SAFETY DATA SHEET
K-Seal
According to Appendix D, OSHA Hazard Communication Standard 29 CFR §1910.1200

1. Identification

Product identifier

Product name K-Seal

Product number ST5501, ST5516, ST7501

Recommended use of the chemical and restrictions on use

Application Additive for engine cooling systems.

Uses advised against No specific uses advised against are identified.

Details of the supplier of the safety data sheet

Supplier

Solv-Tec
75 N. Main Street
Medford Lakes
NJ, 08055
USA
Tel: 609 261 4242
Fax: 609 261 4498
info@kseal.com

Emergency telephone number

Emergency telephone 609 261 4242 (Monday - Friday 08:30 - 16:30h)

2. Hazard(s) identification

Classification of the substance or mixture

OSHA Regulatory Status This Product is Hazardous under the OSHA Hazard Communication Standard.

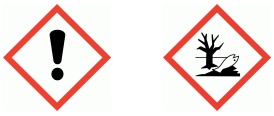
Physical hazards Not Classified

Health hazards Eye Irrit. 2A - H319

Environmental hazards Aquatic Acute 2 - H401 Aquatic Chronic 2 - H411

Label elements

Hazard symbols



Signal word Warning

Hazard statements
H319 Causes serious eye irritation.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements
P264 Wash contaminated skin thoroughly after handling.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
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.
P391 Collect spillage.
P501 Dispose of contents/ container in accordance with national regulations.

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Other hazards

This product does not contain any substances classified as PBT or vPvB.

3. Composition/information on ingredients

Mixtures

bis(D-Gluconato-O1,O2)zinc **3 - <5%**

CAS number: 4468-02-4

M factor (Acute) = 1 M factor (Chronic) = 1

Classification
Aquatic Acute 1 - H400
Aquatic Chronic 1 - H410

4-Nonylphenol, branched, ethoxylated **1 - <2.5%**

CAS number: 127087-87-0

Classification
Skin Irrit. 2 - H315
Eye Dam. 1 - H318
Aquatic Chronic 3 - H412

Copper **0.5 - <1%**

CAS number: 7440-50-8

M factor (Acute) = 1

Classification
Aquatic Acute 1 - H400
Aquatic Chronic 3 - H412

Refractories, fibers, aluminosilicate **0.025 - <0.25%**

CAS number: 142844-00-6

Classification
Carc. 1B - H350i

The full text for all hazard statements is displayed in Section 16.

Ingredient notes The exact percentage/concentration is withheld as a trade secret in accordance with 29 CFR 1910.1200.

4. First-aid measures

Description of first aid measures

General information Get medical attention immediately. Show this Safety Data Sheet to the medical personnel.

Inhalation Remove affected person from source of contamination. Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Maintain an open airway. Loosen tight clothing such as collar, tie or belt. When breathing is difficult, properly trained personnel may assist affected person by administering oxygen.

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Ingestion	Rinse mouth thoroughly with water. Give a few small glasses of water or milk to drink. Stop if the affected person feels sick as vomiting may be dangerous. Do not induce vomiting unless under the direction of medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs.
Skin Contact	It is important to remove the substance from the skin immediately. Remove contamination with soap and water or recognized skin cleansing agent. Get medical attention if symptoms are severe or persist after washing. In the event of any sensitization symptoms developing, ensure further exposure is avoided.
Eye contact	Remove any contact lenses and open eyelids wide apart. Rinse immediately with plenty of water. Continue to rinse for at least 10 minutes.
Protection of first aiders	First aid personnel should wear appropriate protective equipment during any rescue. Wash contaminated clothing thoroughly with water before removing it from the affected person, or wear gloves. It may be dangerous for first aid personnel to carry out mouth-to-mouth resuscitation.

Most important symptoms and effects, both acute and delayed

General information	See Section 11 for additional information on health hazards. The severity of the symptoms described will vary dependent on the concentration and the length of exposure.
Inhalation	Spray/mists may cause respiratory tract irritation. Prolonged inhalation of high concentrations may damage respiratory system.
Ingestion	Gastrointestinal symptoms, including upset stomach.
Skin contact	The product contains a small amount of sensitizing substance. May cause an allergic skin reaction.
Eye contact	Irritating to eyes.

Indication of immediate medical attention and special treatment needed

Notes for the doctor	Treat symptomatically. May cause sensitization or allergic reactions in sensitive individuals.

