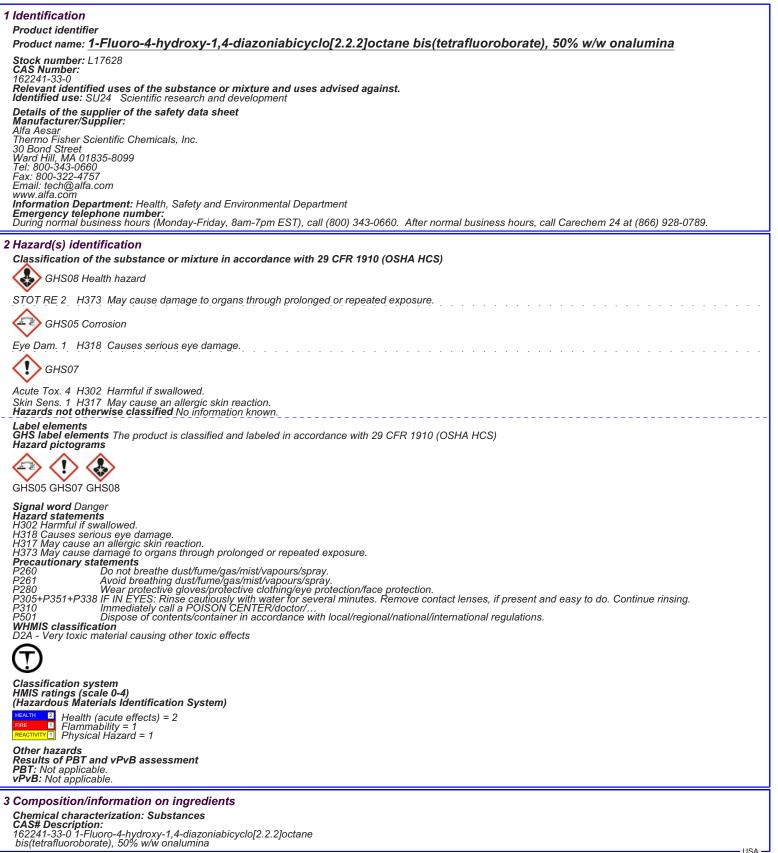


# Safety Data Sheet per OSHA HazCom 2012



## Product name: 1-Fluoro-4-hydroxy-1,4-diazoniabicyclo[2.2.2]octane bis(tetrafluoroborate), 50% w/w onalumina

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Additional information about design of technical systems: Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute. Control parameters Components with limit values that require monitoring at the workplace: Aluminum oxide Aluminum oxide ACGIH TLV 10; Not classified as a human carcinogen Austria MAK 5 (dust) Belgium TWA 10 Demmark TWA 10(A) France VME 10 Germany MAK 6 Korea TLV Not classified as a human carcinogen Norway TWA 2(A) Poland TWA 2; 16-STEL Russia 4-STEL Sweden TWA 4(A) (resp. dust) 10(A) (total dust) Switzerland MAK 2 United Kingdom TWA 10 (total inhalable dust) 4 (respirable dust) USA PEL 15 (total dust) Softerspirable fraction) Additional information: No data	Specific end use(s) No further relevant information available.	
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Control parameters Components with limit values that require monitoring at the workplace: Aluminum oxide mg/m3 ACGIH TLV 10; Not classified as a human carcinogen Austria MAK 5 (dust) Belgium TWA 10 Denmark TWA 10(AI) France VME 10 Germany MAK 6 Korea TLV Not classified as a human carcinogen Norway TWA 2(AI) Poland TWA 2: 16-STEL Russia 4-STEL Sweden TWA 4(AI) (resp. dust) 10(AI) (total dust) Switzerland MAK-W 2 United Kingdom TWA 10 (total inhalable dust) 4 (respirable fust) USA PEL 15 (total dust) 5 (respirable fraction) Additional information: No data		
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Additional information: No data	USA PEL 15 (total duśt)	
		(Contd. on page

