Material Safety Data Sheet(MSDS)

This Material Safety Data Sheet(MSDS) has been provided

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

1. Product Name : TECTYL CLEAN 640

2. Advisable use and Restriction
   - ○ Advisable use : Water-insoluble cleaner
   - ○ Restriction :
     - Do not use product for any other non-recommended purposes

3. Manufacturer information

   ○ Manufacture information : Lot C_2D_CN, My Phuoc 3 Park, Thoi Hoa Ward, Ben Cat Town, Binh Duong Province (+84-274-3803299)

   ○ Company : Tectyl Oil & Chemicals Vina

   ○ Address : Lot C_2D_CN, My Phuoc 3 Park, Thoi Hoa Ward, Ben Cat Town, Binh Duong Province (+84-274-3803299)

   ○ Information service or emergency number : (+84-274-3803299)

   ○ Dept. responsible for information/contact number : Tectyl Oil & Chemicals Vina
   - R&D CENTER Team

2. HAZARD IDENTIFICATION

1. Hazard classification

   - FLAMMABLE LIQUIDS Category 3
   - SKIN CORROSION/IRRITATION Category 2
   - SERIOUS EYE DAMAGE/EYE IRRITATION Category 2
   - SPECIFIC TARGET ORGAN TOXICITY SINGLE EXPOSURE Category 3(Respiratory tract irritation)
   - SPECIFIC TARGET ORGAN TOXICITY SINGLE EXPOSURE Category 3(Narcotic effects)
   - ASPIRATION HAZARD Category 2
   - LONG-TERM AQUATIC HAZARD Category 2

2. Allocation label elements

   ○ Symbol

   ○ Signal word : WARNING

   ○ Hazard statements

   H226 Flammable liquid and vapour.

   H305 May be harmful if swallowed and enters airways.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

H336 May cause drowsiness or dizziness.

H411 Toxic to aquatic life with long lasting effects.

○ Precautionary statements

- Prevention

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P233 Keep container tightly closed.

P240 Ground/bond container and receiving equipment.

P241 Use explosion-proof electrical/ventilating/lighting/.../equipment.

P242 Use only non-sparking tools.

P243 Take precautionary measures against static discharge.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P264 Wash ... thoroughly after handling.

P271 Use only outdoors or in a well-ventilated area.

P273 Avoid release to the environment.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

- Response

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

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

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses` if present and easy to do. Continue rinsing.

P312 Call a POISON CENTER or doctor/physician you feel unwell.

P321 Specific treatment (see ... on this label).

P331 Do NOT induce vomiting.

P332+P313 If skin irritation occurs: Get medical advice/ attention.

P337+P313 If eye irritation persists: Get medical advice/attention.

P362 Take off contaminated clothing and wash before reuse.

P370+P378 In case of fire: Use ... for extinction.

P391 Collect spillage.

- Storage

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

P403+P235 Store in a well-ventilated place. Keep cool.

P405 Store locked up.

- Disposal

P501 Dispose of contents/container to ...

3. Other hazard information not included in hazard classification (NFPA)

※ No NFPA data of the product. thus NFPA data was described by the product component.

Chemical Name	NFPA Level		
	Health	Flamm	Reactivity
1. NAPHTHA, PETROLEUM, HYDROTREATED HEAVY	1	3	0

3. INGREDIENT INFORMATION

Components	Common name	CAS No.	PCT(W%)
1) NAPHTHA, PETROLEUM, HYDROTREATED	NAPHTHA, PETROLEUM, HYDROTREATED	64742-48-9	100.0

4. FIRST AID MEASURES

1. Following eye contact

- Get medical aid immediately.
- If eye irritation persists: Get medical advice/attention.
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses` if present and easy to do. Continue rinsing.
- In case of contact with material, immediately flush eyes with running water for at least 15 minutes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Seek immediate medial assistance.

2. Following skin contact

- Call a POISON CENTER or doctor/physician you feel unwell.
- For hot product, immediately immerse in or flush the affected area with large amounts of cold water to dissipate heat.
- For minor skin contact, avoid spreading material on unaffected skin.
- Get medical aid immediately.
- IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- IF ON SKIN: Wash with plenty of soap and water.
- If skin irritation occurs: Get medical advice/ attention.
- In case of burns, immediately cool affected skin for as long as possible with cold water. Do not remove clothing if adhering to skin.
- In case of contact with material, immediately flush skin with running water for at least 15 minutes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Launder contaminated clothing and shoes before re-use.
- Remove and isolate contaminated clothing and shoes.
- Seek immediate medial assistance.

- Take off contaminated clothing and wash before reuse.
- Wash skin with soap and water.

