

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

Product code CSNISB5-5
Product name 5.0% Cesium
Common Name Cesium in Dilute Nitric Acid
Manufacturer, importer, supplier Inorganic Ventures
 300 Technology Drive
 Christiansburg, VA 24073
 web: www.inorganicventures.com
Emergency telephone number 800-424-9300 CHEMTREC (24 hrs)

2. COMPOSITION/INFORMATION ON INGREDIENTS

| CAS | Chemical Name | % Weight | ACGIH* | OSHA* |
|-----------|----------------|----------|-----------|------------------------|
| 7732-18-5 | Water | ~95-99 | N/A | N/A |
| 7697-37-2 | Nitric Acid | ~0-2 | 2 ppm TWA | 2 ppm TWA; 5 mg/m3 TWA |
| 7789-18-6 | Cesium nitrate | ~1-5 | N/A | N/A |

* ACGIH - Occupational Exposure Limits - TWAs

* OSHA - Final PELs - Time Weighted Averages (TWAs)

3. HAZARDS IDENTIFICATION
Emergency Overview

- Final product is not regulated

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| Eye contact | <ul style="list-style-type: none"> Contact with eyes may cause irritation |
| Skin contact | <ul style="list-style-type: none"> Substance may cause slight skin irritation |
| Inhalation | <ul style="list-style-type: none"> May cause irritation of respiratory tract |
| Ingestion | <ul style="list-style-type: none"> Harmful if swallowed |

4. FIRST AID MEASURES

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| General advice | <ul style="list-style-type: none"> Show this safety data sheet to the doctor in attendance |
| Skin contact | <ul style="list-style-type: none"> Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes Consult a physician if necessary |
| Eye contact | <ul style="list-style-type: none"> 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 If eye irritation persists, consult a specialist |
| Inhalation | <ul style="list-style-type: none"> Move to fresh air in case of accidental inhalation of vapours If breathing is difficult, give oxygen Consult a physician if necessary |
| Ingestion | <ul style="list-style-type: none"> Call a physician or Poison Control Centre immediately If swallowed, seek medical advice immediately and show this container or label If conscious, drink plenty of water |

5. FIRE-FIGHTING MEASURES

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| Flash point | NA |
| Suitable extinguishing media | <ul style="list-style-type: none"> Use extinguishing measures that are appropriate to local circumstances and the surrounding environment |
| Specific hazards | <ul style="list-style-type: none"> Thermal decomposition can lead to release of irritating gases and vapours |

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| Specific methods | <ul style="list-style-type: none"> Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations |
| Special protective equipment for firefighters | <ul style="list-style-type: none"> As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear |
| NFPA (National Fire Protection Association) | <ul style="list-style-type: none"> Health - 1 Fire Hazard - 0 Reactivity - 0 |
| Under conditions giving incomplete combustion, hazardous gases produced may consist of: | <ul style="list-style-type: none"> nitrogen oxides (NOx). |

6. ACCIDENTAL RELEASE MEASURES

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| Personal precautions | <ul style="list-style-type: none"> Evacuate personnel to safe areas Keep people away from and upwind of spill/leak Wear personal protective equipment Ensure adequate ventilation |
| Environmental precautions | <ul style="list-style-type: none"> Prevent further leakage or spillage if safe to do so Prevent product from entering drains |
| Methods for cleaning up | <ul style="list-style-type: none"> Dam up Neutralize with lime milk or soda and flush with plenty of water Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container After cleaning, flush away traces with water |

7. HANDLING AND STORAGE

Handling

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| Technical measures/Precautions | <ul style="list-style-type: none"> Use only in area provided with appropriate exhaust ventilation |
| Safe handling advice | <ul style="list-style-type: none"> Wear personal protective equipment |

Storage

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|---------------------------------------|--|
| Technical measures/Precautions | <ul style="list-style-type: none"> Keep in properly labelled containers Store at room temperature in the original container Keep containers tightly closed in a dry, cool and well-ventilated place |
| Incompatible products | <ul style="list-style-type: none"> organic materials reducing agents |

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

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|--------------------------------------|---|
| Personal protective equipment | |
| Hand protection | <ul style="list-style-type: none"> impervious gloves |
| Eye protection | <ul style="list-style-type: none"> tightly fitting safety goggles |
| Respiratory protection | <ul style="list-style-type: none"> Ensure adequate ventilation |
| Skin and body protection | <ul style="list-style-type: none"> Chemical resistant apron Lab coat |
| Hygiene measures | <ul style="list-style-type: none"> When using, do not eat, drink or smoke Regular cleaning of equipment, work area and clothing |

9. PHYSICAL AND CHEMICAL PROPERTIES

General Information

| | |
|-------------------|------------|
| Form | liquid. |
| Appearance | clear |
| Colour | colorless. |

Odour None.

