



# Lithium hexafluoroarsenate(V)

## Apollo Scientific

Part Number: PC4992

Version No: 3.3

Safety Data Sheet

Chemwatch Hazard Alert Code: 4

Issue Date: 11/07/2023

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S.GHS.GB-NIR.EN

### SECTION 1 Identification of the substance / mixture and of the company / undertaking

#### Product Identifier

Product name	Lithium hexafluoroarsenate(V)
Chemical Name	lithium hexafluoroarsenate(V)
Synonyms	Not Available
Proper shipping name	ARSENIC COMPOUND, SOLID, N.O.S., inorganic, including: Arsenates, n.o.s.; Arsenites, n.o.s.; and Arsenic sulphides, n.o.s.
Chemical formula	As-F6 .Li
Other means of identification	Not Available
CAS number	29935-35-1*

#### Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	Not Available
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#### Details of the manufacturer or supplier of the safety data sheet

Registered company name	Apollo Scientific	Apollo Scientific Ltd
Address	Whitefield Road, Bredbury SK62QR United Kingdom	Whitefield Road, Bredbury Cheshire SK6 2QR United Kingdom (NI)
Telephone	01614060505	+44(0) 161 406 0505
Fax	0161 406 0506	Not Available
Website	<a href="http://www.apolloscientific.co.uk/">http://www.apolloscientific.co.uk/</a>	<a href="http://apolloscientific.co.uk">apolloscientific.co.uk</a>
Email	sales@apolloscientific.co.uk	sales@apolloscientific.co.uk

#### Emergency telephone number

Association / Organisation	Not Available
Emergency telephone numbers	Not Available
Other emergency telephone numbers	Not Available

### SECTION 2 Hazards identification

#### Classification of the substance or mixture

Classification according to regulation (EC) No 1272/2008 [CLP] and	H400 - Hazardous to the Aquatic Environment Acute Hazard Category 1, H331 - Acute Toxicity (Inhalation) Category 3, H350 - Carcinogenicity Category 1A, H410 - Hazardous to the Aquatic Environment Long-Term Hazard Category 1, H301 - Acute Toxicity (Oral) Category 3
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## Lithium hexafluoroarsenate(V)

amendments <sup>[1]</sup>

**Legend:** 1. Classified by Chemwatch; 2. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI

## Label elements

## Hazard pictogram(s)



## Signal word

Danger

## Hazard statement(s)

H331	Toxic if inhaled.
H350	May cause cancer.
H410	Very toxic to aquatic life with long lasting effects.
H301	Toxic if swallowed.

## Precautionary statement(s) Prevention

P201	Obtain special instructions before use.
P264	Wash all exposed external body areas thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves and protective clothing.
P261	Avoid breathing dust/fumes.
P273	Avoid release to the environment.

## Precautionary statement(s) Response

P301+P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor/physician/first aider.
P308+P313	IF exposed or concerned: Get medical advice/ attention.
P330	Rinse mouth.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P311	Call a POISON CENTER/doctor/physician/first aider.
P391	Collect spillage.

## Precautionary statement(s) Storage

P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.

## Precautionary statement(s) Disposal

P501	Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.
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## SECTION 3 Composition / information on ingredients

## Substances

CAS No	%[weight]	Name	Classification according to regulation (EC) No 1272/2008 [CLP] and amendments	SCL / M-Factor
29935-35-1*	100	<u>Lithium hexafluoroarsenate(V)</u>	Hazardous to the Aquatic Environment Acute Hazard Category 1, Acute Toxicity (Inhalation) Category 3, Carcinogenicity Category 1A, Hazardous to the Aquatic Environment Long-Term Hazard Category 1, Acute Toxicity (Oral) Category 3; H331, H350, H410, H301 <sup>[1]</sup>	*

**Legend:** 1. Classified by Chemwatch; 2. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI; 3. Classification drawn from C&L; \* EU IOELVs available; [e] Substance identified as having endocrine disrupting properties

