SAFETY DATA SHEET

1. Identification

Product Name : **KP-140® Tributoxyethyl Phosphate (TBEP)**

Recommended use of chemical : Used as a plasticizer for resins and elastomers, in floor finishes and waxes, as a flame retardant, as a plasticizer for rubber stoppers in blood specimen containers. and as a fire-resistant and light-stable plasticizer for products.
PC I: Adhesives, sealants.
PC 9a: Coatings and paints, thinners, paint removers.
PC 14: Metal surface treatment products.
PC 17: Hydraulic fluids.
PC 19: Intermediate.
PC 24: Lubricants. Greases, release products.
PC 25: Metal working fluids.
PC 26: Paper and board treatment products.
PC 27: Plant protection products.
PC 3 1: Polishes and wax blends.
PC 32: Polymer preparations and compounds.
PC 34: Textile dyes, and impregnating products.
PC 35: Washing and cleaning products.
SU 0: Other: Industrial.
SU I: Agriculture, forestry, and fishing.
SU 5: Manufacture of textiles, leather, fur.
SU 6b: Manufacture of pulp, paper, and paper products.
SU 9: Manufacture of fine chemicals.
SU I 0: Formulation [mixing] of preparations and/or re-packaging (excluding alloys).
SU 12: Manufacture of plastics products, including compounding and conversion.
SU I 5: Manufacture of fabricated metal products, except machinery and equipment.
SU 16: Manufacture of computer, electronic and optical products, electrical equipment.
SU 17: General manufacturing, e.g., machinery, equipment, vehicles, other transport equipment.
SU 18: Manufacture of furniture.
SU 19: Building and construction work.

Restrictions on use : Not available

Name and address of the supplier : IndSpyre Solutions, Inc.
1755 North Brown Road, Suite 350
Lawrenceville, GA, US 30043

Supplier's telephone number : (470) 749-9990

24 Hr. Emergency telephone number : (800) 424-9300 (CHEMTREC)

2. Hazard(s) Identification

Classification of the chemical

According to REGULATION (EC) No 1272/2008, based on available data, the classification criteria are not met.
REGULATION (EC) No 1272/2008

Hazard classes/Hazard categories : Not classified
Hazard codes : N/A

Label Elements:

Hazard pictogram(s) : No hazard pictogram is used.
Signal word(s) : No signal word is used.
Hazard statement : Not applicable.
Precautionary statement(s) : Not applicable.
Supplemental hazard information (EU) : Not applicable.

Other Hazards:

The substance is not PBT/vPvB.
The substance is not identified as having endocrine disrupting properties.

3. Composition/Information on Ingredients

Chemical Nature : Tributoxyethyl Phosphate

Hazardous Components

Chemical Name	Registration No.	CAS No.	EC No.	Percent by Weight
Ethanol, 2-butoxy-, 1,1′,1″ - phosphate	01 -21 I 9485835-23-0004	78-51-3	201-122-9	98 – 100%

4. First Aid Measures

Description of First Aid Measures : In all cases of doubt, or when symptoms persist, seek medical attention.

Eye Contact : Remove contact lenses. Hold eyelids apart and flush immediately with water for at least 15 minutes. Seek medical attention.

Ingestion : Rinse mouth. Give water to drink. Induce vomiting. Never induce vomiting in unconscious or confused persons. Always seek medical advice.

Inhalation : Move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek medical attention if irritation develops or persists.

Skin Contact : Remove contaminated clothing and shoes. Wash thoroughly with soap and water. If feel unwell, seek medical advice.

Most Important Symptoms and Effects, Both Acute and Delayed:

The product is not classified as harmful to human health effect.

Indication of any Immediate Medical Attention and Special Treatment Needed:

If skin irritation or rash occurs, get medical advice/attention.

5. Firefighting Measures

Extinguishing Media:

Suitable extinguishing media	:	Carbon dioxide, appropriate foam or dry chemical, water spray, water mist.
Unsuitable extinguishing media	:	Not available.
Special Hazards Arising from the Substance or Mixture	:	When heated co decomposition, may release poisonous and corrosive fumes of Carbon Dioxide, Carbon Monoxide, Phosphorus Oxides.
Advice for Fire-fighters	:	Full protective clothing and self-contained breathing apparatus (SCBA). Contain firefighting water to prevent entry into water or drainage systems.

6. Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures:

For non-emergency personnel	:	Keep away from heat, sparks, and flame. Maintain good ventilation, use appropriate respiratory protective equipment. Avoid skin and eye contact. Use proper personal protective equipment as indicated in Section 8. Keep people away from and upwind of spill/leak.
For emergency responders	:	Wear an appropriate NIOSH/MSHA approved respirator if vapor is generated.
Environmental Precautions	:	Avoid direct discharge to sewers and surface waters. Do not allow material to be released to the environment without proper governmental permits.
Methods for Containment and Cleaning Up.	:	MINOR SPILLS: Remove all ignition sources. Clean up all spills immediately. Avoid breathing vapors and contact with skin and eyes. Control personal contact by using protective equipment. Contain and absorb spill with sand, earth, inert material, or vermiculite. Wipe up. Place in a suitable, labeled container for waste disposal. MAJOR SPILLS: Clear area of personnel and move upwind. Alert the Fire Brigade and tell them the location and nature of hazard. Wear breathing apparatus plus protective gloves. Prevent. by any means available, spillage from entering drains or water course. No smoking, naked lights, or ignition sources. Increase ventilation. Stop leak if safe to do so. Contain spill with sand, earth, or vermiculite. Collect recoverable produce into labeled containers for recycling. Absorb remaining product with sand, earth or vermiculite. Collect solid residues and seal in labeled drums for disposal. Wash area and prevent runoff into drains. If contamination of drains or waterways occurs, advise emergency services.

Reference to Other Sections:

See Section 8 for information on personal protection equipment.
See Section 13 for information on disposal.

7. Handling and Storage

Precautions for Safe Handling:

Protective measures	:	Avoid all personal contact, including inhalation. Wear protective clothing when risk of exposure occurs. Use in a well-ventilated area. Prevent concentration in hollows and sumps. DO NOT enter confined spaces until atmosphere has been checked. Avoid smoking, naked lights or

ignition sources. Avoid contact with incompatible materials. When handling. DO NOT eat, drink, or smoke. Keep containers securely sealed when not in use. Avoid physical damage to containers. Always wash hands with soap
and water after handling. Work clothes should be laundered separately. Use good occupational work practice. Observe manufacturer's storing and handling recommendations. Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions. DO NOT allow clothing wet with material to stay in contact with skin.

Advice on general occupational hygiene : Do not eat, drink and smoke in work areas. Wash hands after use. Remove contaminated clothing and protective equipment before entering eating areas.

Conditions for Safe Storage, Including any Incompatibilities : Store at room temperature. Keep away from ignition sources. Avoid contact with incompatible materials. Protect containers against physical damage and check regularly for leaks. Store in accordance with all current regulations and standards. Keep container tightly closed when not in use. Follow all precautionary information on container label, product information and safety data sheet.

Specific End Use(s) : Not applicable.

8. Exposure Controls/Personal Protection

Control Parameters:

Occupational Exposure Limits:

Country	Substance	EINECS No.	CAS No.	Occupational Exposure Limit Value (8-hour reference period)		Occupational Exposure Limit Value (15-minute reference period)		
				ppm	mg/m³	ppm	mg/m³	Note
Ireland	2-butoxyethanol	203-905-0	111-76-2	20	98	50	246	-

Additional Exposure Limits Under the Conditions of Use : Not available.

DNEL/DMEL and PNEC-Values:

Workers - Hazard via inhalation route	Systemic effects-Long term exposure	DNEL=3.5 mg/ml³
Workers - Hazard via inhalation route	Systemic effects-Acute/shore term exposure	No hazard identified
Workers - Hazard via inhalation route	Local effects-Long term exposure	Other toxicological threshold Value: 0.25 mg/kg bw/day
Workers - Hazard via inhalation route	Local effects-Acute/short term exposure	No hazard identified
Workers - Hazard via dermal route	Systemic effects-Long term exposure	DNEL= 14 mg/kg bw/day
Workers - Hazard via dermal route	Systemic effects-Acute/shore term exposure	No hazard identified
Workers - Hazard via dermal route	Local effects-Long term exposure	DNEL=0.02 mg/cm²
Workers - Hazard via dermal route	Local effects-Acute/short term exposure	No hazard identified
General Population - Hazard via inhalation route	Systemic effects-Long term exposure	DNEL=I mg/ml³
General Population - Hazard via inhalation route	Systemic effects-Acute/shore term exposure	Other toxicological threshold Value: I mg/m³

