

SAFETY DATA SHEET

Section 1: Identification

Product Name: pSOL

Chemical Name/Synonyms: poly(tetrafluorostyrene phosphonic acid-co-pentafluorostyrene)

Recommended use: Intermediate

Restrictions on use: For industrial use only. Do not use or resell pSOL for any medical applications including implantation in the human body or contact with internal body fluids or tissues.

Company: Ionomer Solutions

Address: 8000 Innovation Park Dr, Baton Rouge, LA 70820, USA

Telephone: +1 (844) 505-4667

Website: <https://www.ionomersolutions.com/>

In emergency call 911.

MEDICAL EMERGENCY Phone: Poison Control Center 1-800-222-1222 (toll free)

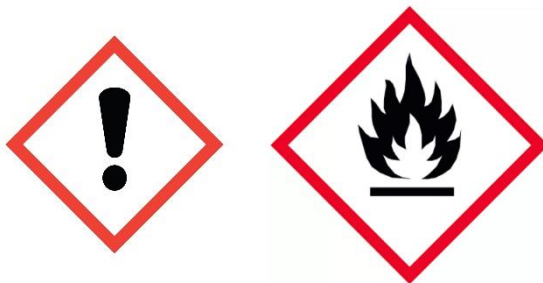
Section 2: Hazard(s) Identification

Hazard Classification:

GHS classification in accordance with 29 CFR 1910 (OSHA HCS).

Flammable liquids: Category 2

Eye irritation: Category 2A



Hazard Pictograms:

Signal Word(s): Danger

Hazard Statements:

H225 Highly flammable liquid and vapor.
H319 Causes serious eye irritation.

Precautionary statement (s):

P210 Keep away from heat/sparks/open flames/hot surfaces.
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.
P243 Take precautionary measures against static discharge.
P264 Wash skin thoroughly after handling.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P370 + P378 In case of fire: Use dry sand, dry chemical, or alcohol-resistant foam to extinguish.
P403 + P235 Store in a well-ventilated place. Keep cool.
P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards: The thermal decomposition vapors of fluorinated plastics may cause polymer fume fever with flulike symptoms in humans, especially when smoking contaminated tobacco.

Section 3: Composition/ Information on Ingredients

Substance/mixture: Mixture

Chemical Name	Classification	CAS#	Conc. %
Ethanol	Flam. Liq. 2; Eye Irrit. 2A; H225, H319 Concentration limits: >= 50 %: Eye Irrit. 2A, H319;	64-17-5	95%
Poly(tetrafluorostyrene phosphonic acid-co-pentafluorostyrene)		N/A	5%

Section 4: First-Aid Measures

General advice: In case of accident or if you feel unwell, seek medical advice immediately. When symptoms persist or in all cases of doubt seek medical advice.

In case of skin contact: Wash off with soap and plenty of water. Get medical attention if feeling unwell.

In case of eye contact: Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do so. Continue rinsing. Get medical attention if feeling unwell.

If inhaled: If inhaled, remove to fresh air. Get medical attention if symptoms occur. If not breathing, give artificial respiration.

If swallowed: If swallowed, thoroughly rinse the mouth with water. DO NOT induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.

Most important symptoms and effects, both acute and delayed: Polymer fume fever. Prolonged skin contact may cause skin irritation. Eye contact may provoke the following symptoms. Irritation. Causes serious eye damage.

Protection of first aiders: First Aid responders should pay attention to self-protection and use the recommended personal protective equipment when the potential for exposure exists (see section 8).

Notes to physician: Treat symptomatically and supportively.

Section 5: Fire-Fighting Measures

Suitable extinguishing media: Water Foam Carbon dioxide (CO₂) Dry powder

Specific hazards during firefighting: Vapors may form explosive mixtures with air. Exposure to combustion products may be a hazard to health.

Hazardous combustion products: Hydrogen fluoride, Carbonyl fluoride, potentially toxic fluorinated compounds, aerosolized particulates, Carbon oxides. Sulfur oxides

Specific extinguishing methods: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray to cool unopened containers. Remove undamaged containers from fire area if it is safe to do so. Evacuate area.

Special protective equipment for fire-fighters: In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

Section 6: Accidental Release Measures

Personal precautions, protective equipment, and emergency procedures: Use personal protective equipment as required. Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.

Measures for environmental protection: Do not empty into drains, water courses or the soil. If the product contaminates lakes, rivers or sewages, inform authorities in accordance with the local regulations.

