

1. PRODUCT AND COMPANY INFORMATION

- 1) Product name: TRILITE® CLR-F
- 2) Recommended use of the chemical and restrictions on use
 - Recommended use: Ion exchange resin
 - Restrictions on use: It is inedible
- 3) Company information
 - Company: Samyang corporation ion exchange resin sales team
 - Address: #31 Jongno 33-gil, Jongno-gu, Seoul 03129, Korea
 - Telephone: +82-2-740-7423
 - Fax: +82-2-740-7709
 - E-Mail: trilite@samyang.com
 - Homepage: www.samyangtrilite.com

2. HAZARDS IDENTIFICATION

- 1) Globally Harmonized System of Classification and Labeling of Chemicals (GHS)
 - Physical hazard: Not applicable
 - Health hazard: Not applicable
 - Environment hazard: Not applicable
- 2) Label elements including precautionary statements
 - Symbol: Not applicable
 - Signal word: Not applicable
 - Hazard statements: Not applicable
 - Precautionary statements: Not applicable
- 3) US NFPA
 - Health: 0, Flammability: 1, Reactivity: 0, Water reactivity: 0

3. COMPOSITION, INFORMATION ON INGREDIENTS

Ingredients	CAS No.	EINECS No.	Conc. %
Styrene-divinylbenzene-copolymer with Phosphonic Acid anchor groups in Alluminium form	자료없음	No data available from ECHA	55±5
Water	7732-18-5	231-791-2	45±5

4. FIRST AID MEASURES

- 1) In case of eye contact
 - Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
- 2) In case of skin contact
 - Wash off with soap and plenty of water.

- 3) If inhaled
 - If breathed in, move person into fresh air.
 - If not breathing, give artificial respiration.
 - Consult a physician.
- 4) If swallowed
 - Never give anything by mouth to an unconscious person.
 - Rinse mouth with water.
- 5) Other medical attention
 - Medical personnel should be aware of the protective measures of the substance.
- 6) Potential health effect
 - May be harmful if swallowed.

5. FIRE, FIGHTING MEASURES

- 1) Flammable properties
 - Flash point: No flash occurred under 93°C (Rapid equilibrium method)
 - Autoignition temperature: No spontaneous combustion under 200°C
 - Burning rate: Did not ignite (UN TDG test & criteria - Test N1)
- 2) Suitable extinguishing media
 - Water spray, alcohol-resistant foam, dry chemical, carbon dioxide
- 3) Specific hazards arising from the chemical
 - No data available
- 4) Special protective equipment for fire-fighters
 - Wear self-contained breathing apparatus for firefighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

- 1) Personal precautions
 - Ensure adequate ventilation.
- 2) Environmental precautions
 - No data available
- 3) Methods and materials for containment and cleaning up
 - Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

- 1) Precautions for safe handling
 - Avoid breathing dust.
 - Provide appropriate exhaust ventilation at places where dust is formed.
- 2) Conditions for safe storage
 - Store in a closed container.
 - Avoid direct sunlight, heat sources, and strong oxidizing agents.

8. EXPOSURE CONTROL/PERSONAL PROTECTION

- 1) Components with workplace control parameter
 - KOSHA: No data available
 - US ACGIH: No data available

- 2) Biological exposure limits: No data available
- 3) Appropriate engineering controls: No data available
- 4) Personal protective equipment
 - Respiratory protection: Dust mask for chemicals
 - Eye protection: Protective goggles for chemicals
 - Hand protection: Protective gloves
 - Skin and body protection: Working clothes for chemicals

9. PHYSICAL AND CHEMICAL PROPERTIES

- 1) State: Solid (Granular) at 20°C
- 2) Odour and Odour threshold: No data available
- 3) pH: 6.5~7.5 at 20°C ※ Sample:H₂O = 1:5(V/V)
- 4) Melting point, Freezing range (Initial): > 80°C
- 5) Boiling point: No data available
- 6) Flash point: No flash occurred under 93°C (Rapid equilibrium method)
- 7) Evaporation rate: No data available
- 8) Flammable properties
 - Burning rate: Did not ignite ※ UN TDG test & criteria - Test N1
- 9) Lower explosion limit, Upper explosion limit: No data available
- 10) Vapour pressure: No data available
- 11) Water solubility: Insoluble at 20°C
- 12) Vapor density: No data available
- 13) Density: 1.3 at 20°C
- 14) Partition coefficient (n-octanol, water): No data available
- 15) Autoignition temperature: No spontaneous combustion under 200°C
- 16) Decomposition temperature: No data available
- 17) Viscosity: No data available
- 18) Explosive properties: No self-reaction hazard ※ UN TDG test & criteria - Test E3
- 19) Oxidizing properties: No data available
- 20) Molecular weight: No data available

