MATERIAL SAFETY DATA SHEET (MSDS)

EU-D0113L

SECTION 1. IDENTIFICATION OF THE SUBSTANCE OR MIXTURE AND OF SUPPLIER

a. Product name: EU-D0113L

b. Recommended uses of the chemical: Surfactant

c. Information on manufacturer/supplier/distributor

○ Supplier name : Dongnam Chemical Co., Ltd

○ Address : 80-61, Tancheonsaneopdanji-gil, Tancheon-myeon, Gongju-si, Chungcheongnam-do, Korea

○ Contact Person : Technical Research Center

○ Emergency contact : 032-450-3700

SECTION 2. HAZARDS IDENTIFICATION

a. Hazard classification: Acute toxicity(Percutaneous) : Category 4
Skin corrosion/skin irritation: Category 2
Serious eye damage/Eye irritation: Category 2
Particular target organ toxicity(single exposure): Category 3
Particular target organ toxicity(repeated exposure): Category 1

b. Label elements including precautionary statements

○ Pictograms :

○ Signal words : Danger

○ Hazard statements : H312 If on skin, it may harmful.
H315 Causes skin irritation
H319 Causes serious eye irritation
H336 Causes sleepiness or dizziness
H370 Get damaged on the body

○ Prevention precautionary statements

▶ Prevention P260 Do not breathe dust/fume/gas/mist/vapor/spray.
P264 Wash hands thoroughly after handling.
P270 When handling, do not eat, drink and smoke.
P271 Use only outdoors or in a well-ventilated
P280 Wear protective gloves/protective clothing/eye protection /face protection.

▶ Response P312 If uncomfortable, get a medical advice.

P330 Wash mouth.

P362 Take off contaminated clothing and wash before reuse.

P302+P352 If on skin: Wash with plenty of soap and water.

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. If possible, remove contact lens. Keep washing.

P307+P311 If exposure, get medical advice/attention

P332+P313 If skin irritation occurs, get medical advice/attention.

P337+P313 If eye irritation persists: Get medical advice/attention.

▶ Storage P403+P233 Store in a well-ventilated place. Keep container tightly closed.

P405 Store locked up.

▶ Disposal P501 Dispose of contents/container in accordance with local, national, and international regulations..

c. Other hazards which do not result in classification.

○ Not available

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

a. Chemical name: Sodium dioctyl sulfosuccinate / Metyl alcohol / Water

b. Other name:

c. CAS-number: 577-11-7 / 67-56-1 / 7732-18-5

d. Content: 70% / 20% / 10%

SECTION 4. FIRST-AID MEASURES

a. When in contact with eyes: Rinse with plenty of soap and water more than 15 minutes. If inconvenience, get a medical advice or attention.

b. When in contact with skin: Wash clothing and shoes before reuse. If contaminated, remove contaminated clothing and shoes and rinse with plenty of soap and water more than 15 minutes.

c. When inhaled: If not breathing, provide artificial respiration or oxygen by trained personnel and call a doctor or physician. Promptly wear an appropriate mask. Move exposed person to fresh air. Irritation or any symptoms appear, call a doctor or physician.

d. When ingested: Call a doctor or physician.

e. General advise: Not available

SECTION 5. FIRE-FIGHTING MEASURES

a. Suitable / unsuitable fire-fighting agents

○Suitable fire-fighting agents : Foam, CO2, water spray, sand, soil

○Unsuitable fire-fighting agents :Not available

○Big fire : Use general extinguishing agent and water spray.

b. Specific hazards arising from the chemical

○ Flammable liquid and gas

○ Can be exploded or fire by an intensive neutralization reaction.

○ May occurred a fire by gas ignition.

○ When burning, could be occurred stimulated and toxic gas.

○ Can be formed an explosive compound at an ignition point or above.

○ Container can be exploded by heating.

○ High flammability, easily ignited by heat, spark and flame.

○ May causes a fire or explosion from its leakage.

○ May causes a gas explosion at inside, outside or drain area.

○ Can be burned partially but it is not ignited easily.

○ The gas can be formed an explosive compound with air.

○ Nonflammable, it is not burned but may occurred corrosive/toxic fume by heating.

c. Special protective equipment and precautions for fire-fighters

○ Rescuer should wear proper protectors.

○ Keep away from the fire area when extinguish.

○ Pay attention to this material since it is lighter than water.

○ The gas can be spread-out along the ground and accumulated at low level area or closed space since it is heavier than air.

○ Dig a ditch to treat extinguish water and prevent its expansion.

○ Move container if they’re no potential danger from fire.

○ Extinguish from the maximum distance when tank fire.

○ Cool down the tank with a plenty of water after extinguishment.

○ In this case that a sound of safety equipment is operated and a tank is discolored escape immediately.

○ Do not approach the tank at both ends.

○ Pay attention to the melting material since it can be moved.