5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media	The product is not flammable. Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog. Use fire-extinguishing media suitable for the surrounding fire.
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.

Special hazards arising from the substance or mixture

Specific hazards	Containers can burst violently or explode when heated, due to excessive pressure build-up.
Hazardous combustion products	Thermal decomposition or combustion products may include the following substances: Harmful gases or vapors. Carbon dioxide (CO2). Carbon monoxide (CO). phenols and halogenated phenols

Advice for firefighters

Protective actions during firefighting	Avoid breathing fire gases or vapors. Evacuate area. Cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk. Cool containers exposed to flames with water until well after the fire is out. If a leak or spill has not ignited, use water spray to disperse vapors and protect men stopping the leak. Avoid discharge to the aquatic environment. Control run-off water by containing and keeping it out of sewers and watercourses. If risk of water pollution occurs, notify appropriate authorities.

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Special protective equipment for firefighters Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing. Standard Firefighter's clothing including helmets, protective boots and gloves will provide a basic level of protection for chemical incidents.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Do not touch or walk into spilled material. Keep unnecessary and unprotected personnel away from the spillage. Avoid contact with skin and eyes. Wear protective clothing as described in Section 8 of this safety data sheet. Wash thoroughly after dealing with a spillage.

Environmental precautions

Environmental precautions Avoid discharge into drains or watercourses or onto the ground.

Methods and material for containment and cleaning up

Methods for cleaning up Wear protective clothing as described in Section 8 of this safety data sheet. Do not empty into drains. Absorb spillage with non-combustible, absorbent material. The contaminated absorbent may pose the same hazard as the spilled material. Collect and place in suitable waste disposal containers and seal securely. Label the containers containing waste and contaminated materials and remove from the area as soon as possible. Flush contaminated area with plenty of water. For waste disposal, see Section 13. Wash thoroughly after dealing with a spillage.

Reference to other sections For personal protection, see Section 8. See Section 11 for additional information on health hazards. See Section 12 for additional information on ecological hazards. For waste disposal, see Section 13.

7. Handling and storage

Precautions for safe handling

Usage precautions Keep out of the reach of children. Keep away from food, drink and animal feeding stuffs. Read and follow manufacturer's recommendations. Wear protective clothing as described in Section 8 of this safety data sheet. Do not handle broken packages without protective equipment. Handle all packages and containers carefully to minimize spills. Keep container tightly sealed when not in use. Avoid discharge to the aquatic environment. Do not reuse empty containers.

Advice on general occupational hygiene Wash promptly if skin becomes contaminated. Take off contaminated clothing and wash before reuse. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Wash at the end of each work shift and before eating, smoking and using the toilet. Change work clothing daily before leaving workplace.

Conditions for safe storage, including any incompatibilities

Storage precautions Store in tightly-closed, original container in a dry, cool and well-ventilated place. Keep containers upright. Protect containers from damage. Utilize retaining walls to prevent soil and water pollution in the event of spillage.

Storage class Miscellaneous hazardous material storage.

Specific end uses(s)

Specific end use(s) The identified uses for this product are detailed in Section 1.

8. Exposure controls/Personal protection

Control parameters

Occupational exposure limits

Copper

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Long-term exposure limit (8-hour TWA): ACGIH 0.2 mg/m³ fume
Long-term exposure limit (8-hour TWA): ACGIH 1 mg/m³ dusts and mists
Long-term exposure limit (8-hour TWA): OSHA 0.1 mg/m³ fume
Long-term exposure limit (8-hour TWA): OSHA 1 mg/m³ dusts and mists
as Cu

Refractories, fibers, aluminosilicate

Long-term exposure limit (8-hour TWA): ACGIH 0.2 f/cc respirable fibers: length > 5 µm, aspect ratio >=3.1, as determined by the membrane filter method at 400-450X magnification [4-mm objective], using phase-contrast illumination

ACGIH = American Conference of Governmental Industrial Hygienists.
OSHA = Occupational Safety and Health Administration.

Ingredient comments The constituents listed are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

Copper (CAS: 7440-50-8)

Immediate danger to life and health 100 mg/m³

Exposure controls

Protective equipment

Appropriate engineering controls Provide adequate ventilation. Observe any occupational exposure limits for the product or ingredients. Use process enclosures, local exhaust ventilation or other engineering controls as the primary means to minimize worker exposure. Ensure control measures are regularly inspected and maintained. Ensure operatives are trained to minimize exposure.

