



SAFETY DATA SHEET (SDS) C6~C8 RAFFINATE

1. Identification

SDS Record Number	:	PCS 05002
Date of SDS	:	01 March 2019
Product Description	:	C6-C8 Raffinate
Other names/synonyms	:	None
Name of the supplier	:	Petrochemical Corporation of Singapore (Private) Limited
Recommended uses	:	Cracking Feedstock/Motor gasoline blending/Fuel
Contact detail of the supplier	:	100 Ayer Merbau Road, Singapore 628277
	:	+65 68672102
24-Hour Emergency contact	:	Asia Pacific +65 3158 1074 (Singapore)
	:	China +86 10 5100 3039 (Beijing)
	:	Europe, Israel & Americas +44 (0) 1235 239 670 (UK)
	:	Middle East & Africa +44 (0) 1235 239 671 (UK)

2. Hazard Identification

GHS Classification

<u>Hazard Class</u>	<u>Hazard Category</u>
• Flammable Liquid	2
• Skin Corrosion/ Irritation	2
• Germ Cell Mutagenicity	1B
• Carcinogenicity	1A
• Toxic to reproduction	1B
• STOT (Single Exposure)	3 (Respiratory tract irritation, narcotic effects)
• Aspiration Hazard	1
• Acute Hazards to Aquatic Environment	3 (crustacea, algae)
• Chronic Hazards to Aquatic Environment	2

Pictograms



Signal Word: Danger

Hazard Statements

- Highly flammable liquid and vapour
- Causes skin irritation
- May cause genetic defects
- May cause cancer
- May damage fertility or the unborn child
- May cause respiratory irritation
- May cause drowsiness and dizziness
- May be fatal if swallowed and enters airways
- Harmful to aquatic life
- Toxic to aquatic life with long lasting effects



Precautionary Statements

Prevention

- Keep away from heat/sparks/open flames/hot surfaces. No smoking.
- Keep container tightly closed.
- Ground/Bond container and receiving equipment
- Use explosion-proof electrical/ventilating/lighting equipment.
- Use only non-sparking tools.
- Take precautionary measures against static discharge.
- Wear protective gloves/protective clothing/eye protection/face protection.
- Wash thoroughly after handling.
- Obtain special instructions before use.
- Do not handle until all safety precautions have been read and understood.
- Avoid breathing dust/fume/gas/mist/vapours/spray.
- Use only outdoors or in a well-ventilated area.
- Avoid release to the environment

Response

- IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/ shower.
- IF ON SKIN: Wash with plenty of water
- In case of fire: Use appropriate media for extinction.
- If skin irritation occurs: Get medical advice/attention.
- Take off contaminated clothing and wash it before reuse.
- IF exposed or concerned: Get medical attention/advice.
- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- Call a POISON CENTER/doctor/physician if you feel unwell.
- IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
- Do NOT induce vomiting

Storage

- Store in a well-ventilated place. Keep cool.
- Store in a well-ventilated place. Keep container tightly closed.
- Store locked up.

Disposal

- Dispose of the contents in accordance to the local mandatory rules and regulations

3. Composition/Information on Ingredients

Chemical Identification	CAS Number	Concentration
Benzene	71-43-2	0.0 – 0.1 wt%
Toluene	108-88-3	0.0 – 0.1 wt%
Ethylbenzene	100-41-4	0.0 – 0.8 wt%
M-Xylene	108-38-3	0.0 – 0.3 wt%
P-Xylene	106-42-3	0.0 – 0.1 wt%
O-Xylene	95-47-6	0.0 – 0.5 wt%
Naphtha (petroleum), solvent-refined light	64741-84-0	90 – 99 wt%
Hydrocarbons, C9, aromatics	64742-95-6	0 – 10 wt%



4. First-Aid Measures

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, qualified personnel should administer oxygen. Call a physician or transport to a medical facility.

Eye Contact: Irrigate with flowing water immediately and continuously for 15 minutes. Consult medical personnel.

Skin Contact: Wash off in flowing water or shower.

Ingestion: If swallowed, **do not** induce vomiting. Keep at rest. Get prompt medical attention.

