### MATERIAL SAFETY DATA SHEET

**PRODUCT NAME:** AMMONIUM SILICOFLUORIDE  
**PRODUCT CODE:** 12266  
**CAS #:** 016919190  
**MSDS No.:** 000311  
**Revision No./Date:** 01 921116  
**Detail Number:** 0090/01  

**FORMULA:** (H4N)2 Si F6  
**CHEM. FAMILY:** inorganic salts  
**CHEMICAL NAME AND SYNONYMS:** Ammonium Silicofluoride; Ammonium Hexafluorosilicate;  
**MSDS 000311 DETAIL 0090**  
**SUPPLIERS NAME:** Harcros Chemicals Inc.  
5200 Speaker Road  
Kansas City  
KS 66106-1095  

**SUPPLIERS PHONE NUMBER:** 913-341-3131  
**TRANSPORTATION EMERGENCY PHONE NUMBER:** 1-800-424-9300

### S.A.R.A. INFORMATION

**HAZARDS:** Acute Chronic  
**PHYSICAL DATA:** Mixture Solid

### SECTION I HAZARDOUS INGREDIENTS

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS Number</th>
<th>MAX % W/W</th>
<th>SARA`</th>
<th>APPELLER`</th>
<th>TWA/TLV (ppm)</th>
<th>CAIR CONTAMINANT LEVELS</th>
<th>SKIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium Silicofluoride</td>
<td>98.0</td>
<td>Y</td>
<td>N</td>
<td>N</td>
<td>An FLuoride</td>
<td>TWA/TLV</td>
<td>2.5 mg/m3</td>
</tr>
<tr>
<td>Ammonium Hexafluorosilicate (CAS # 16919-19-0)</td>
<td>1312</td>
<td>313</td>
<td>372</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### SECTION II HEALTH HAZARDS

#### POTENTIAL EFFECTS OF EXPOSURE

**EYES**
Rye contact with product may cause burns

**SKIN**
Skin contact may cause irritation burns
Prolonged or repeated skin contact may cause dermatitis

**INHALATION**
Inhalation may cause severe irritation coughing choking fever and chills excess fluid retention (pulmonary edema)

**INGESTION**
Ingestion may cause irritation nausea vomiting diarrhea gastrointestinal damage bleeding shock symptoms (rapid pulse sweating collapse) increased acidity of blood and body (metabolic

Continued on Page: 2
If acidosis occurs, decreased heartbeat rate, even death may occur.

TARGET ORGANS
OVEREXPOSURE MAY DAMAGE TO:
- bones
- all body tissues
- kidneys
- liver

FIRST AID
FIRST AID EYES
Immediately flush eyes with plenty of water for at least 15 minutes, while holding eyelids apart to ensure flushing of entire surface. Call a physician.

FIRST AID SKIN
Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Thoroughly clean clothing before reuse. Discard contaminated shoes and contaminated leather articles. Call a physician.

FIRST AID INHALATION
Remove to fresh air. If not breathing give artificial respiration, preferably mouth to mouth. If breathing is difficult give oxygen. Call a physician.

FIRST AID INGESTION
Do not induce vomiting. Rinse mouth with water. Dilute stomach contents by drinking water. If vomiting occurs spontaneously, keep head below hips to prevent breathing vomit into lungs. Call a physician immediately.

OTHER INFORMATION
ROUTES OF ENTRY
- eye
- contact skin
- absorption
- inhalation
- ingestion

OVEREXPOSURE MAY AGGRAVATE DISORDERS OF THE:
- skin
- respiratory system

CARCINOGEN STATUS
No components, present in excess of 0.1% by weight are listed as carcinogens by IARC, NTP, or OSHA.

SECTION III SPECIAL PROTECTION

PROTECTIVE EQUIPMENT

PROTECTIVE EQUIPMENT EYES
- chemical goggles
- face shield

PROTECTIVE EQUIPMENT SKIN
- clean protective clothing
- impervious gauntlet gloves
- rubber apron
- rubber boots
- safety helmet

PROTECTIVE EQUIPMENT INHALATION
If exposure limits are exceeded, or if exposure may occur, use a NIOSH/MSHA respirator approved for your conditions of exposure. Refer to the most recent NIOSH publications concerning chemical hazards, or consult your safety equipment supplier. Respiratory protection programs must be in compliance with OSHA requirements in 29 CFR 1910.134. For emergency use, a NIOSH/MSHA approved positive pressure breathing apparatus should be readily available.

VENTILATION REQUIRED
Adequate ventilation is required to minimize exposure or to maintain exposure levels below OSHA/ACGIH requirements.
Harr C Chemicals Inc
Kansas City, Kansas

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PRODUCT NAME: AMMONIUM SILICOFLUORIDE
PRODUCT CODE: 122166

Date: 19-SEP-2000 13:46:41.67

50# BAG

SECTION III SPECIAL PROTECTION

ADDITIONAL PROTECTIVE MEASURES
Safety shower, eye wash fountain, and washing facilities should be readily available. In case of emergency or when dusting, misting, or splashing may occur, wear respiratory protection, eye protection, gloves, helmet, boots, and complete protective body covering.