## Mixtures

## Lithium hexafluoroarsenate(V)

See section above for composition of Substances

## SECTION 4 First aid measures

### Description of first aid measures

Eye Contact	<p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> <li>▶ Immediately hold eyelids apart and flush the eye continuously with running water.</li> <li>▶ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.</li> <li>▶ Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.</li> <li>▶ Transport to hospital or doctor without delay.</li> <li>▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.</li> </ul>
Skin Contact	<p>If skin or hair contact occurs:</p> <ul style="list-style-type: none"> <li>▶ Flush skin and hair with running water (and soap if available).</li> <li>▶ Seek medical attention in event of irritation.</li> </ul>
Inhalation	<ul style="list-style-type: none"> <li>▶ If fumes or combustion products are inhaled remove from contaminated area.</li> <li>▶ Lay patient down. Keep warm and rested.</li> <li>▶ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.</li> <li>▶ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.</li> <li>▶ Transport to hospital, or doctor, without delay.</li> </ul>
Ingestion	<ul style="list-style-type: none"> <li>▶ <b>IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY.</b></li> <li>▶ For advice, contact a Poisons Information Centre or a doctor.</li> <li>▶ Urgent hospital treatment is likely to be needed.</li> <li>▶ In the mean time, qualified first-aid personnel should treat the patient following observation and employing supportive measures as indicated by the patient's condition.</li> <li>▶ If the services of a medical officer or medical doctor are readily available, the patient should be placed in his/her care and a copy of the SDS should be provided. Further action will be the responsibility of the medical specialist.</li> <li>▶ If medical attention is not available on the worksite or surroundings send the patient to a hospital together with a copy of the SDS.</li> </ul> <p><b>Where medical attention is not immediately available or where the patient is more than 15 minutes from a hospital or unless instructed otherwise:</b></p> <ul style="list-style-type: none"> <li>▶ <b>INDUCE</b> vomiting with fingers down the back of the throat, <b>ONLY IF CONSCIOUS</b>. Lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.</li> </ul> <p><b>NOTE:</b> Wear a protective glove when inducing vomiting by mechanical means.</p>

### Indication of any immediate medical attention and special treatment needed

For acute or short term repeated exposures to arsenic, soluble compounds: Treat as per arsenic poisoning.

- ▶ Acute skin lesions such as contact dermatitis usually do not require other treatment than removal from exposure.
- ▶ If more severe symptoms of the respiratory system, the skin or the gastro-intestinal tract occur, British Anti-Lewisite (BAL, dimercaprol) may be given. Prompt administration in such cases is vital; to obtain maximum benefit such treatment should be administered within 4 hours of poisoning.
- ▶ In addition, general treatment such as prevention of further absorption from the gastro-intestinal tract are mandatory.
- ▶ General supportive therapy such as maintenance of respiration and circulation, maintenance of water and electrolyte balance and control of nervous system effects, as well as elimination of absorbed poison through dialysis and exchange transfusion, may be used if feasible.
- ▶ Dimercaprol is given by deep intramuscular injection as a 5% solution in peanut oil (or a 10% solution with benzyl-benzoate in vegetable oil). It is usually given in a dose of 3 mg/kg, 4-hourly, for the first two days, or twice daily for up to seven days. [ILO Encyclopedia]
- ▶ BAL Therapy is effective for haematological manifestations of chronic arsenic poisoning but not for neurological symptoms. Watch for side effects (e.g. urticaria, burning sensation in the lips, mouth and throat, fever, conjunctivitis etc).
- ▶ Some relief results from administration of diphenhydramine (Benadryl) (1.5 mg/kg intramuscularly or by mouth every 6 hour). [Ellenhorn and Barceloux: Medical Toxicology]

#### BIOLOGICAL EXPOSURE INDEX - BEI (Notice of Intent to Establish)

BEIs represent the levels of determinants which are most likely to be observed in specimens collected from a healthy worker who has been exposed to chemicals to the same extent as a worker with inhalation exposure to the

#### Exposure Standard (ES or TLV):

Determinant	Index	Sampling Time	Comments
Inorganic arsenic metabolites in urine	35 ug/gm creatinine	End of workweek	B

B: Background levels occur in specimens collected from subjects **NOT** exposed Consult specific documentation.

## Lithium hexafluoroarsenate(V)

## SECTION 5 Firefighting measures

## Extinguishing media

- There is no restriction on the type of extinguisher which may be used.
- Use extinguishing media suitable for surrounding area.

## Special hazards arising from the substrate or mixture

Fire Incompatibility	None known.
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## Advice for firefighters

Fire Fighting	<ul style="list-style-type: none"> <li>▸ Alert Fire Brigade and tell them location and nature of hazard.</li> <li>▸ Wear breathing apparatus plus protective gloves in the event of a fire.</li> <li>▸ Prevent, by any means available, spillage from entering drains or water courses.</li> <li>▸ Use fire fighting procedures suitable for surrounding area.</li> <li>▸ <b>DO NOT</b> approach containers suspected to be hot.</li> <li>▸ Cool fire exposed containers with water spray from a protected location.</li> <li>▸ If safe to do so, remove containers from path of fire.</li> <li>▸ Equipment should be thoroughly decontaminated after use.</li> </ul>
Fire/Explosion Hazard	<ul style="list-style-type: none"> <li>▸ Non combustible.</li> <li>▸ Not considered a significant fire risk, however containers may burn.</li> </ul> <p>Decomposition may produce toxic fumes of: metal oxides May emit poisonous fumes.</p>

