



Revision Number: 002.3

Issue date: 07/31/2014

## 1. PRODUCT AND COMPANY IDENTIFICATION

<b>Product name:</b>	<b>BONDERITE M-AD 1660 AERO known as ALODINE 1660 ADDITIVE</b>	<b>IDH number:</b>	1006651
<b>Product type:</b>	Conversion coating	<b>Region:</b>	United States
<b>Restriction of Use:</b>	None identified	<b>Contact information:</b>	
<b>Company address:</b>	Telephone: (860) 571-5100 MEDICAL EMERGENCY Phone: Poison Control Center 1-877-671-4608 (toll free) or 1-303-592-1711 TRANSPORT EMERGENCY Phone: CHEMTREC 1-800-424-9300 (toll free) or 1-703-527-3887 Internet: www.henkelna.com		
Henkel Corporation One Henkel Way Rocky Hill, Connecticut 06067			

## 2. HAZARDS IDENTIFICATION

### EMERGENCY OVERVIEW

**DANGER:** HARMFUL IF SWALLOWED.  
CAUSES SEVERE SKIN BURNS AND EYE DAMAGE.  
MAY CAUSE DROWSINESS OR DIZZINESS.

HAZARD CLASS	HAZARD CATEGORY
ACUTE TOXICITY ORAL	4
SKIN CORROSION	1B
SERIOUS EYE DAMAGE	1
SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE	3

### PICTOGRAM(S)



### Precautionary Statements

<b>Prevention:</b>	Do not breathe vapors, mist, or spray. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Wear protective gloves, eye protection, and face protection.
<b>Response:</b>	If SWALLOWED: Immediately call poison control or physician if you feel unwell. IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to remove. Continue rinsing. Immediately call a poison control center or physician. Wash contaminated clothing before reuse.
<b>Storage:</b>	Store in a well-ventilated place. Keep container tightly closed. Store locked up.
<b>Disposal:</b>	Dispose of contents and/or container according to Federal, State/Provincial and local governmental regulations.

Classification complies with OSHA Hazard Communication Standard (29 CFR 1910.1200) and is consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

See Section 11 for additional toxicological information.

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Component(s)	CAS Number	Percentage*
Tetrafluoroboric acid	16872-11-0	10 - 30
Hexafluorozirconic acid	12021-95-3	5 - 10

\* Exact percentage is a trade secret. Concentration range is provided to assist users in providing appropriate protections.

### 4. FIRST AID MEASURES

<b>Inhalation:</b>	If mist or vapor of this product is inhaled, remove person immediately to fresh air. Seek medical attention if symptoms develop or persist.
<b>Skin contact:</b>	Rinse with large amounts of running water. GET MEDICAL ATTENTION IMMEDIATELY! If iced 0.13% benzalkonium chloride (Zephiran) solution or 2.5% calcium gluconate gel are available, the rinsing may be limited to 5 minutes, with the soaks or gel applied as soon as the rinsing is stopped. If benzalkonium chloride or calcium gluconate gel is not available, rinsing must continue until medical treatment is provided.
<b>Eye contact:</b>	In case of contact with the eyes, rinse immediately with plenty of water for 15 minutes, and seek immediate medical attention.
<b>Ingestion:</b>	DO NOT induce vomiting unless directed to do so by medical personnel. Give one to two glasses of water or milk. Never give anything by mouth to a victim who is unconscious or is having convulsions.
<b>Symptoms:</b>	See Section 11.
<b>Notes to physician:</b>	Treat symptomatically and supportively.

### 5. FIRE FIGHTING MEASURES

<b>Extinguishing media:</b>	Water spray (fog), foam, dry chemical or carbon dioxide.
<b>Special firefighting procedures:</b>	Wear full protective clothing. Wear self-contained breathing apparatus.
<b>Unusual fire or explosion hazards:</b>	May liberate large quantities of dense, foul-smelling smoke which may contain unidentified toxic gasses.
<b>Hazardous combustion products:</b>	Upon decomposition, this product emits carbon monoxide, carbon dioxide and/or low molecular weight hydrocarbons.

### 6. ACCIDENTAL RELEASE MEASURES

Use personal protection recommended in Section 8, isolate the hazard area and deny entry to unnecessary and unprotected personnel.

<b>Environmental precautions:</b>	Prevent further leakage or spillage if safe to do so. Wear appropriate personal protective equipment. Do not allow product to enter sewer or waterways.
<b>Clean-up methods:</b>	Absorb spill with inert material. Shovel material into appropriate container for disposal. Dispose of according to Federal, State and local governmental regulations.

## 7. HANDLING AND STORAGE

- Handling:** Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Do not breathe gas/fumes/vapor/spray. Do not take internally. For industrial use only.
- Storage:** Keep container tightly closed and in a cool, well-ventilated place away from incompatible materials. Manufacturer recommends storing above 4.4 °C (40 °F). If stored outside of this range, mix well before using.

For information on product shelf life, please review labels on container or check the Technical Data Sheet.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Employers should complete an assessment of all workplaces to determine the need for, and selection of, proper exposure controls and protective equipment for each task performed.

