

MSDS (Material Safety Data Sheet)

Compounding No. : STE

KOREA KUMHO PETROCHEMICAL .CO.,LTD

**Kumho Petrochemical R&BD Center, #1557 Yuseng-daero, Yuseong-gu, Taejon,
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Emergency Tel. NO. : +82-2-6303-3235 (Head Office)

MSDS (Material Safety Data Sheet)

SECTION 1 : PRODUCT IDENTIFICATION & COMPANY

Product (Trade) Name : STE
Chemical Family : Styrenic Thermoplastic Elastomer
Manufacturer : KOREA KUMHO PETROCHEMICAL .CO.,LTD
Address : Kumho Petrochemical R&BD Center, Hwaam-dong 57-1, Yuseng-gu, Taejon, Korea
Contact : Tel : +82-42-865-8798/8685 Fax : +82-42-862-5651
Emergency Telephone Number : +82-2-6303-3235 (Head Office)

CAS# : Mixture
Formula : Mixture
Internet Address : [Http://www.kkpc.com](http://www.kkpc.com)

SECTION 2 : COMPOSITION / DETAILS ABOUT THE INGREDIENTS

Description : Thermoplastic Elastomer Compound

| Ingredient Name | CAS# | Contains(%) | Exposure Limit(s) |
|-------------------------|---------|-------------|-------------------|
| Thermoplastic elastomer | Mixture | 100 | Not Established |
| Additives | - | 0.1~1.0 | |

SECTION 3 : HAZARDOUS IDENTIFICATIONS

Emergency Overview

HANDLE PELLETS IN ACCORDANCE WITH GOOD INDUSTRIAL HYGIENE AND SAFETY PRACTICES.
THESE PRACTICES INCLUDE AVOIDING UNNECESSARY EXPOSURE AND REMOVAL OF THE MATERIAL FROM EYES, SKIN AND CLOTHING.

CAUTION! Processing releases vapors or fumes which may cause respiratory tract irritation

Avoid breathing processing fumes or vapors.
Process using adequate ventilation.

Potential Health Effects

INHALATION : Inhalation of fumes or vapors during processing may cause respiratory tract irritation.

EYE CONTACT : Pellet do not cause significant eye irritation.

SKIN CONTACT : Pellet do not cause significant skin irritation.

First Aid Measures

INHALATION : If fumes are inhaled, remove to fresh air. If breathing is difficult, get medical attention.

Accidental Release Measures

Spilled product may cause a slipping hazard. In case of a spill or leak, vacuum or sweep up and place in clean, covered containers for recycle or disposal.

Handling and Storage

Avoid leaving container open for prolonged periods to prevent exposure to humidity. STE thermoplastic rubber will pick up small amounts of moisture. Store in a cool, dry place. Usual precautions in pellet handling should be observed to prevent contamination by dirt or other materials.

Exposure Controls/Personal Protection

Eye protection : STE thermoplastic rubber does not cause significant eye irritation or eye toxicity requiring special protection. Use good industrial practice to avoid eye contact.

Skin protection : Although STE thermoplastic rubber does not present significant skin concern, minimize skin contamination by following good industrial hygiene practice. Wearing protective gloves is recommended. Wash hands and contaminated skin thoroughly after handling.

Respiratory Protection : Avoid breathing process vapors or dust. Use NIOSH approved respiratory protection equipment (full facepiece recommended) when airborne exposure is excessive. Consult respirator manufacturer to determine appropriate type equipment for given application. Observe respirator use limitations specified by NIOSH or the manufacturer. Respiratory protection programs must comply with 29 CFR 1910. 134.

Ventilation : Provide natural or mechanical ventilation to minimize exposure. If practical, use local mechanical exhaust ventilation at sources of air contamination such as open process equipment. Consult NFPA Standard 91 for design of exhaust systems.

Physical and Chemical Properties

Specific Gravity : 0.97
Hardness : 5 ~ 15 Shore A
Appearance : Pellets.
Odor : Slightly rubberlike.

NOTE : These physical data are typical values based on material tested but may vary from sample to sample.
Typical values should not be construed as a guaranteed analysis of any specific lot or as specifications for the product.

Temporary irritation (itching) or redness may occur.

Absorption:

Not applicable.

Ingestion:

This product is not intended to be ingested or eaten under normal conditions of use. If ingested, it may cause temporary irritation to the gastrointestinal (GI) tract, especially the stomach.

Eye:

Temporary irritation (itching) or redness may occur.

