

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

1.1. Product identifier

Product Description: **tert-Butyllithium, nominally 1.9M in pentane**
Cat No. : **H36881**
Molecular Formula **C₄ H₉ Li**

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Laboratory chemicals.
Uses advised against No Information available

1.3. Details of the supplier of the safety data sheet

Company 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

E-mail address begel.sdsdesk@thermofisher.com

1.4. 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

Poison Centre - Emergency information services **Ireland** : National Poisons Information Centre (NPIC) -
01 809 2166 (8am-10pm, 7 days a week)
Malta : +356 2395 2000
Cyprus : +357 2240 5611

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

GHS Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567

Physical hazards

Flammable liquids	Category 1 (H224)
Substances/mixtures which, in contact with water, emit flammable gases	Category 1 (H260)
Pyrophoric liquids	Category 1 (H250)

Health hazards

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Aspiration Toxicity
Skin Corrosion/Irritation
Serious Eye Damage/Eye Irritation
Specific target organ toxicity - (single exposure)

Category 1 (H304)
Category 1 B (H314)
Category 1 (H318)
Category 3 (H336)

Environmental hazards

Chronic aquatic toxicity

Category 2 (H411)

Full text of Hazard Statements: see section 16

2.2. Label elements



Signal Word

Danger

Hazard Statements

H224 - Extremely flammable liquid and vapor
H250 - Catches fire spontaneously if exposed to air
H260 - In contact with water releases flammable gases which may ignite spontaneously
H304 - May be fatal if swallowed and enters airways
H314 - Causes severe skin burns and eye damage
H336 - May cause drowsiness or dizziness
H411 - Toxic to aquatic life with long lasting effects
EUH014 - Reacts violently with water

Precautionary Statements

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P223 - Do not allow contact with water
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P301 + P330 + P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

2.3. Other hazards

Reacts violently with water

This product does not contain any known or suspected endocrine disruptors

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

Component	CAS No	EC No	Weight %	GHS Classification - According to GB-CLP Regulations UK SI 2019/720 and
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				UK SI 2020/1567
Pentane	109-66-0	EEC No. 203-692-4	50-65	Flam. Liq. 1 (H224) Asp. Tox. 1 (H304) STOT SE 3 (H336) Aquatic Chronic 2 (H411)
Lithium, (1,1-dimethylethyl)-	594-19-4	EEC No. 209-831-5	10-25	Water-react. 1 (H260) Pyr. Sol. 1 (H250) Skin Corr. 1B (H314) Eye Dam. 1 (H318) [EUH014]
Isopentane	78-78-4	EEC No. 201-142-8	20-25	Flam. Liq. 1 (H224) Asp. Tox. 1 (H304) STOT SE 3 (H336) Aquatic Chronic 2 (H411) EUH066

Components	Reach Registration Number	
Pentane	01-2119459286-30	
Isopentane	01-2119475602-38	
Lithium, (1,1-dimethylethyl)-	01-2120138354-60	

Full text of Hazard Statements: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General Advice	Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.
Eye Contact	Immediate medical attention is required. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing.
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.
Ingestion	Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Call a physician immediately. Clean mouth with water. Call a physician or poison control center immediately. If vomiting occurs naturally, have victim lean forward.
Inhalation	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. Remove from exposure, lie down. Risk of serious damage to the lungs (by aspiration). Call a physician immediately.
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.

4.2. Most important symptoms and effects, both acute and delayed

Causes burns by all exposure routes. Difficulty in breathing. . 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: Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and

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vomiting

4.3. Indication of any immediate medical attention and special treatment needed

Notes to Physician

Treat symptomatically. Symptoms may be delayed.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media

Dry sodium chloride. Limestone powder. Water mist may be used to cool closed containers.

Extinguishing media which must not be used for safety reasons

Water. Carbon dioxide (CO₂). Foam.

5.2. Special hazards arising from the substance or mixture

Extremely flammable. Reacts violently with water. The product causes burns of eyes, skin and mucous membranes. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.

Hazardous Combustion Products

Carbon oxides, Carbon monoxide (CO), Carbon dioxide (CO₂), Isobutane.

5.3. Advice 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

6.1. Personal precautions, protective equipment and emergency procedures

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

6.2. Environmental precautions

Do not flush into surface water or sanitary sewer system. See Section 12 for additional Ecological Information. Avoid release to the environment. Collect spillage.

6.3. Methods and material for containment and cleaning up

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

6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Use only under a chemical fume hood. Handle under inert gas, protect from moisture. Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek

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immediate medical assistance. Do not allow contact with water. Keep away from open flames, hot surfaces and sources of ignition. Use spark-proof tools and explosion-proof equipment. 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.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area. Keep away from water or moist air. Keep away from heat, sparks and flame. Flammables area. To maintain product quality: Keep refrigerated.