Measures for cleaning/collecting: Soak up with inert absorbent material. For large spills, provide diking or other appropriate containment to keep material from spreading. If diked material can be pumped, store recovered material in appropriate container. Clean up remaining materials from spill with suitable

absorbent. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable. For the disposal of discarded waste/packaging refer to section 13.

Section 7: Handling and Storage

Handling: Keep away from fire and heat. Avoid sun exposure. Use in a well-ventilated area. Take measures to prevent the build-up of electrostatic charge. Wash hands before breaks and at the end of workday.

Storage: Store in a well-ventilated place. Keep cool. Keep away from heat and sources of ignition. Do not smoke. Keep storage containers sealed. Store only in original container. The storage area should be equipped with leakage emergency treatment equipment and suitable containment materials. Do not store with incompatible materials (see section 10).

Section 8: Exposure Controls/Personal Protection

Control Parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
ethanol	64-17-5	TWA	1,000 ppm 1,900 mg/m ³	USA. Workplace Environmental Exposure Levels (WEEL)

Engineering measures: Processing may form hazardous compounds (see section 10). Minimize workplace exposure concentrations. Use only in an area equipped with explosion-proof exhaust ventilation if advised by assessment of the local exposure potential. Use with local exhaust ventilation.

Personal protective equipment

Respiratory protection: General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.

Eye/face protection: Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Hand protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of

contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Skin and body protection: Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential. Skin contact must be avoided by using impervious protective clothing (gloves, aprons, boots, etc).

Section 9: Physical and Chemical Properties

Appearance:

Form: Liquid, clear

Color: Colorless

Odor: pungent

Odor threshold: 0.1ppm

pH: 7.0 at 10 g/l at 20 °C (68 °F)

Melting point/melting range: Melting point/range: -114 °C (-173 °F)

Boiling point/boiling range: 78 °C 172 °F

Flash point: 13 °C (55 °F) - closed cup

Evaporation rate: No data available.

Flammability: No data available.

Upper/lower flammability or explosive limits: Upper explosion limit: 13.5 %(V); Lower explosion limit: 2.5 %(V)

Auto ignition temperature: 455 °C (851 °F) at 1,013 hPa - DIN 51794

Vapor pressure: 0.57 hPa at 19.6 °C (67.3 °F)

Vapor density: 1.6

Relative density: No data available.

Solubility in/Miscibility with water: 1,000 g/l at 20 °C (68 °F) - completely miscible

Decomposition temperature: Distillable in an undecomposed state at normal pressure.

Section 10: Stability and Reactivity

Reactivity: Vapors may form explosive mixture with air.

Chemical stability: Stable under normal conditions.

Conditions to avoid: Heat, flames, and sparks. Do not overheat.

Incompatible materials: rubber, various plastics

Possibility of hazardous reactions:

Risk of explosion/exothermic reaction with:

hydrogen peroxide

perchlorates

perchloric acid

Nitric acid

mercury(II) nitrate

permanganic acid

Nitriles
peroxi compounds
Strong oxidizing agents
nitrosyl compounds
Peroxides
sodium
Potassium
halogen oxides
calcium hypochlorite
nitrogen dioxide
metallic oxides
uranium hexafluoride
iodides
Chlorine
Alkali metals
Alkaline earth metals
alkali oxides
Ethylene oxide
silver
with
Nitric acid
silver compounds
with
Ammonia
potassium permanganate
with
conc. sulfuric acid
Risk of ignition or formation of inflammable gases or vapours with:
halogen-halogen compounds
chromium(VI) oxide
chromyl chloride
Fluorine
hydrides
Oxides of phosphorus
Platinum
Nitric acid
with
potassium permanganate

Hazardous decomposition products: In the event of fire: see section 5.

Section 11: Toxicological Information

Acute toxicity:

Component: Ethanol

Acute toxicity

LD50 Oral - Rat - male and female - 10,470 mg/kg

(OECD Test Guideline 401)

LC50 Inhalation - Rat - male and female - 4 h - 124.7 mg/l

(OECD Test Guideline 403)

Dermal: No data available

No data available

Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation - 24 h

(OECD Test Guideline 404)

Serious eye damage/eye irritation

Eyes - Rabbit

Result: Causes serious eye irritation.

(OECD Test Guideline 405)

Respiratory or skin sensitization

Maximization Test - Guinea pig

Result: negative

(OECD Test Guideline 406)

Remarks: (in analogy to similar products)

The value is given in analogy to the following substances: Methanol

Germ cell mutagenicity

Test Type: Ames test

Test system: Salmonella typhimurium

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Test system: mouse lymphoma cells

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 476

Result: negative

Test Type: dominant lethal test

Species: Mouse

Application Route: Oral

Method: OECD Test Guideline 478

Result: Positive results were obtained in some in vivo tests.

