



1-Fluoro-4-methyl-1,4-diazoniabicyclo[2.2.2]octane di(tetrafluoroborate)

Apollo Scientific

Chemwatch Hazard Alert Code: 3

Part Number: PC32764

Version No: 2.2

Safety Data Sheet

Issue Date: 06/07/2023

Print Date: 06/07/2023

S.GHS.GB-NIR.EN

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

Product Identifier

Product name	1-Fluoro-4-methyl-1,4-diazoniabicyclo[2.2.2]octane di(tetrafluoroborate)
Chemical Name	N-fluoro-N'-methyltriethylenediamine bis(tetrafluoroborate)
Synonyms	Not Available
Proper shipping name	SELF-HEATING SOLID, ORGANIC, N.O.S.
Other means of identification	Not Available
CAS number	159269-48-4*

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

Relevant identified uses	Not Available
--------------------------	---------------

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	http://www.apolloscientific.co.uk/	apolloscientific.co.uk
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 amendments [1]	H318 - Serious Eye Damage/Eye Irritation Category 1, H335 - Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3, H315 - Skin Corrosion/Irritation Category 2, H251 - Self-Heating Substances and Mixtures Category 1, H317 - Sensitisation (Skin) Category 1, H301 - Acute Toxicity (Oral) Category 3, H228 - Flammable Solids Category 1
---	--

1-Fluoro-4-methyl-1,4-diazoniabicyclo[2.2.2]octane di(tetrafluoroborate)

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)

H318	Causes serious eye damage.
H335	May cause respiratory irritation.
H315	Causes skin irritation.
H251	Self-heating: may catch fire.
H317	May cause an allergic skin reaction.
H301	Toxic if swallowed.
H228	Flammable solid.

Precautionary statement(s) Prevention

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P235	Keep cool.
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, protective clothing, eye protection and face protection.
P240	Ground and bond container and receiving equipment.
P241	Use explosion-proof electrical/ventilating/lighting/intrinsically safe equipment.
P261	Avoid breathing dust/fumes.
P272	Contaminated work clothing should not be allowed out of the workplace.

Precautionary statement(s) Response

P301+P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor/physician/first aider.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P330	Rinse mouth.
P370+P378	In case of fire: Use alcohol resistant foam or normal protein foam to extinguish.
P302+P352	IF ON SKIN: Wash with plenty of water.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Precautionary statement(s) Storage

P405	Store locked up.
P407	Maintain air gap between stacks or pallets.
P410	Protect from sunlight.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P413	Store bulk masses greater than ... kg/...lbs at temperatures not exceeding ...°C/...°F.
P420	Store separately.

Precautionary statement(s) Disposal

P501	Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.
-------------	--

1-Fluoro-4-methyl-1,4-diazoniabicyclo[2.2.2]octane di(tetrafluoroborate)

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
159269-48-4*	100	<u>1-Fluoro-4-methyl-1,4-diazoniabicyclo[2.2.2]octane di(tetrafluoroborate)</u>	Serious Eye Damage/Eye Irritation Category 1, Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3, Skin Corrosion/Irritation Category 2, Self-Heating Substances and Mixtures Category 1, Sensitisation (Skin) Category 1, Acute Toxicity (Oral) Category 3, Flammable Solids Category 1; H318, H335, H315, H251, H317, H301, H228 [1]	Not Available

