

SAFETY DATA SHEET

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

1.1. Product identifier

Product Name CGZR10

Product Description 10 000 µg/mL Zirconium
Contains Hydrogen fluoride

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

Recommended Use Laboratory chemicals

Uses advised against No information available

1.3. Details of the supplier of the safety data sheet

Company
Inorganic Ventures
300 Technology Drive
Christiansburg, VA 24073
web: www.inorganicventures.com

E-mail Address info@inorganicventures.com

1.4. Emergency telephone number

Chemtrec 1-800-424-9300 (North America)
Chemtrec +1 703-741-5970 (International)

Europe	See above
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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

GHS

Acute toxicity - Oral	Category 4 - (H302)
Acute toxicity - Dermal	Category 3 - (H311)
Acute toxicity - Inhalation (Dusts/Mists)	Category 4 - (H332)
Serious eye damage/eye irritation	Category 2 - (H319)

2.2. Label Elements

Product identifier
Contains Hydrogen fluoride



Signal word

Danger

Hazard statements

H302 - Harmful if swallowed

H311 - Toxic in contact with skin

H319 - Causes serious eye irritation

H332 - Harmful if inhaled

Precautionary Statements - EU (§28, 1272/2008)

P264 - Wash face, hands and any exposed skin thoroughly after handling

P270 - Do not eat, drink or smoke when using this product

P280 - Wear protective gloves/protective clothing/eye protection/face protection

P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell

P337 + P313 - If eye irritation persists: Get medical advice/attention

P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable

2.3. Other information

No information available

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	EC No	CAS No	Weight-%	Classification according to Regulation (EC) No. 1272/2008 [CLP]	REACH Reg. No
Hydrogen fluoride	EEC No. Present	7664-39-3	1.1	Acute Tox. 2 (H330) Acute Tox. 2 (H300) Acute Tox. 1 (H310) Skin Corr. 1A (H314)	No data available

Full text of H- and EUH-phrases: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

General Advice

Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.

Inhalation

Call a physician or poison control center immediately. Remove to fresh air. If breathing is difficult, give oxygen. If breathing is irregular or stopped, administer artificial respiration. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation.

Skin Contact

Immediate medical attention is required. Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.

Eye Contact

Immediate medical attention is required. Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area.

Ingestion

Immediate medical attention is required. Do NOT induce vomiting. Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person.

Self-protection of the first aider

Use personal protective equipment as required. Avoid contact with skin, eyes or clothing.

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

Most Important Symptoms and

Burn. Difficulty in breathing.

Effects**4.3. Indication of any immediate medical attention and special treatment needed****Notes to Physician**

Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure

In case of contact with Hydrogen fluoride, anhydrous (UN1052), flush skin and eyes with water for 5 minutes; then, for skin exposures rub on a calcium/jelly combination; for eyes flush with a water/calcium solution for 15 minutes

SECTION 5: Firefighting measures

5.1. Extinguishing media**Suitable Extinguishing Media**

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media

No information available

5.2. Special hazards arising from the substance or mixture

Thermal decomposition can lead to release of irritating gases and vapors

5.3. Advice for firefighters

Wear self-contained breathing apparatus and protective suit. Use personal protection equipment.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures**Personal Precautions**

Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Use personal protective equipment as required. Do not get in eyes, on skin, or on clothing.

Refer to protective measures listed in Sections 7 and 8.

Advice for emergency responders

Ensure adequate ventilation.

6.2. Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not flush into surface water or sanitary sewer system. Prevent product from entering drains. See Section 12 for additional Ecological Information.

6.3. Methods and material for containment and cleaning up**Methods for Containment**

Prevent further leakage or spillage if safe to do so.

Methods for Cleaning Up

Take up mechanically, placing in appropriate containers for disposal.

6.4. Reference to other sections

See Section 12: ECOLOGICAL INFORMATION.

SECTION 7: Handling and storage

7.1. Precautions for Safe Handling

Advice on safe handling

Ensure adequate ventilation.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice. Wear suitable gloves and eye/face protection. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended.

7.2. Conditions for safe storage, including any incompatibilities**Storage Conditions**

Keep container tightly closed in a dry and well-ventilated place.

Other Guidelines

No information available.

