SAFETY DATA SHEET
POTASSIUM AMYL XANTHATE 90%
REVISION 4, DATE 20 AUG 2021

1. IDENTIFICATION

Product Name	**Potassium Amyl Xanthate 90%**
Other Names	Potassium amyl xanthate [CAS#2720-73-2]; Potassium isopentyl dithiocarbonate
Uses	A collector used in mining industry.
Chemical Family	No Data Available
Chemical Formula	C6H11KOS2
Chemical Name	Potassium isoamyl xanthate
Product Description	Technical Grade

Contact Details of the Supplier of this Safety Data Sheet

Organisation	Location	Telephone
Redox Ltd	2 Swettenham Road Minto NSW 2566 Australia	+61-2-97333000
Redox Ltd	11 Mayo Road Wiri Auckland 2104 New Zealand	+64-9-2506222
Redox Inc.	3960 Paramount Boulevard Suite 107 Lakewood CA 90712 USA	+1-424-675-3200
Redox Chemicals Sdn Bhd	Level 2, No. 8, Jalan Sapir 33/7 Seksyen 33, Shah Alam Premier Industrial Park 40400 Shah Alam Sengalor, Malaysia	+60-3-5614-2111

Emergency Contact Details

For emergencies only; DO NOT contact these companies for general product advice.

Organisation	Location	Telephone
Poisons Information Centre	Westmead NSW	1800-251525 131126
Chemcall	Australia	1800-127406 +64-4-9179888
Chemcall	Malaysia	+64-4-9179888
Chemcall	New Zealand	0800-243622 +64-4-9179888
National Poisons Centre	New Zealand	0800-764766
CHEMTREC	USA & Canada	1-800-424-9300 CN723420 +1-703-527-3887

2. HAZARD IDENTIFICATION

Poisons Schedule (Aust)	Not Scheduled

Globally Harmonised System

Hazard Classification

Hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS)

Hazard Categories

Self-heating Substances and Mixtures - Category 1

Acute Toxicity (Oral) - Category 4

Acute Toxicity (Dermal) - Category 4

Skin Corrosion/Irritation - Category 2

Serious Eye Damage/Irritation - Category 2A

Long-term Hazard To The Aquatic Environment - Category 2

Pictograms

Signal Word

Danger

Hazard Statements

H251	Self-heating; may catch fire.
H302 + H312	Harmful if swallowed or in contact with skin.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H411	Toxic to aquatic life with long lasting effects.

Precautionary Statements

Prevention	**P280**	Wear protective gloves/protective clothing/eye protection/face protection.
	P273	Avoid release to the environment.
	P235 + P410	Keep cool. Protect from sunlight.
	P270	Do not eat, drink or smoke when using this product.
Response	**P312**	Call a POISON CENTER or doctor if you feel unwell.
	P302 + P352	IF ON SKIN: Wash with plenty of water/...
	P337 + P313	If eye irritation persists: Get medical advice/attention.
	P391	Collect spillage.
	P330	Rinse mouth.
	P332 + P313	If skin irritation occurs: Get medical advice/attention.
	P362	Take off contaminated clothing.
	P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Storage	**P407**	Maintain air gap between stacks or pallets.
	P420	Store separately.
Disposal	**P501**	Dispose of contents/container in accordance with local / regional / national / international regulations.

National Transport Commission (Australia)

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification

Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Potassium isoamyl xanthate	C6H11KOS2	2720-73-2	>=90 %
Water	H2O	7732-18-5	<=3 %
Potassium hydroxide	KOH	1310-58-3	<=0.2 %

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed IF SWALLOWED: Rinse mouth. Do not induce vomiting. Call a Poison Centre or doctor/physician for advice. Never give anything by mouth to an unconscious person.

Eye IF IN EYES: Immediately flush eyes with running water for several minutes, holding eyelids open and occasionally lifting the upper and lower lids. Remove contact lenses if present and easy to do. Continue rinsing for at least 15 minutes. If eye irritation persists, get medical advice/attention.