Eye/face protection Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. Wear chemical splash goggles.

Hand protection Wear protective gloves made of the following material: Rubber (natural, latex). Polyvinyl chloride (PVC). Nitrile rubber. Considering the data specified by the glove manufacturer, check during use that the gloves are retaining their protective properties and change them as soon as any deterioration is detected. Frequent changes are recommended.

Other skin and body protection Wear appropriate clothing to prevent any possibility of skin contact.

Hygiene measures Provide eyewash station and safety shower. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. Good personal hygiene procedures should be implemented. Wash at the end of each work shift and before eating, smoking and using the toilet. When using do not eat, drink or smoke.

Respiratory protection If ventilation is inadequate, suitable respiratory protection must be worn.

Environmental exposure controls Keep container tightly sealed when not in use. Avoid release to the environment.

9. Physical and chemical properties

Information on basic physical and chemical properties

Appearance Liquid.

Color Light brown.

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Odor	Mild.
Odor threshold	Not available.
pH	pH (concentrated solution): 5.9
Melting point	Not available.
Initial boiling point and range	Not available.
Flash point	Not available.
Evaporation rate	Not available.
Upper/lower flammability or explosive limits	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Relative density	1.045 @ 21.1°C/70°F
Solubility(ies)	~92% Soluble in water.
Partition coefficient	Not available.
Auto-ignition temperature	Not available.
Decomposition Temperature	Not available.
Viscosity	Not applicable.
Explosive properties	Not considered to be explosive.
Oxidizing properties	Does not meet the criteria for classification as oxidizing.
Volatility	~80%

10. Stability and reactivity

Reactivity	See the other subsections of this section for further details.
Stability	Stable at normal ambient temperatures and when used as recommended. Stable under the prescribed storage conditions.
Possibility of hazardous reactions	No potentially hazardous reactions known.
Conditions to avoid	Avoid excessive heat for prolonged periods of time. Avoid freezing.
Materials to avoid	Alkalis. Alkali metals. Alkaline earth metals. Strong acids. Strong oxidizing agents.
Hazardous decomposition products	Does not decompose when used and stored as recommended. Thermal decomposition or combustion products may include the following substances: Harmful gases or vapors.

11. Toxicological information

Information on toxicological effects

Acute toxicity - oral

Notes (oral LD_{50})	LD_{50} 2.83 ml/kg, Oral, Rat Based on available data the classification criteria are not met.

Acute toxicity - dermal

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Notes (dermal LD_{50})	Based on available data the classification criteria are not met.

Acute toxicity - inhalation

Notes (inhalation LC_{50})	Based on available data the classification criteria are not met.

Skin corrosion/irritation

Animal data	Based on available data the classification criteria are not met.

Serious eye damage/irritation

Serious eye damage/irritation	Causes serious eye irritation.

Respiratory sensitization

Respiratory sensitization	Based on available data the classification criteria are not met.

Skin sensitization

Summary	The product contains a small amount of sensitizing substance.
Skin sensitization	May cause an allergic skin reaction.

Germ cell mutagenicity

Genotoxicity - in vitro	Based on available data the classification criteria are not met.

Carcinogenicity

Carcinogenicity	Based on available data the classification criteria are not met.
IARC carcinogenicity	Contains a substance which may be potentially carcinogenic. IARC Group 2B Possibly carcinogenic to humans.

Reproductive toxicity

Reproductive toxicity - fertility	Based on available data the classification criteria are not met.
Reproductive toxicity - development	Based on available data the classification criteria are not met.

Specific target organ toxicity - single exposure

STOT - single exposure	Not classified as a specific target organ toxicant after a single exposure.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure	Not classified as a specific target organ toxicant after repeated exposure.

Aspiration hazard

Aspiration hazard	Based on available data the classification criteria are not met.

General information	The severity of the symptoms described will vary dependent on the concentration and the length of exposure.
Inhalation	Spray/mists may cause respiratory tract irritation. Prolonged inhalation of high concentrations may damage respiratory system.
Ingestion	Gastrointestinal symptoms, including upset stomach.
Skin Contact	May cause an allergic skin reaction. May cause sensitisation by skin contact.
Eye contact	Irritating to eyes.
Route of exposure	Ingestion Inhalation Skin and/or eye contact
Target Organs	No specific target organs known.
Medical considerations	Skin disorders and allergies.