Important Health Safety and Environmental Information

pH 0 to 2
Boiling point/range 100°C
Flash point N/A
Vapour pressure NA.
Water solubility miscible.

10. STABILITY AND REACTIVITY

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| Stability | <ul style="list-style-type: none">Stable under normal conditionsHazardous polymerisation does not occur |
| Materials to avoid | <ul style="list-style-type: none">organic materialsreducing agents |
| Hazardous decomposition products | <ul style="list-style-type: none">nitrogen oxides (NO_x) |

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Component Information

| CAS | Chemical Name | % Weight | LD50/oral/rat = | LD50/dermal/rat = |
|-----------|----------------|----------|-----------------------------------|-----------------------------------|
| 7732-18-5 | Water | ~95-99 | N/A | N/A |
| 7697-37-2 | Nitric Acid | ~0-2 | Inhalation LC50 Rat: 130 mg/kg/4H | Inhalation LC50 Rat: 130 mg/kg/4H |
| 7789-18-6 | Cesium nitrate | ~1-5 | Oral LD50 Rat: 2390 mg/kg | Oral LD50 Rat: 2390 mg/kg |

Product Information

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| Local effects | |
| Skin irritation | May cause skin irritation and/or dermatitis. |
| Eye irritation | May cause eye irritation with susceptible persons. |
| Inhalation | May cause irritation of respiratory tract. |
| Ingestion | If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach. |
| Chronic toxicity | Avoid repeated exposure. |

12. ECOLOGICAL INFORMATION

Ecotoxicity effects

Component Information

| CAS | Chemical Name | % Weight | EFAD* | EFFSD* | EMD - Ecotoxicity* |
|-----------|----------------|----------|-------|--------|--------------------|
| 7732-18-5 | Water | ~95-99 | N/A | N/A | N/A |
| 7697-37-2 | Nitric Acid | ~0-2 | N/A | N/A | N/A |
| 7789-18-6 | Cesium nitrate | ~1-5 | N/A | N/A | N/A |

* EFAD - Ecotoxicity - Freshwater Algae Data

* EFFSD - Ecotoxicity - Freshwater Fish Species Data

* EMD - Ecotoxicity - Microtox Data

Product Information

Do not allow material to contaminate ground water or sewage system

Other information

13. DISPOSAL CONSIDERATIONS

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| Waste from residues / unused products | <ul style="list-style-type: none"> • In accordance with local and national regulations |
| Contaminated packaging | <ul style="list-style-type: none"> • Empty containers should be taken for local recycling, recovery or waste disposal |

14. TRANSPORT INFORMATION

DOT Final product is not regulated

IATA-DGR Final product is not regulated

15. REGULATORY INFORMATION

U.S. INVENTORIES:

| CAS | Chemical Name | % Weight | CPCL* | NJRTK* | CERCLA/SARA* |
|-----------|----------------|----------|-------|---------|-----------------------------------|
| 7732-18-5 | Water | ~95-99 | N/A | N/A | N/A |
| 7697-37-2 | Nitric Acid | ~0-2 | N/A | sn 1356 | 1000 lb final RQ; 454 kg final RQ |
| 7789-18-6 | Cesium nitrate | ~1-5 | N/A | sn 0355 | N/A |

* CPCL - California - Proposition 65 - Carcinogens List

* NJRTK - New Jersey - Department of Health RTK List

* CERCLA/SARA - Hazardous Substances and their Reportable Quantities

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INTERNATIONAL INVENTORIES:

| CAS | Chemical Name | % Weight | WHMIS* | EINECCS - European Union* |
|-----------|----------------|----------|--|---------------------------|
| 7732-18-5 | Water | ~95-99 | Uncontrolled product according to WHMIS classification criteria | 231-791-2 |
| 7697-37-2 | Nitric Acid | ~0-2 | C, E (including 60%, 61.3%, 63%, 67%, 67.18%, 70%, 90%); E (10%) | 231-714-2 |
| 7789-18-6 | Cesium nitrate | ~1-5 | C | 232-146-8 |

* WHMIS - Canada - WHMIS - Classifications of Substances

* EINECCS - European Union - European inventory of Existing Commercial Chemical Substances (EINECCS)

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16. OTHER INFORMATION

The above information is believed to be accurate and represents the best information available to us. It has been compiled from the data presented in various technical publications and our experience and should only be used as a guide for handling this product. It is the user's responsibility to determine the suitability of this information for their particular purposes. We assume that only qualified individuals, trained and familiar with procedures suitable to this product will handle this material. Inorganic Ventures, Inc. assumes no responsibility and shall not be held liable for any damage resulting from misuse of this product.