Thermo Fisher SCIENTIFIC

SAFETY DATA SHEET

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ALFAAL15111

Potassium tert-pentyloxide, 25% w/w in toluene

SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

产品说明: 叔戊醇钾,25% w/w 甲苯溶液

Product Description: Potassium tert-pentyloxide, 25% w/w in toluene

Cat No. : L15111
Molecular Formula C5 H11 KO

Supplier Avocado Research Chemicals Ltd.

(Part of Thermo Fisher Scientific)

Shore Road, Heysham Lancashire, LA3 2XY, United Kingdom

Office Tel: +44 (0) 1524 850506 Office Fax: +44 (0) 1524 850608

Emergency Telephone Number For information US call: 001-800-227-6701 / Europe call: +32 14 57 52 11

Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99 **CHEMTREC** Tel. No. **US**:001-800-424-9300 / **Europe**:001-703-527-3887

E-mail address begel.sdsdesk@thermofisher.com

Recommended Use Laboratory chemicals.
Uses advised against No Information available

SECTION 2. HAZARD IDENTIFICATION

Physical State Appearance Odor
Liquid No information available No information available

Emergency Overview

Highly flammable liquid and vapor. May be fatal if swallowed and enters airways. Suspected of damaging fertility or the unborn child. May cause drowsiness and dizziness. Toxic to aquatic life. Harmful to aquatic life with long lasting effects. Causes severe skin burns and eye damage. May cause damage to organs through prolonged or repeated exposure. Reacts violently with water.

Moisture sensitive. Air sensitive.

Classification of the substance or mixture

Flammable liquids.	Category 2
Aspiration Toxicity	Category 1
Skin Corrosion/Irritation	Category 1 B
Serious Eye Damage/Eye Irritation	Category 1
Reproductive Toxicity	Category 2
Specific target organ toxicity - (single exposure)	Category 3
Specific target organ toxicity - (repeated exposure)	Category 2
Acute aquatic toxicity	Category 2
Chronic aquatic toxicity	Category 3

Label Elements

Potassium tert-pentyloxide, 25% w/w in toluene



Signal Word

Danger

Hazard Statements

- H225 Highly flammable liquid and vapor
- H304 May be fatal if swallowed and enters airways
- H336 May cause drowsiness or dizziness
- H401 Toxic to aquatic life
- H412 Harmful to aquatic life with long lasting effects
- H314 Causes severe skin burns and eye damage
- H373 May cause damage to organs through prolonged or repeated exposure
- H361 Suspected of damaging fertility or the unborn child

Precautionary Statements

Prevention

- P201 Obtain special instructions before use
- P202 Do not handle until all safety precautions have been read and understood
- P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
- P240 Ground and bond container and receiving equipment
- P242 Use non-sparking tools
- P243 Take action to prevent static discharges
- P260 Do not breathe dust/fume/gas/mist/vapors/spray
- P264 Wash face, hands and any exposed skin thoroughly after handling
- P271 Use only outdoors or in a well-ventilated area
- P280 Wear protective gloves/protective clothing/eye protection/face protection

Response

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower

P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing

P330 - Rinse mouth

P310 - Immediately call a POISON CENTER or doctor

P331 - Do NOT induce vomiting

P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish

P362 + P364 - Take off contaminated clothing and wash it before reuse

Storage

P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

Disposal

P501 - Dispose of contents/ container to an approved waste disposal plant

Physical and Chemical Hazards

Vapors may cause flash fire or explosion. Highly flammable. Reacts violently with water.

Health Hazards

Aspiration hazard if swallowed - can enter lungs and cause damage. Suspected of damaging fertility or the unborn child. May cause drowsiness or dizziness. Corrosive. Causes skin and eye burns. May cause damage to organs through prolonged or repeated exposure.

Environmental hazards

Toxic to aquatic life. Harmful to aquatic life with long lasting effects. Reacts violently with water. Is not likely mobile in the environment due its low water solubility. Spillage unlikely to penetrate soil. The product is insoluble and floats on water.

Toxic to terrestrial vertebrates. This product does not contain any known or suspected endocrine disruptors.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CACNE	Mainlet 0/
Component	CAS NO	weight %

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Toluene	108-88-3	75
2-Butanol, 2-methyl-, potassium salt	41233-93-6	25

SECTION 4. FIRST AID MEASURES

General Advice

Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Eye Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

Skin Contact

Wash off immediately with plenty of water for at least 15 minutes. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Call a physician immediately.