SECTION IV FIRE & EXPLOSION HAZARD DATA

Flash Point (METHOD): > OR = N/A
Flammable Limits (% Volume in Air) UPPER: N/D Lower: N/D

HMS Info
Health: 2
Fire: 0
React: 0
Special: X

EXTINGUISHING MEDIA
carbon dioxide foam

FIRE FIGHTING PROCEDURES
Prevent human exposure to fire, fumes, smoke, and products of combustion. Evacuate non essential personnel. Firefighters should wear full face, self contained breathing apparatus and impervious protective clothing.

UNUSUAL FIRE & EXPLOSION HAZARDS
Toxic fumes may be released.

SECTION V PHYSICAL DATA

Boiling Point: N/D
Freezing Point: N/D

Specific Gravity (H2O = 1): OR = 2.0000 & 66 deg. F
Vapor Pressure (MM HG.): N/D
Vapor Density (AIR = 1): N/D
Evaporation Rate (NA = 1): N/D

Percent Volatile by Volume: N/D

pH: aqueous approx. OR = 3.000

Appearance:
SOLID - POWDER, CRYSTAL, FLAKE, GRAINULE, TABLET, PILL, Briquette, etc.

SECTION VI REACTIVITY DATA

Continued On Page 4
PRODUCT NAME : AMMONIUM SILICOFUORIDE
PRODUCT CODE : 12350 BAG

SECTION VI REACTIVITY DATA

STABILITY
Stable under normal conditions.

INCOMPATIBILITY
inorganic acids inorganic bases bleaching agents (oxidizers) Avoid contact with bleaching agents and oxidizers which include chlorine, oxygen, permanganates, perchlorates, percarbonates, peroxides, chromates, hypochlorites, nitric acid, and sulfuric acid. Avoid contact with strong reducing agents which include hydrogen, hydrazine, sulfides, sulfites, and nitrites.

CONDITIONS TO AVOID
Heat, heated surfaces, static electricity, electric arcs, sparks and flames.

HAZARDOUS DECOMPOSITION PRODUCTS
ammonia or amines hydrogen fluoride

HAZARDOUS POLYMERIZATION
Will not occur

SECTION VII SPILL AND LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:
Evacuate non essential personnel, eliminate ignition sources, and wear protective equipment (See Section III). Shut off source of leak only if safe to do so. Contain spill. Recover free product. To clean up residue, flush sparingly with water or use an absorbent. Avoid runoff to ground water, surface waters, and sewers. It may be necessary to remove contaminated soil. If product is flammable or combustible, use non sparking tools. If acidity (low pH) is a problem, neutralize with hydrated lime, soda ash, or sodium bicarbonate. If alkalinity (high pH) is a problem neutralize with dilute acetic acid or dilute hydrochloric (muriatic) acid. If required, notify state and local authorities.

DISPOSAL METHOD
Solids must be disposed of in a permitted waste management facility. Recovered liquids may be reprocessed or incinerated. Incineration must be handled in a permitted hazardous waste management facility. Dispose of material in accordance with all Federal, State and local regulations. Local regulations may be more stringent than Federal or State.

SECTION VIII

Proper Shipping Name: AMMONIUM SILICOFUORIDE
Hazard Class: 6.1, UN2851, PGIII
Label Requirements: KEEP AWAY FROM FOODSTUFFS
Reportable Quantity: None

LABEL SIGNAL WORD
DANGER
PRECAUTIONS

continued on Page
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PRODUCT NAME: AMMONIUM SILICOFLUORIDE
PRODUCT CODE: 12266  50# BAG

SECTION IX ADDITIONAL INFORMATION

Do Not breathe dust. Do Not get in eyes, on skin, or clothing. Wash thoroughly after handling.
Do not swallow.
HANDLING
Do not use glass containers. ATTENTION: This container hazardous when emptied. Since emptied
container contains product residues (vapor or liquid), all labeled hazard precautions must be
observed.
STORAGE
Store in a cool dry place. Keep container closed when not in use. Keep out of reach of
children. Do not use glass containers.

N/A = NOT APPLICABLE
N/D = NOT DETERMINED
N/E = NOT ESTABLISHED

The information provided in this Material Safety data sheet has been obtained from sources
believed to be reliable. Harcros Chemicals Inc provides no warranties, either expressed or
implied and assumes no responsibility for the accuracy or completeness of the data contained
herein. This information is offered for your information, consideration, and investigation.
You should satisfy yourself that you have all current data relevant to your particular use.
Harcros Chemicals Inc knows of no medical condition, other than those noted on this material
safety data sheet, which are generally recognized as being aggravated by exposure to this product.

NAME: GENE TURNER
DATE ISSUED: 9/21/16
DATE REVISED: 9/21/16

< = LESS THAN
> = MORE THAN