6.7 MSDS of MTO

Section 1: Chemical Product and Company Identification	
1.1 Chemical Product Identifiers:	
1.1.1 Chemical Name	MTO
1.1.1.1 Trade Name	MTO
1.1.2 CAS No.	8006-64-2
1.2 Relevant identified uses of the chemical product and uses advised against	
Relevant identified uses	Fuel
Uses advised against	No data available
1.3 Details of the supplier of the safety data sheet	
1.3.1 Company Name	Hindustan Petroleum Corporation Limited
1.3.2 Address	HPCL Mumbai Refinery, B D Patil Marg Chembur, Mumbai-400074
1.3.3 Contact No.	022-25076605
1.3.4 Contact person in emergency	Fire & Safety Shift Supervisor
1.4 Emergency Telephone No.:	022-25076606

Section 2: Hazards Identification

2.1 Classification of the chemical product:

Hazard class	Category	Hazard class & category	Hazard statement
Flammable liquid and vapor	3	Flam. Liq. 3	H226
Skin corrosion/irritation	2	Skin Irrit. 2	H315
Specific target organ toxicity - single exposure (narcotic effects, drowsiness)	3	STOT SE 3	H336
Aspiration hazard	1	Asp. Tox. 1	H304
Hazardous to the aquatic environment - chronic hazard	2	Aquatic Chronic 2	H411

2.2 Label Elements

Labelling according to Regulation (EC) No 1272/2008 (CLP)

2.2.1 GHS pictograms:

GHS02 GHS07 GHS08 GHS09

2.2.2 Signal Word(s): Danger

2.2.3 Hazard Statements(s):

H226	Flammable liquid and vapor
H304	May be fatal if swallowed and enters airways
H315	Causes skin irritation
H336	May cause drowsiness or dizziness
H411	Toxic to aquatic life with long lasting effects

2.2.4 Precautionary Statement(s):

Precautionary statements - prevention	
P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P102	Keep out of reach of children.
P273	Avoid release to the environment.
P280	Wear eye protection, face protection, protective clothing, protective gloves.
Precautionary statements – response	
P301+P310+P331	IF SWALLOWED: Immediately call a doctor, a POISON CENTER. Do NOT induce vomiting.
P501	Dispose of contents and container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

2.3 Other hazards except those mentioned in DGCPL Rules, 201:
Results of PBT and vPvB assessment
According to the results of its assessment, this substance is not a PBT or a vPvB.

Section 3: Composition/Information on Ingredients

3.1 Name of Product: Mineral Turpentine Oil

3.1.1 Systematic Chemical Name or Trivial Name: MTO

3.1.2 CAS No.: 8008-64-2

3.1.3 Other Identifiers

Molar mass 170 g/mol

Section 4: First-Aid Measures

4.1 Description of first aid measures

4.1.1 Inhalation
Keep at rest. Provide fresh air. Give oxygen or artificial respiration if necessary. Call a physician immediately.

4.1.2 Skin Contact
Take off immediately all contaminated clothing. Wash with plenty of water/. In case of doubt or persistent symptoms, consult always a physician. Wash contaminated clothing before reuse.

4.1.3 Eye Contact
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If eye irritation persists: Get medical advice/attention.

4.1.4 Ingestion
Do Not induce vomiting. Rinse mouth immediately and drink plenty of water. Get medical advice/attention.

4.2 Most important symptoms and anticipated effects both acute and delayed
Aspiration hazard, Irritation, Dizziness, Drowsiness, Cough, Nausea, Erythema

4.3 Advice for immediate medical attention and special treatment needed
None

Section 5: Firefighting Measures

5.1 Extinguishing Media

- **Suitable extinguishing media**
  Water spray, Alcohol resistant foam, Carbon dioxide, Dry extinguishing powder.
- **Unsuitable extinguishing media**
  Strong water jet.

5.2 Special hazards arising from the chemical product:
Vapours may form explosive mixture with air. Vapours are heavier than air and may spread along floors. Vapours are heavier than air and may travel considerable distance to an ignition source and flash back to source of vapours. On heating there is a risk of a build-up of pressure in hermetically sealed containers or tanks. Do not allow run-off from fire-fighting to enter drains or water courses.

5.3 Hazardous Combustion Products:
In case of fire may be liberated: Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke). Organic compounds. nitrogen oxides (NOx) and sulphur oxides.