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Toxicological information on ingredients.

bis(D-Gluconato-O1,O2)zinc

Toxicological effects Not regarded as a health hazard under current legislation.

4-Nonylphenol, branched, ethoxylated

Skin corrosion/irritation

Animal data Irritating.

Serious eye damage/irritation

Serious eye damage/irritation Causes serious eye damage.

Copper

Toxicological effects Not regarded as a health hazard under current legislation.

Acute toxicity - oral

Notes (oral LD_{50}) LD_{50} >2500 mg/kg, Oral, Rat REACH dossier information.

Acute toxicity - dermal

Notes (dermal LD_{50}) LD_{50} >2000 mg/kg, Dermal, Rat REACH dossier information.

Acute toxicity - inhalation

Notes (inhalation LC_{50}) LD_{50} >5.11 mg/l, Inhalation, Rat REACH dossier information.

Skin corrosion/irritation

Animal data Dose: 0.5 g, 4 hours, Rabbit Erythema/eschar score: No erythema (0). Edema score: No oedema (0). REACH dossier information.

Skin sensitization

Skin sensitization Guinea pig maximization test (GPMT) - Guinea pig: Not sensitizing. REACH dossier information.

Germ cell mutagenicity

Genotoxicity - in vitro Gene mutation: Negative. REACH dossier information.

Genotoxicity - in vivo DNA damage and/or repair: Negative. REACH dossier information.

Reproductive toxicity

Reproductive toxicity - fertility Two-generation study - NOAEL 1000 ppm, Oral, Rat P REACH dossier information.

Aspiration hazard

Aspiration hazard Not relevant.

12. Ecological information

Toxicity Aquatic Chronic 2 - H411 Toxic to aquatic life with long lasting effects.

Ecological information on ingredients.

bis(D-Gluconato-O1,O2)zinc

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Toxicity	Aquatic Acute 1 - H400 Aquatic Chronic 1 - H410 Very toxic to aquatic life with long lasting effects.
Acute aquatic toxicity	
LE(C)$_{50}$	0.1 < L(E)C50 ≤ 1
M factor (Acute)	1
Chronic aquatic toxicity	
M factor (Chronic)	1

4-Nonylphenol, branched, ethoxylated

Toxicity	Aquatic Chronic 3 - H412 Harmful to aquatic life with long lasting effects.

Copper

Toxicity	Aquatic Acute 1 - H400 Aquatic Chronic 3 - H412 Very toxic to aquatic life with long lasting effects.
Acute aquatic toxicity	
LE(C)$_{50}$	0.1 < L(E)C50 ≤ 1
M factor (Acute)	1
Acute toxicity - fish	LC_{50}, 96 hours: 0.2 mg/l, Oncorhynchus mykiss (Rainbow trout)
Acute toxicity - aquatic invertebrates	EC_{50}, 48 hours: 0.529 mg/l, Daphnia magna
Chronic aquatic toxicity	
Short term toxicity - embryo and sac fry stages	NOEC, 45 days: 11.4 µg/l, Oncorhynchus mykiss (Rainbow trout)

Persistence and degradability

Persistence and degradability The degradability of the product is not known.

Ecological information on ingredients.

bis(D-Gluconato-O1,O2)zinc

Persistence and degradability	The degradability of the product is not known.

4-Nonylphenol, branched, ethoxylated

Persistence and degradability	The degradability of the product is not known.

Copper

Persistence and degradability	The product contains inorganic substances which are not biodegradable.

Bioaccumulative potential

Bio-Accumulative Potential No data available on bioaccumulation.

Partition coefficient Not available.

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Ecological information on ingredients.

bis(D-Gluconato-O1,O2)zinc

Bio-Accumulative Potential No data available on bioaccumulation.

4-Nonylphenol, branched, ethoxylated

Bio-Accumulative Potential No data available on bioaccumulation.

Copper

Bio-Accumulative Potential Not relevant.

Mobility in soil

Mobility The product is water-soluble and may spread in water systems.

Ecological information on ingredients.

bis(D-Gluconato-O1,O2)zinc

Mobility No data available.

4-Nonylphenol, branched, ethoxylated

Mobility No data available.

Copper

Mobility The product is insoluble in water.

Other adverse effects

Other adverse effects None known.