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

See section above for composition of Substances

SECTION 4 First aid measures

Description of first aid measures

Eye Contact	<ul style="list-style-type: none"> ▶ If in eyes, hold eyelids apart and flush the eye continuously with running water. ▶ Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes. ▶ 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. ▶ Seek medical attention without delay; if pain persists or recurs seek medical attention. ▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel. <p>For THERMAL burns:</p> <ul style="list-style-type: none"> ▶ Do NOT remove contact lens ▶ Lay victim down, on stretcher if available and pad BOTH eyes, make sure dressing does not press on the injured eye by placing thick pads under dressing, above and below the eye. ▶ Seek urgent medical assistance, or transport to hospital.
Skin Contact	<p>If skin or hair contact occurs:</p> <ul style="list-style-type: none"> ▶ Immediately flush body and clothes with large amounts of water, using safety shower if available. ▶ Quickly remove all contaminated clothing, including footwear. ▶ Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre. ▶ Transport to hospital, or doctor. <p>In case of burns:</p> <ul style="list-style-type: none"> ▶ Immediately apply cold water to burn either by immersion or wrapping with saturated clean cloth. ▶ DO NOT remove or cut away clothing over burnt areas. DO NOT pull away clothing which has adhered to the skin as this can cause further injury. ▶ DO NOT break blister or remove solidified material. ▶ Quickly cover wound with dressing or clean cloth to help prevent infection and to ease pain. ▶ For large burns, sheets, towels or pillow slips are ideal; leave holes for eyes, nose and mouth. ▶ DO NOT apply ointments, oils, butter, etc. to a burn under any circumstances. ▶ Water may be given in small quantities if the person is conscious. ▶ Alcohol is not to be given under any circumstances. ▶ Reassure. ▶ Treat for shock by keeping the person warm and in a lying position. ▶ Seek medical aid and advise medical personnel in advance of the cause and extent of the injury and the estimated time of arrival of the patient.
Inhalation	<ul style="list-style-type: none"> ▶ If fumes, aerosols or combustion products are inhaled remove from contaminated area. ▶ Other measures are usually unnecessary.
Ingestion	<ul style="list-style-type: none"> ▶ Immediately give a glass of water. ▶ First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5 Firefighting measures

Extinguishing media

1-Fluoro-4-methyl-1,4-diazoniabicyclo[2.2.2]octane di(tetrafluoroborate)

For **SMALL FIRES**:

- ▶ Dry chemical, CO₂, water spray or foam.

For **LARGE FIRES**:

- ▶ Foam, fog or water spray
- ▶ **DO NOT** use water jets.

Special hazards arising from the substrate or mixture

Fire Incompatibility	<ul style="list-style-type: none"> ▶ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result
-----------------------------	--

Advice for firefighters

Fire Fighting	<ul style="list-style-type: none"> ▶ Wear SCBA and fully-encapsulating, gas-tight suits when handling these substances. ▶ Always wear thermal protective clothing when handling molten substances. ▶ Structural fire fighter's uniform will only provide limited protection. ▶ Alert Fire Brigade and tell them location and nature of hazard. ▶ Wear full body protective clothing with breathing apparatus. ▶ Prevent, by any means available, spillage from entering drains or water course. ▶ Consider evacuation (or protect in place). ▶ Fight fire from a safe distance, with adequate cover. ▶ If safe, switch off electrical equipment until vapour fire hazard removed. ▶ Use water delivered as a fine spray to control fire and cool adjacent area. ▶ Avoid spraying water onto liquid pools. ▶ DO NOT approach containers suspected to be hot. ▶ Cool fire exposed containers with water spray from a protected location. ▶ If safe to do so, remove containers from path of fire. ▶ Equipment should be thoroughly decontaminated after use.
Fire/Explosion Hazard	<ul style="list-style-type: none"> ▶ May ignite on contact with air leading to spontaneous combustion ▶ May decompose explosively when heated or involved in fire. ▶ May REIGNITE after fire is extinguished. ▶ Gases generated in fire may be poisonous, corrosive or irritating. ▶ Containers may explode on heating. ▶ Runoff may create multiple fire or explosion hazard. <p>Combustion products include: Combustible. Will burn if ignited. carbon monoxide (CO) carbon dioxide (CO₂) other pyrolysis products typical of burning organic material.</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"> ▶ Eliminate all ignition sources. ▶ Cover with WET earth, sand or other non-combustible material. ▶ Use clean, non-sparking tools to collect absorbed material ▶ Wear gloves and safety glasses as appropriate.
Major Spills	<ul style="list-style-type: none"> ▶ Clear area of personnel and move upwind. ▶ Alert Fire Brigade and tell them location and nature of hazard. ▶ Eliminate all ignition sources (no smoking, flares, sparks or flames) ▶ Stop leak if safe to do so; prevent entry into waterways, drains or confined spaces. ▶ May be violently or explosively reactive. ▶ DO NOT walk through spilled material. ▶ DO NOT touch damaged containers or spilled material unless wearing appropriate protective clothing. ▶ Cover with WET earth, sand or other non-combustible material. ▶ Use clean, non-sparking tools to collect absorbed material and place into loosely-covered metal or plastic containers ready for disposal. ▶ Alternately, the spill may be contained using WET earth, sand, or vermiculite and then covered with a high boiling point mineral oil. ▶ Recover the liquid using non-sparking appliances and place in labelled, sealable container.

