MATERIAL SAFETY DATA SHEET

1. Chemical product and company identification

Material name	**PXE (Phenyl-xylyl-ethane)**
Version #	03
Issue date	07-01-2010
Revision date	02-01-2016
Company name	JX Nippon Oil & Energy Corporation
	1-2, Otemachi 1-chome, Chiyoda-ku, Tokyo, 100-8162 Japan
	Telephone Number: +81-3-6257-7303
	Contact person: Specialty Chemicals & Materials Company
	ENB/SAS Business Unit
	ENB/SAS Business Group

2. Hazards identification

GHS-classification

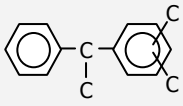
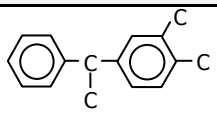
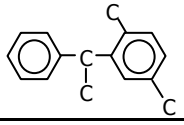
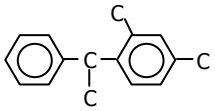
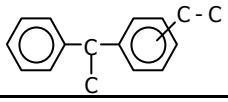
Physical hazards	Flammable liquid	Not classified
Health hazards	Acute toxicity: Dermal	Category 4
	Acute toxicity: Inhalation (Mist)	Category 4
	Acute toxicity: Oral	Category 4
	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Not classified
	Respiratory sensitization	Classification not possible
	skin sensitization	Category 1
	Germ cell mutagenicity	Not classified
	Carcinogenicity	Not classified
	Reproductive toxicity	Not classified
	Specific target organ toxicity – single exposure: Kidney	Category 2
	Specific target organ toxicity – repeated exposure: Kidney, Blood	Category 2
	Aspiration toxicity	Classification not possible
Environmental hazards	Acute aquatic toxicity	Category 1
	Chronic aquatic toxicity	Category 1

GHS-labeling

Warning

Hazard statement	Harmful in contact with skin. Harmful if inhaled. Harmful if swallowed. Causes skin irritation. May cause allergic skin reaction. Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects. May cause damage to organs kidney. May cause damage to organs liver through prolonged or repeated exposure.
Prevention	Do not eat, drink or smoke when using this product. Do not breathe dust/fume/ gas/mist/vapors/spray. Use only outdoors or in a well-ventilated area. Wash thoroughly after handling. Wear protective gloves. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment.
Response	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth. IF ON SKIN: Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation or rash occurs, seek medical attention. Take off contaminated clothing and wash before re-use. IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. Collect spillage. IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician.
Storage	Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/ international regulations.

3. Composition/information on ingredients

Components	CAS #	Percent
Reaction mass of Styrene, Xylene, and Ethylbenzene mixture	1029912-90-0	-
(1-phenylethyl)xylene	40766-31-2	-
 4-(1-phenylethyl)-o-xylene 	6196-95-8	Total ≧ 95
2-(1-phenylethyl)-p-xylene 	6165-51-1	
4-(1-phenylethyl)-m-xylene 	6165-52-2	
Ethyl(phenylethyl)benzene 	64800-83-5	

4. First aid measures

First aid procedures

Inhalation	Move into fresh air and keep at rest. If breathing is difficult, give oxygen. Get medical attention if symptoms persist.
Skin contact	Immediately remove contaminated clothing and shoes, wash with plenty of soap and water. Get medical attention if irritation persists after washing. Thoroughly wash (or discard) clothing and shoes before reuse.
Eye contact	Flush thoroughly with water for at least 15 minutes. If irritation occurs, get medical assistance.
Ingestion	Rinse mouth thoroughly with water and give large amounts of milk or water to people not unconscious. Do not induce vomiting. Get medical attention if any discomfort continues.
Protection of first-aiders	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.
Special notes to physician	In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation.

5. Fire-fighting measures

Extinguishing media	Extinguish with foam, carbon dioxide, dry powder or water fog. Large fire: Sprinkling water, water spray, alcohol resistant foam extinguisher.
Extinguishing media to avoid	Water jet may enlarge fire and can be dangerous.
Specific hazards	Gas generated by combustion contains harmful carbon oxide. Closed containers can burst violently when heated, due to excess pressure build-up.
Special firefighting procedures	Move containers from fire area if you can do it without risk. Fight fire from the windward. Restrict the area around the fire to authorized personnel. Cool combustible facilities around the fire by sprinkling water. Move movable combustible container to safe place.
Protection of fire-fighters	Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.