Inhalation

If not breathing, give artificial respiration. Remove from exposure, lie down. 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. Call a physician immediately. Risk of serious damage to the lungs (by aspiration).

Ingestion

Do NOT induce vomiting. Clean mouth with water. Never give anything by mouth to an unconscious person. Call a physician immediately. Call a physician or poison control center immediately. If vomiting occurs naturally, have victim lean forward.

Most important symptoms and effects

Causes burns by all exposure routes. Difficulty in breathing. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

Self-Protection of the First Aider

Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

Notes to Physician

Treat symptomatically. Symptoms may be delayed.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Dry sand. Carbon dioxide (CO₂). Powder. Do not use water or foam. CO₂, dry chemical, dry sand, alcohol-resistant foam. Water mist may be used to cool closed containers.

Extinguishing media which must not be used for safety reasons

Water.

Specific Hazards Arising from the Chemical

Thermal decomposition can lead to release of irritating gases and vapors. The product causes burns of eyes, skin and mucous membranes. Reacts violently with water. Flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

SECTION 6. ACCIDENTAL RELEASE MEASURES

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Personal Precautions

Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Remove all sources of ignition. Take precautionary measures against static discharges.

Environmental Precautions

Do not flush into surface water or sanitary sewer system.

Methods for Containment and Clean Up

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Do not expose spill to water. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

Refer to protective measures listed in Sections 8 and 13.

SECTION 7. HANDLING AND STORAGE

Handling

Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance. Do not allow contact with water. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Take precautionary measures against static discharges.

Storage

Corrosives area. Keep away from water or moist air. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks and flame.

Specific Use(s)

Use in laboratories

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Component	China	Taiwan	Thailand	Hong Kong
Toluene	TWA: 50 mg/m ³	TWA: 100 ppm	Ceiling: 300 ppm	TWA: 50 ppm
	STEL: 100 mg/m ³	TWA: 376 mg/m ³	STEL: 500 ppm	TWA: 188 mg/m ³
	Skin		TWA: 200 ppm	

Component	ACGIH TLV	OSHA PEL	NIOSH	The United Kingdom	European Union
Toluene	TWA: 20 ppm	(Vacated) TWA: 100	IDLH: 500 ppm	STEL: 100 ppm 15 min	TWA: 50 ppm (8hr)
		ppm	TWA: 100 ppm	STEL: 384 mg/m ³ 15	TWA: 192 mg/m ³ (8hr)
		(Vacated) TWA: 375	TWA: 375 mg/m ³	min	STEL: 100 ppm
		mg/m³	STEL: 150 ppm	TWA: 50 ppm 8 hr	(15min)
		Ceiling: 300 ppm	STEL: 560 mg/m ³	TWA: 191 mg/m ³ 8 hr	STEL: 384 mg/m ³
		(Vacated) STEL: 150		Skin	(15min)
		ppm			Skin
		(Vacated) STEL: 560			
		mg/m³			
		TWA: 200 ppm			

<u>Legend</u>

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH: NIOSH - National Institute for Occupational Safety and Health

Monitoring methods

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents. MDHS70 General methods for sampling airborne gases and vapours MDHS 88 Volatile organic compounds in air. Laboratory method using diffusive samplers, solvent desorption and gas chromatography MDHS 96 Volatile organic compounds in air - Laboratory method using pumped solid sorbent tubes, solvent desorption and gas

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chromatography

Exposure Controls

Engineering Measures

Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating/lighting equipment. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source.

Personal protective equipment

Eye Protection Goggles (European standard - EN 166)

Hand Protection Protective gloves

ſ	Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
	Nitrile rubber	See manufacturers	-	EN 374	(minimum requirement)
	Viton (R)	recommendations			

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

Skin and body protection Long sleeved clothing

Respiratory Protection When workers are facing concentrations above the exposure limit they must use

appropriate certified respirators.

To protect the wearer, respiratory protective equipment must be the correct fit and be used

and maintained properly

Large scale/emergency use Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits

are exceeded or if irritation or other symptoms are experienced

Recommended Filter type: low boiling organic solvent Type AX Brown conforming to EN371 or Organic gases and vapours filter Type A Brown conforming to EN14387

Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure Small scale/Laboratory use

limits are exceeded or if irritation or other symptoms are experienced.