1-Fluoro-4-methyl-1,4-diazoniabicyclo[2.2.2]octane di(tetrafluoroborate)

- ▶ Water spray may be used to knock down vapours or divert vapour clouds.
- ▶ Wash area with water and dike for later disposal;
- ▶ After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.
- ▶ If contamination of drains or waterways occurs, advise emergency services.

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

SECTION 7 Handling and storage

Precautions for safe handling

Safe handling	<ul style="list-style-type: none"> ▶ For large scale or continuous use, spark-free, earthed ventilation system venting directly to the outside and separate from usual ventilation systems ▶ Provide dust collectors with explosion vents. ▶ Avoid all personal contact, including inhalation. ▶ Wear protective clothing when risk of overexposure occurs. ▶ Use in a well-ventilated area. ▶ 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 and before re-use ▶ Use good occupational work practice. ▶ Observe manufacturer's storage and handling recommendations contained within this SDS. ▶ Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained. <p>NOTE: The material may remove oxygen from the air thus producing a severe hazard to workers inside enclosed or confined spaces where the material might accumulate. Before entry to such areas, sampling and test procedures for low oxygen levels should be undertaken; control conditions should be established to ensure the availability of adequate oxygen supply.</p>
Other information	<ul style="list-style-type: none"> ▶ Store under an inert gas, e.g. argon or nitrogen. <p>FOR MINOR QUANTITIES:</p> <ul style="list-style-type: none"> ▶ Store in an indoor fireproof cabinet or in a room of noncombustible construction. ▶ Provide adequate portable fire-extinguishers in or near the storage area. <p>FOR PACKAGE STORAGE:</p> <ul style="list-style-type: none"> ▶ Store in original containers in approved flame-proof area. ▶ No smoking, naked lights, heat or ignition sources. ▶ DO NOT store in pits, depressions, basements or areas where vapours may be trapped. ▶ Keep containers securely sealed. ▶ Store away from incompatible materials in a cool, dry, well ventilated area. ▶ Protect containers against physical damage and check regularly for leaks. ▶ Protect containers from exposure to weather and from direct sunlight unless: (a) the packages are of metal or plastic construction; (b) the packages are securely closed are not opened for any purpose while in the area where they are stored and (c) adequate precautions are taken to ensure that rain water, which might become contaminated by the dangerous goods, is collected and disposed of safely. ▶ Ensure proper stock-control measures are maintained to prevent prolonged storage of dangerous goods. ▶ Observe manufacturer's storage and handling recommendations contained within this SDS.

Conditions for safe storage, including any incompatibilities

Suitable container	<p>For low viscosity materials and solids: Drums and jerricans must be of the non-removable head type. Where a can is to be used as an inner package, the can must have a screwed enclosure.</p> <p>For materials with a viscosity of at least 2680 cSt. (23 deg. C):</p> <ul style="list-style-type: none"> ▶ Removable head packaging and ▶ cans with friction closures may be used. <p>-</p> <p>Where combination packages are used, there must be sufficient inert absorbent material to absorb completely any leakage that may occur, unless the outer packaging is a close fitting moulded plastic box and the substances are not incompatible with the plastic.</p> <p>All combination packages for Packing group I and II must contain cushioning material.</p>
Storage incompatibility	<ul style="list-style-type: none"> ▶ Avoid reaction with oxidising agents ▶ Store at 2-8°C ▶ Moisture sensitive ▶ Store under argon

