SAFETY DATA SHEET

XTeer Alpha (Gasoline)

Date of issue: 2016-06-29 **Revision date: 2016-09-20** **Version: R0002.0001**

1. IDENTIFICATION

A. Product name

- XTeer Alpha (Gasoline)

B. Recommended use and restriction on use

- General use : Fuel Additive
- Restriction on use : Not available

C. Manufacturer / Supplier / Distributor information

- Company name : Hyundai Oilbank Co., Ltd.
- Address : 20F, Yonsei Severance Bldg., Tongil-ro 10-gil, Jongno-gu, Seoul, Korea
- Dept. : Production&Technology Team
- Telephone number : 02-2004-3000
- Emergency telephone number : 02-2004-3000

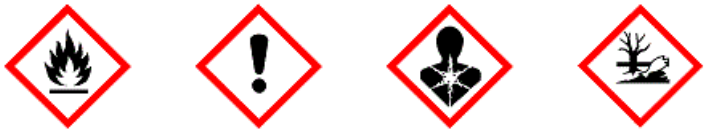
2. HAZARD IDENTIFICATION

A. GHS Classification

- Flammable liquids : Category3
- Skin corrosion/irritation : Category2
- Skin sensitization : Category1
- Germ cell mutagenicity : Category1B
- Carcinogenicity : Category1B
- Specific target organ toxicity(Single exposure) : Category2
- Specific target organ toxicity(Single exposure) : Category3(Narcotic effects)
- Specific target organ toxicity(Single exposure) : Category3(Respiratory tract irritation)
- Specific target organ toxicity(Repeated exposure) : Category2
- Aspiration hazard : Category1
- Acute aquatic toxicity : Category1
- Chronic aquatic toxicity : Category1

B. GHS label elements

○ **Hazard symbols**



○ **Signal words**

- Danger

○ **Hazard statements**

- H226 Flammable liquid and vapour
- H304 May be fatal if swallowed and enters airways
- H315 Causes skin irritation
- H317 May cause an allergic skin reaction
- H335 May cause respiratory irritation.

- H336 May cause drowsiness and dizziness.
- H340 May cause genetic defects
- H350 May cause cancer
- 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)
- H400 Very toxic to aquatic life
- H410 Very toxic to aquatic life with long lasting effects

○ **Precautionary statements**

1) Prevention

- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
- P233 Keep container tightly closed.
- P240 Ground/bond container and receiving equipment.
- P241 Use explosion-proof electrical/ventilating/lighting/equipment.
- P242 Use only non-sparking tools. Flammable liquids (chapter 2.6) 1, 2, 3
- P243 Take precautionary measures against static discharge.
- P260 Do not breathe gas/mist/vapours/spray.
- P261 Avoid breathing gas/mist/vapours/spray.
- P264 Wash hands thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P271 Use only outdoors or in a well-ventilated area.
- P272 Contaminated work clothing should not be allowed out of the workplace.
- P273 Avoid release to the environment.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P281 Use personal protective equipment as required.

2) Response

- P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
- 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.
- 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.
- P312 Call a POISON CENTER or doctor/physician if you feel unwell.
- P314 Get medical advice/attention if you feel unwell.
- P321 Specific treatment
- P331 Do NOT induce vomiting.
- P332+P313 If skin irritation occurs: Get medical advice/attention.
- P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
- P362 Take off contaminated clothing and wash before reuse.
- P363 Wash contaminated clothing before reuse.
- P370+P378 In case of fire: Use Suitable extinguishing media for extinction(Refer Section MSDS 5).
- P391 Collect spillage.