13. Disposal considerations

Waste treatment methods

General information The generation of waste should be minimized or avoided wherever possible. Reuse or recycle products wherever possible. When handling waste, the safety precautions applying to handling of the product should be considered. Care should be taken when handling emptied containers that have not been thoroughly cleaned or rinsed out. Empty containers or liners may retain some product residues and hence be potentially hazardous.

Disposal methods Dispose of surplus products and those that cannot be recycled via a licensed waste disposal contractor. Waste, residues, empty containers, discarded work clothes and contaminated cleaning materials should be collected in designated containers, labeled with their contents. Incineration or landfill should only be considered when recycling is not feasible.

14. Transport information

UN Number

UN No. (TDG) 3082

UN No. (IMDG) 3082

UN No. (ICAO) 3082

UN No. (DOT) UN3082

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UN proper shipping name

Proper shipping name (TDG)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CONTAINS bis(D-Gluconato-O1,O2)zinc, Copper)
Proper shipping name (IMDG)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CONTAINS bis(D-Gluconato-O1,O2)zinc, Copper (powder))
Proper shipping name (ICAO)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CONTAINS bis(D-Gluconato-O1,O2)zinc, Copper (powder))
Proper shipping name (DOT)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CONTAINS bis(D-Gluconato-O1,O2)zinc, Copper)

Transport hazard class(es)

DOT hazard class	9
DOT hazard label	9
TDG class	9
TDG label(s)	9
IMDG Class	9
ICAO class/division	9

DOT transport labels

Transport labels

Packing group

TDG Packing Group	III
IMDG packing group	III
ICAO packing group	III
DOT packing group	III

Environmental hazards

Environmentally Hazardous Substance

Special precautions for user

EmS	F-A, S-F
DOT reportable quantity	RQ: Copper (595238.0952 lbs)
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable.

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15. Regulatory information

Regulatory Status Classified in accordance with Appendix A, Appendix B and Appendix F of the OSHA Hazard Communication Standard 29 CFR §1910.1200.

Regulatory References OSHA Hazard Communication Standard 29 CFR §1910.1200

US Federal Regulations

SARA Section 302 Extremely Hazardous Substances Tier II Threshold Planning Quantities
None of the ingredients are listed.

CERCLA/Superfund, Hazardous Substances/Reportable Quantities (EPA)
The following ingredients are listed:

Copper
Final CERCLA RQ: 5000(2270) pounds (Kilograms)

SARA Extremely Hazardous Substances EPCRA Reportable Quantities
None of the ingredients are listed.

SARA 313 Emission Reporting
The following ingredients are listed:

bis(D-Gluconato-O1,O2)zinc
1.0 %

4-Nonylphenol, branched, ethoxylated
1.0 %

Copper
1.0 %

CAA Accidental Release Prevention
None of the ingredients are listed.

OSHA Highly Hazardous Chemicals
None of the ingredients are listed.

US State Regulations

California Proposition 65 Carcinogens and Reproductive Toxins
The following ingredients are listed:

Refractories, fibers, aluminosilicate
Carcinogen.
Ceramic fibers (airborne particles of respirable size)

California Air Toxics "Hot Spots" (A-I)
The following ingredients are listed:

Copper

California Air Toxics "Hot Spots" (A-II)
None of the ingredients are listed.

California Directors List of Hazardous Substances
The following ingredients are listed:

Copper

Massachusetts "Right To Know" List
The following ingredients are listed:

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Magnesium nitrate

Copper

Rhode Island "Right To Know" List

The following ingredients are listed:

Magnesium nitrate

Copper

Minnesota "Right To Know" List

The following ingredients are listed:

PEG 8000

Copper

New Jersey "Right To Know" List

The following ingredients are listed:

Refractories, fibers, aluminosilicate

Magnesium nitrate

Copper

Pennsylvania "Right To Know" List

The following ingredients are listed:

Magnesium nitrate

Copper

Inventories

US - TSCA

Some of the ingredients are listed or exempt.

16. Other information

Training advice	Read and follow manufacturer's recommendations.
Revision date	8/4/2017
Revision	3
Supersedes date	5/29/2015
SDS No.	3197
Hazard statements in full	H315 Causes skin irritation. H318 Causes serious eye damage. H319 Causes serious eye irritation. H350i May cause cancer by inhalation. H400 Very toxic to aquatic life. H401 Toxic to aquatic life. H410 Very toxic to aquatic life with long lasting effects. H411 Toxic to aquatic life with long lasting effects. H412 Harmful to aquatic life with long lasting effects.

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.