

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 206A

2. Advisable use and Restriction

☐ Advisable use : Water Soluble Metal 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

– SKIN CORROSION/IRRITATION Category 1

– SERIOUS EYE DAMAGE/EYE IRRITATION Category 1

– SKIN SENSITIZATION Category 1

2. Allocation label elements

☐ Symbol



☐ Signal word : DANGER

☐ Hazard statements

H314 Causes severe skin burns and eye damage.

H317 May cause an allergic skin reaction.

H318 Causes serious eye damage.

☐ Precautionary statements

– Prevention

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

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

P264 Wash ... thoroughly after handling.

P272 Contaminated work clothing should not be allowed out of the workplace.

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

– Response

P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

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.

P310 Immediately call a POISON CENTER or doctor/physician.

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

P333+P313 If skin irritation or rash occurs: Get medical advice/attention.

P363 Wash contaminated clothing before reuse.

– Storage

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

Chemical Name	NFPA Level		
	Health	Flamm	Reactivity
1. WATER	0	0	0
2. TRIETHANOLAMINE	2	1	1
3. ETHANOLAMINE	3	2	0
4. DODECANEDIOIC ACID	1	0	0
5. PROPYLENE GLYCOL DIAMINE, 2-AMINO-, DIETHER WITH PROPYLENE	3	1	0
6. Substance1	1	1	0
7. Substance2	No Data	No Data	No Data

3. INGREDIENT INFORMATION

Components	Common name	CAS No.	PCT(W%)
1) WATER	WATER	7732-18-5	75-82
2) TRIETHANOLAMINE	TRIETHANOLAMINE	102-71-6	7-12

3) ETHANOLAMINE	ETHANOLAMINE	141-43-5	1-7
4) DODECANEDIOIC ACID	DODECANEDIOIC ACID	693-23-2	1-5
5) PROPYLENE GLYCOL DIAMINE, 2-AMINO-, DIETHER WITH PROPYLENE	PROPYLENE GLYCOL DIAMINE, 2-AMINO-, DIETHER WITH PROPYLENE	9046-10-0	1-5
6) Substance1	-	-	1-5
7) Substance2	-	-	1-5

4. FIRST AID MEASURES

1. Following eye contact

- Get medical aid immediately.
- 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

- 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 or rash occurs: Get medical advice/attention.
- 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.
- Wash contaminated clothing before reuse.

3. Following inhalation

- Administer oxygen if breathing is difficult.
- Give artificial respiration if victim is not breathing.
- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- Immediately call a POISON CENTER or doctor/physician.

- Keep victim warm and quiet.
- Move to fresh air.
- Seek immediate medical assistance.

4. Following ingestion

- Get medical aid immediately.
- IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
- If unconscious but breathing, never give anything by mouth.
- Seek immediate medical 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

- Use dry sand or earth to smother fire., Water spray., CO₂., Dry chemical., Use alcohol foam, carbon dioxide, or water spray when fighting fires involving this material

☐ Unsuitable extinguishing media

- Direct water.

☐ Large fire

- Alcohol-resistant foam., Dry chemical., Excess water., Foam., CO₂., Water spray/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

- Containers may explode when heated.
- Fire may produce irritating and/or toxic gases.
- May ignite 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.
- 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.
- 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

- 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 breathe dust/fume/gas/mist/vapours/spray.
- 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.
- Ventilate the contaminated area.

2. Environmental precautions

- 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.
- 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) ETHANOLAMINE

- ☐ Other regulation (Domestic) :
TWA : 3ppm;8mg/m³;6ppm;
STEL : 6ppm;15mg/m³;6ppm;
- ☐ ACGIH : Not established
- ☐ Biological standard : Not established

4) DODECANEDIOIC ACID

- ☐ Other regulation (Domestic) : Not established
- ☐ ACGIH : Not established

☐ Biological standard : Not established

5) PROPYLENE GLYCOL DIAMINE, 2-AMINO-, DIETHER WITH PROPYLENE

☐ Other regulation (Domestic) : Not established

☐ ACGIH : Not established

☐ Biological standard : Not established

6) Substance1

☐ Other regulation (Domestic) : Not established

☐ ACGIH : Not established

☐ Biological standard : Not established

7) Substance2

☐ 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.
- 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 : translucence / Transparent

2. Odour : No data available
3. Odour threshold : No data available
4. pH Values : 10.2
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 : 1.04(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 : 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.
 - Fire may produce irritating, corrosive and/or toxic gases.
 - May cause toxic effects if inhaled.
 - Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.
 - 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, 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, corrosive and/or toxic gas.