3) Storage

- P403+P233 Store in a well-ventilated place. Keep container tightly closed.
- P403+P235 Store in a well-ventilated place. Keep cool.
- 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 : 2, Flammability : 2, Reactivity : 0

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Trade names and Synonyms	CAS No.	Content(%)
Stoddard solvent	Turpentine, mineral ; Naphtha, solvent	8052-41-3	80~82
Naphtha (petroleum), hydrotreated heavy	Naphtha	64742-48-9	10~15
Solvent naphtha (petroleum), heavy arom.	Heavy aromatic naphtha ; (Polyethyl)benzenes ;	64742-94-5	1~5
Paraffins (petroleum), normal (C=5-20)	-	64771-72-8	1~5
Naphthalene	Naphthaline	91-20-3	0.5~1.5

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.
- Go to the hospital immediately if symptoms(flare, irritate) occur.
- Remove contaminated clothing, shoes and isolate.
- Wash thoroughly after handling.
- 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.
- If swallowed, large amounts of water to drink and do not induce vomiting.

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.

- Keep unauthorized personnel out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Use appropriate extinguishing measure suitable for surrounding fire.
- Keep containers cool with water spray.
- Vapor or gas is burned at distant ignition sources can be spread quickly.
- Due to the extremely low flash point, irrigating fire extinguishing may be less effective when put out a fire.

6. ACCIDENTAL RELEASE MEASURES

A. Personal precautions, protective equipment and emergency procedures

- Do not touch spilled material. Stop leak if you can do it without risk.
- Remove all sources of ignition.
- Handling the damaged containers or spilled material after wearing protective equipment.
- Do not direct water at spill or source of leak.
- Avoid skin contact and inhalation.
- 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.
- Avoid entering to sewers or water system.
- Do not use plastic containers.
- Prevent the influx to waterways, sewers, basements or confined spaces.
- Spilled material should be treated as a potential risk of waste collected.

7. HANDLING AND STORAGE

A. Precautions for safe handling

- Comply with all applicable laws and regulations for handling
- Get the manual before use.
- Refer to Engineering controls and personal protective equipment.
- Operators should wear antistatic footwear and clothing.
- Do not inhale the steam prolonged or repeated.
- Avoid contact with heat, sparks, flame or other ignition sources.
- Contaminated work clothing should not be allowed out of the workplace.

B. Conditions for safe storage, including any incompatibilities

- Do not use damaged containers.
- Keep in the original container.
- Please pay attention to incompatibilities materials and conditions to avoid.
- No open fire.
- Prevent static electricity and keep away from combustible materials or heat sources.
- By specifying a storage area for carcinogenic substances.
- Collected them in sealed containers.
- Store away from water and sewer.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

A. Exposure limits

○ **ACGIH TLV**

- [Stoddard solvent] : TWA 100 ppm (525 mg/m3)
- [Naphthalene] : TWA, 10 ppm (52 mg/m3)

○ **OSHA PEL**

- [Naphthalene]:10ppm 50mg/m3
- [Stoddard solvent]:500ppm 2900mg/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

○ **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.

○ **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.

○ **Hand protection**

- Wear appropriate chemical resistant glove.

○ **Skin protection**

- Wear appropriate chemical resistant protective clothing.

○ **Others**

- Not available

9. PHYSICAL AND CHEMICAL PROPERTIES

A. Appearance	
- Appearance	Liquid
- Color	Light yellow
B. Odor	Hydrocarbon odor
C. Odor threshold	30 ppm
D. pH	Not available
E. Melting point/Freezing point	-70℃ ~-50℃
F. Initial Boiling Point/Boiling Ranges	160 ℃ ~ 205 ℃
G. Flash point	> 50 ℃
H. Evaporation rate	0.16 (ASTM D3539, n-BuAc=1)
I. Flammability(solid, gas)	No data available
J. Upper/Lower Flammability or explosive limits	0.7 ~ 6.5% (vol)
K. Vapour pressure	< 2.8 mmHg, 20℃
L. Solubility	Insoluble
M. Vapour density	>1.0 (Air=1)
N. Specific gravity(Relative density)	0.79
O. Partition coefficient of n-octanol/water	No data available
P. Autoignition temperature	No data available

Q. Decomposition temperature	No data available
R. Viscosity	1.18 cSt 25℃
S. Molecular weight	No data available

10. STABILITY AND REACTIVITY

A. Chemical Stability

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

B. Possibility of hazardous reactions

- Cylinders exposed to fire may vent and release flammable gas.