## SECTION 6 Accidental release measures

## Personal precautions, protective equipment and emergency procedures

See section 8

## Environmental precautions

See section 12

## Methods and material for containment and cleaning up

Minor Spills	<ul style="list-style-type: none"> <li>▸ Clean up waste regularly and abnormal spills immediately.</li> <li>▸ Avoid breathing dust and contact with skin and eyes.</li> <li>▸ Wear protective clothing, gloves, safety glasses and dust respirator.</li> <li>▸ Use dry clean up procedures and avoid generating dust.</li> <li>▸ Vacuum up or sweep up. <b>NOTE:</b> Vacuum cleaner must be fitted with an exhaust micro filter (H-Class HEPA type) (consider explosion-proof machines designed to be grounded during storage and use). H-Class HEPA filtered industrial vacuum cleaners should <b>NOT</b> be used on wet materials or surfaces.</li> <li>▸ Dampen with water to prevent dusting before sweeping.</li> <li>▸ Place in suitable containers for disposal.</li> </ul>
Major Spills	<ul style="list-style-type: none"> <li>▸ Clear area of personnel and move upwind.</li> <li>▸ Alert Fire Brigade and tell them location and nature of hazard.</li> <li>▸ Wear full body protective clothing with breathing apparatus.</li> <li>▸ Prevent, by all means available, spillage from entering drains or water courses.</li> <li>▸ Consider evacuation (or protect in place).</li> <li>▸ No smoking, naked lights or ignition sources.</li> <li>▸ Increase ventilation.</li> <li>▸ Stop leak if safe to do so.</li> <li>▸ Water spray or fog may be used to disperse / absorb vapour.</li> <li>▸ Contain or absorb spill with sand, earth or vermiculite.</li> <li>▸ Collect recoverable product into labelled containers for recycling.</li> <li>▸ Collect solid residues and seal in labelled drums for disposal.</li> <li>▸ Wash area and prevent runoff into drains.</li> <li>▸ After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.</li> <li>▸ If contamination of drains or waterways occurs, advise emergency services.</li> </ul>

Personal Protective Equipment advice is contained in Section 8 of the SDS.

## SECTION 7 Handling and storage

## Lithium hexafluoroarsenate(V)

## Precautions for safe handling

Safe handling	<ul style="list-style-type: none"> <li>▸ Avoid all personal contact, including inhalation.</li> <li>▸ Wear protective clothing when risk of exposure occurs.</li> <li>▸ Use in a well-ventilated area.</li> <li>▸ Prevent concentration in hollows and sumps.</li> <li>▸ <b>DO NOT</b> enter confined spaces until atmosphere has been checked.</li> <li>▸ <b>DO NOT</b> allow material to contact humans, exposed food or food utensils.</li> <li>▸ Avoid contact with incompatible materials.</li> <li>▸ <b>When handling, DO NOT</b> eat, drink or smoke.</li> <li>▸ Keep containers securely sealed when not in use.</li> <li>▸ Avoid physical damage to containers.</li> <li>▸ Always wash hands with soap and water after handling.</li> <li>▸ Work clothes should be laundered separately. Launder contaminated clothing before re-use.</li> <li>▸ Use good occupational work practice.</li> <li>▸ Observe manufacturer's storage and handling recommendations contained within this SDS.</li> <li>▸ Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.</li> </ul>
Other information	<ul style="list-style-type: none"> <li>▸ Store in original containers.</li> <li>▸ Keep containers securely sealed.</li> <li>▸ Store in a cool, dry, well-ventilated area.</li> <li>▸ Store away from incompatible materials and foodstuff containers.</li> <li>▸ Protect containers against physical damage and check regularly for leaks.</li> <li>▸ Observe manufacturer's storage and handling recommendations contained within this SDS.</li> </ul>

## Conditions for safe storage, including any incompatibilities

Suitable container	<ul style="list-style-type: none"> <li>▸ Lined metal can, lined metal pail/ can.</li> <li>▸ Plastic pail.</li> <li>▸ Polyliner drum.</li> <li>▸ Packing as recommended by manufacturer.</li> <li>▸ Check all containers are clearly labelled and free from leaks.</li> </ul> <p>For low viscosity materials</p> <ul style="list-style-type: none"> <li>▸ Drums and jerricans must be of the non-removable head type.</li> <li>▸ Where a can is to be used as an inner package, the can must have a screwed enclosure.</li> </ul> <p>For materials with a viscosity of at least 2680 cSt. (23 deg. C) and solids (between 15 C deg. and 40 deg C.):</p> <ul style="list-style-type: none"> <li>▸ Removable head packaging;</li> <li>▸ Cans with friction closures and</li> <li>▸ low pressure tubes and cartridges</li> </ul> <p>may be used.</p> <p>-</p> <p>Where combination packages are used, and the inner packages are of glass, there must be sufficient inert cushioning material in contact with inner and outer packages *.</p> <p>-</p> <p>In addition, where inner packagings are glass and contain liquids of packing group I and II there must be sufficient inert absorbent to absorb any spillage *.</p> <p>-</p> <p>* unless the outer packaging is a close fitting moulded plastic box and the substances are not incompatible with the plastic.</p> <p>All inner and sole packagings for substances that have been assigned to Packaging Groups I or II on the basis of inhalation toxicity criteria, must be hermetically sealed.</p>
Storage incompatibility	<ul style="list-style-type: none"> <li>▸ Contact with acids produces toxic fumes</li> <li>▸ Metals and their oxides or salts may react violently with chlorine trifluoride and bromine trifluoride.</li> <li>▸ These trifluorides are hypergolic oxidisers. They ignite on contact (without external source of heat or ignition) with recognised fuels - contact with these materials, following an ambient or slightly elevated temperature, is often violent and may produce ignition.</li> <li>▸ The state of subdivision may affect the results.</li> <li>▸ Hygroscopic</li> <li>▸ Store under argon</li> </ul>