Notes to Physician: The decision of whether to induce vomiting or not should be made by an attending physician. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. If burn is present, treat as any thermal burn, after decontamination. Exposure may increase "myocardial irritability." Do not administer sympathomimetic drugs unless absolutely necessary. No specific antidote. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

5. Fire-Fighting Measures

Keep unnecessary people away; isolate hazard area and deny unnecessary entry. Dense smoke emitted when burned without sufficient oxygen. Vapours can form flammable mixtures at ordinary temperatures. Static electricity may accumulate and create a fire ignition hazard. See also 'Storage and Handling' Section of this SDS. Vapours are heavier than air and may travel a considerable distance where they may linger and/or find an ignition source and flash back. Stay upwind. Keep out of low areas. Water may not be effective in extinguishing a fire and may spread it, but a water spray can be used to cool exposed containers. Avoid accumulation of water because this product will float on water and may reignite on the surface of the water. Container may vent and/or rupture due to fire. Containers exposed to intense heat from fires should be kept cool with water to prevent container weakening or rupture. Move container from fire area if possible. Stay away from storage tank ends because if tank ruptures, ends may become projectiles. Withdraw from area immediately in case of rising sound from venting safety device or any discolouration of storage tank due to fire. Surfaces that are sufficiently hot may ignite liquid product in the absence of sparks or flame.

Extinguishing Media: Water fog, carbon dioxide, dry chemical, foam. For large scale fires, straight or direct water streams may be ineffective to extinguish fire, but copious fine water spray will help control situation by its cooling action. For large scale fires, general purpose synthetic foams or protein foams are preferred if available. Alcohol resistant foams may function also.

Specific Hazards Arising From the Chemical: Combustion may produce carbon dioxide, toxic carbon monoxide. Unidentified organic compounds may be formed during combustion.

6. Accidental Release Measures

Consult an expert on the disposal of recovered material. Ensure disposal in compliance with government requirements and ensure conformity to local disposal regulations. Notify the appropriate authorities immediately. Take all additional action necessary to prevent and remedy the adverse effects of the spill.

Land Spill: Eliminate source of ignition. Keep public away. Prevent additional discharge of material, if possible to do so without hazard.

Prevent spills from entering sewers, watercourses or low areas. Contain spilled liquid with sand or earth. Do not use combustible materials such as sawdust.

Recover by pumping (use an explosion proof motor or hand pump), or by using a sand or suitable absorbent. Application of vapor suppression foams may be appropriate. Check area with approved



explosion meter before re-entering area. Ground and bond all containers and handling equipment. Under some conditions of use, application of clay or cellulose based absorbents on spills of this material may result in the generation of flammable vapours since there is a heat of absorption and a high surface area. If temperature is above flash point, cover with vapor suppression foam until it can be cleaned up.

Water Spill: Eliminate sources of ignition. Warn occupants and shipping in surrounding and downwind areas of fire and explosion hazard and request all to stay clear.

Remove from surface by skimming or with suitable absorbents. If allowed by local authorities and environmental agencies, sinking and/or suitable dispersants may be used in unconfined waters.

7. Handling And Storage

Precautions For Safe Handling

- Use approved containers, securely sealed and clearly labelled before any storage.
- Keep away from naked lights, heat or ignition sources. No smoking must be strictly adhered to.
- Use proper grounding procedures, to prevent any generation of sparks (accumulation of static charges).
- Do not perform welding, grinding or similar operation on/near reused/emptied containers, which can contain vapor (flammable).

Conditions for safe storage, including any incompatibilities

Store in a cool, well ventilated place away from incompatible materials i.e oxidising materials.

8. Exposure Controls/Personal Protection

Control Parameters/ Exposure Limits

Benzene (CAS: 71-43-2)

Permissible Exposure Level (Long Term) in Singapore: 1ppm (3.18mg/m³)

TLV: 0.5 ppm as TWA; 2.5 ppm as STEL [C]; A1 (confirmed human carcinogen); (ACGIH).

PEL: 10 ppm as TWA (OSHA Z-2)

Toluene (CAS: 108-88-3)

Permissible Exposure Level (Long Term) in Singapore: 50ppm (188mg/m³)

TLV: 20 ppm as TWA; A4 (not classifiable as a human carcinogen); (ACGIH).

PEL: 200 ppm as TWA (OSHA Z-2)

Xylene (CAS: 1330-20-7)

Permissible Exposure Level (Short Term) in Singapore: 150ppm (651mg/m³)

Permissible Exposure Level (Long Term) in Singapore: 100ppm (434mg/m³)

TLV: 100 ppm as TWA; 150 ppm as STEL; A4 (not classifiable as a human carcinogen); (ACGIH).

PEL: 100 ppm (435 mg/m³) (OSHA Z-1)

Ethyl Benzene (CAS: 100-41-4)

Permissible Exposure Level (Short Term) in Singapore: 125ppm (543mg/m³)

Permissible Exposure Level (Long Term) in Singapore: 100ppm (434mg/m³)

TLV: 20 ppm as TWA; A3 (confirmed animal carcinogen with unknown relevance to humans); (ACGIH).