## Safety Data Sheet per OSHA HazCom 2012

Product name: 1-Fluoro-4-hydroxy	-1,4-diazoniabicyclo[2.2.2]octane bis(tetrafluoroborate), 50% w/w onalumina	
Keep away from foodsfuffs, beverages Remove all soiled and contaminated c Wash hands before breaks and at the Avoid contact with the eyes. Maintain an ergonomically appropriate <b>Breathing equipment</b> : Use suitable re <b>Protection of hands:</b> Impervious gloves Check protective gloves prior to each of	handling chemicals should be followed. e and feed. lothing immediately. end of work. working environment. espirator when high concentrations are present. use for their proper condition. ly depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer. <b>n minutes</b> ) Not determined	(Contd. of page 2
9 Physical and chemical propertie	25	
Information on basic physical and c General Information Appearance: Form: Color: Odor: Odor threshold:		
pH-value:	Not applicable.	
Change in condition Melting point/Melting range: Boiling point/Boiling range: Sublimation temperature / start:	Not determined Not determined Not determined	
Flash point: Flammability (solid, gaseous) Ignition temperature: Decomposition temperature: Auto igniting:	Not applicable Not determined. Not determined Not determined Not determined.	
Danger of explosion: Explosion limits: Lower: Upper: Vapor pressure: Density at 20 °C (68 °F): Relative density Vapor density Evaporation rate Solubility in / Miscibility with	Product does not present an explosion hazard. Not determined Not applicable. 3.5-4 g/cm <sup>3</sup> (29.208-33. lbs/gal) Not determined. Not applicable. Not applicable.	
Water: Partition coefficient (n-octanol/wate Viscosity: dynamic: kinematic: Other information	Partly soluble <b>r):</b> Not determined. Not applicable. Not applicable. No further relevant information available.	
10 Stability and reactivity Reactivity No information known. Chemical stability Stable under recor	nmended storage conditions. <b>to be avoided:</b> Decomposition will not occur if used and stored according to specifications. Io dangerous reactions known nt information available.	

Carbon monoxide a Hydrogen fluoride Nitrogen oxides Boron oxide Metal oxide fume Hydrogen cyanide a carbon

#### 11 Toxicological information

 Toxicological information

 Information on toxicological effects

 Acute toxicity: Harmful if swallowed.

 LD/LC50 values that are relevant for classification: No data

 Skin irritation or corrosion: No irritant effect.

 Eye irritation or corrosion: Susses serious eye damage.

 Sensitization: May cause an allergic skin reaction.

 Germ cell mutagenicity: No effects known.

 Carcinogenicity:

 EPA-I: Data are inadeguate for an assessment of human carcinogenic potential.

 ACGIH A4: Not classifiable as a human carcinogen: Inadequate data on which to classify the agent in terms of its carcinogenicity in humans and/or animals.

 Reproductive toxicity: No effects known.

 Specific target organ system toxicity - repeated exposure:

 May cause damage to organs through prolonged or repeated exposure.

 Specific target organ is not known.

 Specific target organ system toxicity - single exposure: No effects known.

 Aspiration hazard: No effects known.

 Aspiration hazard: No effects known.

 May cause to chronic toxicity: Aluminum may be implicated in Alzheimers disease. Inhalation of aluminum containing dusts may cause pulmonary disease. (Contd. on page 4)

