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

1.1 Product identifier
Trade name: 3,3,5-trimethylcyclohexan-1-one/ TMCNONE
CAS No. *: 873-94-9*
EC No. *: 212-855-9*
Registration number *01-2120058794-45-0000*
1.2 Relevant identified uses of the substance or mixture and uses advised against
Use as monomer for the manufacture of polymers.
Use in manufacture of bulk, large scale chemicals (including petroleum products
Sector of use*: SU8, SU9 manufacture of bulk and fine chemicals SU12 manufacture of plastic products*
Environmental release category*: ERC6a Industrial use resulting in manufacture of another substance*
Uses identified against*: no data available*
1.3 Details of the supplier of the safety data sheet:
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:
Mr. Dhaval Parikh
e-mail:sales@prasolchem.com; inquiry@prasolchem.com
1.4 Information in case of emergency:
Product safety department Tel: +91-22- 27782555; Fax:+91-22- 27782430
Other Comments (e.g. language(s) of the phone service): English

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
2.1.1 Classification according to Regulation (EC) No 1272/2008(CLP)

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*
2.2 Label elements
Labeling according to Regulation (EC) No 1272/2008(CLP)
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
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*

SECTION 3: Composition/information on ingredients

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

SECTION 4: First aid measures

4.1 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: *Treat symptomatically and supportively*
4.2 Most important symptoms and effects, both acute and delayed *No further relevant information available.*
4.3 Indication of any immediate medical attention and special treatment needed *No further relevant information available*

SECTION 5: Firefighting measures

5.1 Suitable extinguishing agents: *Water spray, foam, CO2, dry powder.*
For safety reasons unsuitable extinguishing agents: *No further relevant information available.*
5.2 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*
5.3 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.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Keep away from sources of ignition - No smoking. Ensure adequate ventilation. Wear personal protective equipment.
6.2 Environmental precautions: *Do not flush into surface water or sanitary sewer system*
6.3 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.
6.4 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

SECTION 7: Handling and storage

7.1 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.
7.2 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.*
7.3 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).

SECTION 8: Exposure controls/personal protection

8.1 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.*
8.2 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 break through 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*

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	*: Colorless liquid*
Odour	*: Aromatic, resembling menthol*
Odour threshold	*: no data available*
pH	*: no data available*
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)*
Evaporation rate	*: no data available*
Flammability (solid, gaseous)	*: not applicable*

Upper/lower flammability or explosive limits: *no data available*

Vapor pressure at 20°C	*: 0.6 hPa*
Vapour density	*: no data available*
Density at 25°C	*: 0.8888 g/cm³*
Solubility in / Miscibility with water	*: 3160 mg/l*

Partition coefficient (n-octanol/water) at 25 °C: *2.6 log POW*

Auto-ignition temperature	*: 425 °C at 1002 hPa.*
Decomposition temperature	*: no data*
Viscosity: Dynamic at 20 °C	*: 2.54 mPas*
Explosive properties	*: Product does not present an explosion hazard*
Oxidising properties	*: no oxidising properties*
9.2 Other information	*No further relevant information available.*

SECTION 10: Stability and reactivity

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

SECTION 11: Toxicological information

11.1 Information on toxicological effects
Acute toxicity:

Oral	*LD50*	*> 2000 mg/kg bw*	*(rat)*
Dermal	*LD50*	*> 2000 mg/kg bw*	*(rat)*
Inhalative	*LC50*	*14.2 mg/l*	*(rat)*

Skin corrosion/irritation: *No irritant effect (rabbit)*
Serious eye damage/irritation: *Irritating effect. (rabbit)*
Respiratory or skin sensitization: *No sensitizing effects known.*
Germ cell mutagenicity: *non mutagenic*
Carcinogenicity: *No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC*
Reproductive toxicity: *not toxic*
STOT-single exposure: *irritating to eye*
STOT-repeated exposure*: no data available*
Aspiration hazard: *no data available*
Additional information: *To the best of our knowledge, the chemical, physical, and toxicological properties have not*

been thoroughly investigated

SECTION 12: Ecological information

12.1 Toxicity
Aquatic toxicity:

EC50	*48 h*	*180 mg/l*	*(Daphnia magna)*
EC50	*3 h*	*755 mg/L*	*(activated sludge, domestic)*
LC50	*96 hr*	*> 100 mg/L*	*(Danio rerio/ zebrafish)*

12.2 Persistence and degradability: *not readily biodegradable (59% in 28days)*
12.3 Bio accumulative potential: *No further relevant information available.*
12.4 Mobility in soil *Calculated Koc of 58.32 l/k; sorption potential to soil or sediment matter is expected to be very low*
12.5 Results of PBT and vPvB assessment *Not applicable*
12.6 Other adverse effects *No further relevant information available.*

SECTION 13: Disposal considerations

13.1 Waste treatment methods
Product
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
Contaminated packaging:
Recommendation: *Disposal must be made according to official regulations.*

SECTION 14: Transport information

Land Transport (ADR/RID) ***Marine Transport (IMDG)*** ***Air Transport (ICAO/ IATA)***
14.1 UN/ID Number: -
14.2 UN proper shipping name *not dangerous goods in transport regulations*
14.3 Transport hazard class -
14.4 Packaging group -
14.5 Environmental hazards *none, not a marine pollutant*
14.6 Special precautions for the user: *no data available*
14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code *Not applicable*

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006
Hazard pictograms *Please refer section 2*
Signal word *Warning*
Labeling according to EU guidelines: *The product has been classified and marked in accordance with EU Directives / Ordinance on Hazardous Materials.*
Code letter and hazard designation of product: *Please refer section 2*
Risk phrases: *Please refer section 2*
15.2 Chemical safety assessment *A Chemical Safety Assessment has been carried out.*
Substances of very high concern (SVHC) according to REACH, Article 57: *The substance is not listed as SVHC.*

SECTION 16: 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

REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on classification, labeling and packaging of substances and mixtures, amending and repealing Directives 67/548/ EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006
Echa: 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
Sigma Aldrich MSDS
http://www.sigmaaldrich.com/MSDS/MSDS/DisplayMSDSPage.do?country=IN&language=en&productNumber=T75752&brand=ALDRICH&PageToGoToURL=http%3A%2F%2Fwww.sigmaaldrich.com%2Fcatalog%2Fproduct%2Faldrich%2Ft75752%3Flang%3Den
Chemidplus: http://chem.sis.nlm.nih.gov/chemidplus/rn/873-94-9
Actor: http://actor.epa.gov/actor/GenericChemical?casrn=873-94-9

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*