General Population - Hazard via inhalation route	Local effects-Long term exposure	Other toxicological threshold Value: I mg/m^3
General Population - Hazard via inhalation route	Local effects-Acute/short term exposure	Other toxicological threshold Value: I mg/m^3
General Population - Hazard via dermal route	Systemic effects-Long term exposure	DNEL=7 mg/kg bw/day
General Population - Hazard via dermal route	Systemic effects-Acute/shore term exposure	Other toxicological threshold Value: 7 mg/kg bw/day
General Population - Hazard via dermal route	Local effects-Long term exposure	DNEL=0.01 mg/cm^2
General Population - Hazard via dermal route	Local effects-Acute/short term exposure	Other toxicological threshold Value: 0.0 I mg/cm^2
General Population - Hazard via oral route	Systemic effects-Long term exposure	DNEL=0.25 mg/kg bw/day
General Population - Hazard via oral route	Systemic effects-Acute/short term exposure	Other toxicological threshold Value: 0.25 mg/kg bw/day
Hazard for aquatic organisms	Freshwater	PNEC=24 µg/l
Hazard for aquatic organisms	Marine water	PNEC=2.4 µg/l
Hazard for aquatic organisms	STP	PNEC=8.96 mg/l
Hazard for aquatic organisms	Sediment (freshwater)	PNEC=0.804 mg/kg sediment dw
Hazard for aquatic organisms	Sediment (marine water)	PNEC=0.08 mg/kg sediment dw
Hazard for terrestrial organisms	Soil	PNEC= 165.75 µg/kg soil dw
Hazard for predators	Secondary poisoning	PNEC=4.44 mg/kg food

Exposure Controls:

Appropriate Engineering Controls : Use process enclosures, local exhaust ventilation, or other engineering controls co control airborne levels below recommended exposure limits.

Individual Protection Measures, Such as Personal Protective Equipment:

Eye/face protection : If contact is likely, safety glasses with side shields are recommended.

Skin protection-Hand protection : Skin contact with liquid or its aerosol should be prevented through the use of suitable protective clothing, gloves and footwear selected with regard for use condition exposure potential. Material of gloves Neoprene gloves.

Skin protection-Body protection : Safety showers, with quick opening valves which stay open and eye wash fountains or other means of washing the eyes with a gentle flow of cool to tepid cap water should be readily available in all areas where this material is handled or stored. Water should be supplied through insulated and heat-traced lines to prevent freeze-ups in cold weather. Long sleeved clothing may be used to minimize skin contact.

Respiratory protection : Use a NIOSH-approved organic vapor/acid gas respirator (OVAG) with dust, mist, and fume filters to reduce potential for inhalation exposure if use conditions generate vapor. mist or aerosol and adequate ventilation (e.g., outdoor or well-ventilated area) is not available. Where exposure necessitates a higher level of protection use a NIOSH-approved, positive pressure, pressure demand, air-supplied respirator.

Thermal hazard : Avoid discharge into the environment.
According to local regulations, Federal and official regulations.

9. Physical and Chemical Properties

Appearance : Liquid

Color	:	Colorless to yellowish transparent
Odor	:	Slightly
Odor Threshold	:	Not available
pH	:	Not determined
Melting Point/Range (°C)	:	<-70°C
Boiling Point/Range (°C)	:	215-228°C at 5.333 hPa
Flash Point (°C)	:	159°C (Closed cup) at 101.4 kPa
Evaporation Rate	:	Not determined
Flammability (solid, gas);	:	Nonflammable
Upper/Lower	:	Not available
Flammability/Explosive Limits		
Vapor Pressure	:	1.52x 10^5 Pa at 25°C
Vapor Density	:	Not applicable
Relative Density	:	1.010-1.022 g/cm^3 at 25°C
Bulk Density (kg/m3	:	Not available
Water Solubility (g/1)	:	663.5 mg/l at 20°C
n-Octanol/Water (log Po/w)	:	3.75 at 20 ·c
Auto-ignition Temperature	:	322±5°C at 101.4 kPa
Decomposition Temperature	:	Not available
Molecular Weight	:	398
Molecular Formula	:	$C_{18}H_{39}O_7P$
Viscosity, Dynamic (mPa's)	:	12 mPa's at 25°C
Explosive Properties	:	Not explosive
Oxidizing Properties	:	Non-oxidizing
Other Information:		
Fat solubility (solvent-oil to be specified) etc.	:	Not available
Surface tension	:	32.7 mN/m at 20.2 °C±0.I °C
Dissociation constant in water (pKa)	:	Not available
Oxidation-reduction potential	:	Not available

10. Stability and Reactivity

Reactivity	:	Strong oxidizers, strong acids, and strong alkalis.
Chemical Stability	:	Under normal conditions, the product is stable. No hazardous reaction when handled and stored according to provisions. Hazardous reactions are not known.
Possibility of Hazardous Reactions	:	Under normal conditions, not hazardous reactions will occur.
Conditions to Avoid	:	Avoid contact with strong oxidizers, strong acids, and strong alkalis. Keep away from heat, decomposes above 200°C.
Incompatible Materials	:	Strong acids, strong alkalis, and strong oxidizers.
Hazardous Decomposition Products	:	Carbon dioxide and carbon monoxide, phosphorus oxides.