## SECTION 8 Exposure controls / personal protection

## Control parameters

Occupational Exposure Limits (OEL)

## INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
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## Lithium hexafluoroarsenate(V)

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
UK Workplace Exposure Limits (WELs)	Lithium hexafluoroarsenate(V)	Arsenic and arsenic compounds except arsine (as As)	0.1 mg/m3	Not Available	Not Available	Carc



## Emergency Limits

Ingredient	TEEL-1	TEEL-2	TEEL-3
Lithium hexafluoroarsenate(V)	Not Available	Not Available	Not Available

Ingredient	Original IDLH	Revised IDLH
Lithium hexafluoroarsenate(V)	5 mg/m3	Not Available

## Exposure controls

Appropriate engineering controls	<p>Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.</p> <p>The basic types of engineering controls are:</p> <p>Process controls which involve changing the way a job activity or process is done to reduce the risk.</p> <p>Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use. Employers may need to use multiple types of controls to prevent employee overexposure.</p> <ul style="list-style-type: none"> <li>Employees exposed to confirmed human carcinogens should be authorized to do so by the employer, and work in a regulated area.</li> <li>Work should be undertaken in an isolated system such as a "glove-box". Employees should wash their hands and arms upon completion of the assigned task and before engaging in other activities not associated with the isolated system.</li> <li>Within regulated areas, the carcinogen should be stored in sealed containers, or enclosed in a closed system, including piping systems, with any sample ports or openings closed while the carcinogens are contained within.</li> <li>Open-vessel systems are prohibited.</li> <li>Each operation should be provided with continuous local exhaust ventilation so that air movement is always from ordinary work areas to the operation.</li> <li>Exhaust air should not be discharged to regulated areas, non-regulated areas or the external environment unless decontaminated. Clean make-up air should be introduced in sufficient volume to maintain correct operation of the local exhaust system.</li> <li>For maintenance and decontamination activities, authorized employees entering the area should be provided with and required to wear clean, impervious garments, including gloves, boots and continuous-air supplied hood. Prior to removing protective garments the employee should undergo decontamination and be required to shower upon removal of the garments and hood.</li> <li>Except for outdoor systems, regulated areas should be maintained under negative pressure (with respect to non-regulated areas).</li> <li>Local exhaust ventilation requires make-up air be supplied in equal volumes to replaced air.</li> <li>Laboratory hoods must be designed and maintained so as to draw air inward at an average linear face velocity of 0.76 m/sec with a minimum of 0.64 m/sec. Design and construction of the fume hood requires that insertion of any portion of the employees body, other than hands and arms, be disallowed.</li> </ul>
Individual protection measures, such as personal protective equipment	    
Eye and face protection	<ul style="list-style-type: none"> <li>Safety glasses with side shields</li> <li>Chemical goggles. [AS/NZS 1337.1, EN166 or national equivalent]</li> <li>Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].</li> </ul>
Skin protection	See Hand protection below
Hands/feet protection	<p>The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.</p> <p>The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.</p>

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Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.

Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include:

- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- dexterity

Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).

- When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
- When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
- Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use.

- Contaminated gloves should be replaced.

As defined in ASTM F-739-96 in any application, gloves are rated as:

- Excellent when breakthrough time > 480 min
- Good when breakthrough time > 20 min
- Fair when breakthrough time < 20 min
- Poor when glove material degrades

For general applications, gloves with a thickness typically greater than 0.35 mm, are recommended.

It should be emphasised that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the task requirements and knowledge of breakthrough times.

Glove thickness may also vary depending on the glove manufacturer, the glove type and the glove model. Therefore, the manufacturers technical data should always be taken into account to ensure selection of the most appropriate glove for the task.

Note: Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks. For example:

- Thinner gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, then disposed of.
- Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e. where there is abrasion or puncture potential

Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.