1-Fluoro-4-methyl-1,4-diazoniabicyclo[2.2.2]octane di(tetrafluoroborate)

SECTION 8 Exposure controls / personal protection

Control parameters

Occupational Exposure Limits (OEL)

INGREDIENT DATA

Not Available

Emergency Limits

Ingredient	TEEL-1	TEEL-2	TEEL-3
1-Fluoro-4-methyl-1,4-diazoniabicyclo[2.2.2]octane di(tetrafluoroborate)	Not Available	Not Available	Not Available

Ingredient	Original IDLH	Revised IDLH
1-Fluoro-4-methyl-1,4-diazoniabicyclo[2.2.2]octane di(tetrafluoroborate)	Not Available	Not Available

Occupational Exposure Banding

Ingredient	Occupational Exposure Band Rating	Occupational Exposure Band Limit
1-Fluoro-4-methyl-1,4-diazoniabicyclo[2.2.2]octane di(tetrafluoroborate)	E	≤ 0.01 mg/m ³


Notes:

Occupational exposure banding is a process of assigning chemicals into specific categories or bands based on a chemical's potency and the adverse health outcomes associated with exposure. The output of this process is an occupational exposure band (OEB), which corresponds to a range of exposure concentrations that are expected to protect worker health.

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"> ▸ Local exhaust ventilation is required where solids are handled as powders or crystals; even when particulates are relatively large, a certain proportion will be powdered by mutual friction. ▸ Exhaust ventilation should be designed to prevent accumulation and recirculation of particulates in the workplace. ▸ If in spite of local exhaust an adverse concentration of the substance in air could occur, respiratory protection should be considered. Such protection might consist of: <ul style="list-style-type: none"> (a): particle dust respirators, if necessary, combined with an absorption cartridge; (b): filter respirators with absorption cartridge or canister of the right type; (c): fresh-air hoods or masks <ul style="list-style-type: none"> ▸ Build-up of electrostatic charge on the dust particle, may be prevented by bonding and grounding. ▸ Powder handling equipment such as dust collectors, dryers and mills may require additional protection measures such as explosion venting. <p>Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to efficiently remove the contaminant.</p>									
	<table border="1"> <thead> <tr> <th>Type of Contaminant:</th> <th>Air Speed:</th> </tr> </thead> <tbody> <tr> <td>direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)</td> <td>1-2.5 m/s (200-500 ft/min)</td> </tr> <tr> <td>grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).</td> <td>2.5-10 m/s (500-2000 ft/min)</td> </tr> </tbody> </table>	Type of Contaminant:	Air Speed:	direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1-2.5 m/s (200-500 ft/min)	grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).	2.5-10 m/s (500-2000 ft/min)			
	Type of Contaminant:	Air Speed:								
	direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1-2.5 m/s (200-500 ft/min)								
	grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).	2.5-10 m/s (500-2000 ft/min)								
<p>Within each range the appropriate value depends on:</p> <table border="1"> <thead> <tr> <th>Lower end of the range</th> <th>Upper end of the range</th> </tr> </thead> <tbody> <tr> <td>1: Room air currents minimal or favourable to capture</td> <td>1: Disturbing room air currents</td> </tr> <tr> <td>2: Contaminants of low toxicity or of nuisance value only</td> <td>2: Contaminants of high toxicity</td> </tr> <tr> <td>3: Intermittent, low production.</td> <td>3: High production, heavy use</td> </tr> <tr> <td>4: Large hood or large air mass in motion</td> <td>4: Small hood-local control only</td> </tr> </tbody> </table>	Lower end of the range	Upper end of the range	1: Room air currents minimal or favourable to capture	1: Disturbing room air currents	2: Contaminants of low toxicity or of nuisance value only	2: Contaminants of high toxicity	3: Intermittent, low production.	3: High production, heavy use	4: Large hood or large air mass in motion	4: Small hood-local control only
Lower end of the range	Upper end of the range									
1: Room air currents minimal or favourable to capture	1: Disturbing room air currents									
2: Contaminants of low toxicity or of nuisance value only	2: Contaminants of high toxicity									
3: Intermittent, low production.	3: High production, heavy use									
4: Large hood or large air mass in motion	4: Small hood-local control only									

