

# Material Safety Data Sheet

## Dissolution Solution (Part # CH-1, CH-1-b)

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### 1. Product Identification

**Synonyms:** CH-1, CH-1-b

**Specific Physical Form:** Liquid (low viscosity aqueous solution)

**Odor, Color:** Odorless, colorless

**Acidic Solution:** pH=4.5

**Ammonium Bifluoride**

**CAS No.:** 1341-49-7

**Molecular Weight:** 57.04

**Chemical Formula:** NH<sub>4</sub>F HF

**Water**

**CAS No.:** 7732-18-5

**Molecular Weight:** 18

**Chemical Formula:** H<sub>2</sub>O

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### 2. Company Identification

**Berylliant Inc.**

**4541 East Fort Lowell Road Tucson, Arizona 85712**

**For Information, Call: (520) 321-7680**

**Emergency Number/CHEMTREC Assistance in the US/North America Call: 800-424-9300**

**Emergency Number/CHEMTREC Assistance outside the US Call: 703-527-3887 (collect calls accepted)**

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### 3. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Ammonium Bifluoride	1341-49-7	1% in water	Yes

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## 4. Hazards Identification

### EMERGENCY OVERVIEW

Toxic.

Toxic if swallowed. Causes burns.

### HMIS RATING

HEALTH: 3

FLAMMABILITY: 0

REACTIVITY: 1

### NFPA RATING

HEALTH: 3

FLAMMABILITY: 0

REACTIVITY: 1

For additional information on toxicity, please refer to Section 12.

### Potential Health Effects

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#### Chronic Exposure:

Chronic exposure may cause mottling of teeth and bone damage (osteosclerosis) and fluorosis. Symptoms of fluorosis include brittle bones, weight loss, anemia, calcified ligaments, general ill health and joint stiffness.

#### Aggravation of Pre-existing Conditions:

Populations that appear to be at increased risk from the effects of fluoride are individuals that suffer from diabetes insipidus or some forms of renal impairment.

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## 5. First Aid Measures

First aid procedures should be pre-planned for fluoride compound emergencies.

#### Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. CALL A PHYSICIAN IMMEDIATELY.

#### Ingestion:

Administer milk, chewable calcium carbonate tablets or milk of magnesia. Never give anything by mouth to an unconscious person. CALL A PHYSICIAN IMMEDIATELY.

#### Skin Contact:

Wipe off any excess material from skin and then immediately flush skin with large amounts of soapy water. Remove contaminated clothing and shoes. Wash clothing before

re-use. Apply calcium gluconate 2.5% gel and reapply gel every 10-15 minutes. CALL A PHYSICIAN IMMEDIATELY.

**Eye Contact:**

Immediately flush eyes with gentle but large stream of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Call a physician immediately.

**Note to Physician:**

For large exposures, systemic effects (hypocalcemia and hypomagnesia) may occur.

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## 6. Fire Fighting Measures

**Fire:**

Not considered to be a fire hazard.

**Explosion:**

Contact of solution with metal may evolve flammable hydrogen gas.

**Special Information:**

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

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## 7. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Pick up and place in a suitable container for reclamation or disposal, using a method that does not generate dust. US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities.

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## 8. Handling and Storage

Keep in a tightly closed container. Store in a cool, dry, ventilated area. Protect against physical damage. Separate from acids and alkalis. Do not store in metal containers, as contact with moisture and metal at the same time may release flammable hydrogen gas. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

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## 9. Exposure Controls/Personal Protection

**Airborne Exposure Limits:**

-OSHA Permissible Exposure Limit (PEL):

2.5 mg(F)/m<sup>3</sup> (TWA)  
-ACGIH Threshold Limit Value (TLV):  
2.5 mg(F)/m<sup>3</sup> (TWA)

**Ventilation System:**

A system of local and/or general exhaust/ventilation is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details. s

**Personal Respirators (NIOSH Approved):**

If the exposure limit is exceeded and engineering controls are not feasible, a half facepiece particulate respirator (NIOSH type N95 or better filters) may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest.. A full-face piece particulate respirator (NIOSH type N100 filters) may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency, or respirator supplier, whichever is lowest. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. **WARNING:** Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

**Skin Protection:**

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

**Eye Protection:**

Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

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## 10. Physical and Chemical Properties

**Appearance:** Colorless liquid, white crystals form upon drying of solution.

**Odor:** Odorless.

**Acidic Solution pH=4.5**

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## 11. Stability and Reactivity

**Stability:**

Stable under ordinary conditions of use and storage.