Skin IF ON SKIN: Remove and isolate contaminated clothing and shoes. Immediately flush skin with running water for at least 15 minutes. Call a Poison Centre or doctor/physician for advice. Wash contaminated clothing and shoes before reuse. Get medical advice/attention if skin irritation occurs or if you feel unwell.

Inhaled IF INHALED: Move victim to fresh air and keep at rest in a position comfortable for breathing. If respiratory symptoms persist, get medical advice/attention. Give artificial respiration if victim is not breathing. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Administer oxygen if breathing is difficult.

Advice to Doctor Treat symptomatically. Symptoms may be delayed. Immediate medical attention is required. Show this safety data sheet (SDS) to the doctor in attendance. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. Keep victim calm and warm.

Medical Conditions Aggravated by Exposure No information available.

5. FIRE FIGHTING MEASURES

General Measures Move containers from fire area if you can do it without risk. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Do not get water inside containers or in contact with substance. Cool containers with flooding quantities of water until well after fire is out.

Flammability Conditions Spontaneously combustible material. Self-heating; may catch fire.

Extinguishing Media Do NOT use water, Carbon dioxide (CO2) or foam on material itself. For Xanthates, use FLOODING AMOUNTS OF WATER for small and large fires to stop the reaction. Smothering will NOT work for these materials - they do not need air to burn. *CAUTION: UN3342, when flooded with water will continue to evolve flammable Carbon disulfide vapours.

Fire and Explosion Hazard Risk of violent reaction or explosion! May burn with rapid flare-burning effect. May react vigorously or explosively on contact with water. May decompose explosively when heated or involved in a fire. May re-ignite after fire is extinguished. Containers may explode when heated.
*Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

Hazardous Products of Combustion Fire will produce irritating, corrosive and/or toxic gases, including Carbon disulfide.

Special Fire Fighting Instructions Contain runoff from fire control or dilution water - Runoff may pollute waterways. Runoff may create fire or explosion hazard.

Personal Protective Equipment Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters protective clothing will provide thermal protection but provides only limited chemical protection.

Flash Point	No Data Available
Lower Explosion Limit	No Data Available
Upper Explosion Limit	No Data Available
Auto Ignition Temperature	No Data Available
Hazchem Code	1Y

6. ACCIDENTAL RELEASE MEASURES

General Response Procedure	Ensure adequate ventilation. ELIMINATE all ignition sources (no smoking, sparks or flames in immediate area). Do not touch or walk through spilled material. Avoid generating dust. Avoid breathing vapours/dust and contact with eyes, skin and clothing.
Clean Up Procedures	Use clean, non-sparking tools to collect material and place it into loosely covered containers for later disposal (see SECTION 13). *For spills of Xanthates (UN3342), dissolve in 5 parts water and collect for proper disposal.
Containment	Stop leak if you can do it without risk. Prevent entry into waterways, sewers, basements or confined areas. Cover with dry earth, dry sand or other non-combustible material followed with plastic sheet to minimize spreading or contact with rain.
Decontamination	After cleaning, flush away any residual traces with water.
Environmental Precautionary Measures	Spillages and decontamination runoff should be prevented from entering drains and watercourses. If contamination of sewers or waterways has occurred advise local emergency services.
Evacuation Criteria	Immediately isolate spill or leak area. Evacuate personnel to safe areas. Stay upwind and/or uphill. Keep unauthorized personnel away.
Personal Precautionary Measures	Wear protective equipment to prevent skin and eye contact and breathing in vapours/dust (see SECTION 8). Fully encapsulating, vapour protective clothing should be worn for spills and leaks with no fire.