Safetv Dat	a Sheet
Safety Dat per OSHA Haz	Com 2012

	Neviewed 011 03/12/2010			
Product name: 1-Fluoro-4-hydroxy-1,4-diazoniabicyclo[2.2.2]octane bis(tetrafluoroborate), 50% w/w onalumina				
Subacute to chronic toxicity: No effects known.	(Contd. of page 3)			
Subacute to chronic toxicify: Boron affects the central nervous system. Boron poisoning causes depression of the circulation, persistant vomiting and diarrhea, followed by profound shock and coma. The temperature may become subnormal and a scarletina form rash may cover the entire body. Aluminum ovide has caused tumors and neonlasms in experimental animals via implant.				
Aluminum oxide has caused tumors and neoplasms in experimental animals vi Additional toxicological information: To the best of our knowledge the acute	and chronic toxicity of this substance is not fully known.			
12 Ecological information Toxicity				
Aquatic toxicity: No further relevant information available. Persistence and degradability No further relevant information available. Bioaccumulative potential No further relevant information available. Mobility in soil No further relevant information available. Ecotoxical effects:				
Remark: Toxic for aquatic organisms Additional ecological information: General notes: Toxic for aquatic organisms				
Toxic for aquatic organisms Do not allow material to be released to the environment without proper governmental permits. Do not allow product to reach ground water, water course or sewage system, even in small quantities. Danger to drinking water if even extremely small quantities leak into the ground. Also poisonous for fish and plankton in water bodies. Toxic to aquatic life.				
May cause long lasting harmful effects to aquatic life. Avoid transfer into the environment. <b>Results of PBT and vPvB assessment</b> <b>PBT:</b> Not applicable.				
vPvB: Not applicable. Other adverse effects No further relevant information available.				
13 Disposal considerations				
Waste treatment methods Recommendation Consult state, local or national regulations to ensure proper disposal. Uncleaned packagings:				
<b>Recommendation:</b> Disposal must be made according to official regulations.				
14 Transport information				
UN-Number DOT, IMDG, IATA	UN3077			
UN proper shipping name DOT	Environmentally hazardous substances, solid, n.o.s. (1-Fluoro-4-hydroxy-1,4- diazoniabicvclo[2,2,2]octane bis(tetrafluoroborate)/aluminumoxide)			
IMDG IATA	diazoniabicyclo[2.2.2]octane bis(tetrafluoroborate)/aluminumoxide) ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (1-Fluoro-4- hydroxy-1,4-diazoniabicyclo[2.2.2]octane bis(tetrafluoroborate)/aluminumoxide), MARINE POLLUTANT ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (1-Fluoro-4-			
Turner of brook of the form	hydroxy-1,4-diazoniabicyclo[2.2.2]octane bis(tetrafluoroborate)/aluminumoxide)			
Transport hazard class(es) DOT, IMDG, IATA				
Class	9 Miscellaneous dangerous substances and articles.			
Label Class Label	9 9 (M7) Miscellaneous dangerous substances and articles 9			
Packing group DOT, IMDG, IATA	III			
Environmental hazards: Marine pollutant (IMDG): Special marking (ADR): Special marking (IATA):	Symbol (fish and tree) Symbol (fish and tree) Symbol (fish and tree)			
Special marking (ISTA).	Warning: Miscellaneous dangerous substances and articles			
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.				
Transport/Additional information:				
DOT Marine Pollutant (DOT): Remarks:	No Special marking with the symbol (fish and tree).			
UN "Model Regulation":	UN3077, Environmentally hazardous substances, solid, n.o.s. (1-Fluoro-4-hydroxy- 1,4-diazoniabicyclo[2.2.2]octane bis(tetrafluoroborate)/aluminumoxide), 9, III			

### 15 Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture GHS label elements The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS) Hazard pictograms



**Signal word** Danger **Hazard statements** H302 Harmful if swallowed.

(Contd. on page 5) USA

Safety Data Sheet per OSHA HazCom 2012

(Contd. of page 4)

#### Product name: 1-Fluoro-4-hydroxy-1,4-diazoniabicyclo[2.2.2]octane bis(tetrafluoroborate), 50% w/w onalumina

H318 Causes serious eye damage. H317 May cause an allergic skin reaction. H373 May cause damage to organs through prolonged or repeated exposure.

Precautionary statements

P260 Do not breathe dust/fume/gas/mist/vapours/spray. P261 Avoid breathing dust/fume/gas/mist/vapours/spray. P280 Wear protective gloves/protective clothing/eye protection/face protection. P305+P351+P338 IF IN EVES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P310 Immediately call a POISON CENTER/doctor/... P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

National regulations SARA Section 313 (specific toxic chemical listings) Substance is not listed. California Proposition 65 Prop 65 - Chemicals known to cause cancer Substance is not listed. Prop 65 - Developmental toxicity Substance is not listed. Prop 65 - Developmental toxicity, female Substance is not listed. Prop 65 - Developmental toxicity, male Substance is not listed. Prop 65 - Developmental toxicity, male Substance is not listed. Prop 65 - Developmental toxicity, male Substance is not listed. Prop 65 - Developmental toxicity, male Substance is not listed. Information about limitation of use:

Information about limitation of use: For use only by technically qualified individuals. This product is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know Act of 1986 and 40CFR372. Other regulations, limitations and prohibitive regulations Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006. Substance is not listed. The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed. Substance is not listed.

Annex XIV of the REACH Regulations (requiring Authorisation for use) Substance is not listed. Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

#### 16 Other information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.
Department issuing SDS: Global Marketing Department
Date of preparation / last revision 11/24/2015 / Abbreviations and acronyms:
RID: Reglement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
IATA-DGE: Dangerous Goods Regulations by the 'International Air Transport Association" (IATA)
CAO: International Civil Aviation Organization
CAO: International Civil Aviation Organization
CAO: International Maritime Code for Dangerous Goods
Dot US Department of Transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDC: International Maritime Code for Dangerous Goods
DOT: US Department of Transport Association
(IATA)
CAS: Chemical Abstracts Service (division of the American Chemical Society)
HMIS: Hazardous Materials Identification System (USA)
WHMIS: Wery Persistent and very Bioaccumulative
ACGIH: American Chemical Hygienists (USA)
OSHA: Occupational Safety and Health Administration (USA)
IMP: National Toxicology Program (USA)
IARC: International Agency for Research on Cancer
EFA: Environmental Protection Agency (USA)