SECTION 4 : FIRST AID MEASURES

Inhalation:

Remove to fresh air. Drink water to clear throat, and blow nose to remove dust and fibers.

Skin:

Wash gently with soap and warm water to remove dust and fibers. Wash hands before eating or using the restroom.

Absorption:

Not applicable.

Ingestion:

Product is not intended to be ingested or eaten. If this product is ingested, irritation of the GI (gastrointestinal) tract may occur, and should be treated symptomatically. Rinse mouth with water to remove dust, and drink plenty of water to help reduce the irritation.

Eye:

Do not rub or scratch eyes. Dust particles may cause the eye to be scratched. Flush eyes with large amounts of water for 5-15 minutes. If irritation persists, contact a physician.

Notes to Physician:

This product is not expected to produce any chronic health effects from acute exposures. Treatment should be directed toward removing the source of irritation with symptomatic treatment as necessary.

SECTION 5 : FIRE FIGHTING MEASURES

Summary:

Normal fire fighting procedures should be followed to avoid inhalation of smoke and gases.

Unusual Fire/Explosion Hazards:

WARNING: Accumulation of product in areas exposed to elevated temperatures (e.g., 50C/120F, direct sunlight, etc.) for extended periods of time may result in self-heating and autoignition. Feel the outside of the container and if it is warm remove it to a safe open area. A fire watch should occur until the outside of the container does not feel warm.

Extinguishing Media:

Carbon dioxide (CO₂), dry chemical, or foam.

Flammable Properties and Explosive Limits:

Flash Point: Not determined

FP Test Method: Not determined

Flame Classification: Not determined

Flame Propagation: Not determined

Lower Explosive Limit (LEL): Not determined

Upper Explosive Limit (UEL): Not determined

Autoignition Temperature: Not determined

Decomposition Temperature: Not determined

SECTION 6 : ACCIDENTAL SPILL/RELEASE MEASURES

Containment Procedures:

Vacuum dusts. If sweeping is necessary, use a dust suppressant such as water. Do not dry sweep dust or use compressed air for clean-up. These procedures will help to minimize potential exposures.

Disposal:

Wastes are not hazardous as defined by the Resource Conservation and Recovery Act (RCRA; 40 CFR 261). Comply with state and local regulations for disposal of this product. If you are unsure of the regulations, contact your local Public Health Department, or the local office of the Environmental Protection Agency (EPA).

SECTION 7 : HANDLING AND STORAGE

Storage Handling:

Use protective equipment as described in Section 8 of this material safety data sheet when handling uncontained material. Warehouse storage should be in accordance with package directions, if any. Materials should be kept dry, and protected from the elements.

Conditions to Avoid:

Do not store material where it may be exposed to elevated temperatures (e.g., 50C/120F, direct sunlight, etc.) for extended periods of time. Store away from sources of ignition, flame and heat .

SECTION 8 : EXPOSURE CONTROL/PERSONAL PROTECTION

Summary:

Protective equipment should be provided as necessary to prevent irritation to the respiratory tract, eyes, and skin, and to keep exposure levels below the applicable exposure limits identified in Section 2.

Eye:

Safety glasses or goggles with sideshields are recommended to keep dust and fibers out of the eyes.

Skin:

Leather or cotton gloves should be worn to prevent skin contact and irritation. Barrier creams may also be used to reduce skin contact and irritation.

Respiratory:

A respirator should be used if ventilation is unavailable, or is inadequate for keeping dust and fiber levels below the applicable exposure limits. In those cases, use a NIOSH-certified disposable or reusable particulate respirator with an efficiency rating of N95 or higher (under 42 CFR 84) when working with this product. For exposures up to five times the established exposure limits use a quarter-mask respirator, rated N95 or higher; and for exposures up to ten times the established exposure limits use a half-mask respirator (e.g., MSA's DM-11, Racal's Delta N95, 3M's 8210), rated N95 or higher. For exposures up to 50 times the established exposure limits use a full-face respirator, rated N99 or higher.

Ventilation:

The need for ventilation systems should be evaluated by a professional industrial hygienist, while the design of specific ventilation systems should be conducted by a professional engineer.

Other:

Loose-fitting, long-sleeved clothing should be worn to protect skin from exposure. Exposed areas should be washed with soap and warm water. Clothing should be washed separately from other clothes, and the washer should be rinsed thoroughly (run empty for a complete wash cycle).

Special Considerations for Repair/Maintenance of Contaminated Equipment:

For repair/maintenance of contaminated equipment, follow procedures outlined above to protect from exposure to this material where applicable.