3. Following inhalation
   - Administer oxygen if breathing is difficult.
   - Do NOT induce vomiting.
   - Give artificial respiration if victim is not breathing.
   - If exposed to excessive levels of dusts or fumes, remove to fresh air and get medical attention if cough or other symptoms develop.
   - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
   - Keep victim warm and quiet.
   - Move to fresh air.
   - Seek immediate medial assistance.
4. Following ingestion
   - Do NOT induce vomiting.
   - Get medical aid immediately.
   - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
   - If unconscious but breathing, never give anything by mouth.
   - Seek immediate medial assistance.
5. Advice to physician
   - Do not apply drugs of the adrenaline ephedrine group.
   - Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

5. FIRE FIGHTING MEASURES

1. Suitable (and unsuitable. extinguishing media
   - Suitable extinguishing media
     - Regular foam., Use alcohol foam, carbon dioxide, or water spray when fighting fires involving this material., Use dry sand or earth to smother fire., Water spray., CO2., Dry chemical., For mixtures containing alcohol or polar solvent: Alcohol-resistant foam.
   - Unsuitable extinguishing media
     - Direct water., High-pressure water.
   - Large fire
     - Alcohol-resistant foam., CO2., Water spray/fog., Dry chemical., Excess water., Foam.
2. Special hazards arising from the substance
   - Pyrolytic product
     - During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.
     - Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.
   - Risk of fire and explosion

- Can form explosive mixtures at temperatures at or above the flashpoint.
- Containers may explode when heated.
- Fire may produce irritating and/or toxic gases.
- Flammable liquid and vapour.
- HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames.
- May ignited from heat, friction or contamination.
- May violently polymerize and result in fire and explosion.
- Runoff may create fire or explosion hazard.
- Some may burn but none ignite readily.
- Vapor explosion hazard indoors, outdoors or in sewers.
- Vapors may form explosive mixtures with air.
- Vapors may travel to source of ignition and flash back.
- When heated, vapors may form explosive mixtures with air: indoors, outdoors and sewers explosion hazards.

3. Special protective equipment for firefighters
   - Cautions ; Most of liquids are lighter than water.
   - Contact may cause burns to skin and eyes.
   - Dike fire-control water for later disposal; do not scatter the material.
   - Evacuate area and fight fire from a safe distance.
   - Fire involving Tanks: ALWAYS stay away from tanks engulfed in fire.
   - Fire involving Tanks: Cool containers with flooding quantities of water until well after fire is out.
   - Fire involving Tanks: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
   - Fire involving Tanks: For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.
   - Fire involving Tanks: Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
   - Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks).
   - Move containers from fire area if you can do it without risk.
   - Rescuers should put on appropriate protective gear.
   - Runoff may cause pollution.
   - Substance may be transported hot.
   - Substance may be transported in a molten form.

6. ACCIDENTAL RELEASE MEASURES

1. Health considerations and protective equipment
   - A vapor suppressing foam may be used to reduce vapors.
   - All equipment used when handling the product must be grounded.
   - Avoid breathing dust/fume/gas/mist/vapours/spray.

- Clean up spills immediately, observing precautions in Protective Equipment section.
- Cover with plastic sheet to prevent spreading.
- Do not enter areas which have more than 23.5% oxygen in the atmosphere, without respirator or air supplied mask.
- Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
- Do not touch or walk through spilled material.
- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- Please note that materials and conditions to be avoided.
- Prevent dust cloud.
- Stop leak if you can do it without risk.
- The very fine particles can cause a fire or explosion, eliminate all ignition sources.
- Ventilate the contaminated area.

2. Environmental precautions
   - Avoid release to the environment.
   - Keep out of waterways.
   - Prevent entry into waterways, sewers, basements or confined areas.
3. For cleaning up
   - Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
   - Absorb spill with inert material (e.g., dry sand or earth), then place in a chemical waste container.
   - Absorb the liquid and scrub the area with detergent and water.
   - Collect spillage.
   - Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry.
   - Dike and collect water used to fight fire.
   - Large Spill: Dike far ahead of liquid spill for later disposal.
   - Small Spill: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.
   - Small Spill: Flush area with flooding quantities of water.
   - Use clean non-sparking tools to collect absorbed material.
   - With clean shovel place material into clean, dry container and cover loosely; move containers from spill area.

7. HANDLING AND STORAGE

1. Precautions for safe handling
   - Avoid any skin and eye contact when insert undiluted solution. Wash ... thoroughly after handling.
   - Caution: Dangerous fire hazard when exposed to heat, or flame, sparks.
   - Use adequate machine for prevention when package handling.
   - Wear an appropriate Personal protection. (See Exposure Controls/Personal Protection section.)