SECTION 8: Exposure controls/personal protection**8.1. Control parameters****Exposure Limits**

Chemical name	EU	United Kingdom	France	Spain	Germany	
Hydrogen fluoride 7664-39-3		STEL: 3 ppm STEL: 2.5 mg/m³ TWA: 1.8 ppm TWA: 1.5 mg/m³	TWA: 1.8 ppm TWA: 1.5 mg/m³ STEL: 3 ppm STEL: 2.5 mg/m³	STEL: 3 ppm STEL: 2.5 mg/m³ TWA: 1.8 ppm TWA: 1.5 mg/m³	TWA: 1 ppm TWA: 0.83 mg/m³ TWA: 1 mg/m³ Ceiling / Peak: 2 ppm Ceiling / Peak: 1.66 mg/m³ Skin	
Chemical name	Italy	Portugal	The Netherlands	Finland	Denmark	
Hydrogen fluoride 7664-39-3	TWA: 1.8 ppm TWA: 1.5 mg/m³ STEL: 3 ppm STEL: 2.5 mg/m³	STEL: 3 ppm STEL: 2.5 mg/m³ Ceiling: 2 ppm TWA: 0.5 ppm TWA: 1.5 mg/m³ TWA: 2.5 mg/m³	STEL: 1 mg/m³	TWA: 1.8 ppm TWA: 1.5 mg/m³ STEL: 3 ppm STEL: 2.5 mg/m³ Skin	TWA: 1.8 ppm TWA: 1.5 mg/m³ TWA: 2.5 mg/m³	
Chemical name	Sweden	Austria	Switzerland	Poland	Norway	Ireland
Hydrogen fluoride 7664-39-3	LLV: 1.8 ppm LLV: 1.5 mg/m³ Binding STLV: 2 ppm Binding STLV: 1.7 mg/m³	Skin STEL 3 ppm STEL 2.5 mg/m³ TWA: 1.8 ppm TWA: 1.5 mg/m³	STEL: 2 ppm STEL: 1.66 mg/m³ TWA: 1 ppm TWA: 0.83 mg/m³	STEL: 2 mg/m³ TWA: 0.5 mg/m³ TWA: 2 mg/m³	STEL: 1.5 mg/m³ STEL: 1.8 ppm	TWA: 1.5 mg/m³ TWA: 1.8 ppm TWA: 2.5 mg/m³ STEL: 2.5 mg/m³ STEL: 3 ppm STEL: 7.5 mg/m³ Skin

Chemical name	European Union	United Kingdom	France	Spain	Germany
Hydrogen fluoride 7664-39-3			3 mg/g creatinine urine beginning of shift Fluorides Background noise on non-exposed subjects, Non-specific (observed after the exposure to other substances) 10 mg/g creatinine urine end of shift Fluorides Background noise on non-exposed subjects, Non-specific (observed after the exposure to other substances)		
Component	Italy	Portugal	Netherlands	Finland	Denmark
Hydrogen fluoride 7664-39-3 (1.1)	(ACGIH:) 3 mg/g Creatinine urine prior				

	to shift Fluorides Nonspecific (ACGIH:) 10 mg/g Creatinine urine end of shift Fluorides Background, nonspecific				
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Derived No Effect Level (DNEL) No information available

Predicted No Effect Concentration (PNEC) No information available.

8.2. Exposure controls

Engineering Measures Ensure adequate ventilation, especially in confined areas.

Personal protective equipment

Eye/Face Protection Wear safety glasses with side shields (or goggles).
Hand Protection Impervious gloves.
Skin and Body Protection Impervious clothing. Boots. Chemical resistant apron.
Respiratory Protection When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn.

Environmental Exposure Controls Prevent product from entering drains.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Physical state	Liquid
Appearance	clear / colorless
Odor	Odorless
<u>Property</u>	<u>Values</u>
pH - VALUE 1	No data available
Melting point / melting range	No data available
Boiling point / boiling range	No data available °C
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Vapor pressure @20 °C (kPa)	No data available
Vapor density	No data available
Relative Density	No data available
Specific gravity - VALUE 1	No data available
Water solubility	Miscible
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition temperature	No data available
Decomposition temperature	No data available
Dynamic viscosity - VALUE 1	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available
<u>Other information</u>	
VOC Content (%)	No information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No data available.

10.2. Chemical Stability

Stable under normal conditions.

Explosion Data

Sensitivity to Mechanical Impact None.

Sensitivity to Static Discharge None.

10.3. Possibility of Hazardous Reactions

Hazardous Polymerization

None under normal processing.

Hazardous Reactions

None under normal processing.

10.4. Conditions to Avoid

Heat, flames and sparks.

10.5. Incompatible materials

Ammonia Alkalis. Bases. Cyanides. Common metals.

10.6. Hazardous Decomposition Products

May emit toxic fumes under fire conditions. Hydrogen fluoride.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute Toxicity

Product Information	Toxic by inhalation. Toxic in contact with skin. Toxic if swallowed. The product causes burns of eyes, skin and mucous membranes.
Inhalation	Toxic by inhalation. Causes burns. Corrosive to respiratory system. Inhaled corrosive substances can lead to a toxic edema of the lungs.
Eye Contact	Causes burns.
Skin Contact	Toxic in contact with skin. May be absorbed through the skin in harmful amounts. Causes burns. Symptoms may be delayed.
Ingestion	Toxic if swallowed. Can burn mouth, throat, and stomach.