Carcinogenicity

No data available

IARC: 1 - Group 1: Carcinogenic to humans (ethanol)

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

11.2 Additional Information

Repeated dose toxicity - Rat - male - Oral - NOAEL (No observed adverse effect level) - 1,730 mg/kg - LOAEL (Lowest observed adverse effect level) - 3,200 mg/kg

RTECS: KQ6300000

irritant effects, respiratory paralysis, Dizziness, narcosis, inebriation, euphoria, Nausea, Vomiting

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

Section 12: Ecological Information (non-mandatory)**Ecotoxicity:**

Component: Ethanol

Toxicity to fish: flow-through test LC50 - Pimephales promelas (fathead minnow) - 15,300 mg/l - 96 h (US-EPA)

Toxicity to daphnia and other aquatic invertebrates: static test EC50 - Ceriodaphnia dubia (water flea) - 5,012 mg/l - 48h

Toxicity to algae: static test ErC50 - Chlorella vulgaris (Fresh water algae) - 275 mg/l - 72h (OECD Test Guideline 201)

Toxicity to bacteria: static test IC50 - activated sludge - > 1,000 mg/l - 3 h (OECD Test Guideline 209)

Mobility: No data available.

Biodegradation: No data available.

Bioaccumulation: No data available.

Section 13: Disposal Considerations (non-mandatory)

Disposal of waste product: Follow all local, state, federal and provincial regulations for disposal. It is the responsibility of the user to determine if an item is hazardous as defined in the Resource Conservation and Recovery Act (RCRA) at the time of disposal. Product uses, transformations, mixtures, processes, etc. may render the resulting material hazardous, under the criteria of ignitability, corrosivity, reactivity and toxicity characteristics of the Toxicity Characteristics Leaching Procedure (TCLP) 40 CFR 261.20-24

Disposal of waste packaging: Do not reuse. Dispose of according to local regulations.

Section 14: Transport Information (non-mandatory)

The transport information provided in this section only applies to the material/formulation itself, and is not specific to any package/configuration.

DOT (US)

UN number: 1170 Class: 3 Packing group: II

Proper shipping name: Ethanol

Reportable Quantity (RQ):

Poison Inhalation Hazard: No

IMDG

UN number: 1170 Class: 3 Packing group: II EMS-No: F-E, S-D

Proper shipping name: ETHANOL

IATA

UN number: 1170 Class: 3 Packing group: II

Proper shipping name: Ethanol

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

Section 15: Regulatory Information (non-mandatory)

US Federal Regulations

SARA 302 Components: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards: Fire Hazard, Chronic Health Hazard

CERCLA Reportable quantity: None.

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs): Product does not contain hazardous air pollutants.

TSCA (Toxic Substances Control Act): All components are listed as active or are exempt from listing on the Toxic Substances Control Act (TSCA) inventory.

TSCA 12 (b) Export Notification: None above reporting de minimis

California Proposition 65: This product does not contain any chemical known in the State of California to cause cancer or cause birth defects or other reproductive harm.

Massachusetts Right To Know Components: Ethanol – CAS No. 64-17-5; poly(tetrafluorostyrene phosphonic acid-co-pentafluorostyrene) – trade secret

Pennsylvania Right To Know Components: Ethanol – CAS No. 64-17-5; poly(tetrafluorostyrene phosphonic acid-co-pentafluorostyrene) – trade secret

New Jersey Right To Know Components: Ethanol – CAS No. 64-17-5; poly(tetrafluorostyrene phosphonic acid-co-pentafluorostyrene) – trade secret

Section 16: Other Information

This safety data sheet contains changes from the previous version in sections: 1-16.

SDS date of preparation/update: 01/20/2022

Abbreviations:

ACGIH: USA. ACGIH Threshold Limit Values (TLV)

NIOSH REL: USA. NIOSH Recommended Exposure Limits

OSHA Z-1: USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants

OSHA Z-2: USA. Occupational Exposure Limits (OSHA) - Table Z-2

ACGIH / TWA: 8-hour, time-weighted average

ACGIH / STEL: Short-term exposure limit

ACGIH / C: Ceiling limit

NIOSH REL / TWA: Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek

NIOSH REL / ST: STEL - 15-minute TWA exposure that should not be exceeded at any time during a workday

NIOSH REL / C: Ceiling value is not exceeded at any time.

OSHA Z-1 / TWA: 8-hour time weighted average

OSHA Z-2 / TWA: 8-hour time weighted average

Disclaimer

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