C. Conditions to avoid

- Avoid contact with incompatible materials and condition.
- Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surfaces
- Avoid contact with heat, sparks, flame or other ignition sources.

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)**

- May be fatal if swallowed and enters airways
- May cause respiratory irritation.

○ **(Oral)**

- Not available

○ **(Eye·Skin)**

- Causes skin irritation
- May cause an allergic skin reaction

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

○ **Acute toxicity**

*** Oral - >5000mg/kg**

- [Stoddard solvent] : LD50 > 5000 ㎎/kg Rat (EHC)
- [Naphtha (petroleum), hydrotreated heavy] : LD50 > 15000 ㎎/kg Rat (IUCLID)
- [Solvent naphtha (petroleum), heavy arom.] : LD50 > 5000 ㎎/kg Rat
- [Paraffins (petroleum), normal (C=5-20)] : LD50 > 5000 ㎎/kg Rat
- [Naphthalene] : LD50 = 1800 ㎎/kg Rat

*** Dermal - ATE MIX : >5000mg/kg**

- [Naphtha (petroleum), hydrotreated heavy] : LD50 > 3160 ㎎/kg Rabbit (IUCLID)
- [Solvent naphtha (petroleum), heavy arom.] : LD50 > 2000 ㎎/kg Rabbit
- [Paraffins (petroleum), normal (C=5-20)] : LD50 > 3160 ㎎/kg Rabbit
- [Naphthalene] : LD50 > 2500 ㎎/kg Rat

*** Inhalation - ATE MIX : 0.05mg/L < ATEmix <= 0.5mg/L**

- [Solvent naphtha (petroleum), heavy arom.] : Mist LC50 > 0.59 ㎎/ℓ 4 hr Rat
- [Naphthalene] : LC50 = 0.085 ㎎/ℓ/4 hr Rat

○ **Skin corrosion/irritation**

- Causes skin irritation

○ **Serious eye damage/irritation**

- Not available

○ **Respiratory sensitization**

- Not available

○ **Skin sensitization**

- May cause an allergic skin reaction

○ **Carcinogenicity**

*** IARC**

- [Naphthalene] : Group 2B

*** OSHA**

- Not available

*** ACGIH**

- [Naphthalene] : A4

*** NTP**

- [Naphthalene] : R

*** EU CLP**

- [Naphtha (petroleum), hydrotreated heavy] : Carc.1B
- [Stoddard solvent] : Carc.1B
- [Naphthalene] : Carc.2

○ **Germ cell mutagenicity**

- May cause genetic defects

○ **Reproductive toxicity**

- Not available

○ **STOT-single exposure**

- May cause damage to organs (Refer Section SDS 11)
- May cause drowsiness and dizziness.
- May cause respiratory irritation.

○ **STOT-repeated exposure**

- May cause damage to organs through prolonged or repeated exposure (Refer Section SDS 11)

○ **Aspiration hazard**

- May be fatal if swallowed and enters airways

12. ECOLOGICAL INFORMATION

A. Ecotoxicity

○ **Fish**

- [Naphtha (petroleum), hydrotreated heavy] : LC50 = 2200 ㎎/ℓ 96 hr Pimephales promelas
- [Solvent naphtha (petroleum), heavy arom.] : LC50 = 45 ㎎/ℓ 96 hr Pimephales promelas
- [Paraffins (petroleum), normal (C=5-20)] : LC50 > 5000 ㎎/ℓ 96 hr Pimephales promelas
- [Naphthalene] : LC50 = 0.11 ㎎/ℓ 96 hr

○ **Crustaceans**

- [Stoddard solvent] : LC50 = 0.4 ~ 2.3 ㎎/ℓ 48 hr
- [Naphtha (petroleum), hydrotreated heavy] : LC50 = 2.6 ㎎/ℓ 96 hr (Species: Chaetogammarus marinus)
- [Solvent naphtha (petroleum), heavy arom.] : EC50 = 0.95 ㎎/ℓ 48 hr Daphnia magna
- [Naphthalene] : EC50 = 2.194 ㎎/ℓ 48 hr

