

	SAFETY DATA SHEET	Version: R0001.0002
		Date of issue: 2017-08-01
	NON AROMATICS	Revision date: 2017-08-01
		Change List:

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1. IDENTIFICATION**A. Product name**

- NON AROMATICS [NARO]

B. Recommended use and restriction on use

- General use : Solvent. etc
 - Restriction on use : Not available

C. Manufacturer / Supplier / Distributor informationo **Manufacturer information**

- Company name : LG Chem Co.Ltd
 - Address : Jeollanam-do Yeosu-si Yeosusandan-4-ro 58
 - Dept. : BD/BTX Production Team
 - Telephone number : +82-61-689-3344
 - Emergency telephone number : +82-61-689-3344
 - Fax number :
 - E-mail address :

o **Supplier/Distributor information**

- Company name :
 - Address :
 - Dept. :
 - Telephone number :
 - Emergency telephone number :
 - Fax number :
 - E-mail address :

2. HAZARD IDENTIFICATION**A. GHS Classification**

- Germ cell mutagenicity : Category1B
 - Carcinogenicity : Category1A
 - Reproductive toxicity : Category1B
 - Specific target organ toxicity(Single exposure) : Category2
 - Specific target organ toxicity(Repeated exposure) : Category2

B. GHS label elementso **Hazard symbols**o **Signal words**

- Danger

o **Hazard statements**

- H340 May cause genetic defects
 - H350 May cause cancer
 - H360 May damage fertility or the unborn child
 - H371 May cause damage to organs (Refer Section SDS 11)
 - H373 May cause damage to organs through prolonged or repeated exposure (Refer Section SDS 11)

○ **Precautionary statements**

1) Prevention

- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- P260 Do not breathe gas/mist/vapours/spray.
- P264 Wash hands thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P281 Use personal protective equipment as required.

2) Response

- P308+P313 If exposed or concerned: Get medical advice/attention.
- P309+P311 If exposed or if you feel unwell: Call a POISON CENTER or doctor/physician.
- P314 Get medical advice/attention if you feel unwell.

3) Storage

- P405 Store locked up.

4) Disposal

- P501 Dispose of contents/container in accordance with local/regional/national/international regulation

C. Other hazards which do not result in classification : (NFPA Classification)

○ **NFPA grade (0 ~ 4 level)**

- Health : 0, Flammability : 0, Reactivity : 0

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Trade names and Synonyms	CAS No.	Content(%)
Hydrocarbons, (C=6-30)	-	69430-33-7	76.82
Hydrocarbons, C7-9	-	68920-06-9	21.68
Xylene	Dimethylbenzene	1330-20-7	0.79
Toluene	Methylbenzene	108-88-3	0.57
Benzene	Benzol	71-43-2	0.5

4. FIRST AID MEASURES

A. Eye contact

- Do not rub your eyes.
- Immediately flush eyes with plenty of water for at least 15minutes and call a doctor/physician.
- Get medical attention immediately.

B. Skin contact

- Flush skin with plenty of wter for at least 15 minutes while removing contaminated clothing and shoes.
- Laundering enough contaminated clothing before reuse.
- Get medical attention immediately.
- Remove contaminated clothing, shoes and isolate.
- Wear gloves when washing the patient, and please avoid contact with contaminated clothing.

C. Inhalation contact

- When exposed to large amounts of steam and mist, move to fresh air.
- Take specific treatment if needed.
- Get medical attention immediately.
- If breathing is stopped or irregular, give artificial respiration and supply oxygen.

D. Ingestion contact

- About whether I should induce vomiting Take the advice of a doctor.
- Rinse your mouth with water immediately.
- Get medical attention immediately.

E. Delayed and immediate effects and also chronic effects from short and long term exposure

- Not available

F. Notes to physician

- Notify medical personnel of contaminated situations and have them take appropriate protective measures.
- If exposed or concerned, get medical attention/advice.