○ May causes an eye burn from container explosion by heating.

SECTION 6. ACCIDENT RELEASE MEASURES

a. Measures required for personal protection and protective equipment:

○ Do not breathe dust/fume/gas/mist/vapor/spray.

○ Prevent dust occurrence. Wipe out the leakage immediately and follow prevention measure.

○ Remove all other ignition sources.

○ Prevent further leakage or spillage if safe to do so.

○ Do not touch without protective equipment.

○ Cover the leakage with plastic sheet to prevent further leakage or spillage.

○ Pay attention to the materials and conditions to avoid.

b. Measures required for environment protection

○ Prevent to inflow to water way, sewage, basement and any closed area.

C. Clean-up and removal method:

○ Put on an exposed material into appropriate container and move to waste disposal Contractor for further disposal.

○ Use nonflammable materials to absorb. Store away exposed location and regulate only related person to access. Wash out the contaminated area with detergent and water.

SECTION 7. HANDLING AND STORAGE

a. Precautions for safe handling

○ Do not breathe dust/fume/gas/mist/vapor/spray.

○ Wash thoroughly after handling.

○ Use only outdoors or in a well-ventilated

○ Refer to the engineering controls and personal protection equipment.

○ Follow the prevention measure when handling the empty containers since there can be some residue.

○ Pay attention to the materials and conditions to avoid.

○ Open the cap carefully.

○ Prevent to contact to skin for the long term and continuous contact.

○ Work referring to engineering management and personal protective equipment.

b. Conditions for safe storage

○ Store in a sealed container protected from direct sunlight in a dry, cool and well-ventilated area.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

a. Exposure limits of the chemical substance, biological exposure limits and etc

○ Local regulation

- Methyl alcohol : TWA 200ppm 260mg/m3, STEL 250ppm 310mg/m3
- Dioctylsodiumsulfosuccinate : Not available

○ ACGIH regulation

- Metyl alcohol : TWA 200ppm, STEL 250ppm
- Dioctylsodiumsulfosuccinate : Not available

○ Biological ExposurIndices(BEIs) : Not available

b. Appropriate engineering controls

○ Operate ventilating system when exist any dust, fume or mist to keep exposure limit of air pollution.

○ Check working process is in accordance with local regulations.
Install local exhaust ventilation and ventilator, and controls appropriate winds to flow.

○ Install eye shower station for its storage tank or the other facilities when use this material.

c. Personal protective equipment

○ Respiratory protection

- Metyl alcohol: Wear approved standard respiratory protection.
- Dioctylsodiumsulfosuccinate: Wear approved standard respiratory protection.
- Water: Wear approved standard respiratory protection.

○ Eye protection : Not available

○ Hand protection: Not available

○ Body protection: Not available

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

a. Appearance (physical state, color, etc): Yellowish viscous liquid

b. Odor : Not available

c. Odor threshold : Not available

d. pH : 6.0 ~ 8.0 (1% aq. Soln)

e. Melting point/freezing point : Not available

f. Initial boiling point and boiling range : Not available

g. Flash point : Not available

h. Evaporation : Not available
i. Flammability (soild,gas) : Not available
j. Upper/lower flammable or explosive limits: Not available
k. Vapor pressure : Not available
l. Solubility : Not available
m. Vapor density : Not available
n. Specific gravity : Not available
o. N-octanol/water partition coefficient : Not available
p. Auto-ignition temperature : Not available
q. Decomposition temperature : Not available
r. Viscosity : Not available
s. Molecular weight : Not available

SECTION 10. STABILITY AND REACTIVITY

a. Chemical stability
- ○ Flammable liquid and gas
- ○ Can be exploded or fire by an intensive neutralization reaction.
- ○ May occurred a fire by gas ignition.
- ○ When burning, could be occurred stimulated and toxic gas.
- ○ Can be formed an explosive compound at an ignition point or above.
- ○ Container can be exploded by heating.
- ○ High flammability, easily ignited by heat, spark and flame.
- ○ May causes a fire or explosion from its leakage.
- ○ May causes a gas explosion at inside, outside or drain area.
- ○ Can be burned partially but it is not ignited easily.
- ○ The gas can be formed an explosive compound with air.
- ○ Nonflammable, it is not burned but may occurred corrosive/toxic fume by heating.

b. Conditions to avoid: Any ignition sources such as heat, spark and flame.
c. Materials to avoid: Flammable materials, reducing material, water reactive materials
d. Harmful material when decomposition : When burning, could be occurred stimulated and toxic gas. Corrosive/toxic fume

SECTION 11. TOXICOLOGICAL INFORMATION

a. Information on the likely routes of exposure: Not available

b. Delayed and immediate effects and chronic effects from short or long term exposure