○ **Algae**

- [Solvent naphtha (petroleum), heavy arom.] : EC50 = 2.5 ㎎/ℓ 72 hr Skeletonema costatum

B. Persistence and degradability

○ **Persistence**

- [Stoddard solvent] : log Kow = 3.16 ~ 7.06
- [Naphtha (petroleum), hydrotreated heavy] : log Kow = 2.1 ~ 6 (Estimates)
- [Solvent naphtha (petroleum), heavy arom.] : log Kow = 2.9 ~ 6.1
- [Paraffins (petroleum), normal (C=5-20)] : log Kow 5.01

○ **Degradability**

- Not available

C. Bioaccumulative potential

○ **Bioaccumulative potential**

- [Solvent naphtha (petroleum), heavy arom.] : BCF = 130 ~ 159
- [Paraffins (petroleum), normal (C=5-20)] : BCF 143.8
- [Naphthalene] : BCF = 168

○ **Biodegration**

- [Stoddard solvent] : Biodegradability = 12 ~ 13 (%)
- [Naphtha (petroleum), hydrotreated heavy] : Biodegradability = 10 (%) 28 day (Aerobic, Activated Sludge, Domestic wastewater, Does not decompose easily)
- [Solvent naphtha (petroleum), heavy arom.] : Biodegradability = 39 (%) 28 day (Aerobic, Activated Sludge, Domestic wastewater, Does not decompose easily)
- [Paraffins (petroleum), normal (C=5-20)] : 95 (%) 18 day (Directive 84/449/EEC, C.3)
- [Naphthalene] : Biodegradability = 2 (%)

D. Mobility in soil

- Not available

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)

- 1993

B. Proper shipping name

- FLAMMABLE LIQUIDS, N.O.S.

C. Hazard Class

- 3

D. IMDG Packing group

- Ⅲ

E. Marine pollutant

- 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.
- EmS FIRE SCHEDULE : F-E (Non-water-reactive flammable liquids)
- EmS SPILLAGE SCHEDULE : S-E (Flammable liquids, floating on water)

15. REGULATORY INFORMATION

A. National and/or international regulatory information

○ **POPs Management Law**

- Not applicable

○ **Information of EU Classification**

*** Classification**

- [Stoddard solvent] : Carc. Cat. 2; R45 Muta. Cat. 2; R46 Xn; R65
- [Naphtha (petroleum), hydrotreated heavy] : Carc. Cat. 2; R45/Muta. Cat. 2; R46, Xn; R65
- [Solvent naphtha (petroleum), heavy arom.] : Xn; R65
- [Naphthalene] : Carc. Cat.3; R40 Xn; R22 N; R50-53

*** Risk Phrases**

- [Stoddard solvent] : R45, R46, R65
- [Naphtha (petroleum), hydrotreated heavy] : R45, R65, R46
- [Solvent naphtha (petroleum), heavy arom.] : R65
- [Naphthalene] : R22, R40, R50/53

*** Safety Phrase**

- [Stoddard solvent] : S53, S45
- [Naphtha (petroleum), hydrotreated heavy] : S53, S45
- [Solvent naphtha (petroleum), heavy arom.] : S2, S23, S24, S62
- [Naphthalene] : S2, S36/37, S46, S60, S61

○ **U.S. Federal regulations**

*** OSHA PROCESS SAFETY (29CFR1910.119)**

- Not applicable

*** CERCLA Section 103 (40CFR302.4)**

- [Naphthalene] : 45.3599 kg 100 lb

*** EPCRA Section 302 (40CFR355.30)**

- Not applicable

*** EPCRA Section 304 (40CFR355.40)**

- Not applicable

*** EPCRA Section 313 (40CFR372.65)**

- [Naphthalene] : Applicable

○ **Rotterdam Convention listed ingredients**

- Not applicable

○ **Stockholm Convention listed ingredients**

- Not applicable

○ **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

- 2016-06-29

C. Revision number and Last date revised

- 4 times, 2016-09-20

D. Other

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