11. TOXICOLOGICAL INFORMATION

1. Exposure route information

- ☐ Following eye contact : Burn, Indistinctness, Irritating, Tear
- ☐ Following ingestion : Burn, Diarrhea, Irritating, Stomachache, Vomiting
- ☐ Following inhalation : Burn, Cough, Dyspnoea, Irritating, Throat infection
- ☐ Following skin contact : Allergic reaction, Burn, 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) ETHANOLAMINE

☐ ACUTE TOXICITY

- Oral : Category 4 / LD50 1515 mg/kg Rat
- Dermal : Category 4 / LD50 2504 mg/kg Rabbit

☐ ACUTE TOXICITY

- Inhalation–Gases : No data available
- Inhalation–Vapours : Not classified / LC0 > 0.0005 mg/L Rat
- Inhalation–Dust/mist : No data available

☐ SKIN CORROSION/IRRITATION : Category 1 / Corrosive Rabbit

☐ SERIOUS EYE DAMAGE/EYE IRRITATION : Category 1 / Corrosive Rabbit

☐ RESPIRATORY SENSITIZATION : No data available

☐ SKIN SENSITIZATION : Category 1 / 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 test substance–related adverse effects Rat
- ☐ SPECIFIC TARGET ORGAN TOXICITY SINGLE EXPOSURE : No data available
- ☐ SPECIFIC TARGET ORGAN TOXICITY REPEATED EXPOSURE : Not classified / No adverse systemic effects were reported at 150 mg/m³ monoethanol amine in rats. Rat
- ☐ ASPIRATION HAZARD : No data available

4) DODECANEDIOIC ACID

- ☐ ACUTE TOXICITY
 - Oral : Not classified / LD₅₀ > 3000 mg/kg Rat
 - Dermal : Not classified / LD₅₀ > 6000 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 : Category 2 / Irritating Rabbit
- ☐ 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 Mouse
- ☐ 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) PROPYLENE GLYCOL DIAMINE, 2-AMINO–, DIETHER WITH PROPYLENE

- ☐ ACUTE TOXICITY
 - Oral : Category 4 / LD50 242 mg/kg Rat
- ☐ ACUTE TOXICITY
 - Dermal : Category 3 / LD50 360 mg/kg Rabbit
- ☐ ACUTE TOXICITY
 - Inhalation–Gases : No data available
 - Inhalation–Vapours : No data available
 - Inhalation–Dust/mist : No data available
- ☐ SKIN CORROSION/IRRITATION : Category 1 / May occur burns.
- ☐ SERIOUS EYE DAMAGE/EYE IRRITATION : Category 1 / Moderately irritating Rabbit
- ☐ 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 : Not classified / May cause respiratory irritation if inhaled
- ☐ SPECIFIC TARGET ORGAN TOXICITY REPEATED EXPOSURE : No data available
- ☐ ASPIRATION HAZARD : No data available

6) Substance1

- ☐ ACUTE TOXICITY
 - Oral : Not classified / LD50 1160 mg/kg Rat
 - Dermal : Not classified / LD50 > 2000 mg/kg Rat
 - Inhalation–Gases : No data available
 - Inhalation–Vapours : No data available
 - Inhalation–Dust/mist : No data available
- ☐ SKIN CORROSION/IRRITATION : Category 2 / Irritating Rabbit
- ☐ SERIOUS EYE DAMAGE/EYE IRRITATION : Category 2 / Highly irritating Rabbit
- ☐ 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 / Ambiguous Rat
- ☐ REPRODUCTIVE TOXICITY : Not classified / LOAEL 0.5 % Rat
- ☐ SPECIFIC TARGET ORGAN TOXICITY SINGLE EXPOSURE : No data available
- ☐ SPECIFIC TARGET ORGAN TOXICITY REPEATED EXPOSURE : Not classified / LOAEL 200 mg/kg Rat
- ☐ ASPIRATION HAZARD : No data available

7) Substance2

- ☐ 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

1. Aquatic toxicity

1) WATER

- ☐ Fish : No data available
- ☐ Crustacea : No data available
- ☐ Aquatic algae : No data available

2) TRIETHANOLAMINE

- ☐ Fish : No data available
- ☐ Crustacea : No data available
- ☐ Aquatic algae : No data available

3) ETHANOLAMINE

- ☐ Fish : LC50 349 mg/L Fish
- ☐ Crustacea : EC50 65 mg/L Aquatic invertebrates
- ☐ Aquatic algae : EC50 2.5 mg/L Aquatic algae

4) DODECANEDIOIC ACID

- ☐ Fish : LC50 135.677 mg/L Fish
- ☐ Crustacea : No data available
- ☐ Aquatic algae : EC50 > 100 mg/L Aquatic algae

5) PROPYLENE GLYCOL DIAMINE, 2-AMINO-, DIETHER WITH PROPYLENE

- ☐ Fish : No data available
- ☐ Crustacea : No data available
- ☐ Aquatic algae : No data available

6) Substance1

- ☐ Fish : LC50 122 mg/L Fish
- ☐ Crustacea : EC50 68 mg/L Aquatic invertebrate
- ☐ Aquatic algae : EC50 81 mg/L Algae

7) Substance2

- ☐ Fish : No data available
- ☐ Crustacea : No data available
- ☐ Aquatic algae : No data available

2. Persistence and degradation

1) WATER

- ☐ Degradation : No data available
- ☐ n-octanol water partition coefficient : No data available

2) TRIETHANOLAMINE

- ☐ Degradation : DOC 82 %
- ☐ n-octanol water partition coefficient : No data available