6. Accidental release measures

Personal precautions, protective equipment and emergency measures	Avoid inhalation of vapors and spray mist and contact with skin and eyes. Evacuate people leeward, keep people away from leaked area. Restrict the area around the leakage to authorized personnel by stretching rope. Wear suitable protective clothing. For personal protection, see section 8 of the SDS.
Environmental precautions	Avoid discharge into water courses or onto the ground. Prevent the leakage from entering river etc. and affect environment.
Recovery and neutralization	Ventilate the contaminated area. Small leakage: Absorb by dry soil, sand or noncombustible material or cover and recover into sealable container. Dispose of later. Large leakage: Prevent the flow by banking soil. Lead the leaked substance to a safe place before collecting it. Sprinkling water reduces vapour concentration. But may not be able to prevent combustion in closed area. In case leaked on the water surface, recover by adsorbing by absorbent. For waste disposal, see section 13 of the MSDS.
Clean-up methods and materials and containment measures	Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Use water spray to reduce vapors or divert vapor cloud drift. Prevent entry into waterways, sewers, basements or confined areas.

7. Handling and storage

Handling

Engineering measures	Apply the engineering measures specified in "8. Exposure controls/personal protection." Wear protective gloves and appropriate clothing to prevent skin contact. Local/whole ventilation: Install local or whole ventilation specified in "8. Exposure controls/personal protection."
Safety handling precautions	Do not handle until all safety precautions have been read and understood. Prohibit using high temperature material, sparks and fire in surrounding areas. Never handle the container roughly, such as tumbling, dropping, giving a shock or dragging. Do not contact, breathe or swallow. Wash the hands thoroughly after using. Use only outdoors or in a well-ventilated area.
Contact avoidance	Oxidant

Storage

Engineering measures	In the store room, install the daylighting, lighting, and ventilating equipment needed for storing or handling hazardous substances.
Storage conditions	Store in a closed container away from incompatible materials. Store in a cool and well-ventilated place. Protect from sunlight, store in a well-ventilated, cool, dark place. Keep away from ignition sources or high temperature materials. Protect against physical damage and/or friction. Keep away from food, drink and animal feeding stuffs. Store container tightly closed. Store separately with oxidizing agent. Store locked up.
Incompatible material	Oxidizing agent

8. Exposure controls/personal protection

Engineering measures	Provide adequate general and local exhaust ventilation. Observe good industrial hygiene practices.

Personal protective equipment

Respiratory protection	Wear positive pressure self-contained breathing apparatus (SCBA). Respiratory protection must be used if air contamination exceeds acceptable level. Seek

	advice from supervisor on the company's respiratory protection standards.
Hand protection	Wear protective gloves. Be aware that the liquid may penetrate the gloves. Frequent change is advisable. Suitable gloves can be recommended by the glove supplier.
Eye protection	If risk of splashing, wear safety goggles or face shield.
Skin and body protection	Wear appropriate chemical resistant clothing. Apron and long sleeves are recommended.
Hygiene measure	Do not eat, drink or smoke when using this product. Avoid contact with clothing. Wash hands after handling and before eating.

9. Physical and chemical properties

Appearance	Colorless liquid.
Physical state	Liquid.
Form	Liquid.
Color	Colorless
Odor	Aromatic.
Odor threshold	Not available.
Melting point	-49 °F (-45 °C)
Freezing point	Not available.
pH	Not available.
Boiling point	≦305°C (95% Distillation temperature)
Flammability (Train fire)	Not available.
Flammability limits in air, lower, % by volume	Not available.
Flammability limits in air, upper, % by volume	Not available.
Flash point	< 284 °F (< 140 °C) Test method PMCC
Decomposition temperature	Not available.
Auto-ignition temperature	Not available.
Lower explosive limit	Not available.
Upper explosive limit	Not available.
Vapor pressure	0.067 Pa at 25°C
Vapor density	7.2 (Air=1)
Solubility	Insoluble in water
n-octanol/water partition coefficient	Not available.
Percent volatile	Not available.
Specific gravity	0.98 – 1.00 at 15 °C
Viscosity	Not available.