7. HANDLING AND STORAGE

Handling	Safety showers and eyewash facilities should be provided within the immediate work area for emergency use. Ensure adequate ventilation, especially in confined areas. Handle in accordance with good industrial hygiene and safety practice. Minimise dust generation and accumulation. Avoid breathing vapours/dust and contact with eyes, skin and clothing. Do not ingest. Wear protective gloves/protective clothing/eye protection/face protection (see SECTION 8). WARNING: May form combustible dust concentrations in air (during processing). Keep away from heat, hot surfaces, sparks, open flames and other ignition sources - No smoking. To prevent fire caused by electrostatic discharge, ground and bond container and receiving equipment. Use explosion-proof equipment and non-sparking tools. Take action to prevent static discharges. Avoid release to the environment - Collect spillage (see SECTION 6).
Storage	Store in a cool, dry and well-ventilated place. Protect from direct sunlight. Keep containers tightly closed when not in use - check regularly for spills. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources - No smoking. Keep away from incompatible materials (see SECTION 10) and foodstuff containers. Maintain air gap between stacks/pallets. *Keep dry - reacts with water, may lead to drum rupture.
Container	Keep in the original container.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General	No value assigned for this specific material by Safe Work Australia. DECOMPOSITION PRODUCT: Carbon disulphide (CAS No. 75-15-0): - Safe Work Australia Exposure Standard: TWA = 10 ppm (31 mg/m3); Absorption through the skin may be a significant source of exposure (Sk).
Exposure Limits	No Data Available

Biological Limits	No information available.
Engineering Measures	Use explosion-proof electrical/ventilating/lighting equipment. Ensure ventilation is adequate and that air concentrations of components are controlled below quoted Workplace Exposure Standards. Design equipment to avoid the build up or storage of dust. Explosions are controlled by containment, venting or inerting.
Personal Protection Equipment	- Respiratory protection: If exposure limits are exceeded or if irritation or other symptoms are experienced, wear respiratory protection. Recommended: Use a full-face respirator with multi-purpose combination or type AXBEK respirator cartridges (refer to AS/NZS 1715 & 1716). - Eye/face protection: Wear appropriate eye protection to avoid eye contact. Recommended: Tightly fitting safety goggles. - Hand protection: Wear protective gloves. Recommended: Butyl rubber. - Skin/body protection: Wear appropriate personal protective clothing to avoid skin contact. Recommended: Wear fire/flame resistant/retardant clothing and antistatic boots.
Special Hazards Precaustions	No information available.
Work Hygienic Practices	Do not eat, drink or smoke when using this product. Always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storage or re-use. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Solid
Appearance	Granules, pellets
Odour	Irritant
Colour	Yellowish or laurel-green
pH	No Data Available
Vapour Pressure	No Data Available
Relative Vapour Density	No Data Available
Boiling Point	No Data Available
Melting Point	No Data Available
Freezing Point	No Data Available
Solubility	No Data Available
Specific Gravity	No Data Available
Flash Point	No Data Available
Auto Ignition Temp	No Data Available
Evaporation Rate	No Data Available
Bulk Density	No Data Available
Corrosion Rate	No Data Available
Decomposition Temperature	No Data Available
Density	No Data Available
Specific Heat	No Data Available
Molecular Weight	No Data Available
Net Propellant Weight	No Data Available
Octanol Water Coefficient	No Data Available
Particle Size	No Data Available
Partition Coefficient	No Data Available
Saturated Vapour Concentration	No Data Available
Vapour Temperature	No Data Available
Viscosity	No Data Available
Volatile Percent	No Data Available
VOC Volume	No Data Available

Additional Characteristics	No information available.
Potential for Dust Explosion	Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.
Fast or Intensely Burning Characteristics	Risk of violent reaction or explosion! May burn with rapid flare-burning effect. May decompose explosively when heated or involved in a fire. May re-ignite after fire is extinguished.
Flame Propagation or Burning Rate of Solid Materials	No information available.
Non-Flammables That Could Contribute Unusual Hazards to a Fire	May react vigorously or explosively on contact with water.
Properties That May Initiate or Contribute to Fire Intensity	Spontaneously combustible material. Self-heating; may catch fire.
Reactions That Release Gases or Vapours	Fire/decomposition will produce irritating, corrosive and/or toxic gases, including Carbon disulfide.
Release of Invisible Flammable Vapours and Gases	No information available.