5. FIREFIGHTING MEASURES**A. Suitable (Unsuitable) extinguishing media**

- Dry chemical, carbon dioxide, regular foam extinguishing agent, spray
- Avoid use of water jet for extinguishing

B. Specific hazards arising from the chemical

- Not available

C. Special protective actions for firefighters

- Cool containers with water until well after fire is out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Notify your local firestation and inform the location of the fire and characteristics hazard.
- Using a unattended and water devices in case of large fire and leave alone to burn if you do not imperative.
- Avoid inhalation of materials or combustion by-products.
- Keep containers cool with water spray.
- Vapor or gas is burned at distant ignition sources can be spread quickly.

6. ACCIDENTAL RELEASE MEASURES**A. Personal precautions, protective equipment and emergency procedures**

- Wear proper personal protective apparatus as indicated in Section 8 and avoid skin contact and inhalation.
- Must work against the wind, let the upwind people to evacuate.
- Remove all sources of ignition.
- Do not direct water at spill or source of leak.
- Cleanup and disposal under expert supervision is advised.
- Keep unauthorized people away, isolate hazard area and deny entry.

B. Environmental precautions

- Prevent runoff and contact with waterways, drains or sewers.
- If large amounts have been spilled, inform the relevant authorities.

C. Methods and materials for containment and cleaning up

- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notification to central government, local government. When emissions at least of the standard amount
- Dispose of waste in accordance with local regulation.
- Appropriate container for disposal of spilled material collected.
- Small leak: sand or other non-combustible material, please let use absorption.
- Wipe off the solvent.
- Dike for later disposal.
- Spilled material should be treated as a potential risk of waste collected.

7. HANDLING AND STORAGE**A. Precautions for safe handling**

- Wash thoroughly after handling.
- Since emptied containers retain product residue(vapor, liquid, solid) follow all MSDS and label warnings even after container is emptied.
- Get the manual before use.
- Operators should wear antistatic footwear and clothing.
- Do not inhale the steam prolonged or repeated.
- Contaminated work clothing should not be allowed out of the workplace.

B. Conditions for safe storage, including any incompatibilities

- Check regularly for leaks.
- Do not apply direct heat.
- Do not apply any physical shock to container.
- Avoid direct sunlight.
- No open fire.
- By specifying a storage area for carcinogenic substances.
- Collected them in sealed containers.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

A. Exposure limits

- o **ACGIH TLV**
 - [Xylene] : TWA 100 ppm (434 mg/m3), STEL, 150 ppm (651 mg/m3)
 - [Toluene] : TWA 20 ppm (75 mg/m3)
 - [Benzene] : TWA, 0.5 ppm (1.6 mg/m3) STEL, 2.5 ppm (8 mg/m3)
- o **OSHA PEL**
 - [Toluene]: 200 ppm, C 300 ppm
 - [Xylene]:100ppm 435mg/m3

B. Engineering controls

- A system of local and/or general exhaust is recommended to keep employee exposures above the Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. The use of local exhaust ventilation is recommended to control emissions near the source.

C. Individual protection measures, such as personal protective equipment

- o **Respiratory protection**
 - Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.
 - Respiratory protection is ranked in order from minimum to maximum.
 - Consider warning properties before use.
 - Any chemical cartridge respirator with organic vapor cartridge(s).
 - Any chemical cartridge respirator with a full facepiece and organic vaporcartridge(s).
 - Any air-purifying respirator with a full facepiece and an organic vapor canister.
 - For Unknown Concentration or Immediately Dangerous to Life or Health : Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full facepiece.
- o **Eye protection**
 - Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.
 - Provide an emergency eye wash station and quick drench shower in the immediate work area.
- o **Hand protection**
 - Wear appropriate glove.
- o **Skin protection**
 - Wear appropriate clothing.
- o **Others**
 - Not available

9. PHYSICAL AND CHEMICAL PROPERTIES

A. Appearance	
- Appearance	Liquid
- Color	Not available
B. Odor	Not available
C. Odor threshold	Not available
D. pH	Not available
E. Melting point/Freezing point	Not available
F. Initial Boiling Point/Boiling Ranges	Not available
G. Flash point	Not available
H. Evaporation rate	Not available

I. Flammability(solid, gas)	Not available
J. Upper/Lower Flammability or explosive limits	Not available
K. Vapour pressure	Not available
L. Solubility	Not available
M. Vapour density	Not available
N. Specific gravity(Relative density)	Not available
O. Partition coefficient of n-octanol/water	Not available
P. Autoignition temperature	Not available
Q. Decomposition temperature	Not available
R. Viscosity	Not available
S. Molecular weight	Not available

10. STABILITY AND REACTIVITY

A. Chemical Stability

- This material is stable under recommended storage and handling conditions.