- Wear chemical protective gloves, e.g. PVC.
- Wear safety footwear or safety gumboots, e.g. Rubber

**Body protection**

See Other protection below

**Other protection**

- Employees working with confirmed human carcinogens should be provided with, and be required to wear, clean, full body protective clothing (smocks, coveralls, or long-sleeved shirt and pants), shoe covers and gloves prior to entering the regulated area. [AS/NZS ISO 6529:2006 or national equivalent]
- Employees engaged in handling operations involving carcinogens should be provided with, and required to wear and use half-face filter-type respirators with filters for dusts, mists and fumes, or air purifying canisters or cartridges. A respirator affording higher levels of protection may be substituted. [AS/NZS 1715 or national equivalent]
- Emergency deluge showers and eyewash fountains, supplied with potable water, should be located near, within sight of, and on the same level with locations where direct exposure is likely.
- Prior to each exit from an area containing confirmed human carcinogens, employees should be required to remove and leave protective clothing and equipment at the point of exit and at the last exit of the day, to place used clothing and equipment in impervious containers at the point of exit for purposes of decontamination or disposal. The contents of such impervious containers must be identified with suitable labels. For maintenance and decontamination activities, authorized employees entering the area should be provided with and required to wear clean, impervious garments, including gloves, boots and continuous-air supplied hood.
- Prior to removing protective garments the employee should undergo decontamination and be required to shower upon removal of the garments and hood.

**Respiratory protection**

Type -P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

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Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
up to 10 x ES	P1 Air-line*	- -	PAPR-P1 -
up to 50 x ES	Air-line**	P2	PAPR-P2
up to 100 x ES	-	P3	-
		Air-line*	-
100+ x ES	-	Air-line**	PAPR-P3

\* - Negative pressure demand \*\* - Continuous flow

A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO<sub>2</sub>), G = Agricultural chemicals, K = Ammonia(NH<sub>3</sub>), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

- Respirators may be necessary when engineering and administrative controls do not adequately prevent exposures.
- The decision to use respiratory protection should be based on professional judgment that takes into account toxicity information, exposure measurement data, and frequency and likelihood of the worker's exposure - ensure users are not subject to high thermal loads which may result in heat stress or distress due to personal protective equipment (powered, positive flow, full face apparatus may be an option).
- Published occupational exposure limits, where they exist, will assist in determining the adequacy of the selected respiratory protection. These may be government mandated or vendor recommended.
- Certified respirators will be useful for protecting workers from inhalation of particulates when properly selected and fit tested as part of a complete respiratory protection program.
- Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU)
- Use approved positive flow mask if significant quantities of dust becomes airborne.
- Try to avoid creating dust conditions.

## SECTION 9 Physical and chemical properties

## Information on basic physical and chemical properties

Appearance	Not Available		
Physical state	Solid	Relative density (Water = 1)	Not Available
Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Available
pH (as supplied)	Not Available	Decomposition temperature (°C)	Not Available
Melting point / freezing point (°C)	Not Available	Viscosity (cSt)	Not Available
Initial boiling point and boiling range (°C)	Not Available	Molecular weight (g/mol)	Not Available
Flash point (°C)	Not Available	Taste	Not Available
Evaporation rate	Not Available	Explosive properties	Not Available
Flammability	Not Available	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Available	Surface Tension (dyn/cm or mN/m)	Not Applicable
Lower Explosive Limit (%)	Not Available	Volatile Component (%vol)	Not Available
Vapour pressure (kPa)	Not Available	Gas group	Not Available
Solubility in water	Not Available	pH as a solution (1%)	Not Available
Vapour density (Air = 1)	Not Available	VOC g/L	Not Available

## SECTION 10 Stability and reactivity

Reactivity	See section 7
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## Lithium hexafluoroarsenate(V)

<b>Chemical stability</b>	<ul style="list-style-type: none"> <li>▶ Unstable in the presence of incompatible materials.</li> <li>▶ Product is considered stable.</li> <li>▶ Hazardous polymerisation will not occur.</li> </ul>
<b>Possibility of hazardous reactions</b>	See section 7
<b>Conditions to avoid</b>	See section 7
<b>Incompatible materials</b>	See section 7
<b>Hazardous decomposition products</b>	See section 5