2. Conditions for safe storage (including any incompatibilities.

- Choose a place that can be protected from strong oxidizers and acid.
- Drum Handling: Must work at safe place., Loading more than 3 stack is prohibited.
- Store containers: AVOID the place where can be damage and contamination.
- Store in a cool/low-temperature, well-ventilated {dry} place {away from heat and ignition sources}

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

1. Exposure exposure limits, Biological exposure standard :

※ No exposure limits and biological exposure data of the product. thus data was described

1) NAPHTHA, PETROLEUM, HYDROTREATED HEAVY

○ Other regulation (Domestic) : Not established

○ ACGIH : Not established

○ Biological standard : Not established

2. Appropriate engineering controls

- Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.
- If user operations generate dust, fume, or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
- Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.
- Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

3. Personal protection

○ Respiratory protection

- If high frequency of use or exposure, wear air respirator.
- Wear breathing protection, which needs a confirmation from the Korea Occupational Safety and Health Agency.

○ Eye protection

- Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.
- Wear face shield to protect eyes from scattering dust or hazardous liquid.
- Wear Non-moisture permeable goggle for dust protection.

○ Hand protection

- Wear Non-moisture permeable chemical resistance protective gloves(latex, nitrile rubber, PVC) for prevent skin contact.

○ Body protection

- When contact is likely wear chemical resistant, oil and grease resistant, non-moisture permeable shoes and clothes.

9. PHYSICAL AND CHEMICAL PROPERTIES

1. Appearance : Clear, transparent liquid
2. Odour : Hydrocarbon

3. Odour threshold : No data available

4. pH Values : No data available

5. Melting point/freezing point : No data available

6. Initial boiling point and boiling range : No data available

7. Flash point : 40℃

8. Evaporation rate : No data available

9. Flammability(solid, gas) : Not applicable

10. Upper/lower flammability or explosive limits : No data available

11. Solubility : No data available

12. Vapour pressure : No data available

13. Relative density : 0.77(15/4˚C)

14. n-octanol/water partition coefficient : No data available

15. Auto ignition temperature : No data available

16. Decomposition temperature : No data available

17. Vapor Densities : No data available

18. Viscosity : 1(40˚C, ㎟/s)

19. Molecular weight(mass) : No data available

10. STABILITY AND REACTIVITY

1. Stability and hazardous reactivity
   - Can form explosive mixtures at temperatures at or above the flashpoint.
   - Containers may explode when heated.
   - Fire may produce irritating and/or toxic gases.
   - Fire may produce irritating, corrosive and/or toxic gases.
   - Flammable liquid and vapour.
   - HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames.
   - May cause toxic effects if inhaled.
   - May violently polymerize and result in fire and explosion.
   - Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.
   - Runoff may create fire or explosion hazard.
   - Some liquids produce vapors that may cause dizziness or suffocation.
   - Some may burn but none ignite readily.
   - Stable under normal temperatures and pressures.
   - Vapor explosion hazard indoors, outdoors or in sewers.
   - Vapors may form explosive mixtures with air.
   - When heated, vapors may form explosive mixtures with air: indoors, outdoors and sewers explosion hazards.
2. Conditions to avoid
   - Heat.

- Ignition source(heat, spark, flame, etc.).
- Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

3. Incompatible materials
   - Combustibles, reducing material.
   - Combustibles.
   - Irritating and/or toxic gas.
4. Hazardous decomposition products
   - Corrosive/toxic fume.
   - During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.
   - Irritating and/or toxic gas.
   - Irritating, corrosive and/or toxic gas.

11. TOXICOLOGICAL INFORMATION

1. Exposure route information
   - ○ Following eye contact : Tear, Urtication
   - ○ Following ingestion : Irregular heartbeat, Pathological drunkenness, Stethemia
   - ○ Following inhalation : Headache, Irritating, Lapse, Pathological drunkenness, Sicchasia, Sleepiness, Spasm, Stethemia, Visual impairment
   - ○ Following skin contact : Irritating
2. Health hazard information

※ No data of the product. thus data was described by the product component.

1) NAPHTHA, PETROLEUM, HYDROTREATED HEAVY

- ○ ACUTE TOXICITY
  - Oral : Not classified / LD50 > 5000 mg/kg Rat
  - Dermal : Not classified / LD50 > 2000 mg/kg Rabbit
  - Inhalation-Gases : No data available
  - Inhalation-Vapours : Not classified / LC50 > 5610 mg/m³ Rat
  - Inhalation-Dust/mist : No data available
- ○ SKIN CORROSION/IRRITATION : Category 2 / Irritating (fully reversible within 14 days) Rabbit
- ○ SERIOUS EYE DAMAGE/EYE IRRITATION : Category 2 / Not irritating Rabbit
- ○ RESPIRATORY SENSITIZATION : No data available
- ○ SKIN SENSITIZATION : Not classified / Non sensitising Guinea pig
- ○ CARCINOGENICITY : Not classified
  - Notice of Employment and Labor : Not applicable
  - IARC : Not applicable
  - OSHA : Not applicable
  - ACGIH : Not applicable
  - NTP : Not applicable

- EU CLP : Not applicable (if under 0.1 w/w% of Benzene Extract/ EINECS NO 200-753-7)

○ GERM CELL MUTAGENICITY : Not classified / Negative Salmonella typhimurium

○ REPRODUCTIVE TOXICITY : Not classified / There were no differences in sperm count, sperm quality, estrous cycling, quantification of primordial oocytes, or developmental landmarks, other than a delay in hair growth in some treated offspring. Rat

○ SPECIFIC TARGET ORGAN TOXICITY SINGLE EXPOSURE : Category 3(Respiratory tract irritation) / CNS depression and respiratory tract irritation were observed primarily with inhalation exposure at relatively high concentrations.

