SAFETY DATA SHEET

Australian statement of hazardous nature : Classified as hazardous according to criteria of Safe Work Australia

Section 1 - Identification

Product Name **Pyridoxal phosphate**

Product Code	**CDK984632, CDK984633**
Address	ThermoFisher Scientific Australia Pty Ltd 5 Caribbean Drive, Scoresby VICTORIA 3179, Australia
Emergency Tel.	**CHEMTREC®** **03 9757 4559 or +613 9757 4559**
Telephone / Fax Numbers	Tel: 1300 735 292 Fax: 1800 067 639
E-mail address	ANZinfo@thermofisher.com

Recommended Use Laboratory chemicals.

Uses advised against This product does not contain any substance(s) on the Illicit Drug Precursors/Reagents list. This product does not contain any substance(s) subject to Prohibition, Authorization or Restriction. This product does not contain any substance(s) listed on the voluntary National Code of Practice for Chemicals of Security Concern.

Section 2 - Hazard(s) Identification

Classification under Safe Work Australia

Classified as hazardous according to criteria of Safe Work Australia

Physical hazards
Flammable liquids — Category 3

Health hazards
No hazards identified

Environmental hazards
No hazards identified

Label Elements

Contains Ethanol

Flame

Signal Word **Warning**

Hazard Statements
H226 - Flammable liquid and vapor

Precautionary Statements
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P233 - Keep container tightly closed
P240 - Ground and bond container and receiving equipment
P242 - Use non-sparking tools
P243 - Take action to prevent static discharges
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 or shower
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 information
No information available
This product does not contain any known or suspected endocrine disruptors

Section 3 - Composition and Information on Ingredients

Component	CAS No	Weight %
Ethyl alcohol	64-17-5	10 - 30 %

Section 4 - First Aid Measures

Inhalation Remove to fresh air. Get medical attention if symptoms occur. If not breathing, give artificial respiration.

Ingestion Clean mouth with water and drink afterwards plenty of water.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

General Advice If symptoms persist, call a physician.

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.

First Aid Facilities Eyewash, safety shower and washroom.

Most important symptoms and effects None reasonably foreseeable. . Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

Notes to Physician No information available.

Section 5 - Fire Fighting Measures

Suitable Extinguishing Media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Foam. Carbon dioxide (CO2). Water mist may be used to cool closed containers.

Extinguishing media which must not be used for safety reasons
Water.

Hazardous Decomposition Products
None under normal use conditions.

Specific Hazards Arising from the Chemical
Flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.

Special protective equipment and precautions for fire fighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

Section 6 - Accidental Release Measures

Emergency procedures
Ensure adequate ventilation. Use personal protective equipment as required. 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

Clean-up methods - small spillage
Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

Clean-up methods - large spillage
Typically only supplied is small quantiites as packaged goods.
If extremely toxic or used in larger quantities ensure a spillage action plan is in place. Evacuate area. Control the source and/or contain the spill if safe and able to do so. Use temporary diking, sand bags, dry sand, earth or proprietary booms/absorbent pads if available. Obtain advice on containment, neutralisation and clean-up from local emergency responders.

Reference to Other Sections
Refer to protective measures listed in Sections 8 and 13.

Section 7 - Handling and Storage

Precautions for Safe Handling
Ensure adequate ventilation. Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Take precautionary measures against static discharges.

Conditions for Safe Storage, Including any Incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Keep at temperatures between 15°C and 25 °C. Keep away from heat, sparks and flame.

AS/NZS 2243.10:2004, Safety in laboratories - Storage of chemicals
AS 1940-2004 - The storage and handling of flammable and combustible liquids

Section 8 - Exposure Controls and Personal Protection

Exposure limits
AUS - Exposure Standards for Atmospheric Contaminants in the Occupational Environment - Guidance Note on the Interpretation of Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:3008(1995)]

Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:1003(1995)] updated in August, 2005. Safe Work Australia
ACGIH - Threshold Limit Values - Ceiling (TLV-C) guidelines by the American Conference of Governmental Industrial Hygienists (ACGIH) for controlling worker exposure to airborne chemical concentrations in the workplace.
UK - EH40/2005 Work Exposure Limits, Fourth edition. Published 2020.
DE - MAK and BAT values of Hazardous Chemical Compounds in the Work Area. Published by German Research Foundation on July 1, 2011
NZ - Workplace Exposure Standards and Biological Exposure Indices (6th edition). New Zealand Department of Labor

Component	Australia	New Zealand WEL	ACGIH TLV	The United Kingdom	Germany
Ethyl alcohol	TWA: 1000 ppm TWA: 1880 mg/m^3	TWA: 1000 ppm TWA: 1880 mg/m^3	STEL: 1000 ppm	TWA: 1000 ppm TWA; 1920 mg/m^3 TWA WEL - STEL: 3000 ppm STEL; 5760 mg/m^3 STEL	200 ppm TWA MAK; 380 mg/m^3 TWA MAK

Biological limit values
This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

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 (Australian/New Zealand Standard AS/NZS 1337 - Eye protectors for Industrial applications)

