

Section 1. Product and Company Identification

Product Name Propylene Glycol
CAS Number 57-55-6

Lrak Technologies

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EMERGENCY RESPONSE NUMBER
CHEMTEL

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Section 2. Hazards Identification

Classification of the substance or mixture

Hazard classification: This material is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.

GHS Label Elements

Pictograms: N/A

Signal word: N/A

Hazard and precautionary statements

The material is not classified as hazardous

Other hazards: No data available

Section 3. Composition / Information on Ingredients

Common Name Propylene Glycol
Synonym(s) Methyl Ethylene Glycol; Monopropylene Glycol
CAS Number 57-55-6

COMPONENT	CAS NUMBER	CONCENTRATION
Propylene Glycol	57-55-6	> 99.8%

Section 4. First Aid Measures

Description of first aid measures

General advice: If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air; if effects occur, consult a physician.

Skin contact: Wash off with plenty of water.

Eye contact: Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a

physician, preferably an ophthalmologist.

Ingestion: No emergency medical treatment necessary.

Most important symptoms and effects, both acute and delayed: Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

Notes to physician: No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

Section 5. Firefighting Measures

Suitable extinguishing media: Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

Unsuitable extinguishing media: Do not use direct water stream. May spread fire.

Special hazards arising from the substance or mixture

Hazardous combustion products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Carbon monoxide. Carbon dioxide.

Unusual Fire and Explosion Hazards: Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of re-ignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage.

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective firefighting clothing (includes firefighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

Section 6. Accidental Release Measures

Personal precautions, protective equipment, and emergency procedures: Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection. Keep unnecessary and unprotected personnel from entering the area. Keep personnel out of low areas.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and materials for containment and cleaning up: Contain spilled material if possible. Small spills: Any absorbent material. Collect in suitable and properly labeled open containers. Wash the spill site with large quantities of water. Large spills: Dike area to contain spill. Pump into suitable and properly labeled containers. See Section 13, Disposal Considerations, for additional information.

Section 7. Handling and Storage

Precautions for safe handling: Product handled hot may require additional ventilation or local exhaust. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION. Spills of these organic materials on hot fibrous insulations may lead to lowering of the auto-ignition temperatures possibly resulting in spontaneous combustion.

Conditions for safe storage: Store away from direct sunlight or ultraviolet light. Keep container tightly closed when not in use. Store in a dry place. Protect from atmospheric moisture. Store in the following material(s): Stainless steel. Aluminum. Container lined with phenolic or epoxy-phenolic FDA food contact approved coating. 316 stainless steel. Opaque HDPE plastic container.

Section 8. Exposure Controls / Personal Protection

Control parameters

Exposure limits are listed below, if they exist.

Component: Propylene Glycol

Regulation: US WEEL

Type of Listing: TWA

Value/Notation: 10 mg/m³

Exposure controls

Engineering controls: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use safety glasses (with side shields). If there is a potential for exposure to particles which could cause eye discomfort, wear chemical goggles.

Hand protection: Chemical protective gloves should not be needed when handling this material. Consistent with general hygienic practice for any material, skin contact should be minimized.

Other skin protection: No precautions other than clean body-covering clothing should be needed.

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. In misty atmospheres, use an approved particulate respirator. The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

Section 9. Physical and Chemical Properties

Appearance

Physical state: Liquid.

Color: Colorless

Odor: Odorless

Odor Threshold: No test data available

pH: Not applicable

Melting point/range: < -20°C (< -4°F)

Freezing point: < -20°C (< -4°F)

Boiling point (760 mmHg): 184°C (363°F) at 752.46 mmHg

Flash point (PMCC): 104°C (219°F) at 1,000.1 hPa

Evaporation Rate (Butyl Acetate = 1): 0.01 (Estimated)

Flammability (solid, gas): Not applicable to liquids

Lower explosion limit: 2.6% vol (Estimated)

Upper explosion limit: 12.5% vol (Estimated)

Vapor Pressure: 20 Pa at 25°C (77°F)

Relative Vapor Density (air = 1): 2.62 (Literature)

Relative Density (water = 1): 1.03 at 20°C (68°F)

Water solubility: 100% at 20°C (68°F)

Partition coefficient (n-Octanol/water): log Pow: -1.07 (Measured)

Auto-ignition temperature: > 400°C (> 752°F) at 100.01 kPa

Decomposition temperature: No test data available

Dynamic Viscosity: 43.4 mPa*s at 25°C (77°F) (Literature)

Kinematic Viscosity: No test data available

Explosive properties: Not explosive

Oxidizing properties: No

Liquid Density: 1.03 g/cm³ at 20°C (68°F) (Literature)

Molecular weight: No data available

Percent volatility: No data available

Pour point: < -57°C (< -71°F) (Literature)

NOTE: The physical data presented above are typical values and should not be construed as a specification.