## SECTION 11 Toxicological information

## Information on toxicological effects

<b>Inhaled</b>	<p>The material is not thought to produce respiratory irritation (as classified by EC Directives using animal models). Nevertheless inhalation of dusts, or fumes, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress. Inhalation of dusts, generated by the material during the course of normal handling, may produce severe damage to the health of the individual. Relatively small amounts absorbed from the lungs may prove fatal.</p> <p>Inhaling materials containing arsenic can cause severe irritation to the nose, throat and lungs. Prolonged exposure can cause severe structural damage to the nose.</p>
<b>Ingestion</b>	<p>Accidental ingestion of the material may be seriously damaging to the health of the individual; animal experiments indicate that ingestion of less than 40 gram may be fatal.</p> <p>Symptoms of acute poisoning by arsenic ingestion, which develop within 4 hours include epigastric pain, vomiting and watery diarrhoea, nausea and vomiting. Blood may appear in vomitus and stools. If amount ingested is sufficiently high, shock, rapid pulse and coma may develop, followed by death within 24 hours.</p> <p>Severe gastritis or gastroenteritis may occur as a result of lesions produced by vascular damage from absorbed arsenic (and not local corrosion); symptoms may be delayed for several hours. Eventually a violent haemorrhagic gastroenteritis leads to profound loss of fluid and electrolyte resulting in shock and death. Occasionally alimentary symptoms are mild or absent in which case symptoms are usually referable to the central nervous system, headache, vertigo, muscle spasm or convulsion, delirium and, sometimes, mania. In advanced poisonings by arsenic and its inorganic salts, nervous symptoms are prominent; disorders of the brain (encephalopathies) and peripheral neuritis (more commonly) have been described. A prickling sensation (paresthesia), decreased sensitivity to sensation and pain (hypoesthesia), eventually paralysis and muscular atrophy appear, usually in the legs. "Glove and stocking" distribution of sensory loss may be prominent. The toxic moiety is presumed to be trivalent arsenic in the form of inorganic arsenious acid (arsenite) or an organic arsenoxide. Arsenites are active enzyme inhibitors. Arsenic and its compounds may damage the stem cell which acts as the precursor to components of the blood. Loss of the stem cell may result in pancytopenia (a reduction in the number of red and white blood cells and platelets) with a latency period corresponding to the lifetime of the individual blood cells. Granulocytopenia (a reduction in granular leukocytes) develops within days and thrombocytopenia (a disorder involving platelets), within 1-2 weeks, whilst loss of erythrocytes (red blood cells) need months to become clinically manifest. Aplastic anaemia develops due to complete destruction of the stem cells.</p>
<b>Skin Contact</b>	<p>The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.</p> <p>Open cuts, abraded or irritated skin should not be exposed to this material</p> <p>Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.</p>
<b>Eye</b>	<p>Although the material is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may cause transient discomfort characterised by tearing or conjunctival redness (as with windburn). Slight abrasive damage may also result.</p>
<b>Chronic</b>	<p>There is sufficient evidence to suggest that this material directly causes cancer in humans.</p> <p>Subacute and chronic exposure to arsenic and its organic salts may produce loss of appetite, nausea and vomiting, low grade fever, persistent headache, pallor, weakness and catarrhal inflammation. Lesions in the mouth and salivation are common.</p>
<b>Legend:</b>	<p>1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances</p>

<b>Acute Toxicity</b>	✓	<b>Carcinogenicity</b>	✓
<b>Skin Irritation/Corrosion</b>	✗	<b>Reproductivity</b>	✗
<b>Serious Eye Damage/Irritation</b>	✗	<b>STOT - Single Exposure</b>	✗
<b>Respiratory or Skin sensitisation</b>	✗	<b>STOT - Repeated Exposure</b>	✗

## Lithium hexafluoroarsenate(V)

Mutagenicity X

Aspiration Hazard X

**Legend:** X – Data either not available or does not fill the criteria for classification  
 ✓ – Data available to make classification

## SECTION 12 Ecological information

## Toxicity

**Legend:** Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity  
 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data

For Metal:

Atmospheric Fate - Metal-containing inorganic substances generally have negligible vapour pressure and are not expected to partition to air.

Environmental Fate: Environmental processes, such as oxidation, the presence of acids or bases and microbiological processes, may transform insoluble metals to more soluble ionic forms. Environmental processes may enhance bioavailability and may also be important in changing solubilities.

Aquatic/Terrestrial Fate: When released to dry soil, most metals will exhibit limited mobility and remain in the upper layer; some will leach locally into ground water and/ or surface water ecosystems when soaked by rain or melt ice. A metal ion is considered infinitely persistent because it cannot degrade further. Once released to surface waters and moist soils their fate depends on solubility and dissociation in water. A significant proportion of dissolved/ sorbed metals will end up in sediments through the settling of suspended particles. The remaining metal ions can then be taken up by aquatic organisms. Ionic species may bind to dissolved ligands or sorb to solid particles in water.

Ecotoxicity: Even though many metals show few toxic effects at physiological pH levels, transformation may introduce new or magnified effects.

Speciation of arsenic is an important consideration in the fate, movement, and action of this substance. Chemical and biochemical transformations of arsenic include oxidation, reduction and methylation which affects its volatilisation, adsorption, dissolution and biological disposition. The transport of arsenic in the environment is largely controlled by absorption/desorption processes in soils and sediments. Sediment movement is responsible for transport of arsenic soil residues to their ultimate sinks in deep ocean sediments. The clay fraction, plus ferrous and aluminium oxides which coat clay particles, adsorb arsenicals which then undergo transformation as discussed earlier. Conversions of arsenic to volatile alkylarsines leads to air transport losses from soil. Inorganic arsenic occurs in water in different oxidation states depending on the pH and Eh of the water. Arsenate is apparently reduced by bacteria to arsenite in marine environments because the ratio of total arsenate to total arsenic is much lower than that predicted thermodynamically. Methylation of arsenic occurs in both freshwater and marine systems where arsenate occurs as arsenate, arsenite, methanearsonic acid and dimethylarsinic acid. Arsenate predominates because this is the most stable form.