3) ETHANOLAMINE

- ☐ Degradation : DOC > 90 %
- ☐ n-octanol water partition coefficient : log Kow -1.91

4) DODECANEDIOIC ACID

- ☐ Degradation : No data available
- ☐ n-octanol water partition coefficient : log Kow 3.07

5) PROPYLENE GLYCOL DIAMINE, 2-AMINO-, DIETHER WITH PROPYLENE

- ☐ Degradation : No data available
- ☐ n-octanol water partition coefficient : No data available

6) Substance1

- ☐ Degradation : No data available
- ☐ n-octanol water partition coefficient : log Kow 3.2

7) Substance2

- ☐ Degradation : No data available
- ☐ n-octanol water partition coefficient : No data available

3. Bioaccumulative potential

1) WATER

- ☐ Bioaccumulation : No
- ☐ Biodegradation : No data available

2) TRIETHANOLAMINE

- ☐ Bioaccumulation : BCF < 0.4 Fish
- ☐ Biodegradation : BOD 1.3

3) ETHANOLAMINE

- ☐ Bioaccumulation : No data available
- ☐ Biodegradation : BOD 64 %

4) DODECANEDIOIC ACID

- ☐ Bioaccumulation : No data available
- ☐ Biodegradation : No data available

5) PROPYLENE GLYCOL DIAMINE, 2-AMINO-, DIETHER WITH PROPYLENE

- ☐ Bioaccumulation : No data available
- ☐ Biodegradation : No data available

6) Substance1

- ☐ Bioaccumulation : BCF
- ☐ Biodegradation : Readily biodegradable

7) Substance2

- ☐ Bioaccumulation : No data available
- ☐ Biodegradation : No data available

4. Mobility in soil

1) WATER

- No data available

2) TRIETHANOLAMINE

- Koc 7

3) ETHANOLAMINE

- Koc 1.167

4) DODECANEDIOIC ACID

- No data available

5) PROPYLENE GLYCOL DIAMINE, 2-AMINO-, DIETHER WITH PROPYLENE

- No data available

6) Substance1

- Koc 788

7) Substance2

- No data available

5. Other adverse effects

1) WATER

- No data available

2) TRIETHANOLAMINE

- No data available

3) ETHANOLAMINE

- No data available

4) DODECANEDIOIC ACID

- No data available

5) PROPYLENE GLYCOL DIAMINE, 2-AMINO-, DIETHER WITH PROPYLENE

- No data available

6) Substance1

- No data available

7) Substance2

- No data available

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, storm 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) ETHANOLAMINE

- Threshold Limit Values (TLVs) chemicals, Harmful Agents Subject to Work

4) DODECANEDIOIC ACID

- Not classified

5) **PROPYLENE GLYCOL DIAMINE, 2-AMINO-, DIETHER WITH PROPYLENE**

- Not classified

6) **Substance1**

- Not classified

7) **Substance2**

- Not classified

2. Toxic chemical control act

1) **WATER**

- Existing Chemical Substance

2) **TRIETHANOLAMINE**

- Existing Chemical Substance

3) **ETHANOLAMINE**

- Existing Chemical Substance

4) **DODECANEDIOIC ACID**

- Existing Chemical Substance

5) **PROPYLENE GLYCOL DIAMINE, 2-AMINO-, DIETHER WITH PROPYLENE**

- Existing Chemical Substance

6) **Substance1**

- Existing Chemical Substance

7) **Substance2**

- Not classified

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) ETHANOLAMINE

- ☐ Other regulation (Domestic) : Not classified
- ☐ National regulations :
 - EU Classification (CLASSIFICATION) : Xn; R20/21/22 C; R34
 - EU Classification (Risk Phrases) : R20/21/22, R34
 - EU Classification (Safety Phrases) : S:(1/2)–26–36/37/39–45

4) DODECANEDIOIC ACID

- ☐ Other regulation (Domestic) : Not classified
- ☐ National regulations : Not classified

5) PROPYLENE GLYCOL DIAMINE, 2-AMINO-, DIETHER WITH PROPYLENE

- ☐ Other regulation (Domestic) : Not classified
- ☐ National regulations : Not classified

6) Substance1

- ☐ Other regulation (Domestic) : Not classified
- ☐ National regulations : Not classified

7) Substance2

- ☐ Other regulation (Domestic) : Not classified
- ☐ National regulations : Not classified

16. OTHER INFORMATION

1. Reference

- Canada Domestic Substance List
- CCID
- CCRIS
- Dermatosen Beruf Umwelt 44: 222–224
- ECOSAR
- Environ.Molec.Mutag. 10 Suppl.10, |1–175 (1987)
- EPIWin
- Food Research. Vol. 21, Pg. 348
- HSDB
- HSNO CCID
- IARC
- IUCLID
- Japan Chemical Industry Ecology–Toxicology & Information Center
- J–CHECK
- log Koc calculation

- NITE
- NLM
- NTP
- other company data
- Publication
- Study report
- The chemical database
- Toxicology and Applied Pharmacology 55, 501-513 (1980)
- Water Research 23(4): 501-510

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4. Other

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