B. Possibility of hazardous reactions

- Hazardous Polymerization will not occur.

C. Conditions to avoid

- Avoid contact with incompatible materials and condition.
- Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surfaces

D. Incompatible materials

- Not available

E. Hazardous decomposition products

- May emit flammable vapour if involved in fire.

11. TOXICOLOGICAL INFORMATION

A. Information on the likely routes of exposure

- (Respiratory tracts)
 - Not available
- (Oral)
 - Not available
- (Eye-Skin)
 - Not available

B. Delayed and immediate effects and also chronic effects from short and long term exposure

- Acute toxicity
 - * Oral
 - [Xylene] : LD50=3523 mg/kg rat (EU Method B1)
 - [Toluene] : LD50 5580 mg/kg Rat (EU Method B.1)
 - [Benzene] : LD50 930 mg/kg Rat
 - * Dermal
 - [Xylene] : LD50 >4350 mg/kg Rabbit (IUCLID) LD50 12126 mg/kg Rabbit (isomer: m-xylene)
 - [Toluene] : rabbit LD50=12,124 mg/kg (HSDB)
 - [Benzene] : LD50 > 8200 mg/kg Rabbit
 - * Inhalation
 - [Xylene] : LC50 5922 ppm 4 hr Rat (25.713 mg/L EPA OPP 81-3, GLP)
 - [Toluene] : LC50 >20 mg/l Rat (OECD TG 403) (ECHA)
 - [Benzene] : Steam LC50 44.66 mg/l 4 hr Rat
- Skin corrosion/irritation
 - Not available
- Serious eye damage/irritation
 - Not available

- **Respiratory sensitization**
 - Not available
- **Skin sensitization**
 - Not available
- **Carcinogenicity**
 - * **IARC**
 - [Benzene] : Group 1
 - [Toluene] : Group 3
 - * **OSHA**
 - [Benzene] : Applicable
 - * **ACGIH**
 - [Benzene] : A1
 - [Toluene] : A4
 - [Xylene] : A4
 - * **NTP**
 - [Benzene] : K
 - * **EU CLP**
 - [Benzene] : Carc.1A
- **Germ cell mutagenicity**
 - May cause genetic defects
- **Reproductive toxicity**
 - May damage fertility or the unborn child
- **STOT-single exposure**
 - May cause damage to organs (Refer Section SDS 11)
- **STOT-repeated exposure**
 - May cause damage to organs through prolonged or repeated exposure (Refer Section SDS 11)
- **Aspiration hazard**
 - Not available

12. ECOLOGICAL INFORMATION

A. Ecotoxicity

- **Fish**
 - [Xylene] : LC50=3.3mg/L 96 hr (NITE)
 - [Toluene] : LC50 5.5 mg/ℓ 96 hr (ECHA)
 - [Benzene] : LC50 5.3 mg/ℓ 96 hr Rainbow Trout (NITE: EU-RAR, 2003)
- **Crustaceans**
 - [Hydrocarbons, (C=6-30)] : LC50 1.944 mg/ℓ 96 hr (Estimate)
 - [Toluene] : EC50 3.78 mg/ℓ 48hr (ECHA)
 - [Benzene] : EC50 10 mg/ℓ 48 hr (Estimate)
- **Algae**
 - [Benzene] : EC50 41 mg/ℓ 8 hr (Estimate)

B. Persistence and degradability

- **Persistence**
 - [Hydrocarbons, (C=6-30)] : log Kow 3.9 (Estimate)
 - [Xylene] : log Kow=3.16 (NITE)
 - [Toluene] : log Kow 2.73 (HSDB)
 - [Benzene] : log Kow 2.13 (NLM)
- **Degradability**
 - Not available