Technical Rules for Hazardous Substances (TRGS) 510

Class 4.2

Storage Class (LGK) (Germany)

7.3. Specific end use(s)

Use in laboratories

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure limits

List source(s): **EU** - Commission Directive (EU) 2019/1831 of 24 October 2019 establishing a fifth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC and amending Commission Directive 2000/39/EC **UK** - EH40/2005 Work Exposure Limits, Fourth edition. Published 2020. **IRE** - 2021 Code of Practice for the Chemical Agents Regulations, Schedule 1. Published by the Health and Safety Authority

Component	The United Kingdom	European Union	Ireland
Pentane	STEL: 1800 ppm 15 min STEL: 5400 mg/m ³ 15 min TWA: 600 ppm 8 hr TWA: 1800 mg/m ³ 8 hr	TWA: 1000 ppm (8hr) TWA: 3000 mg/m ³ (8hr)	TWA: 1000 ppm 8 hr. STEL: 3000 ppm 15 min
Isopentane	STEL: 1800 ppm 15 min STEL: 5400 mg/m ³ 15 min TWA: 600 ppm 8 hr TWA: 1800 mg/m ³ 8 hr	TWA: 1000 ppm (8hr) TWA: 3000 mg/m ³ (8hr)	TWA: 1000 ppm 8 hr. STEL: 3000 ppm 15 min

Biological limit values

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

Derived No Effect Level (DNEL) / Derived Minimum Effect Level (DMEL)

See table for values

Component	Acute effects local (Dermal)	Acute effects systemic (Dermal)	Chronic effects local (Dermal)	Chronic effects systemic (Dermal)
Pentane 109-66-0 (50-65)				DNEL = 432mg/kg bw/day
Isopentane 78-78-4 (20-25)				DNEL = 432mg/kg bw/day

Component	Acute effects local (Inhalation)	Acute effects systemic (Inhalation)	Chronic effects local (Inhalation)	Chronic effects systemic (Inhalation)
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Pentane 109-66-0 (50-65)				DNEL = 3000mg/m ³
Isopentane 78-78-4 (20-25)				DNEL = 3000mg/m ³

Predicted No Effect Concentration (PNEC)

See values below.

Component	Fresh water	Fresh water sediment	Water Intermittent	Microorganisms in sewage treatment	Soil (Agriculture)
Pentane 109-66-0 (50-65)	PNEC = 230µg/L	PNEC = 1.2mg/kg sediment dw	PNEC = 880µg/L	PNEC = 3600µg/L	PNEC = 0.55mg/kg soil dw

Component	Marine water	Marine water sediment	Marine water intermittent	Food chain	Air
Pentane 109-66-0 (50-65)	PNEC = 230µg/L	PNEC = 1.2mg/kg sediment dw			

8.2. Exposure controls

Engineering Measures

Use only under a chemical fume hood. Use explosion-proof electrical/ventilating/lighting equipment. Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas. 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

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

Skin and body protection

Long sleeved clothing.

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.

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

Small scale/Laboratory use

Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Recommended half mask:- Valve filtering: EN405; or; Half mask: EN140; plus filter, EN 141
When RPE is used a face piece Fit Test should be conducted

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

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical State	Liquid	
Appearance	Yellow	
Odor	No information available	
Odor Threshold	No data available	
Melting Point/Range	No data available	
Softening Point	No data available	
Boiling Point/Range	No information available	
Flammability (liquid)	Extremely flammable	On basis of test data
Flammability (solid,gas)	Not applicable	Liquid
Explosion Limits	No data available	
Flash Point	-56 °C / -68.8 °F	Method - Pentane
Autoignition Temperature	No data available	
Decomposition Temperature	No data available	
pH	No information available	
Viscosity	No data available	
Water Solubility	Reacts violently with water	
Solubility in other solvents	No information available	
Partition Coefficient (n-octanol/water)		
Component	log Pow	
Pentane	3.45	
Isopentane	4	
Vapor Pressure	No data available	
Density / Specific Gravity	0.690	
Bulk Density	Not applicable	Liquid
Vapor Density	No data available	(Air = 1.0)
Particle characteristics	Not applicable (liquid)	

9.2. Other information

Molecular Formula	C4 H9 Li
Molecular Weight	64.04
Explosive Properties	Vapors may form explosive mixtures with air
Substances/mixtures which, in contact with water, emit flammable gases	Emitted gas ignites spontaneously Gas(es) = Isobutane

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

Yes

10.2. Chemical stability

Pyrophoric: Spontaneously flammable in air. Water reactive.