PEL: 100 ppm (435 mg/m³) (OSHA Z-1)

Appropriate Engineering Controls

Use only with adequate ventilation. Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.

**Personal Protective Equipment (PPE)**

The selection of personal protective equipment varies depending upon conditions of use.

Where prolonged and/or repeated skin and eye contact is likely to occur, use chemical goggles, boots, apron or full-body suit and gloves.

If vapor exposure caused eye discomfort, use a full-face respirator.

When handling this material, impervious gloves should be worn at all times. In confined spaces or where the risk of skin exposure is much higher, impervious clothing should be worn. Contaminated clothing should be clean before reuse. Leather items such as shoes, belts should be removed and destroyed.

For emergency and other conditions where the exposure guideline may be greatly exceeded, use an approved positive-pressure self-contained self-breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. In confined or poorly ventilated areas, use an approved positive-pressure supplied-air respirator.

9. Physical and Chemical Properties

Property	Value, Description
Appearance (physical state, colour etc);	Liquid, Colourless liquid
Initial boiling point and boiling range;	52 to 192 deg C (Typical)
Flash point;	<-20 deg C (Typical)
Upper/lower flammability or explosive limits;	1 vol % (LFL estimated) to 8 vol % (UFL estimated)
Auto-ignition temperature;	Not determined

Spec. Gravity: 0.73 at 15 deg C

Sulphur Content: 2 wt ppm (Typical)

10. Stability and Reactivity

Reactivity/Chemical Stability: This product is considered stable and hazardous polymerization will not occur.

Possibility Of Hazardous Reactions: Strong oxidizing agents i.e. nitrates, oxidising acids, chlorine etc as ignition may result.

Conditions To Avoid: To avoid high temperature which may cause decomposition and therefore large pressure increase.

Hazardous Decomposition Products: Will not occur.

11. Toxicological Information

Skin: The dermal LD50 has not been determined.

Ingestion: Single dose oral LD50 has not been determined. Single dose oral toxicity is considered to be low.

Mutagenicity (Effects on Genetic Material): Contains a few components which have caused some mutagenic activity in vitro (test tube) tests and in animals.



Inhalation: A single brief (minutes) inhalation exposure to easily attainable concentrations may cause adverse effects. A single prolonged (hours) excessive inhalation exposure may cause serious adverse effects, even death. Signs and symptoms of excessive exposure may be anesthetic or narcotic effects, central nervous system effects, may cause irritation to upper respiratory tract and lungs, and may increase sensitivity to epinephrine and increase myocardial irritability (irregular heartbeats). Alcohol consumption and exertion may increase adverse effects.

Eye Contact: Vapors may irritate eyes. May cause moderate irritation with corneal injury. Vapors may cause lacrimation (tears).

Skin Contact: Short single exposure may cause skin irritation. Prolonged or repeated exposure may cause skin burns. Repeated contact may cause drying or flaking of skin. May cause more severe response if confined to skin. A single prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts. Repeated skin exposure may result in absorption of harmful amounts.

Ingestion: Small amounts swallowed incidental to normal handling operations are not likely to cause injury; however, swallowing amounts larger than that may cause serious injury, even death. Ingestion may cause irritation of the mouth, throat, and gastrointestinal tract. If aspirated (liquid enters the lung), may cause lung damage or even death due to chemical pneumonia, a condition caused by petroleum and petroleum-like solvents. If aspirated (Liquid enters the lung), may be rapidly absorbed through the lungs and result in injury to other body systems.

Systemic (Other Target Organ) Effects:

Signs and symptoms of excessive exposure may be central nervous system (CNS) effects, neurologic signs and symptoms, irritation to upper respiratory tract, and may cause hemopoietic injury (damage to blood forming organs). Contains components which may cause lung, CNS, liver and kidney effects and which have caused hearing loss in laboratory animals and/or humans.

12. Ecological Information

Movement and Partitioning: Based largely or completely on data for major component(s). Bioconcentration potential is low (BCF less than 100 or Log Kow less than 3).

Degradation and Persistence: Based on information for benzene and toluene. Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD greater than 40%).

Ecotoxicity: Based on information for benzene and toluene. Material is moderately toxic to aquatic organisms on an acute basis (LC50 between 1 and 10 mg/L in most sensitive species).

13. Disposal Considerations

Consult an expert on the disposal of recovered material. Ensure disposal in compliance with government requirements and ensure conformity to local disposal regulations.

Disposal: Any disposal practice must be in compliance with all federal, state/provincial, and local laws and regulations. State/provincial and local requirements for waste disposal may be more restrictive or otherwise different from federal laws and regulations. Regulations may also vary in different locations.