○ SPECIFIC TARGET ORGAN TOXICITY SINGLE EXPOSURE : Category 3(Narcotic effects) / CNS depression and respiratory tract irritation were observed primarily with inhalation exposure at relatively high concentrations.

○ SPECIFIC TARGET ORGAN TOXICITY REPEATED EXPOSURE : Not classified / No consistent, compound-related changes were seen in mortality, hematology or clinical chemistry parameters at 9869 mg/m3 in rats. Rat

○ ASPIRATION HAZARD : Category 1 / Viscosities <7 Cst at 40°C and meet EU classification criteria for aspiration hazard.

12. ECOLOGICAL INFORMATION

1. Aquatic toxicity

1) NAPHTHA, PETROLEUM, HYDROTREATED HEAVY

○ Fish : LC50 8.2 mg/L Fish

○ Crustacea : EC50 4.5 mg/L Aquatic invertebrates

○ Aquatic algae : EC50 3.1 mg/L Aquatic algae

2. Persistence and degradation

1) NAPHTHA, PETROLEUM, HYDROTREATED HEAVY

○ Degradation : No data abailable

○ n-octanol water partition coefficient : log Kow <= 6

3. Bioaccumulative potential

1) NAPHTHA, PETROLEUM, HYDROTREATED HEAVY

○ Bioaccumulation : No data abailable

○ Biodegradation : BOD 77 %

4. Mobility in soil

1) NAPHTHA, PETROLEUM, HYDROTREATED HEAVY

- Koc > 60.7

5. Other adverse effects

1) NAPHTHA, PETROLEUM, HYDROTREATED HEAVY

- No data abailable

13. DISPOSAL CONSIDERATIONS

1. Disposal methods

- Every commercial waste producer shall either treat wastes generated from his/her place of business by him/herself or commission the treatment of such wastes to a person who has license for a waste treatment business under Article 26(3), a person who recycles of such wastes under Article 44(2), a person who has installed and operates a waste disposal facility under Article 4 or 5, a person who has completed the registration of a business of discharging wastes into the sea under Article 18 of the Marine Environment Management Act.

2. Precautions (including disposal of contaminated container of package.

- Dispose of contents/container to ...
- Do not allow spill material to enter sewers, storn water drains, soil, etc.
- Empty containers may explode and residues can be ignited when pressured, cut, weld, heated.
- Empty containers may rupture when pressured.
- Empty containers recycled under environmental laws.
- Wear an appropriate Personal protection. (See Exposure Controls/Personal Protection section.)

14. TRANSPORT INFORMATION

1. UN No : 1268
2. Proper shipping name : PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.
3. Class or division : 3
4. Packing group : III
5. Marine pollutant : Not Classified
6. Special safety response for transportation or transportation measure :
   - ○ Emergency measures in case of fire : F-E
   - ○ Emergency measures in the effluent : S-E

15. REGULATORY INFORMATION

1. Occupational safety and health act

1) NAPHTHA, PETROLEUM, HYDROTREATED HEAVY

- Not classified

2. Toxic chemical control act

1) NAPHTHA, PETROLEUM, HYDROTREATED HEAVY

- Existing Chemical Substance

3. Safety Control of hazardous substances act in Korea

Class 4 Second Petroleum liquids

1) NAPHTHA, PETROLEUM, HYDROTREATED HEAVY

○ Other regulation (Domestic) : Not classified
○ National regulations :
-EU Classification (CLASSIFICATION) : Carc.Cat.2; R45 Muta.Cat.2; R46 Xn; R65
-EU Classification (Risk Phrases) : R45, R46, R65
-EU Classification (Safety Phrases) : S:53-45

16. OTHER INFORMATION

1. Reference
   - Computer model
   - EU CLP
   - IUCLID
   - Publication
   - Review article or handbook
   - SIAM
   - Study report
2. Prepare date : 2011-05-20
3. Revised date
   - Ver 1.0 : 2012-11-16
   - Ver 2.0 : 2013-06-10
   - Ver 3.0 : 2014-08-05
4. Other

   fill out based on the standard of the Ministry of Employment and Laborabout data, GHS, MSDS.