Recommended half mask:- Valve filtering: EN405; or; Half mask: EN140; plus filter, EN

When RPE is used a face piece Fit Test should be conducted

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

Environmental exposure controls Prevent product from entering drains. Do not allow material to contaminate ground water

system.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Liquid **Physical State**

No information available Odor No data available **Odor Threshold** No information available pН Melting Point/Range No data available **Softening Point** No data available

Boiling Point/Range No information available 4 °C / 39.2 °F Flash Point

Method - No information available

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Vapors may form explosive mixtures with air

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Evaporation Rate No data available

Flammability (solid,gas) Not applicable Liquid

Explosion Limits

No data available

23 hPa @ 20 °C **Vapor Pressure**

Vapor Density No data available (Air = 1.0)0.87 g/cm3 @ 20 °C Specific Gravity / Density **Bulk Density** Not applicable Liquid

Water Solubility Immiscible

Solubility in other solvents No information available

Partition Coefficient (n-octanol/water)

Component log Pow Toluene 2.73

Autoignition Temperature No data available **Decomposition Temperature** No data available **Viscosity** No data available

Explosive Properties

Oxidizing Properties No information available

Molecular Formula C5 H11 KO **Molecular Weight** 126.24

SECTION 10. STABILITY AND REACTIVITY

Stability Air sensitive. Moisture sensitive.

Hazardous Reactions None under normal processing. Reacts violently with water.

Hazardous Polymerization No information available.

Conditions to Avoid Exposure to moist air or water. Exposure to moisture. Keep away from open flames, hot

surfaces and sources of ignition.

Materials to avoid Oxidizing agent.

Hazardous Decomposition Products Carbon monoxide (CO). Carbon dioxide (CO2). Potassium oxides.

SECTION 11. TOXICOLOGICAL INFORMATION

Product Information

(a) acute toxicity;

Toxicology data for the components

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation		
Toluene	> 5000 mg/kg (Rat)	LD50 = 12000 mg/kg (Rabbit)	26700 ppm (Rat) 1 h		

(b) skin corrosion/irritation; Category 1 B

(c) serious eye damage/irritation; Category 1

(d) respiratory or skin sensitization;

No data available Respiratory No data available Skin

No data available (e) germ cell mutagenicity;

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(f) carcinogenicity; No data available

There are no known carcinogenic chemicals in this product

Category 2 (g) reproductive toxicity;

Category 3 (h) STOT-single exposure;

Central nervous system (CNS) Results / Target organs

(i) STOT-repeated exposure; Category 2

Neuropsychological effects, Eyes, Ears. **Target Organs**

(j) aspiration hazard; Category 1

delayed

Symptoms / effects,both acute and Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

SECTION 12. ECOLOGICAL INFORMATION

The product contains following substances which are hazardous for the environment. **Ecotoxicity effects**

Contains a substance which is:. Toxic to aquatic organisms.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Toluene	50-70 mg/L LC50 96 h	EC50: = 11.5 mg/L, 48h	EC50: = 12.5 mg/L, 72h	EC50 = 19.7 mg/L 30
	5-7 mg/L LC50 96 h	(Daphnia magna)	static	min
	15-19 mg/L LC50 96 h	EC50: 5.46 - 9.83 mg/L,	(Pseudokirchneriella	
	28 mg/L LC50 96 h	48h Static (Daphnia	subcapitata)	
	12 mg/L LC50 96 h	magna)	EC50: > 433 mg/L, 96h	
			(Pseudokirchneriella	
			subcapitata)	

Persistence and Degradability

Immiscible with water. **Persistence**

Component		Degradability
	Toluene	86% (20d)
	109 99 2 (75)	

Degradation in sewage treatment plant

Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

Bioaccumulative Potential May have some potential to bioaccumulate

Component	log Pow	Bioconcentration factor (BCF)
Toluene	2.73	90

Mobility in soil Spillage unlikely to penetrate soil The product is insoluble and floats on water Is not likely

mobile in the environment due its low water solubility

Endocrine Disruptor Information Persistent Organic Pollutant Ozone Depletion Potential

This product does not contain any known or suspected endocrine disruptors

This product does not contain any known or suspected substance This product does not contain any known or suspected substance

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SECTION 13. DISPOSAL CONSIDERATIONS

Waste from Residues/Unused

Products

Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

Contaminated Packaging

Dispose of this container to hazardous or special waste collection point. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep product and empty container away from heat and sources of ignition.

