Revision Number: 003.2

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1. PRODUCT AND COMPANY IDENTIFICATION

Product name: **BONDERITE M-CR 407 R CHROMATE COATING known as ALODINE 407R**

IDH number: 594843

Product type: Conversion coating

Restriction of Use: None identified

Region: United States

Company address:
Henkel Corporation
One Henkel Way
Rocky Hill, Connecticut 06067

Contact information:
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

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW	
DANGER**:**	CONTAINS FLUORIDES. MAY CAUSE DELAYED BURNS (NOT IMMEDIATELY PAINFUL OR VISIBLE)! LONG TERM EXPOSURE TO FLUORIDES OVER YEARS MAY CAUSE FLUOROSIS! MAY BE CORROSIVE TO METALS. TOXIC IF SWALLOWED. FATAL IN CONTACT WITH SKIN. CAUSES SEVERE SKIN BURNS AND EYE DAMAGE. MAY CAUSE AN ALLERGIC SKIN REACTION. HARMFUL IF INHALED. MAY CAUSE CANCER. CAUSES DAMAGE TO ORGANS THROUGH PROLONGED OR REPEATED EXPOSURE.

HAZARD CLASS	HAZARD CATEGORY
CORROSIVE TO METALS	1
ACUTE TOXICITY ORAL	3
ACUTE TOXICITY INHALATION	4
ACUTE TOXICITY DERMAL	2
SKIN CORROSION	1B
SERIOUS EYE DAMAGE	1
SKIN SENSITIZATION	1
CARCINOGENICITY	1A
SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE	1

PICTOGRAM(S)



Precautionary Statements

Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep only in original container. Do not breathe vapors, mist, or spray. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. Do not eat, drink or

	smoke when using this product. Use only outdoors or in a well-ventilated area. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves, eye protection, and face protection. Use personal protective equipment as required.
Response:	IF SWALLOWED: Immediately call a physician or poison control center. 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. IF exposed or concerned: Get medical attention. Immediately call a poison control center or physician. If skin irritation or rash occurs: Get medical attention. Wash contaminated clothing before reuse. Absorb spillage to prevent material damage.
Storage:	Store locked up. Store in corrosive resistant container with a resistant inner liner.
Disposal:	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*
Phosphoric acid	7664-38-2	10 - 30
Chromic acid	7738-94-5	10 - 30
Hydrogen fluoride	7664-39-3	1 - 5

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

4. FIRST AID MEASURES

Inhalation: If mist or vapor of this product is inhaled, remove person immediately to fresh air. Seek medical attention if symptoms develop or persist. If inhaled, immediately remove the affected person to fresh air.

Skin contact: Remove contaminated clothing and footwear. 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.

Eye contact: In case of contact with the eyes, rinse immediately with plenty of water for 15 minutes, and seek immediate medical attention.

Ingestion: 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.

Symptoms: See Section 11.

Notes to physician: Ocular exposure to corrosive fluoride compounds has been treated with isotonic sodium chloride or magnesium chloride. Dermal exposure to corrosive fluoride compounds has been treated with calcium gluconate or calcium carbonate gel applied topically to the affected areas to relieve pain at the site of exposure.Treatment of hypocalcemia associated with corrosive fluoride compounds exposure may be corrected by intravenous calcium gluconate or calcium chloride. Treatment of hypomagnesemia may be corrected by intravenous magnesium sulfate.

5. FIRE FIGHTING MEASURES

Extinguishing media: Use media appropriate for surrounding material.

Special firefighting procedures: Wear full protective clothing. Wear self-contained breathing apparatus.

Unusual fire or explosion hazards: This product is an aqueous mixture which will not burn.

Hazardous combustion products: Flammable and explosive hydrogen gas may be formed when hydrofluoric acid reacts with certain metals. Hydrogen fluoride gas may evolve when chemical is subjected to prolonged high temperature. Oxides of phosphorus.

6. ACCIDENTAL RELEASE MEASURES

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

Environmental precautions: Prevent further leakage or spillage if safe to do so. Wear appropriate personal protective equipment. Do not allow product to enter sewer or waterways.

Clean-up methods: 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. Do not breathe gas/fumes/vapor/spray. Wash thoroughly after handling. For industrial use only. IN CASE OF CONTACT OR SUSPICION OF CONTACT, PROMPT MEDICAL ATTENTION IS ABSOLUTELY NECESSARY.

