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 220C

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

3. Manufacturer information
   - ○ Manufacture information : Tectyl Oil & Chemicals Vina Lot C_2D_CN, My Phuoc 3 Park, Thoi Hoa Ward, BenCat, Binh Duong Province (933854940)
   - ○ Company : Tectyl Oil & Chemicals Vina
   - ○ Address : Lot C_2D_CN, My Phuoc 3 Park,Thoi Hoa Ward, BenCat, Binh Duong Province
   - ○ Information service or emergency number : 933854940
   - ○ Dept. responsible for information/contact number : Tectyl Oil & Chemicals Vina R&D CENTER Technology & Management Team Jeon Young Sik

2. HAZARD IDENTIFICATION

1. Hazard classification

2. Allocation label elements
   - ○ Symbol

   - ○ Signal word : NONE

   - ○ Hazard statements

   - ○ Precautionary statements

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. WATER	0	0	0
2. TRIETHANOLAMINE	2	1	1

3. DIPROPYLENE GLYCOL	0	1	0
4. UNDECANEDIOIC ACID	No Data	No Data	No Data
5. ACRYLIC RESIN	1	0	0

3. INGREDIENT INFORMATION

Components	Common name	CAS No.	PCT(W%)
1) WATER	WATER	7732-18-5	67-77
2) TRIETHANOLAMINE	TRIETHANOLAMINE	102-71-6	8-11
3) DIPROPYLENE GLYCOL	DIPROPYLENE GLYCOL	25265-71-8	5-9
4) UNDECANEDIOIC ACID	UNDECANEDIOIC ACID	1852-04-6	2-4
5) ACRYLIC RESIN	ACRYLIC RESIN	9003-01-4	2-4

4. FIRST AID MEASURES

1. Following eye contact
   - Get medical aid immediately.
   - In case of contact with material, immediately flush eyes with running water for at least 15 minutes.
2. Following skin contact
   - Get medical aid immediately.
   - In case of contact with material, immediately flush skin with running water for at least 15 minutes.
   - Launder contaminated clothing and shoes before re-use.
   - Remove and isolate contaminated clothing and shoes.
3. Following inhalation
   - Administer oxygen if breathing is difficult.
   - Give artificial respiration if victim is not breathing.
   - Move to fresh air.
   - Seek immediate medial assistance.
4. Following ingestion
   - Get medical aid immediately.
   - If unconscious but breathing, never give anything by mouth.
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

2. Special hazards arising from the substance

○ Risk of fire and explosion

- Containers may explode when heated.
- Fire may produce irritating and/or toxic gases.
- May ignited from heat, friction or contamination.
- Some may burn but none ignite readily.

3. Special protective equipment for firefighters

- Contact may cause burns to skin and eyes.
- Dike fire-control water for later disposal; do not scatter the material.
- 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: Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Move containers from fire area if you can do it without risk.
- Runoff may cause pollution.
- Substance may be transported hot.

6. ACCIDENTAL RELEASE MEASURES

1. Health considerations and protective equipment
   - Do not enter areas which have more than 23.5% oxygen in the atmosphere, without respirator or air supplied mask.
   - 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.
   - Ventilate the contaminated area.
2. Environmental precautions
   - Prevent entry into waterways, sewers, basements or confined areas.
3. For cleaning up
   - Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry.
   - 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.

_ 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) WATER
      ○ Other regulation (Domestic) : Not established
      ○ ACGIH : Not established
      ○ Biological standard : Not established

   2) TRIETHANOLAMINE
      ○ Other regulation (Domestic) : Not established
      ○ ACGIH : Not established
      ○ Biological standard : Not established

   3) DIPROPYLENE GLYCOL
      ○ Other regulation (Domestic) : Not established
      ○ ACGIH : Not established
      ○ Biological standard : Not established

   4) UNDECANEDIOIC ACID
      ○ Other regulation (Domestic) : Not established
      ○ ACGIH : Not established
      ○ Biological standard : Not established

   5) ACRYLIC RESIN
      ○ Other regulation (Domestic) : Not established
      ○ ACGIH : Not established

