
Xi; Irritant
R36/37 Irritating to eyes and respiratory system.
Information concerning particular hazards for human and environment: Not applicable

Label elements
Labeling according to Regulation (EC) No 1272/2008
The substance is classified and labeled according to the CLP regulation
Hazard pictograms

GHS07
Signal word Warning
Hazard-determining components of labeling: Void
Hazard statements
PRASOL CHEMICALS LIMITED
Material Safety Data Sheet
Product: 3,3,5-trimethylcyclohexanone

H319 Causes serious eye irritation
H335 Causes respiratory tract irritation STOT SE 3

Precautionary statements
P261  Avoid breathing dust/fume/gas/mist/vapors/spray.
P280  Wear protective gloves/protective clothing/eye protection/face protection.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P405  Store locked up.
P501  Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3 Other hazards
Results of PBT and vPvB assessment: Not applicable

3 Composition/information on ingredients
Chemical characterization:
CAS No.  Description
873-94-9  3,3,5-trimethylcyclohexan-1-one
Identification number(s)
EINECS Number: 212-855-9
Additional information:
Molecular Formula: C9H16O
Molecular Weight: 140.22g/mol

4 First aid measures
General information: Pay attention to self-protection. Remove victims from hazardous area. Remove contaminated or soaked clothing immediately and dispose of safely.
Keep warm, position comfortably, and cover well. Do not leave victims unattended.

After inhalation:
Potential for exposure by inhalation if aerosols or mists are generated.
With labored breathing: Provide with oxygen. Consult a doctor.
If the casualty is not breathing: Perform mouth-to-mouth resuscitation, notify emergency physician immediately.

After skin contact:
Wash off with soap and plenty of water for at least 15 minutes. With liposoluble substances, products, or preparations, continue decontamination with polyethylene glycol 400 after initial rinsing with water and then wash with water and soap. See a doctor if the symptoms persist.

After eye contact:
With eye held open, thoroughly rinse immediately with plenty of water for at least 10 minutes. When dealing with caustic substances, notify emergency physician immediately (key words: burns in eye).

After swallowing:
Rinse out mouth. Immediately give large quantities of water to drink. Notify the emergency physician immediately.

Information for doctor:
Most important symptoms and effects, both acute and delayed No further relevant information available.
Indication of any immediate medical attention and special treatment needed
No further relevant information available

5 Firefighting measures
Suitable extinguishing agents: Water spray, foam, CO2, dry powder.
For safety reasons unsuitable extinguishing agents: No further relevant information available.
Special hazards arising from the substance or mixture May be released in case of fire: carbon monoxide, carbon dioxide, organic products of decomposition. Under certain fire conditions, traces of other toxic products may
occur. Cool closed containers may rupture if strongly heated

Advice for firefighters Have ready/wear respiratory protection equipment.

Protective equipment: Containers can build up pressure if exposed to heat (fire). Cool with water spray.
As in any fire, wear self-contained positive-pressure breathing apparatus, (MSHA/NIOSH approved or equivalent) and full protective gear.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures
Keep away from sources of ignition - No smoking. Ensure adequate ventilation. Wear personal protective equipment.

Environmental precautions: Do not flush into surface water or sanitary sewer system

Methods and material for containment and cleaning up:
Take up mechanically or with an absorbent material like sand, diatomaceous earth, universal absorbent, or sawdust.
Keep containers tightly closed and store in a cool, well-ventilated place.

Reference to other sections
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information

7 Handling and storage

Handling:
Precautions for safe handling Provide good ventilation or extraction. Avoid formation of aerosol

Information about fire - and explosion protection:
Take precautionary measures against static charges; keep away from sources of ignition.

Conditions for safe storage, including any incompatibilities

Storage:
Requirements to be met by storerooms and receptacles: Store in well-ventilated area.

Information about storage in one common storage facility: Storage class according to VCI: Combustible Liquids Storage stability: Storage temperature <= 30 °C.

Further information about storage conditions: Keep container tightly sealed. Store in cool and dry conditions.

Specific end use(s)
1) Use as monomer for the manufacture of polymers.
2) Use in Manufacture of bulk, large scale chemicals (including petroleum products).

8 Exposure controls/personal protection

Additional information about design of technical facilities: No further data; see item 7.

Control parameters

Ingredients with limit values that require monitoring at the workplace: Not required.

Additional information: The lists valid during the making were used as basis.

Exposure controls

Personal protective equipment:

General protective and hygienic measures:
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.

Respiratory protection:
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

Protection of hands: Protective gloves
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/the preparation/the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Material of gloves
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

Penetration time of glove material
The exact breakthrough time has to be found out by the manufacturer of the protective gloves and has to be observed.