1-Fluoro-4-methyl-1,4-diazoniabicyclo[2.2.2]octane di(tetrafluoroborate)

	Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 4-10 m/s (800-2000 ft/min) for extraction of crusher dusts generated 2 metres distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.
Individual protection measures, such as personal protective equipment	
Eye and face protection	<ul style="list-style-type: none"> ▸ Safety glasses with side shields. ▸ Chemical goggles. [AS/NZS 1337.1, EN166 or national equivalent] ▸ 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].
Skin protection	See Hand protection below
Hands/feet protection	<p>NOTE:</p> <ul style="list-style-type: none"> ▸ The material may produce skin sensitisation in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact. ▸ Contaminated leather items, such as shoes, belts and watch-bands should be removed and destroyed. ▸ Fire resistant/ heat resistant gloves where practical, otherwise ▸ Heavy-duty chemically resistant gloves capable of providing short-term protection against spontaneous ignition.
Body protection	See Other protection below
Other protection	<p>Wear protective clothing appropriate for the work situation.</p> <p>For large scale or continuous use, when handling dry powder, wear :</p> <ul style="list-style-type: none"> - tight-weave, non-static, noncombustible or flameproof clothing without cuffs, metallic fasteners, pockets, or laps in which powder may collect. - non-sparking safety or conductive footwear. Conductive footwear describes a boot or shoe with a sole made from a conductive compound chemically bound to the bottom components, for permanent control to electrically ground the foot and shall dissipate static electricity from the body to reduce the possibility of ignition of volatile compounds. Electrical resistance must range between 0 to 500,000 ohms. Conductive shoes should be stored in lockers close to the room in which they are worn. Personnel who have been issued conductive footwear should not wear them from their place of work to their homes and return.

Respiratory protection

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

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(SO₂), G = Agricultural chemicals, K = Ammonia(NH₃), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

SECTION 9 Physical and chemical properties**Information on basic physical and chemical properties**

Appearance	Not Available		
Physical state	Solid	Relative density (Water =	Not Available

1-Fluoro-4-methyl-1,4-diazoniabicyclo[2.2.2]octane di(tetrafluoroborate)

		1)	
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)	225-231	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
Chemical stability	<ul style="list-style-type: none"> ▶ May heat spontaneously ▶ Identify and remove sources of ignition and heating. ▶ Incompatible material, especially oxidisers, and/or other sources of oxygen may produce unstable product(s). ▶ Hazardous polymerization will not occur.
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

SECTION 11 Toxicological information

Information on toxicological effects

Inhaled	The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.
Ingestion	The material has NOT been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence.
Skin Contact	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.
Eye	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.
Chronic	Skin contact with the material is more likely to cause a sensitisation reaction in some persons compared to the general population.

1-Fluoro-4-methyl-1,4-diazoniabicyclo[2.2.2]octane di(tetrafluoroborate)

Legend: 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

1-Fluoro-4-methyl-1,4-diazoniabicyclo[2.2.2]octane di(tetrafluoroborate)

The following information refers to contact allergens as a group and may not be specific to this product. Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. Other allergic skin reactions, e.g. contact urticaria, involve antibody-mediated immune reactions. The significance of the contact allergen is not simply determined by its sensitisation potential: the distribution of the substance and the opportunities for contact with it are equally important. A weakly sensitising substance which is widely distributed can be a more important allergen than one with stronger sensitising potential with which few individuals come into contact. From a clinical point of view, substances are noteworthy if they produce an allergic test reaction in more than 1% of the persons tested.