○ Biological standard : Not established

2. Appropriate engineering controls

- Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible 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 : No data available
2. Odour : No data available
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 : Not applicable
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 : No data available
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 : No data available

19. Molecular weight(mass) : No data available

10. STABILITY AND REACTIVITY

1. Stability and hazardous reactivity
   - Containers may explode when heated.
   - Fire may produce irritating and/or toxic gases.
   - May cause toxic effects if inhaled.
   - Some liquids produce vapors that may cause dizziness or suffocation.
   - Some may burn but none ignite readily.
   - Stable under normal temperatures and pressures.
2. Conditions to avoid
   - Ignition source(heat, spark, flame, etc.).
3. Incompatible materials
   - Combustibles.
   - Irritating and/or toxic gas.

11. TOXICOLOGICAL INFORMATION

1. Exposure route information
   ○ Following eye contact : Irritating
   ○ Following ingestion : Diarrhea, Irritating, Stomachache, Vomiting
   ○ Following inhalation : Cough, Dyspnoea, Irritating, Throat infection
   ○ Following skin contact : Allergic reaction, Irritating, Liver abnormality, Renal abnormality
2. Health hazard information
   ※ No data of the product. thus data was described by the product component.

   1) WATER
      ○ ACUTE TOXICITY
         - Oral : Not classified / LD50 > 90 mL/kg
         - Dermal : No data available
         - Inhalation-Gases : No data available
         - Inhalation-Vapours : No data available
         - Inhalation-Dust/mist : No data available
      ○ SKIN CORROSION/IRRITATION : No data available
      ○ SERIOUS EYE DAMAGE/EYE IRRITATION : No data available
      ○ RESPIRATORY SENSITIZATION : No data available
      ○ SKIN SENSITIZATION : No data available

○ 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

○ GERM CELL MUTAGENICITY : Not classified / Negative Salmonella typhimurium

○ REPRODUCTIVE TOXICITY : No data available

○ SPECIFIC TARGET ORGAN TOXICITY SINGLE EXPOSURE : No data available

○ SPECIFIC TARGET ORGAN TOXICITY REPEATED EXPOSURE : No data available

○ ASPIRATION HAZARD : No data available

2) TRIETHANOLAMINE

○ ACUTE TOXICITY

- Oral : Not classified / LD50 6400 mg/kg Rat
- Dermal : Not classified / LD50 > 2000 mg/kg Rabbit
- Inhalation-Gases : No data available
- Inhalation-Vapours : No data available
- Inhalation-Dust/mist : No data available

○ SKIN CORROSION/IRRITATION : Not classified / Not irritating Rabbit

○ SERIOUS EYE DAMAGE/EYE IRRITATION : Not classified / Not irritating Rabbit

○ RESPIRATORY SENSITIZATION : No data available

○ SKIN SENSITIZATION : Not classified / Not sensitising Guinea pig

○ CARCINOGENICITY : Not classified

- Notice of Employment and Labor : Not applicable
- IARC : 3
- OSHA : Not applicable
- ACGIH : Not applicable
- NTP : Not applicable
- EU CLP : Not applicable

○ GERM CELL MUTAGENICITY : Not classified / Negative CHO cell

○ REPRODUCTIVE TOXICITY : Not classified / Lower mean number of implantation sites and litter size Rat

○ SPECIFIC TARGET ORGAN TOXICITY SINGLE EXPOSURE : No data available

○ SPECIFIC TARGET ORGAN TOXICITY REPEATED EXPOSURE : Not classified / Not considered significant Rat

○ ASPIRATION HAZARD : No data available

3) DIPROPYLENE GLYCOL

○ ACUTE TOXICITY

- Oral : Not classified / LD50 > 5000 mg/kg Rat
- Dermal : Not classified / LD50 > 5010 mg/kg Rabbit
- Inhalation-Gases : No data available
- Inhalation-Vapours : No data available
- Inhalation-Dust/mist : Not classified / LC50 > 2.34 mg/L Rat

○ SKIN CORROSION/IRRITATION : Not classified / Not irritating Human

○ SERIOUS EYE DAMAGE/EYE IRRITATION : Not classified / Slightly irritating Rabbit