	Sodium dioctyl sulfosuccinate	Methyl alcohol	Water
Acute toxicity			
Oral	LD50 1900 ㎎/㎏ Rat (Labor ministry class 4)	100mg/kg(LD50, rat), 7,300mg/kg(LD50, mouse) 14,200mg/kg(LD50, rabbit)	LD50 90000 ㎎/㎏ Rat (LD50 >90 ml/kg Rat)
Percutaneous	LD50 >10,000 ㎎/㎏ Rabbit	300mg/kg(LD50, rabbit)	Not available
Inhale	Dust LC50 20 ㎎/ℓ 96 hr Rat	3mg/L(LC50,rat)	Not available
Skin corrosion/irritation	Rabbit/Standard draize test(10mg/24H):Middle irritation	Usual irritation. 20 mg/kg (rabbit)	Not applicable
Serious eye damage/eye irritation	Rabbit/ Standard draize test(1%): Serious irritation	Usual irritation. 40 mg/kg (rabbit)	Not applicable
Respiratory sensitization	Not available	Not available	Not applicable
Skin sensitization	Not available	Guinea pig test: Negative	Not applicable
Carcinogenicity	Not available	Not available	Not available
Germ cell mutagenicity	Not available	Not available	Not applicable
Reproductive toxicity	Rat/oral (Male-0.1, 0.5, 1 % for 10W; Female-0.1, 0.5, 1 % for 2W(F0), 10W(F1&F2)) (GLP): Not occurred death, no clinical symptom at pregnant mother. Weight reduction occurred for all generation of male. F1, F2 weight reduction of	Malformation and weight decrease of embryo. Increase of embryo reabsorption, decrease of live embryo.	Not applicable

	female. If exposed at high concentration, the weight of embryo at nursing 0 days is lighter than the comparison group for 3 generation. Not affected on the embryo survival rate during the nursing period. If exposed at high concentration, the survival rate decreased at nursing 0 days. Not reported malformation and growth toxicity.		
Specific target organ toxicity(single exposure)	Rat/oral (4620, 19580, 24640, 27720 mg/kg): Shows creeping and sleepiness and recover 2 days later (anesthesia). Observed yellow liquid at stomach tube of a dead rat.	(Respiratory): Vapor causes a respiratory irritation. (Anesthesia) : Causes an weaken central nervous system, progress, failure of muscular coordination.	Not applicable
Specific target organ toxicity(repeated exposure)	Rabbit/oral (1% in the diet for 90D): Not affected	Decrease a weight for body and organ. Appear a histopathologic alteration	Not applicable
Aspiration hazard	Not available	Not applicable	Not applicable

SECTION 12. ECOLOGICAL INFORMATION

	Sodium dioctyl sulfosuccinate	Methyl alcohol	Water
Aquatic and terrestrial ecotoxicity			
Fish	LC50 28 mg / l 96hr Oncorhynchus mykiss	LC50 250ppm/11hr, Goldfish	Not available
Crustacean	E50 36mg / l 48hr Daphnia magna	Not available	Not available
Algae	LD50 7.7 mg/l 48hr	Not available	Not available
Persistence and degradability			
Persistence	Log Kow 6.1	Not available	log Kow -1.38
Degradability	Not available	Hydrosphere : Mostly removed by degradation. Less hydrolysis, oxidation, photolysis and accumulation on body	Not available
Bioaccumulation			
Bioaccumulation	BCF 3.47 ~ 3.78	Not available	Not available
Biodegradable	66.7 (%) 28 day (OECD TG 301D)	Not available	Not available
Mobility in soil	Not available	Not available	Not available
Other adverse effects	Not available	Not available	Not available

SECTION 13. DISPOSAL CONSIDERATIONS

a. Disposal methods: Dispose the material and containers in accordance with disposal managing regulation and law.

b. Precautions for disposal: Consider the law and caution in accordance with disposal managing regulation and law.

SECTION 14. TRANSPORT INFORMATION

a. UN number: Not applicable

b. UN proper shipping name: Not applicable

c. Transport hazard classes: Not applicable

d. Packing group, if applicable: Not applicable

e. Marine pollutant (yes/no): Not applicable

f. Information on any special precautions, which a user needs to be aware of, or needs to comply with in connection with transport

○ Emergency action for fire : Not applicable

○ Emergency action for spillage : Not applicable

SECTION 15. REGULATORY INFORMATION

a. Industrial Safety and Health Law: Not applicable

b. Toxic Chemical Control Law: Not applicable

c. Dangerous Goods Safety Control Law: Not available

d. Wastes Management Law: Appointed material

e. Other regulations in domestic and foreign countries

○ Local & Overseas regulation : Not available

SECTION 16. OTHER INFORMATION

a. Sources of reference materials: Korea occupational safety & Health agency. NCIS,

b. The first date of preparation: Jul. 1, 1996

c. Number of revision times and the latest revision date

○ Revision number : 6

○ Update revision date : Oct. 5, 2015

d. Others

○ Revision article : Article 1, 2, 11, 12, and 15