Bioaccumulation occurs in some aquatic species such as seaweeds, freshwater algae and crustaceans. Some arsenic in water flea (Daphnia Magna) and algae occurs as arseno-analogues of phospholipids leading to the mistaken impression that accumulation and utilisation of arsenic takes place at the expense of phosphate. Crabs, lobsters and other marine organisms accumulate organo-arsenicals in the food chain. Although human activity may alter the local picture of environmental arsenic there is little evidence that this affects the global scale arsenic cycle.

Airborne concentrations of arsenic in urban areas may range from a few nanograms to a few tenths of a microgram per cubic meter; airborne arsenic is generally inorganic. In oxygenated soils inorganic arsenic is present in pentavalent form; under reducing conditions it occurs as the trivalent form.

Drinking Water Standards:

arsenic: 50 ug/l (UK max.) 0.01mg/L (WHO provisional guideline)

chloride: 400 mg/l (UK max.)

250 mg/l (WHO guideline)

Soil Guideline:

Dutch Criteria: 29 mg/kg (target)

55 mg/kg (intervention)

Air Quality Standard:

No safe levels recommended due to carcinogenic properties (WHO guideline)

**DO NOT** discharge into sewer or waterways.

## Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
	No Data available for all ingredients	No Data available for all ingredients

## Bioaccumulative potential

Ingredient	Bioaccumulation
	No Data available for all ingredients

## Mobility in soil

Ingredient	Mobility
	No Data available for all ingredients

## SECTION 13 Disposal considerations



## Waste treatment methods

## Lithium hexafluoroarsenate(V)

Product / Packaging disposal	<ul style="list-style-type: none"> <li>Containers may still present a chemical hazard/ danger when empty.</li> <li>Return to supplier for reuse/ recycling if possible.</li> </ul> <p>Otherwise:</p> <ul style="list-style-type: none"> <li>If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill.</li> <li>Where possible retain label warnings and SDS and observe all notices pertaining to the product.</li> <li>Recycle wherever possible or consult manufacturer for recycling options.</li> <li>Consult State Land Waste Management Authority for disposal.</li> <li>Bury residue in an authorised landfill.</li> <li>Recycle containers if possible, or dispose of in an authorised landfill.</li> </ul>
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## SECTION 14 Transport information

## Labels Required

	
Marine Pollutant	

## Land transport (ADR-RID)

UN number or ID number	1557	
UN proper shipping name	ARSENIC COMPOUND, SOLID, N.O.S., inorganic, including: Arsenates, n.o.s.; Arsenites, n.o.s.; and Arsenic sulphides, n.o.s.	
Transport hazard class(es)	Class	6.1
	Subsidiary risk	Not Applicable
Packing group	II	
Environmental hazard	Environmentally hazardous	
Special precautions for user	Hazard identification (Kemler)	60
	Classification code	T5
	Hazard Label	6.1
	Special provisions	43 274
	Limited quantity	500 g
	Tunnel Restriction Code	2 (D/E)

## Air transport (ICAO-IATA / DGR)

UN number	1557	
UN proper shipping name	Arsenic compound, solid, n.o.s. * inorganic, including: Arsenates, n.o.s.; Arsenites, n.o.s.; and Arsenic sulphides, n.o.s.	
Transport hazard class(es)	ICAO/IATA Class	6.1
	ICAO / IATA Subrisk	Not Applicable
	ERG Code	6L
Packing group	II	
Environmental hazard	Environmentally hazardous	
Special precautions for user	Special provisions	A3 A5 A6
	Cargo Only Packing Instructions	676
	Cargo Only Maximum Qty / Pack	100 kg
	Passenger and Cargo Packing Instructions	669
	Passenger and Cargo Maximum Qty / Pack	25 kg
	Passenger and Cargo Limited Quantity Packing Instructions	Y644
	Passenger and Cargo Limited Maximum Qty / Pack	1 kg

Lithium hexafluoroarsenate(V)

Sea transport (IMDG-Code / GGVSee)

UN number	1557	
UN proper shipping name	ARSENIC COMPOUND, SOLID, N.O.S. inorganic, including: Arsenates, n.o.s.; Arsenites, n.o.s.; and Arsenic sulphides, n.o.s.	
Transport hazard class(es)	IMDG Class	6.1
	IMDG Subrisk	Not Applicable
Packing group	II	
Environmental hazard	Marine Pollutant	
Special precautions for user	EMS Number	F-A, S-A
	Special provisions	43 274
	Limited Quantities	500 g

Inland waterways transport (ADN)

UN number	1557	
UN proper shipping name	ARSENIC COMPOUND, SOLID, N.O.S., inorganic, including: Arsenates, n.o.s.; Arsenites, n.o.s.; and Arsenic sulphides, n.o.s.	
Transport hazard class(es)	6.1	Not Applicable
Packing group	II	
Environmental hazard	Environmentally hazardous	
Special precautions for user	Classification code	T5
	Special provisions	43; 274; 802
	Limited quantity	500 g
	Equipment required	PP, EP
	Fire cones number	2