Other Information

Do not flush to sewer. Waste codes should be assigned by the user based on the application for which the product was used. Can be landfilled or incinerated, when in compliance with local regulations. Do not empty into drains. Large amounts will affect pH and harm aquatic organisms.

SECTION 14. TRANSPORT INFORMATION

Road and Rail Transport

UN-No UN2924

Proper Shipping Name Flammable liquid, corrosive, n.o.s. **Technical Shipping Name** (Potassium tert-pentyloxide, TOLUENE)

Hazard Class

Subsidiary Hazard Class 8 **Packing Group** Ш

IMDG/IMO

UN2924 **UN-No**

Proper Shipping Name Flammable liquid, corrosive, n.o.s. **Technical Shipping Name** (Potassium tert-pentyloxide, TOLUENE) 3

Hazard Class

8 **Subsidiary Hazard Class Packing Group** Ш

IATA

UN-No UN2924

Proper Shipping Name Flammable liquid, corrosive, n.o.s. **Technical Shipping Name** (Potassium tert-pentyloxide, TOLUENE)

Hazard Class 3 **Subsidiary Hazard Class**

8 **Packing Group** Ш

No special precautions required **Special Precautions for User**

SECTION 15. REGULATORY INFORMATION

International Inventories

X = listed, China (IECSC), Europe (EINECS/ELINCS/NLP), U.S.A. (TSCA), Canada (DSL/NDSL), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), Korea (KECL).

Component	The Inventory of Hazardous Chemicals (2015 Edition)		TCSI	IECSC	EINECS	TSCA	DSL	PICCS	ENCS	ISHL	AICS	KECL
Toluene	Χ	X	X	Χ	203-625-9	Χ	Χ	Χ	Х	Χ	Χ	KE-33936
2-Butanol, 2-methyl-,	-	-	Χ	-	255-272-5	Х	-	-	X	Х	-	KE-29102

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	 	,	 ,	 	 	 	
potassium salt							

National Regulations

SECTION 16. OTHER INFORMATION

Prepared By Health, Safety and Environmental Department

Revision Date 09-May-2024

Revision Summary New emergency telephone response service provider.

Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

Fire prevention and fighting, identifying hazards and risks, static electricity, explosive atmospheres posed by vapours and dusts. Chemical incident response training.

Legend

CAS - Chemical Abstracts Service

TSCA - United States Toxic Substances Control Act Section 8(b)

Substances/EU List of Notified Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

IECSC - Chinese Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

EINECS/ELINCS - European Inventory of Existing Commercial Chemical DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

ENCS - Japanese Existing and New Chemical Substances

AICS - Australian Inventory of Chemical Substances NZIoC - New Zealand Inventory of Chemicals

WEL - Workplace Exposure Limit

ACGIH - American Conference of Governmental Industrial Hygienists

DNEL - Derived No Effect Level

RPE - Respiratory Protective Equipment

LC50 - Lethal Concentration 50%

NOEC - No Observed Effect Concentration

PBT - Persistent, Bioaccumulative, Toxic

TWA - Time Weighted Average

IARC - International Agency for Research on Cancer

PNEC - Predicted No Effect Concentration

LD50 - Lethal Dose 50%

EC50 - Effective Concentration 50%

POW - Partition coefficient Octanol:Water

vPvB - very Persistent, very Bioaccumulative

ICAO/IATA - International Civil Aviation Organization/International Air **Transport Association**

ADR - European Agreement Concerning the International Carriage of

Dangerous Goods by Road

OECD - Organisation for Economic Co-operation and Development

BCF - Bioconcentration factor

IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code

MARPOL - International Convention for the Prevention of Pollution from

Ships

ATE - Acute Toxicity Estimate

VOC - (Volatile Organic Compound)

Key literature references and sources for data

https://echa.europa.eu/information-on-chemicals

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Physical hazards On basis of test data Calculation method **Health Hazards Environmental hazards** Calculation method

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, ALFAAL15111

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transportation, disposal and release and is not to be considered a warranty or quality specification. The 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, unless specified in the text

End of Safety Data Sheet