Section 10. Stability and Reactivity

Reactivity: No data available

Chemical stability: Stable under recommended storage conditions. See Storage, Section 7.
Hygroscopic.

Possibility of hazardous reactions: Polymerization will not occur.

Conditions to avoid: No data available

Incompatible materials: Avoid contact with: Strong acids. Strong bases. Strong oxidizers.

Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Aldehydes. Alcohols. Ethers. Organic acids.

Section 11. Toxicological Information

Acute toxicity

Acute oral toxicity: Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts. LD50, Rat, > 20,000 mg/kg

Acute dermal toxicity: Prolonged skin contact is unlikely to result in absorption of harmful amounts. LD50, Rabbit, > 2,000 mg/kg No deaths occurred at this concentration.

Acute inhalation toxicity: At room temperature, exposure to vapor is minimal due to low volatility. Mist may cause irritation of upper respiratory tract (nose and throat). LC50, Rabbit, 2 Hour, Aerosol, 317.042 mg/l No deaths occurred at this concentration.

Skin corrosion/irritation: Prolonged contact is essentially nonirritating to skin. Repeated contact may cause flaking and softening of skin.

Serious eye damage/eye irritation: May cause slight temporary eye irritation. Corneal injury is unlikely. Mist may cause eye irritation.

Sensitization: Did not cause allergic skin reactions when tested in humans.

For respiratory sensitization: No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure): Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Specific Target Organ Systemic Toxicity (Repeated Exposure): In rare cases, repeated excessive exposure to propylene glycol may cause central nervous system effects.

Carcinogenicity: Did not cause cancer in laboratory animals.

Teratogenicity: Did not cause birth defects or any other fetal effects in laboratory animals.

Reproductive toxicity: In animal studies, did not interfere with reproduction. In animal studies, did not interfere with fertility.

Mutagenicity: In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Aspiration Hazard: Based on physical properties, not likely to be an aspiration hazard.

Section 12. Ecological Information

Toxicity

Acute toxicity to fish: Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested). LC50, Oncorhynchus mykiss (rainbow trout), static test, 96 Hour, 40,613 mg/l, OECD Test Guideline 203

Acute toxicity to aquatic invertebrates: LC50, Ceriodaphnia dubia (water flea), static test, 48 Hour, 18,340 mg/l, OECD Test Guideline 202

Acute toxicity to algae/aquatic plants: ErC50, Pseudokirchneriella subcapitata (green algae), 96 Hour, Growth rate inhibition, 19,000 mg/l, OECD Test Guideline 201

Toxicity to bacteria: NOEC, Pseudomonas putida, 18 Hour, > 20,000 mg/l, Method Not Specified.

Chronic aquatic toxicity

Chronic toxicity to aquatic invertebrates: NOEC, Ceriodaphnia dubia (water flea), semi-static test, 7 d, number of offspring, 13,020 mg/l

Persistence and degradability

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Biodegradation may occur under anaerobic conditions (in the absence of oxygen). 10-day Window: Pass

Biodegradation: 81%

Exposure time: 28 d

Method: OECD Test Guideline 301F or Equivalent

10-day Window: Not applicable

Biodegradation: 96%

Exposure time: 64 d

Method: OECD Test Guideline 306 or Equivalent

Theoretical Oxygen Demand: 1.68 mg/mg

Chemical Oxygen Demand: 1.53 mg/mg

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	69.000%
10 d	70.000%
20 d	86.000%

Photodegradation

Atmospheric half-life: 10 Hour

Method: Estimated.

Bioaccumulative Potential

Bioaccumulation: Bioconcentration potential is low ($BCF < 100$ or $\log Pow < 3$).

Partition coefficient: n-octanol/water ($\log Pow$): -1.07 (Measured)

Bioconcentration factor (BCF): 0.09 (Estimated)

Mobility in soil: Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process. Potential for mobility in soil is very high (Koc between 0 and 50).

Partition coefficient (Koc): < 1 Estimated.

Section 13. Disposal Considerations

Waste Treatment Methods: Dispose of product and contaminated packaging in accordance with all local, state, and federal environmental control regulations.

Section 14. Transport Information

DOT: Not regulated for transport

Classification for SEA transport (IMO-IMDG): Not regulated for transport

Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC

Code: Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO): Not regulated for transport

Section 15. Regulatory Information

OSHA Hazard Communication Standard: This product is not a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312: This product is not a hazardous chemical under 29CFR 1910.1200, and therefore is not covered by Title III of SARA.

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313: 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.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Section 103: To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

Pennsylvania Worker and Community Right-To-Know Act: The following chemicals are listed because of the additional requirements of Pennsylvania law:

Components: Propylene glycol

CAS Number: 57-55-6

California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986):

This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

United States TSCA Inventory (TSCA): All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

NFPA Rating

Health: 1

Flammability: 1

Reactivity: 0

Section 16. Other Information

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.

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