Transport in bulk according to Annex II of MARPOL and the IBC code

Not Applicable

Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

Product name	Group
Lithium hexafluoroarsenate(V)	Not Available

Transport in bulk in accordance with the IGC Code

Product name	Ship Type
Lithium hexafluoroarsenate(V)	Not Available

SECTION 15 Regulatory information

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

Lithium hexafluoroarsenate(V) is found on the following regulatory lists

- Chemical Footprint Project - Chemicals of High Concern List
- EU REACH Regulation (EC) No 1907/2006 - Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles
- EU REACH Regulation (EC) No 1907/2006 - Annex XVII (Appendix 12) Restricted substances and maximum concentration limits by weight in homogeneous materials
- Europe EC Inventory

- European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)
- European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI
- International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
- International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Group 1: Carcinogenic to humans

National Inventory Status

National Inventory	Status
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## Lithium hexafluoroarsenate(V)

National Inventory	Status
Australia - AIIC / Australia Non-Industrial Use	No (Lithium hexafluoroarsenate(V))
Canada - DSL	Yes
Canada - NDSL	No (Lithium hexafluoroarsenate(V))
China - IECSC	No (Lithium hexafluoroarsenate(V))
Europe - EINEC / ELINCS / NLP	Yes
Japan - ENCS	No (Lithium hexafluoroarsenate(V))
Korea - KECI	Yes
New Zealand - NZIoC	Yes
Philippines - PICCS	Yes
USA - TSCA	Yes
Taiwan - TCSI	Yes
Mexico - INSQ	No (Lithium hexafluoroarsenate(V))
Vietnam - NCI	Yes
Russia - FBEPH	No (Lithium hexafluoroarsenate(V))
<b>Legend:</b>	<i>Yes = All CAS declared ingredients are on the inventory</i> <i>No = One or more of the CAS listed ingredients are not on the inventory. These ingredients may be exempt or will require registration.</i>

## SECTION 16 Other information

Revision Date	11/07/2023
Initial Date	11/07/2023

## SDS Version Summary

Version	Date of Update	Sections Updated
2.3	11/07/2023	Toxicological information - Chronic Health, Disposal considerations - Disposal, Exposure controls / personal protection - Engineering Control, Korean MSDS Number, Exposure controls / personal protection - Personal Protection (other), Accidental release measures - Spills (major), Accidental release measures - Spills (minor), Identification of the substance / mixture and of the company / undertaking - Supplier Information

## Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

For detailed advice on Personal Protective Equipment, refer to the following EU CEN Standards:

EN 166 Personal eye-protection

EN 340 Protective clothing

EN 374 Protective gloves against chemicals and micro-organisms

EN 13832 Footwear protecting against chemicals

EN 133 Respiratory protective devices

## Definitions and abbreviations

PC - TWA: Permissible Concentration-Time Weighted Average

PC - STEL: Permissible Concentration-Short Term Exposure Limit

IARC: International Agency for Research on Cancer

ACGIH: American Conference of Governmental Industrial Hygienists

STEL: Short Term Exposure Limit

TEEL: Temporary Emergency Exposure Limit,

IDLH: Immediately Dangerous to Life or Health Concentrations

ES: Exposure Standard

OSF: Odour Safety Factor

NOAEL :No Observed Adverse Effect Level

LOAEL: Lowest Observed Adverse Effect Level

TLV: Threshold Limit Value

LOD: Limit Of Detection

**Lithium hexafluoroarsenate(V)**

OTV: Odour Threshold Value  
BCF: BioConcentration Factors  
BEI: Biological Exposure Index  
AII: Australian Inventory of Industrial Chemicals  
DSL: Domestic Substances List  
NDSL: Non-Domestic Substances List  
IECSC: Inventory of Existing Chemical Substance in China  
EINECS: European INventory of Existing Commercial chemical Substances  
ELINCS: European List of Notified Chemical Substances  
NLP: No-Longer Polymers  
ENCS: Existing and New Chemical Substances Inventory  
KECI: Korea Existing Chemicals Inventory  
NZIoC: New Zealand Inventory of Chemicals  
PICCS: Philippine Inventory of Chemicals and Chemical Substances  
TSCA: Toxic Substances Control Act  
TCSI: Taiwan Chemical Substance Inventory  
INSQ: Inventario Nacional de Sustancias Químicas  
NCI: National Chemical Inventory  
FBEPH: Russian Register of Potentially Hazardous Chemical and Biological Substances

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

<b>Classification according to regulation (EC) No 1272/2008 [CLP] and amendments</b>	<b>Classification Procedure</b>
Hazardous to the Aquatic Environment Acute Hazard Category 1, H400	Expert judgement
Acute Toxicity (Inhalation) Category 3, H331	Expert judgement
Carcinogenicity Category 1A, H350	Calculation method
Hazardous to the Aquatic Environment Long-Term Hazard Category 1, H410	Expert judgement
Acute Toxicity (Oral) Category 3, H301	Expert judgement