Hand Protection — Protective gloves

Glove material	Breakthrough time	Glove thickness	AUS/NZ Standard	Glove comments
Disposable gloves	See manufacturers recommendations	-	AS/NZS 2161	(minimum requirement)

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

Repiratory Protection — Use an AS/NZS 1716 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained in line with AS/NZS 1715 on the use and maintenance of repiratory protective devices (or AUS/NZ equivalent)
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

Information on basic physical and chemical properties

Appearance	Light green	
Physical State	Liquid	
Odor	Alcohol	
Odor Threshold	No data available	
pH	Not applicable	
Melting Point/Range	No data available	
Softening Point	No data available	
Boiling Point/Range	Not applicable	
Flash Point	Not applicable °C	**Method -** No information available
Evaporation Rate	No data available	
Flammability (solid,gas)	Not applicable	Liquid
Explosion Limits	No data available	
Vapor Pressure	2728 Pa @ 20 °C	
Vapor Density	No data available	(Air = 1.0)
Specific Gravity / Density	973 kg/m³	
Bulk Density	Not applicable	Liquid
Water Solubility	No information available	
Solubility in other solvents	No information available	
Partition Coefficient (n-octanol/water)		
Component	**log Pow**	
Ethyl alcohol	-0.32	
Autoignition Temperature	423 °C / 793.4 °F	
Decomposition Temperature	No data available	
Viscosity	No data available	
Explosive Properties		explosive air/vapour mixtures possible
Oxidizing Properties	No information available	

Other information

Section 10 - Stability and Reactivity

Reactivity There are no known reactivity hazards associated with this product

Stability Stable under normal conditions.

Conditions to Avoid Ignitions sources - heat, sparks and open flames, Keep away from open flames, hot surfaces and sources of ignition.

Incompatible Materials Combustible material, Oxidizing agent.

Hazardous Decomposition Products None under normal use conditions.

Hazardous Polymerization

Section 11 - Toxicological Information

Information on Toxicological Effects

Product Information Product does not present an acute toxicity hazard based on known or supplied information

(a) acute toxicity;

Oral Not classified
Based on available data, the classification criteria are not met

Dermal Not classified

Inhalation Not classified

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Ethyl alcohol	LD50 = 10470 mg/kg OECD 401 (Rat) 3450 mg/kg (Mouse)		LC50 = 117-125 mg/l (4h) OECD 403 (rat) 20000 ppm/10H (rat)

(b) skin corrosion/irritation; Not classified

(c) serious eye damage/irritation; Category 2

(d) respiratory or skin sensitization;

Respiratory Not classified

Skin Not classified

Component	Test method	Test species	Study result
Ethyl alcohol 64-17-5 (10 - 30 %)	Mouse Ear Swelling Test (MEST) --- OECD Test Guideline 429 Local Lymph Node Assay	mouse --- mouse	non-sensitising --- non-sensitising

(e) germ cell mutagenicity; Not classified

Component	Test method	Test species	Study result
Ethyl alcohol 64-17-5 (10 - 30 %)	AMES test OECD Test Guideline 471 --- Gene cell mutation OECD Test Guideline 476	in vitro Bacteria --- in vitro Mammalian	negative --- negative

(f) carcinogenicity; Not classified

The table below indicates whether each agency has listed any ingredient as a carcinogen

(g) reproductive toxicity; Not classified

Component	Test method	Test species / Duration	Study result
Ethyl alcohol 64-17-5 (10 - 30 %)	OECD Test Guideline 416 --- OECD Test Guideline 414	Oral / mouse 2 Generation --- Inhalation / Rat	NOAEL = 13.8 g/kg/day --- NOAEC = 16000 ppm

(h) STOT-single exposure; Category 3

Results / Target organs Central nervous system (CNS)

(i) STOT-repeated exposure; Not classified

Target Organs None known.

(j) aspiration hazard; Not classified

Symptoms / effects,both acute and delayed Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

Section 12 - Ecological Information

Ecotoxicity effects Contains a substance which is:. Toxic to aquatic organisms. The product contains following substances which are hazardous for the environment.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Ethyl alcohol	Fathead minnow (Pimephales promelas) LC50 = 14200 mg/l/96h	EC50 = 9268 mg/L/48h EC50 = 10800 mg/L/24h	EC50 (72h) = 275 mg/l (Chlorella vulgaris)	Photobacterium phosphoreum:EC50 = 34634 mg/L/30 min Photobacterium

				phosphoreum:EC50 = 35470 mg/L/5 min

Persistence and Degradability No information available

Component	Degradability
Ethyl alcohol 64-17-5 (10 - 30 %)	OECD 301E = 94%

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

Bioaccumulative Potential No information available

Component	log Pow	Bioconcentration factor (BCF)
Ethyl alcohol	-0.32	No data available

Mobility No information available.