5.4 Specific Extinguishing Methods
For this substance/mixture no limitations of extinguishing agents are given

5.4.1 Advice for Fire-Fighters

Special protective equipment for firefighters. Use water spray or fog for cooling exposed containers. Evacuate personnel to a safe area. Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

5.4.2 Special protective equipment for fire-fighters: None

Section 6: Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures:

Advice for non-emergency personnel: Evacuate personnel to a safe area. Stay upwind/keep distance from source. Provide adequate ventilation. Use personal protective equipment as required. Concerning personal protective equipment to use.

6.2 Environmental precautions:
Do not allow to enter into ground-water, surface water or drains. If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and materials for containment and cleaning up:
Advice on how to contain a spill
Stop leak if safe to do so. Dam up.
Advice on how to clean up a spill
Take up liquid spill into absorbent material, e.g.: sand, earth, vermiculite or powdered limestone. Collect in closed and suitable containers for disposal.
Other information relating to spills and releases
Dispose of as special waste in compliance with local and national regulations.

6.4 Reference to other sections:
Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

Section 7: Handling and Storage

7.1 Precautions for Safe Handling:
Provide adequate ventilation.

Measures to prevent fire as well as aerosol and dust generation
Keep away from sources of ignition - No smoking

Take any precaution to avoid mixing with combustibles.

Measures to protect the environment

Do not allow to enter into surface water or drains.

7.2 Conditions for Safe Storage, including requirement of hazardous area classification and any incompatibilities:
Keep container tightly closed in a cool, well-ventilated place.

Incompatible substances or mixtures
Oxidising substances. Strong acids

Ventilation requirements
Use local and general ventilation.

Section 8: Exposure Controls and Personal Protection

8.1 Control Parameters
National Limit Values
Occupational exposure limit values (Workplace Exposure Limits)

Country	Name of agent	CAS No	Identifier	TWA [ppm]	TWA [mg/mS]	STEL [ppm]	STEL [mg/mS]	Ceiling - C [ppm]	Ceiling -C [mg/ mS]	Notation	Source
USA	MTO	8006 -64- 2	ACGIH		200						

Notation

- Ceiling-C: Ceiling value is a limit value above which exposure should not occur
- STEL: Short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15- minute period (unless otherwise specified)
- TWA: Time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours' time-weighted average (unless otherwise specified)

Human health values

Relevant DNELs and other threshold levels

Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
DNEL	19 mg/kg bw/ day	human, oral	general population	Long-term - systemic effects

DNEL: Derived No Effect Level

8.2 Exposure Controls
8.2.1 Personal Protective Equipment:

Use of PPE to be ensured by working crew for exposure control. Different PPEs for exposure control of different body parts is described in the next section.

8.2.2 Suggestions for protection of eye, skin and body and respiratory system:

- **Eye/face protection**

Use safety goggle with side protection.

- **Skin protection**

- **Hand protection**
  Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.
  a) Type of material
  NBR (Nitrile rubber)
  b) Material thickness
  ≥0.54 mm
  c) Breakthrough times of the glove material
  >360 minutes
  d) Other protection measures
  The selection of specific gloves for a specific application and time of use in a working area, should also take into account other factors on the working space
- **Respiratory protection:** In case of insufficient ventilation, wear suitable respiratory equipment. Half-face mask (DIN EN 140). Full face mask (EN 136). Filter type: AP (EN 141). Use self-contained respiratory apparatus for rescue and maintenance work in

storage vessels. (EN 137)

8.2.3 Environmental Exposure Controls:

Avoid release to the environment. Comply with applicable Community environmental protection legislation.

Section 9: Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Liquid
Colour	Water white liquid with kerosene like odour.
Odour	like: - petroleum hydrocarbon odour.
Melting point/freezing point	-47 °C
Boiling point or initial boiling point and boiling range	145˚C to 205˚C
Flammability	Not applicable, liquid
Lower and upper explosion limit	0.6 vol% (LEL) – 4.9 vol% (UEL)
Flash point	35˚C
Auto-ignition temperature	5%
Decomposition temperature	not relevant
pH (value)	not determined
Kinematic viscosity	1 - 2 cPs (@ 40°C)
Solubility(ies)	
Water solubility	Insoluble
Partition coefficient	
Partition coefficient n-octanol/water (log value):	> 3
Soil organic carbon/water (log KOC)	3.34 (ECHA)
Vapour pressure	4 mm of Hg at 20˚C
Density and/or relative density	
Density	0.775 – 0.84 (@ 15°C)
Relative vapour density	4.8(Air=1)
Particle characteristics	not relevant (liquid)
Other safety parameters	
Oxidising properties	none

9.2 Other Information:

Information with regard to physical hazard classes:

There is no additional information.