Acute Toxicity	✓	Carcinogenicity	✗
Skin Irritation/Corrosion	✓	Reproductivity	✗
Serious Eye Damage/Irritation	✓	STOT - Single Exposure	✓
Respiratory or Skin sensitisation	✓	STOT - Repeated Exposure	✗
Mutagenicity	✗	Aspiration Hazard	✗

Legend: ✗ – 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

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

Product / Packaging disposal	<ul style="list-style-type: none"> ▶ Containers may still present a chemical hazard/ danger when empty. ▶ Return to supplier for reuse/ recycling if possible. <p>Otherwise:</p> <ul style="list-style-type: none"> ▶ 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. ▶ Where possible retain label warnings and SDS and observe all notices pertaining to the product. ▶ Recycle wherever possible or consult manufacturer for recycling options. ▶ Consult State Land Waste Authority for disposal. ▶ Bury or incinerate residue at an approved site. ▶ Recycle containers if possible, or dispose of in an authorised landfill.
-------------------------------------	--

1-Fluoro-4-methyl-1,4-diazoniabicyclo[2.2.2]octane di(tetrafluoroborate)

SECTION 14 Transport information

Labels Required

	
Marine Pollutant	NO

Land transport (ADR-RID)

UN number or ID number	3088	
UN proper shipping name	SELF-HEATING SOLID, ORGANIC, N.O.S.	
Transport hazard class(es)	Class	4.2
	Subsidiary risk	Not Applicable
Packing group	II	
Environmental hazard	Not Applicable	
Special precautions for user	Hazard identification (Kemler)	40
	Classification code	S2
	Hazard Label	4.2
	Special provisions	274
	Limited quantity	0
	Tunnel Restriction Code	2 (D/E)

Air transport (ICAO-IATA / DGR)

UN number	3088	
UN proper shipping name	Self-heating solid, organic, n.o.s. *	
Transport hazard class(es)	ICAO/IATA Class	4.2
	ICAO / IATA Subrisk	Not Applicable
	ERG Code	4L
Packing group	II	
Environmental hazard	Not Applicable	
Special precautions for user	Special provisions	A3 A803
	Cargo Only Packing Instructions	470
	Cargo Only Maximum Qty / Pack	50 kg
	Passenger and Cargo Packing Instructions	467
	Passenger and Cargo Maximum Qty / Pack	15 kg
	Passenger and Cargo Limited Quantity Packing Instructions	Forbidden
	Passenger and Cargo Limited Maximum Qty / Pack	Forbidden

Sea transport (IMDG-Code / GGVSee)

UN number	3088	
UN proper shipping name	SELF-HEATING SOLID, ORGANIC, N.O.S.	
Transport hazard class(es)	IMDG Class	4.2
	IMDG Subrisk	Not Applicable
Packing group	II	
Environmental hazard	Not Applicable	
Special precautions for user	EMS Number	F-A, S-J
	Special provisions	274

1-Fluoro-4-methyl-1,4-diazoniabicyclo[2.2.2]octane di(tetrafluoroborate)

Limited Quantities 0

Inland waterways transport (ADN)

UN number	3088	
UN proper shipping name	SELF-HEATING SOLID, ORGANIC, N.O.S.	
Transport hazard class(es)	4.2	Not Applicable
Packing group	II	
Environmental hazard	Not Applicable	
Special precautions for user	Classification code	S2
	Special provisions	274
	Limited quantity	0
	Equipment required	PP
	Fire cones number	0

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
1-Fluoro-4-methyl-1,4-diazoniabicyclo[2.2.2]octane di(tetrafluoroborate)	Not Available

Transport in bulk in accordance with the IGC Code

Product name	Ship Type
1-Fluoro-4-methyl-1,4-diazoniabicyclo[2.2.2]octane di(tetrafluoroborate)	Not Available

SECTION 15 Regulatory information

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

1-Fluoro-4-methyl-1,4-diazoniabicyclo[2.2.2]octane di(tetrafluoroborate) is found on the following regulatory lists