10. STABILITY AND REACTIVITY

- 1) Chemical stability
 - Stable under general condition.
- 2) Conditions to avoid
 - Avoid breathing dust.
- 3) Materials to avoid
 - Strong oxidizing agents
- 4) Hazardous decomposition products
 - Carbon oxides, Sulfur oxides

11. TOXICOLOGICAL INFORMATION

- 1) Information on the likely route of exposure
- 2) Information on health harmfulness

- 3) Acute toxicity
 - Oral rat LD50: No data available ※ from US NLM/ECHA
 - Skin rabbit LD50: No data available
 - Inhalation rat LC50 (dust, 4h): No data available
- 4) Skin irritation: No data available
- 5) Eye irritation: No data available
- 6) Respiratory sensitization: No data available
- 7) Skin sensitization: No data available
- 8) Germ cell mutagenicity: No data available
- 9) Carcinogenicity: Not classifiable ※ from CCRIS/IARC
- 10) Reproductive toxicity: No data available
- 11) Specific target organ toxicity - single exposure (GHS): No data available
- 12) Specific target organ toxicity - repeated exposure (GHS): No data available
- 13) Aspiration hazard: No data available

12. ECOLOGICAL INFORMATION

- 1) Toxicity
 - Fish LC50: No data available ※ from US NLM/ECHA
 - Crustacean EC50: No data available
 - Algae EC50: No data available
- 2) Persistence and degradability: No data available
- 3) Bio accumulative potential: No data available
- 4) Mobility in soil: No data available
- 5) Other adverse effects: No data available

13. DISPOSAL CONSIDERATIONS

- 1) Disposal consideration
 - Observe all environmental regulations.
- 2) Disposal precaution (including contaminated container and packaging method)
 - Keep in suitable, closed containers for disposal.

14. TRANSPORT INFORMATION

- 1) UN TDG: Not dangerous goods
- 2) UN proper shipping name: Not dangerous goods
- 3) Dangerousness class: Not dangerous goods
- 4) Packing group (if possible): Not dangerous goods
- 5) Marine pollution (applicable or not applicable): Not applicable
- 6) Special precaution
 - Fire EmS Guide: F-A (Recommendation)
 - Spillage EmS Guide: Not dangerous goods

15. REGULATORY INFORMATION

- 1) Korea Industrial Safety and Health Act (GHS): Not applicable
- 2) Korea Hazardous Materials Safety Control Act: Not hazardous material

- 3) Korea Chemicals Control Act: Not toxic chemical
- 4) Korea Persistent Organic Pollutants Control Act: Not applicable
- 5) US OSHA hazards (GHS): Not applicable

16. OTHER INFORMATION

- 1) Issued Date: 2013. 6. 21
- 2) Revision No: 5.0
- 3) Revision Date: 2023. 2. 10
- 4) References
 - GHS Classification: Korea MSDS Testing Lab Certificate (Report No. 2016-03-002455), US NLM
 - Physical and chemical properties: Korea MSDS Testing Lab Certificate
 - Transport information: Korea MSDS Testing Lab Certificate
 - Toxic & ecological information: OECD SIDS, ECHA, US NLM, HSDB, IARC, CCRIS, JP NITE
- 5) Acronyms and Websites
 - ECHA: European chemical agency, <http://echa.europa.eu/>
 - US NLM: U.S. National Library of Medicine, <http://chem.sis.nlm.nih.gov/chemidplus/>
 - HSDB: U.S. Hazardous Substances Data Bank, <http://toxnet.nlm.nih.gov/>
 - CCRIS: U.S. Chemical Carcinogenesis Research Information System, <http://toxnet.nlm.nih.gov/>
 - IARC: International Agency for Research on Cancer, <http://monographs.iarc.fr/>
 - JP NITE: Japan National Institute of Technology and Evaluation, <http://www.safe.nite.go.jp/>
- 6) Hazards Testing and Classification
 - Korea MSDS Testing Laboratory