○ RESPIRATORY SENSITIZATION : No data available

○ SKIN SENSITIZATION : Not classified / Not sensitising Human

○ 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

○ GERM CELL MUTAGENICITY : Not classified / Negative Mouse

○ REPRODUCTIVE TOXICITY : Not classified / No embryotoxic/teratogenic effects Rat

○ SPECIFIC TARGET ORGAN TOXICITY SINGLE EXPOSURE : No data available

○ SPECIFIC TARGET ORGAN TOXICITY REPEATED EXPOSURE : Not classified / No effects of liver and nose at up to 470 mg/kg in rats. Rat

○ ASPIRATION HAZARD : No data available

4) UNDECANEDIOIC ACID

○ ACUTE TOXICITY

- Oral : No data available
- Dermal : No data available
- Inhalation-Gases : No data available
- Inhalation-Vapours : No data available
- Inhalation-Dust/mist : No data available

○ SKIN CORROSION/IRRITATION : No data available

○ SERIOUS EYE DAMAGE/EYE IRRITATION : No data available

○ RESPIRATORY SENSITIZATION : No data available

○ SKIN SENSITIZATION : No data available

○ 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

○ GERM CELL MUTAGENICITY : No data available

○ REPRODUCTIVE TOXICITY : No data available

○ SPECIFIC TARGET ORGAN TOXICITY SINGLE EXPOSURE : No data available

○ SPECIFIC TARGET ORGAN TOXICITY REPEATED EXPOSURE : No data available

○ ASPIRATION HAZARD : No data available

5) ACRYLIC RESIN

○ ACUTE TOXICITY

- Oral : Not classified / LD50 4100 mg/kg Rat
- Dermal : Not classified / LD50 > 3000 mg/kg Rat
- Inhalation-Gases : No data available
- Inhalation-Vapours : Not classified / LC50 > 1.71 mg/L Rat
- Inhalation-Dust/mist : No data available

○ SKIN CORROSION/IRRITATION : No data available

○ SERIOUS EYE DAMAGE/EYE IRRITATION : No data available

○ RESPIRATORY SENSITIZATION : No data available

○ SKIN SENSITIZATION : No data available

○ CARCINOGENICITY : Not classified

- Notice of Employment and Labor : Not applicable
- IARC : 3
- OSHA : Not applicable
- ACGIH : Not applicable
- NTP : Not applicable
- EU CLP : Not applicable

○ GERM CELL MUTAGENICITY : Not classified / Negative Salmonella typhimurium

○ REPRODUCTIVE TOXICITY : No data available

○ SPECIFIC TARGET ORGAN TOXICITY SINGLE EXPOSURE : Not classified / No treatment-related deaths or toxic signs were reported. Rabbit

○ SPECIFIC TARGET ORGAN TOXICITY REPEATED EXPOSURE : Not classified / No abnormal reactions or deaths occurred during the study in rats. Rat