11. Toxicological Information

Information on Hazard Classes as Defined in Regulation (EC) No 1272/2008:

Acute Toxicity:

LD50 (Oral, Rat)	:	>2000 mg/kg bw
LD50 (Derma, Rabbit)	:	>5000 mg/kg bw
LC50 (Inhalation/4h, Rat)	:	>6.4 mg/l air
Skin Corrosion/Irritation	:	Not irritating
Serious Eye Damage/Irritation	:	Not irritating
Respiratory or Skin Sensitization	:	Not sensitizing
Germ Cell Mutagenicity	:	Non-mutagenic
Carcinogenicity	:	Not carcinogenic
Reproductive Toxicity	:	Not classified
STOT - Single Exposure	:	Not classified
STOT - Repeated Exposure	:	Not classified
Aspiration Hazard	:	Not classified
Information on Other Hazards:		
Endocrine disrupting properties	:	The substance is not identified as having endocrine disrupting properties.
Other information	:	Not applicable

12. Ecological Information

Toxicity:

Acute Toxicity		Time	Species	Method	Evaluation	Remarks
LC50	24 mg/l	96h	Fish	OECD 203	N/A	N/A
EC50	53 mg/l	48h	Daphnia	OECD 202	N/A	N/A
EC50	61 mg/l	72h	Algae	OECD 201	N/A	N/A

Chronic (long-term) Toxicity	Value
NOEC (Fish)	N/A
NOEC (Crustacea)	N/A
NOEC (Algae/aquatic plants)	7.6 mg/l

Persistence and Degradability	:	Readily biodegradable
Bioaccumulation Potential	:	BCF (aquatic species): 5.8 dimensionless
Mobility in Soil	:	Koc at 20°C: 299.2
Results of PBT and vPvB Assessment	:	The substance is not PBT / vPvB
Endocrine Disrupting Properties	:	The substance is not identified as having endocrine disrupting properties
Other Adverse Effects	:	Not available
Additional Information	:	Not available

13. Disposal Considerations

Waste Treatment Methods	:	Collect and reclaim or dispose in sealed containers at licensed waste disposal site.

Waste from Residues/Unused Products	:	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see Disposal instructions).
Contaminated Packaging	:	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transportation Information

Land Transport (ADR/RID)	:	Not regulated
Inland Waterways (ADN)	:	Not regulated
Sea Transport (IMDG)	:	Not regulated
Air Transport (ICAO/IATA)	:	Not regulated
Special Precautions for User	:	See Section 2.2
Maritime Transport in Bulk According to IMO Instruments	:	Not regulated

15. Regulatory Information

Safety, Health and Environmental Regulations/Legislation Specific for the Substance or Mixture

Relevant information regarding authorization	:	Not applicable
Relevant information regarding restriction	:	Not applicable
Other EU regulations	:	Employment restrictions concerning young people must be observed. For use only by technically qualified individuals.
Other Notional regulations	:	Not applicable

Inventory Status:

Country(s) or Region	Inventory Name	On Inventory (yes/no) *
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)/Non-Domestic Substances List (NDSL)	Yes
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)/European List of Notified Chemical Substances (ELINCS)	Yes
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances {PICCS)	Yes
United States	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other Information

Legend:

AICS: Australian Inventory of Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
DSL: Domestic Substances List, The Canadian Chemical Inventory
LC: Lethal Concentration
LD: Lethal Dose
NIOSH: National Institute of Occupational Safety and Health

EC50: Effective Concentration 50%
EINECS: European Inventory of Existing Commercial chemical Substances
ENCS: Existing and New Chemical Substances
IECSC: Inventory of Existing Chemical Substances
IMDG: International Maritime Dangerous Goods
IOC: Inventory of Chemicals
NOEC: No observable effect concentration
OECD: Organization for Economic Co-operation and Development
PICCS: Philippine Inventory of Chemicals and Chemical Substances
STOT: Specific Target Organ Toxicity
TSCA: Toxic Substance Control Act

Disclaimer:

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