MATERIAL SAFETY DATA SHEET

1. IDENTIFICATION

A. PRODUCT NAME

○ SAN-330I

B. Recommended Use and Restriction on Use

○ General use : Not available

○ Restriction on Use : Not applicable

C. Information of Manufacturer

- Manufacturer

○ Company name : Korea Kumho Petrochemical Co., Ltd.

○ Address : 45-25 Seongam-dong Nam-gu Ulsan, Korea

○ Dept. : Quality Assurance Team

○ Person in charge :

○ Telephone number : +82-52-279-8852

○ Fax number : +82-52-279-8840

○ Emergency :

- Supplier / distributor

○ Company name :

○ Address :

○ Dept. :

○ Person in charge :

○ Telephone number :

○ Fax number :

○ Emergency :

2. HAZARD IDENTIFICATION

A. GHS Classification : Not applicable

B. GHS label elements

○ Hazard symbols : Not applicable

○ Signal word : Not applicable

○ Hazard statement : Not applicable

○ Precautionary statements : Not applicable

C. Other hazards which do not result in classification :

- NFPA rating: (0~4 steps) : Health=0, Flammability=0, Reactivity=0

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical name	CAS No./ECL No./EINECS No.	Contents(%)
Styrene Acrylonitrile copolymer	9003-54-7/KE-29423/-	97~100
Additives	Proprietary	0~3

※ Reference No. : ECL(Registration number of Korean Existing Chemical List)
EINECS(Registration number of Europe Existing Chemical List)

4. FIRST-AID MEASURES

A. Eye Contact :

- Immediately flush eyes with plenty of water at least 15minutes.
- If irritation persists, get a doctor's examination.

B. Skin Contact :

- Wash the contaminated skin area with running water.
- Remove contaminated clothes and shoes.
- If irritation persists, get a doctor's attention.

C. Inhalation :

- Intake the water to clean the throat and blow nose to remove the dust.
- Remove victim to fresh air immediately.
- Take Artificial respiration if not breathing.
- Give oxygen if breathing is difficult.
- Get medical attention.

D. Ingestion :

- Rinse mouth with water.
- Immediately give large amounts of water to drink for help ease the irritation.

- Get medical aid if irritation or symptoms occur.

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

- Steams by plastic processing at high temperature may cause eyes and respiratory irritation.

F. Notice to Physician :

- Treatment may vary with condition of victim and specifics of incident.

5. FIRE FIGHTING MEASURE

A. Suitable (Unsuitable) extinguishing media :

○ Extinguishing media : Powder foam, carbon dioxide, water or foam.

○ Unsuitable Extinguishing media : Do not use direct water.

○ Large fire : Water spray, foam.

B. Specific hazards arising from the chemical

○ Combustion :

- Irritating, corrosive and/or toxic gases may occur by fire.
- Generate carbon dioxide, carbon monoxide when combustion.

○ Levels of fire hazard :

- Containers may rupture or explode if exposed.
- Dust / air mixtures may ignite or explode.

C. Fire fighting procedures and equipments :

- Wear appropriate personal protective equipment(see section 8. EXPOSURE CONTROLS/PERSONAL PROTECTION).
- Avoid inhalation of smoke or gas when fire fighting.
- Move container from fire area if it can be done without risk.
- Cool containers with water until well after fire is out.
- Stay upwind and keep out of low areas.
- Dust / air mixtures may ignite or explode.

6. ACCIDENTAL RELEASE MEASURES

A. Personal Precautions, Protective Equipment and Emergency procedures :

- Perform in accordance with 「See section 8. EXPOSURE CONTROLS / PERSONAL PROTECTION」. Put on appropriate personal protective equipment.
- Suppression occurrence of dust.
- Avoid contact with eyes and skin.
- Avoid inhalation of substance itself or combustion.
- Evacuation against the wind.
- Keep unauthorized personnel out.
- Avoid contact with heat, sparks, flame or other ignition sources.

B. Environmental Precautions

- Avoid dispersal of spilt material and runoff and contact with waterways, drains and sewers. If large spills, advise emergency services.

C. Methods and materials for containment and cleaning up :

○ For small spills.

- Remove all sources of ignition.
- Suppression occurrence of dust.
- Appropriate container for disposal of spilled material collected.
- Ventilate leak areas and clearing leak area.

○ For large spills.

- Remove all sources of ignition.
- Suppression occurrence of dust.
- Avoid entering to sewers or water system.
- Appropriate container for disposal of spilled material collected.
- Wash contaminated area and wash off used tools with soap and water.

7. HANDLING AND STORAGE

A. Handling :

- Perform in accordance with 「See section 8. EXPOSURE CONTROLS / PERSONAL PROTECTION」. Put on appropriate personal protective equipment.
- Handle in a well-ventilated place.
- Avoid contact with heat, sparks, flame or other ignition sources.

- Remove all sources of ignition.
- Wash thoroughly after handling.

B. Storage Precautionary Statements :

- Keep in original container and tightly closed.
- Store in a cool, dry, location and avoid heat.
- Avoid contact with incompatible materials.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

A. Exposure limit

- Exposure limit under ISHL : Not applicable
- ACGIH : Not applicable
- Biological exposure limits : Not applicable

B. Engineering Controls

- A system of local and/or general exhaust is recommended when employee exposures are 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. Personal Protective Equipment :

○ Respiratory Protection : Use the respirator be given official approval by Korea Occupational Safety & Health Agency. 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.