10. STABILITY AND REACTIVITY

General Information	Reacts exothermically on dilution with water. Can react with water producing carbon disulfide.
Chemical Stability	Stable under proper operation and storage conditions.
Conditions to Avoid	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources.
Materials to Avoid	Incompatible/reactive with oxidising agents, combustible materials, acids, water, phosgene, sulfur chlorides, copper, copper alloys.
Hazardous Decomposition Products	Fire/decomposition will produce irritating, corrosive and/or toxic gases, including Carbon disulfide, Hydrogen sulfide, oxide of Sulfur, oxides of Carbon.
Hazardous Polymerisation	Hazardous polymerisation will not occur.

11. TOXICOLOGICAL INFORMATION

General Information

- Acute toxicity: Harmful if swallowed and in contact with skin. Swallowing can result in nausea, vomiting, diarrhoea, abdominal pain, convulsions and loss of consciousness. Death may occur if large amounts are ingested. Will liberate Carbon disulfide upon contact with moist skin. Carbon disulfide can be absorbed through the skin with resultant adverse effects.
- Skin corrosion/irritation: Causes skin irritation. Corrosive to skin in aqueous solution (based on the pH, which is > 11.5 at maximum concentration of 25 % water solution).
- Eye damage/irritation: Causes serious eye irritation. Corrosive to eyes in aqueous solution (based on the pH, which is > 11.5 at maximum concentration of 25 % water solution).
- Respiratory/skin sensitisation: No information available.
- Germ cell mutagenicity: No information available.
- Carcinogenicity: Not listed as carcinogenic according to the International Agency for Research on Cancer (IARC).
- Reproductive toxicity: DECOMPOSITION PRODUCT: Carbon disulfide (CAS No. 75-15-0) Suspected of damaging fertility. Suspected of damaging the unborn child. The weight of evidence on decomposition of the target substance and the measured and estimated exposure of workers during mining application indicates safe use of the substance. Based on this data there is currently no need for classification of potassium isoamyl xanthate concerning toxicity to reproduction or teratogenicity [ECHA].
- STOT (single exposure): Breathing in dust may result in respiratory irritation. Breathing in high concentrations can produce central nervous system depression, which can lead to loss of co-ordination, impaired judgement and if exposure is prolonged,
unconsciousness. Breathing in high concentrations may result in an irregular heart beat and prove suddenly fatal.
- STOT (repeated exposure): Substance accumulation in the human body may occur and may cause some concern following repeated or log-term occupational exposure. DECOMPOSITION PRODUCT: Carbon disulfide (CAS No. 75-15-0) Causes damage to organs through prolonged or repeated exposure if inhaled. The intrinsic properties of potassium

isoamyl xanthate are related to the most hazardous degradation product; carbon disulphide. Based on the observations made after the subchronic carbon disulphide exposures in humans by inhalation route, exposure calculations and measured concentrations in mining processes there is no need for classification of the target substance [ECHA].
- Aspiration toxicity: No information available.

Carcinogen Category	None

12. ECOLOGICAL INFORMATION

Ecotoxicity	Aquatic toxicity: COMPONENT: Potassium amyl xanthate (CAS No. 928-70-1): - LC50, Fish: 217 mg/L (96 h).
Persistence/Degradability	No information available.
Mobility	No information available.
Environmental Fate	Toxic to aquatic life with long lasting effects - Avoid release to the environment.
Bioaccumulation Potential	No information available.
Environmental Impact	No Data Available

13. DISPOSAL CONSIDERATIONS

General Information	Dispose of contents/container in accordance with local/regional/national regulations. The use of incineration disposal recommended for waste chemicals.
Special Precautions for Land Fill	Containers may still present a chemical hazard when empty. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. Recycle, if possible.