C. Bioaccumulative potential

- **Bioaccumulative potential**
 - [Hydrocarbons, (C=6-30)] : BCF 173.9 (Estimate)
- **Biodegradation**
 - [Xylene] : 39 (%) (NITE)
 - [Toluene] : Readily biodegradable (ECHA)

- [Benzene] : BOD: 40% (NITE: Existing Chemical Safety Inspections Data)

D. Mobility in soil

- [Hydrocarbons, (C=6-30)] : Koc 2423 (Can be adsorbed in the soil)
- [Xylene] : log Kow = 3.12 (measured) (ortho), 3.2 (measured) (meta), 3.15 (measurements) (p) (5)

E. Other adverse effects

- Not available

13. DISPOSAL CONSIDERATIONS

A. Disposal methods

- Since more than two kinds of designaed waste is mixed, it is difficult to treat seperatly, then can be reduction or stabilization by incineration or similar process.
- If water separation is possible, pre-process with Water separation process.
- Dispose by incineration.

B. Special precautions for disposal

- The user of this product must disposal by oneself or entrust to waste disposer or person who other's waste recycle and dispose, person who establish and operate waste disposal facilities.
- Dispose of waste in accordance with all applicable laws and regulations.

14. TRANSPORT INFORMATION

A. UN No. (IMDG)

- Not applicable

B. Proper shipping name

- Not applicable

C. Hazard Class

- Not applicable

D. IMDG Packing group

- Not applicable

E. Marine pollutant

- Not available
- Not applicable

F. Special precautions for user related to transport or transportation measures

- Local transport follows in accordance with Dangerous goods Safety Management Law.
- Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency requirements.
- Air transport(IATA): Not subject to LATA regulations.
- EmS FIRE SCHEDULE : Not available
- EmS SPILLAGE SCHEDULE : Not available

15. REGULATORY INFORMATION

A. National and/or international regulatory information

o POPs Management Law

- Not applicable

o Information of EU Classification

* Classification

- [Xylene] : R10 Xn; R20/21 Xi; R38
- [Toluene] : F; R11 Repr.Cat.3; R63 Xn; R48/20-65 Xi; R38 R67
- [Benzene] : F; R11 Carc. Cat. 1; R45 Muta. Cat. 2; R46 T; R48/23/24/25 Xn; R65 Xi; R36/38

* Risk Phrases

- [Xylene] : R10, R20/21, R38

- [Toluene] : R11, R38, R48/20, R63, R65, R67
- [Benzene] : R45, R46, R11, R36/38, R48/23/24/25, R65
- * **Safety Phrase**
 - [Xylene] : S2, S25
 - [Toluene] : S2, S36/37, S46, S62
 - [Benzene] : S53, S45
- o **U.S. Federal regulations**
 - * **OSHA PROCESS SAFETY (29CFR1910.119)**
 - Not applicable
 - * **CERCLA Section 103 (40CFR302.4)**
 - [Xylene] : 45.3599 kg 100 lb
 - [Toluene] : 453.599 kg 1000 lb
 - [Benzene] : 4.53599 kg 10 lb
 - * **EPCRA Section 302 (40CFR355.30)**
 - Not applicable
 - * **EPCRA Section 304 (40CFR355.40)**
 - Not applicable
 - * **EPCRA Section 313 (40CFR372.65)**
 - [Xylene] : Applicable
 - [Toluene] : Applicable
 - [Benzene] : Applicable
- o **Rotterdam Convention listed ingredients**
 - Not applicable
- o **Stockholm Convention listed ingredients**
 - Not applicable
- o **Montreal Protocol listed ingredients**
 - Not applicable

16. OTHER INFORMATION

A. Reference

- The information contained herein is believed to be accurate. It is provided independently of any sale of the product for purpose of hazard communication. It is not intended to constitute performance information concerning the product. No express warranty, or implied warranty of merchantability or fitness for a particular purpose is made with respect to the product or the information contained herein.
- This Safety Data Sheet was compiled with data and information from the following sources: KOSHA, NITE, ESIS, NLM, SIDS, IPCS

B. Issue date

- 2017-08-01

C. Revision number and Last date revised

- 1 times, 2017-08-01

D. Other

- This SDS is prepared according to the Globally Harmonized System (GHS).