SECTION 9 : PHYSICAL AND CHEMICAL PROPERTIES

| | |
|---|----------------|
| Boiling Point (°F/°C): | Not determined |
| Evaporation Rate (Butyl acetate = 1) : | Not determined |
| Melting Point: | Not determined |
| pH: | Not determined |
| Saturation in Air (%): | Not applicable |
| Solids Content: | Not determined |
| Specific Gravity (Water = 1): | 0.97 |
| Vapor Density (Air = 1): | Not determined |
| Vapor Pressure: | Not determined |
| Viscosity: | Not determined |
| VOCs (g/liter): | Not determined |
| Volatile by Volume (%): | Not determined |
| Water Solubility (%): | Not determined |

Appearance and Odor: White porous pellet or powder; no odor.

SECTION 10 : STABILITY AND REACTIVITY

Product is stable. Hazardous polymerization will not occur.

Reactivity:

This product is not reactive.

Hazardous Decomposition Products:

The decomposition products from this material are those that would be expected from any organic (carbon-containing) material, and are mainly derived from pyrolysis, or burning, of the polymer. These decomposition products may include carbon dioxide, carbon monoxide, carbon particles, and traces of hydrogen cyanide.

SECTION 11 : TOXICOLOGICAL AND EPIDEMIOLOGICAL DATA

This product has not been tested as a separate entity. Therefore, the hazards must be evaluated on the basis of the individual ingredients, and those hazards must be assumed to be additive in the absence of complete information. The hazards described in this document have been evaluated on a threshold of 1.0% for all hazardous ingredients and 0.1% for all carcinogens.

Acute Effects:

The fibers and dust from this product are mechanical irritants and may cause transitory irritation to exposed areas such as eyes, skin and upper respiratory tract.

Toxicity (LD50):

Product toxicity has not been determined.

Chronic Effects:

Fibrous industrial dust causes pneumoconiosis often accompanied by chronic hypertrophic pulmonary osteoarthropathy in humans exposed for long periods of time. In experimental mammals, pure dust induces a cytogenic rather than fibrogenic effect on the lungs. Although some fibrogenic agents such as quartz and tremolite may have an additive effect on lung damage, some evidence has been found to suggest that pure dust inhibits the pathogenicity of quartz.

References:

Proctor, N.H., et al., "Chemical Hazards of the Workplace," 2nd Edition, Philadelphia, PA, J.B. Lippincott Company, 1988.

"Handbook of Toxic and Hazardous Chemicals and Carcinogens," 2nd Edition, Sittig, M., Editor, Noyes Publications, Park Ridge, NJ, 1985.

SECTION 12 : ECOLOGICAL INFORMATION

Ecotoxicity:

This product has not been tested.

SECTION 13 : DISPOSAL CONSIDERATIONS

Summary:

This product is not regulated as a hazardous waste by the U.S. Environmental Protection Agency (EPA) under Resource Conservation and Recovery Act (RCRA) regulations. If you are unsure of the regulations, contact your local Public Health Department, or the local office of the EPA.

SECTION 14 : TRANSPORT INFORMATION

Transportation Summary:

This product is not regulated as a hazardous material for transport.

SECTION 15 : REGULATORY INFORMATION MATION

U. S. REGULATIONS

Federal Regulations:

The Occupational Safety and Health Administration (OSHA), National Toxicology Program (NTP), International Agency for Research on Cancer (IARC), and American Conference of Governmental Industrial Hygienists (ACGIH) have not classified this product as a carcinogen.

The Permissible Exposure Limits (PELs) reported in this MSDS are from the air contaminants standard OSHA issued in 1989. While an appeals court eventually vacated this standard, it was without authority to reverse state law under which states, operating with their own OSHA programs, had adopted the 1989 standard. Below is a list of states enforcing the 1989 standard. Please also refer to 29 CFR 1910.1000 and to relevant state statutes for other applicable exposure limits.

Environmental Regulations:

There are no components in this product regulated by the Environmental Protection Agency (EPA) under the Superfund Amendments and Reauthorization Act (SARA Title III); the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), or the Toxic Substance Control Act (TSCA).

Toxic Substances Control Act Inventory (TSCA 8(b)): This product and its components are listed.

INTERNATIONAL REGULATIONS

Canada Environmental Protection Act Domestic Substance List (Section 25(1) DSL):

This product and its components are listed.

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* The information submitted in this MSDS is based on our current knowledge and experience. All materials may present unknown health hazards and should be used with caution. Final responsibility lies in user determination. Although the MSDS is described herein. We cannot guarantee that these are the only hazards which exist.