14. TRANSPORT INFORMATION

Land Transport (Australia)
ADG Code

Proper Shipping Name	XANTHATES
Class	4.2 Flammable Solids - Substances liable to spontaneous combustion
Subsidiary Risk(s)	No Data Available
EPG	25 Spontaneously Combustible Substances (Air And/Or Water Reactive)
UN Number	3342
Hazchem	1Y
Pack Group	III
Special Provision	No Data Available

Land Transport (Malaysia)
ADR Code

Proper Shipping Name	XANTHATES
Class	4.2 Flammable Solids - Substances liable to spontaneous combustion
Subsidiary Risk(s)	No Data Available
EPG	25 Spontaneously Combustible Substances (Air And/Or Water Reactive)

UN Number	3342
Hazchem	1Y
Pack Group	III
Special Provision	No Data Available

Land Transport (New Zealand)
NZS5433

Proper Shipping Name	XANTHATES
Class	4.2 Flammable Solids - Substances liable to spontaneous combustion
Subsidiary Risk(s)	No Data Available
EPG	25 Spontaneously Combustible Substances (Air And/Or Water Reactive)
UN Number	3342
Hazchem	1Y
Pack Group	III
Special Provision	No Data Available

Land Transport (Papua New Guinea)

Proper Shipping Name	XANTHATES
Class	4.2 Flammable Solids - Substances liable to spontaneous combustion
Subsidiary Risk(s)	No Data Available
EPG	25 Spontaneously Combustible Substances (Air And/Or Water Reactive)
UN Number	3342
Hazchem	1Y
Pack Group	III
Special Provision	No Data Available

Land Transport (United States of America)
US DOT

Proper Shipping Name	XANTHATES
Class	4.2 Flammable Solids - Substances liable to spontaneous combustion
Subsidiary Risk(s)	No Data Available
ERG	135 Substances - Spontaneously Combustible
UN Number	3342
Hazchem	1Y
Pack Group	III
Special Provision	No Data Available

Sea Transport
IMDG Code

Proper Shipping Name	XANTHATES
Class	4.2 Flammable Solids - Substances liable to spontaneous combustion
Subsidiary Risk(s)	No Data Available
UN Number	3342
Hazchem	1Y
Pack Group	III
Special Provision	No Data Available
EMS	F-A, S-J

Marine Pollutant	No

Air Transport
IATA DGR

Proper Shipping Name	XANTHATES
Class	4.2 Flammable Solids - Substances liable to spontaneous combustion
Subsidiary Risk(s)	No Data Available
UN Number	3342
Hazchem	1Y
Pack Group	III
Special Provision	No Data Available

National Transport Commission (Australia)
Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification	Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

15. REGULATORY INFORMATION

General Information	No Data Available
Poisons Schedule (Aust)	Not Scheduled

Environmental Protection Authority (New Zealand)
Hazardous Substances and New Organisms Amendment Act 2015

Approval Code	Not Assessed

National/Regional Inventories

Australia (AIIC)	Listed
Canada (DSL)	Not Determined
Canada (NDSL)	Not Determined
China (IECSC)	Not Determined
Europe (EINECS)	Not Determined
Europe (REACh)	Not Determined
Japan (ENCS/METI)	Not Determined
Korea (KECI)	Not Determined
Malaysia (EHS Register)	Not Determined
New Zealand (NZIoC)	Not Determined
Philippines (PICCS)	Not Determined

Switzerland (Giftliste 1)	Not Determined
Switzerland (Inventory of Notified Substances)	Not Determined
Taiwan (NCSR)	Not Determined
USA (TSCA)	Not Determined