10.3. Possibility of hazardous reactions

Hazardous Polymerization Hazardous polymerization does not occur.

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Hazardous Reactions

Reacts violently with water. Pyrophoric: Spontaneously flammable in air.

10.4. Conditions to avoid

Incompatible products. Excess heat. Exposure to moist air or water. Exposure to moisture. Keep away from open flames, hot surfaces and sources of ignition.

10.5. Incompatible materials

Acids. Alcohols. Keep from any possible contact with water, because of violent reaction and possible flash fire.

10.6. Hazardous decomposition products

Carbon oxides. Carbon monoxide (CO). Carbon dioxide (CO₂). Isobutane.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Product Information

No acute toxicity information is available for this product

(a) acute toxicity;

Oral

No data available

Dermal

No data available

Inhalation

No data available

Toxicology data for the components

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Pentane	LD50 > 2000 mg/kg (Rat)	LD50 = 3000 mg/kg (Rabbit)	LC50 = 364 g/m ³ (Rat) 4 h

(b) skin corrosion/irritation;

Category 1 B

(c) serious eye damage/irritation;

Category 1

(d) respiratory or skin sensitization;

Respiratory

No data available

Skin

No data available

(e) germ cell mutagenicity;

No data available

(f) carcinogenicity;

No data available

There are no known carcinogenic chemicals in this product

(g) reproductive toxicity;

No data available

(h) STOT-single exposure;

Category 3

Results / Target organs

Central nervous system (CNS).

(i) STOT-repeated exposure;

No data available

Target Organs

No information available.

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(j) aspiration hazard; Category 1

Other Adverse Effects The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information

Symptoms / effects, both acute and delayed 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. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.

11.2. Information on other hazards

Endocrine Disrupting Properties Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecotoxicity effects

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment. Reacts with water so no ecotoxicity data for the substance is available.

Component	Freshwater Fish	Water Flea	Freshwater Algae
Pentane	LC50: = 9.99 mg/L, 96h (Lepomis macrochirus) LC50: = 11.59 mg/L, 96h (Pimephales promelas) LC50: = 9.87 mg/L, 96h (Oncorhynchus mykiss)	EC50: = 9.74 mg/L, 48h (Daphnia magna)	
Isopentane	Oncorhynchus mykiss: LC50: 3.1 mg/L/96h	EC50: = 2.3 mg/L, 48h (Daphnia magna)	

12.2. Persistence and degradability

Persistence

Degradability

Degradation in sewage treatment plant

Not readily biodegradable

Persistence is unlikely, based on information available.

Reacts with water.

Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants. No information available. Reacts violently with water.

12.3. Bioaccumulative potential

Product does not bioaccumulate due to reaction with water; Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
Pentane	3.45	No data available
Isopentane	4	No data available

12.4. Mobility in soil

Reacts violently with water . Is not likely mobile in the environment.

12.5. Results of PBT and vPvB assessment

Reacts violently with water.

12.6. Endocrine disrupting properties

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

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12.7. Other adverse effects
Persistent Organic Pollutant
Ozone Depletion Potential

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

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

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.
European Waste Catalogue (EWC)	According to the European Waste Catalog, Waste Codes are not product specific, but application specific.
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. Do not let this chemical enter the environment.

SECTION 14: TRANSPORT INFORMATION

IMDG/IMO

14.1. UN number	UN3394
14.2. UN proper shipping name	ORGANOMETALLIC SUBSTANCE, LIQUID, PYROPHORIC, WATER-REACTIVE
Technical Shipping Name	(TERT-BUTYLLITHIUM, PENTANE)
14.3. Transport hazard class(es)	4.2
Subsidiary Hazard Class	4.3
14.4. Packing group	I

ADR

14.1. UN number	UN3394
14.2. UN proper shipping name	ORGANOMETALLIC SUBSTANCE, LIQUID, PYROPHORIC, WATER-REACTIVE
Technical Shipping Name	(TERT-BUTYLLITHIUM, PENTANE)
14.3. Transport hazard class(es)	4.2
Subsidiary Hazard Class	4.3
14.4. Packing group	I

IATA

FORBIDDEN FOR IATA TRANSPORT

14.1. UN number	UN3394
14.2. UN proper shipping name	ORGANOMETALLIC SUBSTANCE, LIQUID, PYROPHORIC, WATER-REACTIVE,
Technical Shipping Name	FORBIDDEN FOR IATA TRANSPORT
14.3. Transport hazard class(es)	(TERT-BUTYLLITHIUM, PENTANE)
Subsidiary Hazard Class	4.2
14.4. Packing group	4.3
	I

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14.5. Environmental hazards Dangerous for the environment
Product is a marine pollutant according to the criteria set by IMDG/IMO