- Dust, mist, fume-purifying respiratory protection
- Any air-purifying respirator with a corpuscle filter of high efficiency
- Any respiratory protection with a electromotion fan(for dust, mist, fume-purifying)

※ For Unknown Concentration or Immediately Dangerous to Life or Health

- Self-contained breathing apparatus(pressure-demand or other

positive-pressure mode in combination)

- Supplied-air respirator with full facepiece

- Eye Protection : Wear primary eye protection such as splash resistant safety goggles with a secondary protection faceshield. Provide an emergency eye wash station and quick drench shower in the immediate work area.
- Hand Protection : Wear chemical resistant protected gloves if there is hazard potential for direct skin contact. Wear heat resistant protected gloves to withstand the temperature of molten product.
- Body Protection : Wear chemical resistant protected clothing if there is hazard potential for direct contact.

9. PHYSICAL AND CHEMICAL PROPERTIES

A. Appearance : Pellet
B. Odor : Odorless
C. Odor threshold : Not available
D. pH : Not applicable
E. Melting point/Freezing point : 180~220℃
F. Initial Boiling Point/Boiling Ranges : Not available
G. Flash point : Not available
H. Evapourating Rate : Not applicable
I. Flammability(solid, gas) : Not available
J. Upper/Lower Flammability or explosive limits : Not available
K. Vapour pressure : Not applicable
L. Solubility : Insoluble
M. Vapour density(Air=1) : Not applicable
N. Relative density : 1.06~1.07
O. Partition coefficient of n-octanol/water : Not available
P. Autoignition Temperature : Not available
Q. Decomposition Temperature : Not applicable
R. Viscosity : Not available
S. Molecular weight : Not available

10. STABILITY AND REACTIVITY

A. Stability

- This material is stable under recommended storage and handling conditions

B. Possibility of Hazardous Reaction

- Will not occur.

C. Conditions to Avoid

- Avoid contact with heat, sparks, flame or other ignition sources.

D. Materials to Avoid

- Strong oxidizing agents.

E. Hazardous Decomposition Products

- Carbon monoxide, carbon dioxide

11. TOXOCOLOGICAL INFORMATION

A. Information on the likely routes of exposure

- (Respiratory tracts) : Not applicable
- (Oral) : Not applicable
- (Eye · Skin) : Not applicable

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

- Acute toxicity : Not available
- Skin corrosion/irritation : Not available
- Serious eye damage/irritation : Not available
- Respiratory sensitization : Not available
- Skin sensitization : Not available
- Carcinogenicity : Not available
- Germ cell mutagenicity : Not available
- Reproductive toxicity : Not available
- Specific target organ toxicity(single exposure) : Not available
- Specific target organ toxicity(repeated exposure) : Not available

- Aspiration hazard : Not available
- Chronic effect : Not available

C. Calculation the classification of the mixture(acute toxicity estimate calculation etc.) : Not applicable

12. ECOLOGICAL INFORMATION

A. Ecotoxicity : Not available

B. Persistence and degradability : Not available

C. Bioaccumulative potential : Not available

D. Mobility in soil : Not available

E. Other adverse effects : Not available

13. DISPOSAL CONSIDERATION

A. Disposal methods

- The user of this product must properly characterize the waste/container generated from the use of this product in accordance with all applicable federal, state and/or local laws and regulations in order to determine the proper disposal of the waste in accordance with all applicable federal, state and/or local laws and regulations.

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 local regulation.

14. TRANSPORT INFORMATION

A. UN number : Not regulated for transport of dangerous goods

B. Proper shipping name : Not applicable

C. Hazard class : Not applicable

D. Packing group : Not applicable

E. Marine pollutant : Not available

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

1) EmS FIRE SCHEDULE : Not applicable
2) EmS SPILLAGE SCHEDULE : Not applicable

15. REGULATORY INFORMATION

A. Korea Industry Safety and Health Law (ISHL) :

○ This product is not subject to the chemical for classification and labeling under ISHL Article 41.

B. The Toxic Chemical Control Act in Korea(TCCA)

○ This product is not classified as Toxic chemical and Observational chemical under TCCA Article 2.3. and 2.4.
○ Toxic Release Inventory(TRI) Chemicals: Not regulated

C. Dangerous goods Safety Management Law in Korea : Not applicable

D. US regulations

○ OSHA regulation (29CFR1910.119) : Not available
○ CERCLA section 103 (40CFR302.4) : Not available
○ EPCRA section 302(40CFR355.30) : Not available
○ EPCRA section 304(40CFR355.40) : Not available
○ EPCRA section 313(40CFR372.65) : Not available

E. Other local or international regulation

○ POPs Management Law : Not applicable
○ Rotterdam Convention on Harmful Chemicals & Pesticides : Not applicable
○ Stockholm Convention on Persistent Organic Pollutants : Not applicable
○ Montreal Protocol on Substances That Deplete the Ozone Layer
: Not applicable
○ Information of EU Classification : Not classified
○ REACH Regulation (EC) No 1907/2006 : compliance

16. OTHER INFORMATION

A. Reference

- This MSDS is prepared in accordance with ISHL Article 41 and MOL Notification No. 09-68 in Korea and consider the internal regulations by Korea Kumho Petrochemical Co., Ltd.

B. Issue date : 2010. 03. 10

C. Revision number and Last revised : 2011. 12. 30

D. Other information : Not available