Not Applicable

National Inventory Status

National Inventory	Status
Australia - AIIIC / Australia Non-Industrial Use	No (1-Fluoro-4-methyl-1,4-diazoniabicyclo[2.2.2]octane di(tetrafluoroborate))
Canada - DSL	No (1-Fluoro-4-methyl-1,4-diazoniabicyclo[2.2.2]octane di(tetrafluoroborate))
Canada - NDSL	No (1-Fluoro-4-methyl-1,4-diazoniabicyclo[2.2.2]octane di(tetrafluoroborate))
China - IECSC	No (1-Fluoro-4-methyl-1,4-diazoniabicyclo[2.2.2]octane di(tetrafluoroborate))
Europe - EINEC / ELINCS / NLP	No (1-Fluoro-4-methyl-1,4-diazoniabicyclo[2.2.2]octane di(tetrafluoroborate))
Japan - ENCS	No (1-Fluoro-4-methyl-1,4-diazoniabicyclo[2.2.2]octane di(tetrafluoroborate))
Korea - KECI	No (1-Fluoro-4-methyl-1,4-diazoniabicyclo[2.2.2]octane di(tetrafluoroborate))
New Zealand - NZIoC	No (1-Fluoro-4-methyl-1,4-diazoniabicyclo[2.2.2]octane di(tetrafluoroborate))
Philippines - PICCS	No (1-Fluoro-4-methyl-1,4-diazoniabicyclo[2.2.2]octane di(tetrafluoroborate))
USA - TSCA	No (1-Fluoro-4-methyl-1,4-diazoniabicyclo[2.2.2]octane di(tetrafluoroborate))
Taiwan - TCSI	Yes
Mexico - INSQ	No (1-Fluoro-4-methyl-1,4-diazoniabicyclo[2.2.2]octane di(tetrafluoroborate))
Vietnam - NCI	No (1-Fluoro-4-methyl-1,4-diazoniabicyclo[2.2.2]octane di(tetrafluoroborate))

1-Fluoro-4-methyl-1,4-diazoniabicyclo[2.2.2]octane di(tetrafluoroborate)

National Inventory	Status
Russia - FBEPH	No (1-Fluoro-4-methyl-1,4-diazoniabicyclo[2.2.2]octane di(tetrafluoroborate))
Legend:	Yes = All CAS declared ingredients are on the inventory No = One or more of the CAS listed ingredients are not on the inventory. These ingredients may be exempt or will require registration.

SECTION 16 Other information

Revision Date	06/07/2023
Initial Date	07/07/2023

SDS Version Summary

Version	Date of Update	Sections Updated
1.2	06/07/2023	Physical and chemical properties - Appearance, CAS Number, Toxicological information - Chronic Health, Hazards identification - Classification, Disposal considerations - Disposal, Exposure controls / personal protection - Exposure Standard, Composition / information on ingredients - Ingredients, Korean MSDS Number, Exposure controls / personal protection - Personal Protection (eye), Exposure controls / personal protection - Personal Protection (hands/feet), Identification of the substance / mixture and of the company / undertaking - Supplier Information, Identification of the substance / mixture and of the company / undertaking - Synonyms

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

OTV: Odour Threshold Value

BCF: BioConcentration Factors

BEI: Biological Exposure Index

AIIC: 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

1-Fluoro-4-methyl-1,4-diazoniabicyclo[2.2.2]octane di(tetrafluoroborate)

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]

Classification according to regulation (EC) No 1272/2008 [CLP] and amendments	Classification Procedure
Serious Eye Damage/Eye Irritation Category 1, H318	Expert judgement
Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3 , H335	Expert judgement
Skin Corrosion/Irritation Category 2, H315	Expert judgement
Self-Heating Substances and Mixtures Category 1, H251	Calculation method
Sensitisation (Skin) Category 1, H317	Calculation method
Acute Toxicity (Oral) Category 3, H301	Expert judgement
Flammable Solids Category 1, H228	Calculation method

Powered by AuthorITe, from Chemwatch.