14.6. Special precautions for user No special precautions required.

14.7. Maritime transport in bulk according to IMO instruments Not applicable, packaged goods

SECTION 15: REGULATORY INFORMATION

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

International Inventories

Europe (EINECS/ELINCS/NLP), China (IECSC), Taiwan (TCSI), Korea (KECL), Japan (ENCS), Japan (ISHL), Canada (DSL/NDSL), Australia (AICS), New Zealand (NZIoC), Philippines (PICCS). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

Component	CAS No	EINECS	ELINCS	NLP	IECSC	TCSI	KECL	ENCS	ISHL
Pentane	109-66-0	203-692-4	-	-	X	X	KE-27968	X	X
Lithium, (1,1-dimethylethyl)-	594-19-4	209-831-5	-	-	X	X	2014-3-61 17	X	X
Isopentane	78-78-4	201-142-8	-	-	X	X	KE-23537	X	X

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	AICS	NZIoC	PICCS
Pentane	109-66-0	X	ACTIVE	X	-	X	X	X
Lithium, (1,1-dimethylethyl)-	594-19-4	X	ACTIVE	-	X	X	X	X
Isopentane	78-78-4	X	ACTIVE	X	-	X	X	X

Legend: X - Listed '-' - Not Listed

KECL - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)

Authorisation/Restrictions according to EU REACH Not applicable

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Pentane	109-66-0	-	-	-
Lithium, (1,1-dimethylethyl)-	594-19-4	-	-	-
Isopentane	78-78-4	-	-	-

Seveso III Directive (2012/18/EC)

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements
Pentane	109-66-0	Not applicable	Not applicable
Lithium, (1,1-dimethylethyl)-	594-19-4	Not applicable	Not applicable
Isopentane	78-78-4	Not applicable	Not applicable

Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals
Not applicable

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?
Not applicable

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Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work .

Take note of Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values

National Regulations

UK - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

WGK Classification Water endangering class = 2 (self classification)

Component	Germany - Water Classification (AwSV)	Germany - TA-Luft Class
Pentane	WGK2	
Lithium, (1,1-dimethylethyl)-	WGK1	
Isopentane	WGK2	

Component	France - INRS (Tables of occupational diseases)
Pentane	Tableaux des maladies professionnelles (TMP) - RG 84
Isopentane	Tableaux des maladies professionnelles (TMP) - RG 84

Component	Switzerland - Ordinance on the Reduction of Risk from handling of hazardous substances preparation (SR 814.81)	Switzerland - Ordinance on Incentive Taxes on Volatile Organic Compounds (OVOC)	Switzerland - Ordinance of the Rotterdam Convention on the Prior Informed Consent Procedure
Pentane 109-66-0 (50-65)	Prohibited and Restricted Substances	Group I	
Isopentane 78-78-4 (20-25)	Prohibited and Restricted Substances	Group I	

15.2. Chemical safety assessment

Chemical Safety Assessment/Reports (CSA/CSR) are not required for mixtures

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3

H224 - Extremely flammable liquid and vapor

H250 - Catches fire spontaneously if exposed to air

H260 - In contact with water releases flammable gases which may ignite spontaneously

H304 - May be fatal if swallowed and enters airways

H314 - Causes severe skin burns and eye damage

H318 - Causes serious eye damage

H336 - May cause drowsiness or dizziness

H411 - Toxic to aquatic life with long lasting effects

EUH014 - Reacts violently with water

Legend

CAS - Chemical Abstracts Service

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

IECSC - Chinese Inventory of Existing Chemical Substances

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

DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List

ENCS - Japanese Existing and New Chemical Substances

AICS - Australian Inventory of Chemical Substances

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KECL - Korean Existing and Evaluated 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

Predicted No Effect Concentration (PNEC)

LD50 - Lethal Dose 50%

EC50 - Effective Concentration 50%

POW - Partition coefficient Octanol:Water

vPvB - very Persistent, very Bioaccumulative

ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road

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

OECD - Organisation for Economic Co-operation and Development

BCF - Bioconcentration factor

Key literature references and sources for data

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

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

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

MARPOL - International Convention for the Prevention of Pollution from Ships

ATE - Acute Toxicity Estimate

VOC - (Volatile Organic Compound)

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Physical hazards On basis of test data

Health Hazards Calculation method

Environmental hazards Calculation method

Training Advice

Chemical incident response training.

Prepared By

Health, Safety and Environmental Department

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Revision Date

30-Nov-2024

Revision Summary

Not applicable.

This safety data sheet complies with Regulation UK SI 2019/758 and UK SI 2020/1577 as amended.

Disclaimer

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End of Safety Data Sheet