10. Stability and reactivity

Stability	Stable at normal conditions.
Possibility of hazardous reactions	None known.
Conditions to avoid	Heat, contact with incompatible materials.
Incompatible materials	Strong oxidizing agents. Strong acids.
Hazardous decomposition products	Carbon oxides.

11. Toxicological information

Routes of exposure	
Inhalation	Harmful if inhaled.
Ingestion	Harmful if swallowed.
Dermal	Harmful in contact with skin.

Acute toxicity	Harmful if inhaled, absorbed through skin, or swallowed. Acute Dermal LD50 Rat: > 4.3 ml/kg [a)] Acute Inhalation LC50 Rat: > 1.8 g/m^3 [b)] Acute Oral LD50 Rat (male): 1,940 mg/kg [c)] Acute Oral LD50 Rat (female): 2,200 mg/kg [c)]
Skin corrosion/irritation	Causes skin irritation. [d)]
Serious eye damage/eye irritation	Direct contact with eyes may cause temporary irritation. [e)]
Respiratory sensitization	None known.
Skin sensitization	May cause allergic skin reaction. [f)]
Germ cell mutagenicity	None known.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
Reproductive toxicity	None known.
Specific target organ toxicity - single exposure	May cause damage to organs. Kidney [g)]
Specific target organ toxicity - repeated exposure	May cause damage to the following organs through prolonged or repeated exposure: Kidney, Blood. [h)]
Aspiration toxicity	None known.

12. Ecological information

Ecotoxicity	Acute Daphnia EC50: 0.843 mg/l 48 Hours [i)] Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Persistence/degradability	Probably persistent.
Bioaccumulation	Less accumulative.
Mobility in soil	The product is insoluble in water.
Other hazardous effects	None known.

13. Disposal considerations

Contaminated packaging	Since emptied containers retain product residue, follow label warnings even after container is emptied.
Local disposal regulations	Disposal recommendations are based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

14. Transport information

IMO Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE,LIQUID,N.O.S
UN number	3082
Hazard class	9
Packing group	Ⅲ
Transport in Bulk according to Annex II of MARPOL 73/78 and the IBC Code	Noxious liquid substance; Category Y

15. Regulatory information

Follow all regulations in your country.

Inventory status

Country(s) or region	Inventory name	Components CAS#					Product mixture
		40766-31-2	6196-95-8	6165-51-1	6165-52-2	64800-83-5	
Australia	AICS	no	yes	yes	yes	yes	**yes**
Canada	DSL	no	yes	no	yes	yes	**no**
Canada	NDSL	no	no	yes	no	no	**no**
China	IECSC	no	yes	yes	yes	yes	**yes**
Europe	EINECS	yes	yes	yes	yes	yes	**yes**

Europe	ELINCS	no	no	no	no	no	**no**
Japan	ENCS	yes	yes	yes	yes	yes	**yes**
Korea	ECL	no	yes	yes	yes	yes	**yes**
New Zealand	New Zealand Inventory	no	yes	no	yes	no	**no**
Philippines	PICCS	no	yes	yes	yes	yes	**yes**
United States & Puerto Rico	TSCA Inventory	no	yes	yes	yes	yes	**yes**

16. Other information

Bibliography

a) Acute percutaneous toxicity to rats of Nisseki - Hisol SAS-296, Huntingdon Research Center (1978)
b) Studies on acute inhalation toxicity of Nisseki Hisol SAS-296, Department of Pharmacology, Faculty of Medicine, Nihon University (1982)
c) Studies on acute toxicity of Nisseki Hisol SAS-296, Department of Pharmacology, Faculty of Medicine, Nihon University (1980)
d) Irritant effects of SAS-296 on rabbit skin, Huntingdon Research Center (1982)
e) Irritant effects of SAS-296 on rabbit eye mucosa, Huntingdon Research Center (1982)
f) Screening test for delayed contact hypersensitivity with SAS-296 in the Albino guinea-pig (Maximization method), Mitsubishi Chemical Safety Institute Ltd. (2006)
g) Global Information Network on Chemicals (GINC), Japan Ministry of Health, Labour, and Welfare
h) Toxicity test of the exsisting chemical substances, Japan National Institute of Technology and Evaluation
i) Acute immobilization test of SAS-296 with daphnia magna, Chemical Biotesting Center Chemicals Inspection & Testing Institute Japan (1986)