16. OTHER INFORMATION

Related Product Codes	POAMXA1000, POAMXA1001, POAMXA1002, POAMXA1003, POAMXA1004, POAMXA1005, POAMXA1006, POAMXA1007, POAMXA1008, POAMXA1009, POAMXA1010, POAMXA1011, POAMXA1012, POAMXA1013, POAMXA1014, POAMXA1015, POAMXA1016, POAMXA1017, POAMXA1018, POAMXA1019, POAMXA1020, POAMXA1021, POAMXA1022, POAMXA1023, POAMXA1024, POAMXA1025, POAMXA1026, POAMXA1027, POAMXA1028, POAMXA1029, POAMXA1030, POAMXA1031, POAMXA1032, POAMXA1033, POAMXA1034, POAMXA1035, POAMXA1036, POAMXA1200, POAMXA1500, POAMXA2000, POAMXA2001, POAMXA2100, POAMXA2500, POAMXA2600, POAMXA2601, POAMXA3000, POAMXA3001, POAMXA4000, POAMXA4500, POAMXA5000, POAMXA5100, POAMXA5500, POAMXA6000, POAMXA7000, POAMXA8000, POAMXA8001, POAMXA8002, POAMXA8600, POAMXA8649, POAMXA8650, POAMXA8651, POAMXA8652, POAMXA8655, POAMXA8656, POAMXA8660, POAMXA8670, POAMXA8677, POAMXA8700, POAMXA8701, POAMXA9000, POAMXA9001, POAMXA9002, POAMXA9500, POAMXA9600, POAMXA9700
Revision	4
Revision Date	20 Aug 2021
Reason for Issue	SDS updated
Key/Legend	< Less Than > Greater Than **AICS** Australian Inventory of Chemical Substances **atm** Atmosphere **CAS** Chemical Abstracts Service (Registry Number) **cm^2** Square Centimetres **CO2** Carbon Dioxide **COD** Chemical Oxygen Demand **deg C (°C)** Degrees Celcius **EPA (New Zealand)** Environmental Protection Authority of New Zealand **deg F (°F)** Degrees Farenheit **g** Grams **g/cm^3** Grams per Cubic Centimetre **g/l** Grams per Litre **HSNO** Hazardous Substance and New Organism **IDLH** Immediately Dangerous to Life and Health **immiscible** Liquids are insoluable in each other. **inHg** Inch of Mercury **inH2O** Inch of Water **K** Kelvin **kg** Kilogram **kg/m^3** Kilograms per Cubic Metre **lb** Pound **LC50** LC stands for lethal concentration. LC50 is the concentration of a material in air which causes the death of 50% (one half) of a group of test animals. The material is inhaled over a set period of time, usually 1 or 4 hours. **LD50** LD stands for Lethal Dose. LD50 is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals. **ltr** or **L** Litre **m^3** Cubic Metre **mbar** Millibar **mg** Milligram **mg/24H** Milligrams per 24 Hours **mg/kg** Milligrams per Kilogram **mg/m^3** Milligrams per Cubic Metre **Misc** or **Miscible** Liquids form one homogeneous liquid phase regardless of the amount of either component present.

mm Millimetre
mmH2O Millimetres of Water
mPa.s Millipascals per Second
N/A Not Applicable
NIOSH National Institute for Occupational Safety and Health
NOHSC National Occupational Heath and Safety Commission
OECD Organisation for Economic Co-operation and Development
Oz Ounce
PEL Permissible Exposure Limit
Pa Pascal
ppb Parts per Billion
ppm Parts per Million
ppm/2h Parts per Million per 2 Hours
ppm/6h Parts per Million per 6 Hours
psi Pounds per Square Inch
R Rankine
RCP Reciprocal Calculation Procedure
STEL Short Term Exposure Limit
TLV Threshold Limit Value
tne Tonne
TWA Time Weighted Average
ug/24H Micrograms per 24 Hours
UN United Nations
wt Weight