Section 10: Stability and Reactivity

10.1 Reactivity

Flammable liquid.

10.2 Chemical stability

The product is stable under storage at normal ambient temperatures.

10.3 Possibility of hazardous reactions

Vapours may form explosive mixture with air.

10.4 Conditions to avoid
Can undergo auto-oxidation in air & generate heat which can build up in a confined space to cause spontaneous combustion

10.5 Incompatible materials
Incompatible with oxidizing agents & chlorine. Reacts vigorously with oxidising materials. Can react violently with Ca(OCI), CrO, Cr(OCI), SnCl, chloromelamines .

10.6 Hazardous decomposition products
Hazardous combustion products: Carbon di oxide, carbon mono oxide

Section 11: Toxicological Information

11.1 Information on Toxicological Effects: Symptoms related to the physical, chemical and toxicological characteristics

11.1.1 Acute Toxicity:

Exposure route	Endpoint	Value	Species	Source
Oral	LD50	5760 mg/kg	rat	OECD

11.1.2 Skin Corrosion/ Irritation: Causes skin irritation.

11.1.3 Serious Eye Damage/ Eye Irritation: Shall not be classified as seriously damaging to the eye or eye irritant.

11.1.4 Respiratory or Skin Sensitization: Shall not be classified as a respiratory or skin sensitizer

11.1.5 Mutagenicity: Shall not be classified as germ cell mutagenic.

11.1.6 Carcinogenicity: Shall not be classified as carcinogenic.

11.1.7 Reproductive Toxicity: Suspected of damaging fertility.

11.1.8 Specific target organ toxicity-single exposure: May cause drowsiness or dizziness.

11.1.9 Specific target organ toxicity - repeated exposure
Not classified

11.1.10 Aspiration Hazard: May be fatal if swallowed and enters airways.

11.1.11 Additional Information: There is no additional information.

Section 12: Ecological Information

12.1 Toxicity: Toxic to aquatic life with long lasting effects.

Endpoint	Value	Species	Source
LC50	2 - 5 mg/l	Fish 1	OECD
EC50	1.4 mg/l	Daphnia 1	OECD

ErC50	1 - 3 mg/l	algae	OECD
Aquatic toxicity (chronic**)**			
NOEC	0.48 mg/l	daphnia	NOEL
NOEC	0.98 mg/l	fish	NOEL

12.2 Persistence and Degradability: Inherently biodegradable.

12.3 Bio Accumulative Potential: The substance fulfils the very bio accumulative criterion.

n-octanol/water (log KOW)	> 3
BCF	Low potential.

12.4 Mobility in Soil:

The Organic Carbon normalized adsorptioncoefficient	Low potential

12.5 Other adverse effects: Data are not available

Section 13: Disposal considerations

13.1 Waste Treatment Method: This material and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Sewage disposal-relevant information**
  Do not allow to enter into surface water or drains.

13.1.1 Contaminated Packaging: Never use pressure to empty container.

13.1.2 Local Regulations (if any) on Disposal: Waste material must be disposed of in accordance with the **Hazardous Waste Management Rules-2016**

Section 14: Transport Information

14.1 UN Number: UN 1223

14.2 UN Proper Shipping Name: Kerosene

14.3 Transport Class(es): 3
14.3.1 Hazard Labels: 3
14.3.2 Symbols: 
14.4 Packaging Group: III
14.5 Environmental Hazards: No
14.6 Special Precautions for User: Provisions for dangerous goods (ADR) should be complied within the premises.

Section 15: Regulatory Information
15.1 Safety, health and Environmental: Regulations/legislation specific for the substance or mixture relevant provisions of **Non - Toxic/Flammable Substance** are applicable

Section 16: Other Information
16.1 Date of Issue: March 2023
16.2 Necessity of Specific Training: Working and handling personnel to be trained on following aspects i. Chemical hazard awareness ii. Safety control measures including PPE iii. Housekeeping, hygiene and chemical storage iv. Responding to any kind of emergency
16.3 Disclaimer: This M.S.D.S and the information it contains is offered to you in good faith as accurate. We believe that information to be correct but cannot guarantee its accuracy or completeness. Health and safety precautions in this data sheet may not be adequate for all individuals and/or situations. It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. No statement made in this data sheet shall be construed as a permission or recommendation for the use of any product in a manner that might infringe existing patents.