**Hazardous Decomposition Products:**

Emits toxic fumes of hydrogen fluoride, nitric oxides, and ammonia when heated to decomposition. Upon contact with metal, this material may release hydrogen gas.

**Hazardous Polymerization:**

Will not occur.

**Incompatibilities:**

Reacts with acids to liberate hydrogen fluoride and base to liberate ammonia.

**Conditions to Avoid:**

No information found.

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## 12. Toxicological Information

No LD50/LC50 information found relating to normal routes of occupational exposure.

-----\Cancer Lists\--

Ingredient	Known	---NTP Carcinogen---	
		Anticipated	IARC Category
Ammonium Bifluoride (1341-49-7)	No	No	None

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## 13. Ecological Information

**Environmental Fate:**

This material is not expected to significantly bioaccumulate. When released into water, this material may biodegrade to a moderate extent.

**Environmental Toxicity:**

This material is not expected to be toxic to aquatic life.

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## 14. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Although not a listed RCRA hazardous waste, this material may exhibit one or more characteristics of a hazardous waste and require appropriate analysis to determine specific disposal requirements. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

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## 15. Transport Information

**Transport information**

UN No 2817 (Solutions)  
Hazard class 8.  
**Packing Group: II**

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## 16. Regulatory Information

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-----\Chemical Inventory Status - Part 1\-----
Ingredient                TSCA  EC   Japan  Australia
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Ammonium Bifluoride (1341-49-7)      Yes  Yes   Yes    Yes
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-----\Chemical Inventory Status - Part 2\-----
--Canada--
Ingredient                Korea  DSL   NDSL  Phil.
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Ammonium Bifluoride (1341-49-7)      Yes   Yes   No    Yes
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-----\Federal, State & International Regulations - Part 1\-----
-SARA 302-      -SARA 313-----
Ingredient                RQ    TPQ    List Chemical Catg.
-----
Ammonium Bifluoride (1341-49-7)  No    No     No     No
```

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-----\Federal, State & International Regulations - Part 2\
-RCRA-      -TSCA-
Ingredient                CERCLA  261.33  8(d)
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Ammonium Bifluoride (1341-49-7)      100     No     No
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Chemical Weapons Convention: Yes    TSCA 12(b): No    CDTA: No  
SARA 311/312: Acute: Yes    Chronic: Yes    Fire: No    Pressure: No  
Reactivity: No    (Pure / Solid)

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## 17. Other Information

**NFPA Ratings:** Health: 3 Flammability: 0 Reactivity: 0

**Label Hazard Warning:**

DANGER! MAY BE FATAL IF SWALLOWED OR INHALED. AFFECTS  
RESPIRATORY SYSTEM, HEART, SKELETON, CIRCULATORY SYSTEM,  
CENTRAL NERVOUS SYSTEM AND KIDNEYS. CAUSES IRRITATION AND  
BURNS TO SKIN, EYES AND RESPIRATORY TRACT. IRRITATION AND BURN

EFFECTS MAY BE DELAYED. HARMFUL IF ABSORBED THROUGH SKIN.

**Label Precautions:**

- Keep container closed.
- Use only with adequate ventilation.
- Wash thoroughly after handling.
- Do not get in eyes, on skin, or on clothing.

**Label First Aid:**

In all cases call a physician immediately. First Aid procedures should be pre-planned for fluoride compound emergencies. If swallowed, administer milk, chewable calcium carbonate tablets or milk of magnesia. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing difficult, give artificial respiration. In case of skin contact wipe off any excess material then immediately flush skin with large amounts of soapy water. Remove contaminated clothing and shoes. Wash clothing before re-use. Apply bandages soaked in magnesium sulfate. In case of eye contact, immediately flush eyes with gentle but large stream of water for at least 15 minutes, lifting upper and lower eyelids occasionally.

**Product Use:**

For laboratory and manufacturing use only not for drug, food or household use.

**Disclaimer:**

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