Chemical additions, processing, storage, or otherwise altering this material may make the waste management information presented in this SDS incomplete, inaccurate, or otherwise inappropriate. Waste characterization and disposal compliance is the responsibility solely of the party generating the waste or deciding to discard or dispose of the material. None of these waste management options should be considered 'arranging for disposal'.



Toxic to aquatic life. Do not allow into any sewers, on the ground, or into any body of water. The preferred waste management option is to: send to a properly licensed or permitted recycler, reclaimer, or incinerator.

14. Transport Information

Land (ADR)

UN No.: UN 1268
Proper shipping name: PETROLEUM DISTILLATES, N.O.S.
Class: 3
Packing Group: II
Labels: 3
Hazard Identification Number: 33

Air (IATA)

UN No.: UN 1268
Proper shipping name: PETROLEUM DISTILLATES, N.O.S.
Class: 3
Packing Group: II
Labels: 3

Sea (IMDG)

UN No.: UN 1268
Proper shipping name: PETROLEUM DISTILLATES, N.O.S.
Class: 3
Packing Group: II
Labels: 3
Marine pollutant: Yes

Sea (Annex II of MARPOL 73/78 and the IBC code)

MARPOL Annex I applies for shipment in bulk by sea

15. Regulatory information

Applicable National Regulations:

Workplace Safety and Health Act & Workplace Safety and Health (General Provisions) Regulations:
This product is subject to the SDS, labelling and PEL and other requirements in the Act/Regulations.

Fire Safety Act and Fire Safety (Petroleum and Flammable Materials) Regulations:
This product is subject to the requirements of this Regulations.

Maritime and Port Authority of Singapore (Dangerous Goods, Petroleum and Explosives) Regulations:
This product is subject to the requirements of this Regulations.

16. Other Information

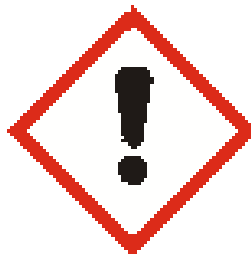
Prepared By: Material Safety Committee
SDS Prepared on: 1/6/2012
Reviewed 1 on: 1/3/2014
Revised 2 on: 1/3/2019



Revision (2) Notes	
-	Revised SDS product name from "BTX Raffinate" to "C6~C8 Raffinate"
1	Sect. 2: Significant revision to hazard classification with new/more severe hazard class for skin corrosion/ irritation, germ cell mutagenicity, carcinogenicity, reproductive toxicity, aspiration hazard, chronic toxicity to aquatic environment. Acute toxicity is no longer classified.
2	Sect. 3: Revised expected concentration ranges of components in the mixture, and included CAS number identifier for the individual components
3	Sect. 8: Added/updated Control Parameters and Exposure Limits for relevant components in the mixture
4	Sect. 14: Added relevant transport information
5	Sect. 15: Included applicable national regulations (Singapore)

CAUTION: The information given above ("**the Information**") relates only to the substance or mixture listed herein. The Information may not be valid when used in combination with any other substance or mixture or in any process. If the substance or mixture is to be used for a purpose other than that stated herein or under conditions other than specified herein, the Information cannot be relied upon as being complete or accurate, and the user is advised to consult the supplier before using the substance or mixture for such other purpose or under such other conditions. The Information is given based on information available at the indicated date of preparation and no representation or warranty is given that it will be correct as of any time after the indicated date of preparation.

C6~C8 Raffinate



DANGER

Hazard Statements

- Highly flammable liquid and vapour
- Causes skin irritation
- May cause genetic defects
- May cause cancer
- May damage fertility or the unborn child
- May cause respiratory irritation
- May cause drowsiness and dizziness
- May be fatal if swallowed and enters airways
- Harmful to aquatic life
- Toxic to aquatic life with long lasting effects

Precautionary Statements

- Keep away from heat/sparks/open flames/hot surfaces. No smoking.
- Keep container tightly closed.
- Ground/Bond container and receiving equipment
- Use explosion-proof electrical/ventilating/lighting equipment.
- Use only non-sparking tools.
- Take precautionary measures against static discharge.
- Wear protective gloves/protective clothing/eye protection/face protection.
- Wash thoroughly after handling.
- Obtain special instructions before use.
- Do not handle until all safety precautions have been read and understood.
- Avoid breathing dust/fume/gas/mist/vapours/spray.
- Use only outdoors or in a well-ventilated area.
- Avoid release to the environment

For further information on this product, refer to Manufacturer's Safety Data Sheet

Contact detail of the supplier : 100 Ayer Merbau Road, Singapore 628277
Emergency contact : +65 68672102