○ ASPIRATION HAZARD : No data available

12. ECOLOGICAL INFORMATION

1. Aquatic toxicity

1) WATER

○ Fish : No data abailable

○ Crustacea : No data abailable

○ Aquatic algae : No data abailable

2) TRIETHANOLAMINE

○ Fish : No data abailable

○ Crustacea : No data abailable

○ Aquatic algae : No data abailable

3) DIPROPYLENE GLYCOL

○ Fish : LC50 15167 mg/L Fish

○ Crustacea : LC50 > 100 mg/L Aquatic invertebrates

○ Aquatic algae : EC50 > 100 mg/L Aquatic algae

4) UNDECANEDIOIC ACID

○ Fish : LC50 367.973 mg/L Fish

○ Crustacea : No data abailable

○ Aquatic algae : No data abailable

5) ACRYLIC RESIN

○ Fish : No data abailable

○ Crustacea : No data abailable

○ Aquatic algae : No data abailable

2. Persistence and degradation

1) WATER

○ Degradation : No data abailable

○ n-octanol water partition coefficient : No data abailable

2) TRIETHANOLAMINE

○ Degradation : DOC 82 %

○ n-octanol water partition coefficient : No data abailable

3) DIPROPYLENE GLYCOL

○ Degradation : DOC 23.6 %

○ n-octanol water partition coefficient : log Kow -0.462

4) UNDECANEDIOIC ACID

○ Degradation : No data abailable

○ n-octanol water partition coefficient : log Kow 2.28

5) ACRYLIC RESIN

○ Degradation : No data abailable

○ n-octanol water partition coefficient : No data abailable

3. Bioaccumulative potential

1) WATER

○ Bioaccumulation : No

○ Biodegradation : No data abailable

2) TRIETHANOLAMINE

○ Bioaccumulation : BCF < 0.4 Fish

○ Biodegradation : BOD 1.3

3) DIPROPYLENE GLYCOL

○ Bioaccumulation : BCF 4.6 Fish

○ Biodegradation : No data abailable

4) UNDECANEDIOIC ACID

○ Bioaccumulation : No data abailable

○ Biodegradation : No data abailable

5) ACRYLIC RESIN

○ Bioaccumulation : No data abailable

○ Biodegradation : No data abailable

4. Mobility in soil

1) WATER

- No data abailable

2) TRIETHANOLAMINE

- Koc 7

3) DIPROPYLENE GLYCOL

- Koc 6.04

4) UNDECANEDIOIC ACID

- No data abailable

5) ACRYLIC RESIN

- No data abailable

5. Other adverse effects

1) WATER

- No data abailable

2) TRIETHANOLAMINE

- No data abailable

3) DIPROPYLENE GLYCOL

- No data abailable

4) UNDECANEDIOIC ACID

- No data abailable

5) ACRYLIC RESIN

- 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.

_ 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 : Not Classified
2. Proper shipping name : Not Classified
3. Class or division : Not Classified
4. Packing group : Not Classified
5. Marine pollutant : Not Classified
6. Special safety response for transportation or transportation measure :

○ Emergency measures in case of fire : Not Classified

○ Emergency measures in the effluent : Not Classified

15. REGULATORY INFORMATION

1. Occupational safety and health act

1) WATER

- Not classified

2) TRIETHANOLAMINE

- Not classified

3) DIPROPYLENE GLYCOL

- Not classified

4) UNDECANEDIOIC ACID

- Not classified

5) ACRYLIC RESIN

- Not classified

2. Toxic chemical control act

1) WATER

- Existing Chemical Substance

2) TRIETHANOLAMINE

- Existing Chemical Substance

3) DIPROPYLENE GLYCOL

- Existing Chemical Substance

4) UNDECANEDIOIC ACID

- Existing Chemical Substance

5) ACRYLIC RESIN

- Existing Chemical Substance

3. Safety Control of hazardous substances act in Korea

4. Wastes Control Act in Korea

06-03-00, waste not classified elsewhere

5. Other regulations in Korea and overseas regulations

1) WATER

○ Other regulation (Domestic) : Not classified
○ National regulations : Not classified

2) TRIETHANOLAMINE

○ Other regulation (Domestic) : Not classified
○ National regulations : Not classified

3) DIPROPYLENE GLYCOL

○ Other regulation (Domestic) : Not classified
○ National regulations : Not classified

4) UNDECANEDIOIC ACID

○ Other regulation (Domestic) : Not classified
○ National regulations : Not classified

5) ACRYLIC RESIN

○ Other regulation (Domestic) : Not classified
○ National regulations : Not classified

16. OTHER INFORMATION

1. Reference

- Canada Domestic Substance List
- CCR
- CCRIS
- Contact Dermatitis, 33, 211-212
- ECOSAR
- Environ.Molec.Mutag. 10 Suppl.10,|1-175 (1987)
- Food Research. Vol. 21, Pg. 348
- HSDB
- IARC
- IUCLID
- Japan Chemical Industry Ecology-Toxicology & Information Center
- J-CHECK
- NTP
- OECD SIDS
- other company data
- Publication
- Study report
- Technical Guidance Document on Risk Assessment
- Toxicology and Applied Pharmacology 55, 501-513 (1980)
- Water Research 23(4): 501-510

2. Prepare date : 2011-05-19

3. Revised date

ver 2.0 2013-06-05
ver 2.1 2014-07-30

4. Other

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