Eye protection: Tightly sealed goggles
Body protection: Protective work clothing

9 Physical and chemical properties

General Information
Appearance:
Form: Liquid
Color: Colorless
Odor: Aromatic, resembling of menthol

Change in condition
Melting point/Melting range: -11.7 °C (1008.6 hPa)
Boiling point/Boiling range: 188.8-190.9 °C (1013 hPa)
Flash point: 66.5 °C (1013 hPa)
Flammability (solid, gaseous): Not applicable
Self-igniting: The auto-ignition temperature is 425 °C at 1002 hPa.
Danger of explosion: Product does not present an explosion hazard
Vapor pressure at 20°C: 0.6 hPa
Density at 25°C: 0.8888 g/cm³
Solubility in / Miscibility with water: ca.3160 mg/l
Partition coefficient (n-octanol/water) at 25 °C: 2.6 log POW
Viscosity: Dynamic at 20 °C: 2.54 mPas
Other information No further relevant information available.

10 Stability and reactivity

Reactivity
Chemical stability: Keep away from heat and sources of ignition
Possibility of hazardous reactions: No dangerous reactions known. Stable under normal conditions
Conditions to avoid No further relevant information available.
Incompatible materials: No further relevant information available.
Hazardous decomposition products:
Decomposition products on thermal decomposition: carbon monoxide, carbon dioxide

11 Toxicological information

Acute toxicity:

<table>
<thead>
<tr>
<th>LD/LC50 values relevant for classification:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
</tr>
<tr>
<td>Dermal</td>
</tr>
<tr>
<td>Inhalative</td>
</tr>
</tbody>
</table>

Primary irritant effect:
On the skin: No irritating effect
On the eye: Irritating effect
Sensitization: No sensitizing effects known.

Additional toxicological information: When used and handled according to specifications, the product does not have any harmful effects to our experience and the information provided to us.

CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)

IARC, ACGIH, NTP, and OSHA: No component of this product is present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

### 12 Ecological information

Ecotoxicological effects:

- **Aquatic toxicity classification:**
  - EC50 (48 h) 180 mg/l (Daphnia magna)
  - EC50(3 h) 755 mg/L (activated sludge, domestic)
  - LC50(96 hrs) > 100 mg/L (Danio rerio)

Persistence and degradability: Biodegradability: not readily biodegradable (59% in 28days)

Bio accumulative potential: No further relevant information available.

Mobility in soil: No further relevant information available.

Additional ecological information:

General notes:
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Results of PBT and vPvB assessment: Not applicable

Other adverse effects: No further relevant information available.

### 13 Disposal considerations

Product:
Waste treatment methods
Recommendation:
Dispose off in accordance with appropriate Federal, state & local regulations. It must not be disposed together with household garbage. Do not allow product to reach sewage system.

Uncleaned packaging:
Recommendation: Disposal must be made according to official regulations.

### 14 Transport information

Land transport ADR/RID (cross-border)
ADR/RID class: Not applicable

Maritime transport IMDG:
Marine pollutant: No

Air transport ICAO-TI and IATA-DGR:
ICAO/IATA Class: -

UN "Model Regulation":
Special precautions for user: Not applicable.
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: Not applicable

### 15 Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture
National regulations:
Other regulations, limitations and prohibitive regulations

Substances of very high concern (SVHC) according to REACH, Article 57: The substance is not listed as SVHC.
The substance is not listed as SVHC. Chemical safety assessment A Chemical Safety Assessment has not been carried out. A Chemical Safety Assessment shall be carried out at the time of REACH Registration

I6 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Department issuing MSDS: Product safety department.

Contact:
Tel: +91-22-27782555
Fax: +91-22-27782430
E-mail: inquiry@prasolchem.com; sales@prasolchem.com

Abbreviations and acronyms:
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
CAS: Chemical Abstracts Service (division of the American Chemical Society)
EINECS: European Inventory of Existing Commercial Chemical Substances
Eye Irrit. 2: Serious eye damage/eye irritation, Hazard Category 2
GHS: Globally Harmonized System of Classification and Labeling of Chemicals
IATA: International Air Transport Association
ICAO: International Civil Aviation Organization
IMDG: International Maritime Code for Dangerous Goods
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3

Sources
Echa website (CAS: 873-94-9)
http://apps.echa.europa.eu/registered/data/dossiers/DISS-9d83e796-7750-01e2-e044-00144f67d249/DISS-9d83e796-7750-01e2-e044-00144f67d249_DISS-9d83e796-7750-01e2-e044-00144f67d249.html
Data from Sigma Aldrich MSDS

Data compared to the previous version altered.
• Section 2: Hazard Identification
• Section 4: First-aid measures
• Section 5: Fire-fighting measures
• Section 6: Accidental Release Measures
• Section 7: Handling and Storage
• Section 8: Exposure Controls / Personal Protection
• Section 9: Physical and Chemical Properties
• Section 10: Stability and Reactivity
• Section 11: Toxicological Information
• Section 12: Ecological Information
• Section 13: Disposal Consideration