Endocrine Disruptor Information This product does not contain any known or suspected endocrine disruptors

Persistent Organic Pollutant This product does not contain any known or suspected substance

Ozone Depletion Potential This product does not contain any known or suspected substance

Section 13 - Disposal Considerations

Waste from Residues/Unused Products Do not allow into drains or watercourses or dispose of where ground or surface waters may be affected. Wastes, including emptied containers, are controlled wastes and should be disposed of in accordance with all federal, E.P.A., state and local regulations. Assure conformity with all applicable 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 Chemical wastes should be disposed through a licensed commercial waste collection service. 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.

Section 14 - Transport Information

IMDG/IMO

UN-No UN1993
Proper Shipping Name Flammable liquid, n.o.s. Ethanol (Ethyl alcohol) (Mixture)
Hazard Class 3
Packing Group III

ADG

UN-No UN1993
Proper Shipping Name Flammable liquid, n.o.s. Ethanol (Ethyl alcohol) (Mixture)
Hazard Class 3
Packing Group III

Component	Hazchem Code
Ethyl alcohol 64-17-5 (10 - 30 %)	2YE 2Y

IATA

UN-No UN1993
Proper Shipping Name Flammable liquid, n.o.s. Ethanol solution (Mixture)
Hazard Class 3
Packing Group III

Environmental hazards No hazards identified

Special Precautions No special precautions required

Additional information None known

Section 15 - Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture

National Regulations **Australia**

See section 8 for national exposure control parameters.

Standard for the Uniform Scheduling of Medicines and Poisons
No poison schedule number allocated.

Australian Industrial Chemicals Introduction Scheme (AICIS)

Component	Australian Industrial Chemicals Introduction Scheme (AICIS)	Additional information
Ethyl alcohol - 64-17-5	Present	-

Australian - Illicit Drug Precursors/Reagents Substance List
This product does not contain any substance(s) on the Illicit Drug Precursors/Reagents list.

Chemicals of Security Concern
This product does not contain any substance(s) listed on the voluntary National Code of Practice for Chemicals of Security Concern

National pollutant inventory Subject to reporting requirements

Component	National pollutant inventory
Ethyl alcohol - 64-17-5	10 tonne/yr. Threshold category 1

Prohibition or notification/licensing requirements
Shown below are details of specific prohibition/notifications or licencing requirements when they apply.

This product does not contain any substance(s) subject to Prohibition, Authorization or Restriction.

International Inventories

Component	AICS	NZIoC	EINECS	ELINCS	TSCA	DSL	NDSL	PICCS	ENCS	ISHL	IECSC	KECL
Ethyl alcohol	X	X	200-578-6	-	X	X	-	X	X	X	X	KE-13217

Legend: X - Listed. '-' - Not Listed. **KECL** - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

International Regulations

Ozone Depletion Potential This product does not contain any known or suspected substance

Persistent Organic Pollutant This product does not contain any known or suspected substance

Rotterdam Convention (PIC) Not applicable

Basel convention on the control of transboundary movements of hazardous wastes and their dispoal
Take note that wastes may be subject to export, import, or transit controls pursuant to the Basel convention and/or local regulations implementing the Basel convention.

Component	Basel Convention (Hazardous Waste)	Australian Hazardous Waste Act - Categories of Wastes to Be Controlled
Ethyl alcohol - 64-17-5	Annex I - Y42	Y42 except Halogenated solvents

Component	CAS No	OECD HPV	Restriction of Hazardous Substances (RoHS)	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements
Ethyl alcohol	64-17-5	Listed	Not applicable	Not applicable	Not applicable

Authorisation/Restrictions according to EU REACH Not applicable

Section 16 - Other Information

Legend

AICS - Australian Inventory of Chemical Substances
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
IECSC - Chinese Inventory of Existing Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
TWA - Time Weighted Average
IARC - International Agency for Research on Cancer
ICAO/IATA - International Civil Aviation Organization/International Air Transport Association
MARPOL - International Convention for the Prevention of Pollution from Ships
NZS 5433:2020 - Transport of Dangerous Goods on Land
LD50 - Lethal Dose 50%
EC50 - Effective Concentration 50%
WEL - Workplace Exposure Limit
DNEL - Derived No Effect Level
POW - Partition coefficient Octanol:Water
vPvB - very Persistent, very Bioaccumulative
VOC - (Volatile Organic Compound)

NZIoC - New Zealand Inventory of Chemicals
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
ENCS - Japanese Existing and New Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
CAS - Chemical Abstracts Service
ACGIH - American Conference of Governmental Industrial Hygienists Predicted No Effect Concentration (PNEC)
IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code
ADG - Australian Code for the Transport of Dangerous Goods by Road and Rail
OECD - Organisation for Economic Co-operation and Development
LC50 - Lethal Concentration 50%
ATE - Acute Toxicity Estimate
RPE - Respiratory Protective Equipment
NOEC - No Observed Effect Concentration
BCF - Bioconcentration factor
PBT - Persistent, Bioaccumulative, Toxic

Key literature references and sources for data
https://echa.europa.eu/information-on-chemicals
Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

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

Revision Date 14-Jul-2023
Revision Summary Update to GHS format.

This Safety Data Sheet (SDS) is prepared in accordance to and complies with the requirements of Safe Work Australia - Work Health and Safety Regulations (WHS Regulations).

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, 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