Hazardous Component(s)	ACGIH TLV	OSHA PEL	AIHA WEEL	OTHER
Tetrafluoroboric acid	None	None	None	None
Hexafluorozirconic acid	5 mg/m <sup>3</sup> TWA (as Zr) 10 mg/m <sup>3</sup> STEL (as Zr) 2.5 mg/m <sup>3</sup> TWA (as F)	5 mg/m <sup>3</sup> PEL (as Zr) 2.5 mg/m <sup>3</sup> PEL (as F) 2.5 mg/m <sup>3</sup> TWA Dust.	None	None

- Engineering controls:** Provide local and general exhaust ventilation to effectively remove and prevent buildup of any vapors or mists generated from the handling of this product.
- Respiratory protection:** If ventilation is not sufficient to effectively prevent buildup of aerosols, mists or vapors, appropriate NIOSH/MSHA respiratory protection must be provided.
- Eye/face protection:** Wear chemical goggles; face shield (if splashing is possible).
- Skin protection:** Chemical resistant, impermeable gloves. Use of impervious apron and boots are recommended.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

- Physical state:** Liquid
- Color:** Yellow
- Odor:** Odorless
- Odor threshold:** Not available.
- pH:** < 1
- Vapor pressure:** Not determined
- Boiling point/range:** > 100 °C (> 212°F) calculated
- Melting point/ range:** Not determined
- Vapor density:** Not determined
- Flash point:** Not applicable
- Flammable/Explosive limits - lower:** Not available.
- Flammable/Explosive limits - upper:** Not available.
- Autoignition temperature:** Not applicable
- Evaporation rate:** Not available.
- Solubility in water:** Complete
- Partition coefficient (n-octanol/water):** Not determined
- VOC content:** Not applicable
- Viscosity:** Not available.
- Decomposition temperature:** Not available.

## 10. STABILITY AND REACTIVITY

<b>Stability:</b>	Stable at normal conditions.
<b>Hazardous reactions:</b>	Will not occur.
<b>Hazardous decomposition products:</b>	Upon decomposition, this product emits carbon monoxide, carbon dioxide and/or low molecular weight hydrocarbons.
<b>Incompatible materials:</b>	This product may react with strong alkalis. This material will react with glass, concrete, certain metals, silica containing materials, rubber, leather, and many organics.
<b>Reactivity:</b>	Not available.
<b>Conditions to avoid:</b>	Keep away from heat, ignition sources and incompatible materials.

## 11. TOXICOLOGICAL INFORMATION

**Relevant routes of exposure:** Skin, Inhalation, Eyes

### Potential Health Effects/Symptoms

<b>Inhalation:</b>	Mists, vapors or liquid may cause severe irritation or burns.
<b>Skin contact:</b>	Corrosive to the skin. Contact with the skin or mucous membranes may cause severe irritation and burns.
<b>Eye contact:</b>	This product is severely irritating to the eyes and may cause irreversible damage including burns and blindness.
<b>Ingestion:</b>	This product may produce corrosive damage to the gastrointestinal tract if it is swallowed.

Hazardous Component(s)	LD50s and LC50s	Immediate and Delayed Health Effects
Tetrafluoroboric acid	Oral LD50 (RAT) = 100 mg/kg Oral LD50 (RAT) = 464 mg/kg	Blood, Central nervous system, Corrosive, Eyes, Irritant, Kidney, Muscle, Skin, Teeth, Less weight gain and food intake.
Hexafluorozirconic acid	None	No Records

Hazardous Component(s)	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen (Specifically Regulated)
Tetrafluoroboric acid	No	No	No
Hexafluorozirconic acid	No	No	No

## 12. ECOLOGICAL INFORMATION

**Ecological information:** No data available.

### 13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

**Recommended method of disposal:** Follow all local, state, federal and provincial regulations for disposal.

**Hazardous waste number:** This product, if discarded directly, would be a characteristic RCRA corrosive waste (D002).

### 14. TRANSPORT INFORMATION

The transport information provided in this section only applies to the material/formulation itself, and is not specific to any package/configuration.

#### U.S. Department of Transportation Ground (49 CFR)

**Proper shipping name:** Corrosive liquid, acidic, inorganic, n.o.s. (Hexafluoro zirconic acid, Tetrafluoroboric acid)  
**Hazard class or division:** 8  
**Identification number:** UN 3264  
**Packing group:** II  
**DOT Hazardous Substance(s):** Chromic acid

#### International Air Transportation (ICAO/IATA)

**Proper shipping name:** Corrosive liquid, acidic, inorganic, n.o.s. (Hexafluoro zirconic acid, Tetrafluoroboric acid)  
**Hazard class or division:** 8  
**Identification number:** UN 3264  
**Packing group:** II

#### Water Transportation (IMO/IMDG)

**Proper shipping name:** CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Hexafluoro zirconic acid, Tetrafluoroboric acid)  
**Hazard class or division:** 8  
**Identification number:** UN 3264  
**Packing group:** II

### 15. REGULATORY INFORMATION

#### United States Regulatory Information

**TSCA 8 (b) Inventory Status:** All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.

**TSCA 12 (b) Export Notification:** None above reporting de minimis

**CERCLA/SARA Section 302 EHS:** None above reporting de minimis  
**CERCLA/SARA Section 311/312:** Immediate Health, Delayed Health  
**CERCLA/SARA Section 313:** None above reporting de minimis  
**CERCLA Reportable quantity:** Chromic acid (CAS# 7738-94-5) 10 lbs. (4.54 kg)

**California Proposition 65:** This product contains a chemical known in the State of California to cause cancer.

#### Canada Regulatory Information

**CEPA DSL/NDL Status:** All components are listed on or are exempt from listing on the Canadian Domestic Substances List.

### 16. OTHER INFORMATION

This safety data sheet contains changes from the previous version in sections: New Material Safety Data Sheet format.

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**Issue date:** 07/31/2014

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