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)	455.50 mg/kg
ATEmix (dermal)	454.50 mg/kg
ATEmix (inhalation-gas)	43,898.90 ppm
ATEmix (inhalation-dust/mist)	4.55 mg/l
ATEmix (inhalation-vapor)	45.50 mg/l
Unknown acute toxicity	
1.4 % of the mixture consists of ingredient(s) of unknown toxicity.	
1.4 % of the mixture consists of ingredient(s) of unknown acute oral toxicity.	
1.4 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity.	
1.4 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas).	
1.4 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor).	
1.4 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist).	

Skin corrosion/irritation	No information available.
Serious eye damage/eye irritation	No information available.
Sensitization	No information available.
Mutagenic Effects	No information available.
Carcinogenic effects	No information available.
Reproductive Toxicity	No information available.
STOT - single exposure	No information available.
STOT - repeated exposure	No information available.
Target Organ Effects	Skin, Eyes, Respiratory system.
Aspiration hazard	No information available.

SECTION 12: Ecological information

12.1. Toxicity

Contains 0 % of components with unknown hazards to the aquatic environment

Chemical name	Algae/aquatic plants	Fish	Crustacea
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Hydrogen fluoride		660: 48 h Leuciscus idus mg/L LC50	EC50 48 h = 270 mg/L (Daphnia species)
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12.2. Persistence and degradability

No information available.

12.3. Bioaccumulative potential

No information available.

Chemical name	Partition coefficient
Hydrogen fluoride	-1.4

12.4. Mobility in soil**Mobility in soil**

No information available.

12.5. Results of PBT and vPvB assessment

No information available.

12.6. Other adverse effects.**SECTION 13: Disposal considerations****13.1. Waste treatment methods**

Waste from Residues/Unused Products	Dispose of in accordance with federal, state and local regulations.
Contaminated Packaging	Do not reuse empty containers.
Other Information	According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used.

SECTION 14: Transport information**IMDG**

14.1. UN-No	UN2922
14.2. Proper shipping name	Corrosive liquid, toxic
14.3. Transport hazard class(es)	8
Subsidiary hazard class	6.1
14.4. Packing Group	III
Description	Not applicable
14.5. Marine Pollutant	None
14.6. Special Provisions	None
No information available Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	No information available

RID

14.1. UN-No	UN2922
14.2. Proper shipping name	Corrosive liquid, toxic
14.3. Hazard Class	8
14.4. Packing Group	III
Description	Not applicable
14.5. Environmental hazard	None

14.6. Special Provisions	None
ADR	
14.1. UN-No	UN2922
14.2. Proper shipping name	Corrosive liquid, toxic
14.3. Hazard Class	8
14.4. Packing Group	III
Description	Not applicable
14.5. Environmental hazard	None
14.6. Special Provisions	None

ICAO	
14.1. UN-No	UN2922
14.2. Proper Shipping Name	Corrosive liquid, toxic
14.3. Hazard Class	8
Subsidiary hazard class	6.1
14.4. Packing Group	III
Description	Not applicable
14.5. Environmental hazard	None
14.6. Special Provisions	None

IATA-DGR	
14.1. UN-No	UN2922
14.2. Proper shipping name	Corrosive liquid, toxic
14.3. Transport hazard class(es)	8
Subsidiary hazard class	6.1
14.4. Packing Group	III
Description	Not applicable
14.5. Environmental hazard	None
14.6. Special Provisions	None

SECTION 15: Regulatory information

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

European Union

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

International Inventories

All of the components in the product are on the following Inventory lists: U.S.A. (TSCA), Europe (EINECS/ELINCS/NLP), Canada (DSL/NDL), Philippines (PICCS), Japan (ENCS), China (IECSC), Australia (AICS), Korea (ECL).

TSCA	Complies
EINECS/ELINCS	Complies
DSL/NDL	Complies
PICCS	Complies
ENCS	Complies
IECSC	Complies
AICS	Complies
KECL	Complies

Legend

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List
PICCS - Philippines Inventory of Chemicals and Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
AICS - Australian Inventory of Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances

15.2. Chemical Safety Assessment

No information available

SECTION 16: Other information

Full text of R-phrases referred to under sections 2 and 3

R35 - Causes severe burns

R34 - Causes burns

R26/27/28 - Very toxic by inhalation, in contact with skin and if swallowed

R23/24/25 - Toxic by inhalation, in contact with skin and if swallowed

Full text of H-Statements referred to under section 3

H300 - Fatal if swallowed

H310 - Fatal in contact with skin

H314 - Causes severe skin burns and eye damage

H330 - Fatal if inhaled

Revision Date 02-Feb-2023

Reason for Revision Not applicable.

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

Disclaimer

The information provided on this SDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of Safety Data Sheet