Storage: Keep container tightly closed and in a cool, well-ventilated place away from incompatible materials. Thaw and mix thoroughly if frozen.

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
Phosphoric acid	3 mg/m3 STEL 1 mg/m3 TWA	1 mg/m3 PEL	None	None
Chromic acid	0.05 mg/m3 TWA (as Cr)	0.005 mg/m3 TWA 0.0025 mg/m3 OSHA_ACT 0.1 mg/m3 Ceiling	None	None
Hydrogen fluoride	2 ppm Ceiling (as F) 0.5 ppm TWA (as F) (SKIN) (as F)	2.5 mg/m3 PEL (as F) 3 ppm TWA	None	None

Engineering controls: Ventilation should effectively remove and prevent buildup of any vapor/mist/fume/dust 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: Safety goggles or safety glasses with side shields.

Skin protection:	Wear impervious gloves for prolonged contact. Gloves should be tested to determine suitability for prolonged contact. Use of impervious apron and boots are recommended. Recommended gloves include butyl rubber and neoprene.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state:	Liquid
Color:	Red
Odor:	Acidic
Odor threshold:	Not available.
pH:	1
Vapor pressure:	Not determined
Boiling point/range:	> 100 °C (> 212°F) calculated
Melting point/ range:	-20 °F (-28.9 °C)
Specific gravity:	1.20 - 1.23
Vapor density:	Not determined
Flash point:	Not applicable
Flammable/Explosive limits - lower:	Not applicable
Flammable/Explosive limits - upper:	Not applicable
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

Stability:	Stable at normal conditions.
Hazardous reactions:	None under normal processing.
Hazardous decomposition products:	May liberate hydrogen fluoride. Oxides of phosphorus.
Incompatible materials:	Reacts with cyanides and sulfides to cause the release of poisonous gases. This material will react with glass, concrete, certain metals, silica containing materials, rubber, leather, and many organics. Avoid contact with organic materials, oils, greases, and any oxidizable materials. This product may react with strong alkalies.
Reactivity:	Not available.
Conditions to avoid:	Keep away from heat, ignition sources and incompatible materials.

11. TOXICOLOGICAL INFORMATION

Relevant routes of exposure: Skin, Inhalation, Eyes

Potential Health Effects/Symptoms

Inhalation: Mists, vapors or liquid may cause severe irritation or burns. Contains fluorides. Exposure to fluorides over years may cause fluorosis.

Skin contact: Contact with broken skin may lead to formation of firmly marginated "chrome sores". Product contains chromium, which may cause an allergic skin sensitization reaction. Massive overexposures may lead to kidney failure and death. Following skin exposure to this product, the sensation of irritation or pain may be delayed.

Eye contact: This product is severely irritating to the eyes and may cause irreversible damage including burns and blindness.

Ingestion: This product may produce corrosive damage to the gastrointestinal tract if it is swallowed. Ingestion of small amounts of this product may result in potentially fatal hypocalcemia and systemic toxicity. Ingestion of large amounts of this product may result in fluoride poisoning including symptoms of calcification of the ligaments and severe bone changes making normal movements painful, mottling of the teeth, pulmonary fibrosis, anemia, anorexia, dental effects, and possibly death. Ingestion of large amounts of this product may result in fluoride poisoning including symptoms of calcification of the ligaments and severe bone changes making normal movements painful, mottling of the teeth, pulmonary fibrosis, anemia, anorexia, dental effects, and possibly death.

Hazardous Component(s)	LD50s and LC50s	Immediate and Delayed Health Effects
Phosphoric acid	Oral LD50 (RAT) = 1,530 mg/kg Dermal LD50 (RABBIT) = 2,740 mg/kg	Irritant, Corrosive
Chromic acid	None	Allergen, Blood, Carcinogen, Central nervous system, Corrosive, Developmental, Eyes, Gastrointestinal, Irritant, Kidney, Liver, Mutagen, Reproductive, Respiratory
Hydrogen fluoride	Inhalation LC50 (RAT, 15 min) = 2689 ppm Inhalation LC50 (RAT, 1 h) = 1278 ppm Inhalation LC50 (RAT, 30 min) = 2042 ppm Inhalation LC50 (RAT, 5 min) = 4970 ppm	Allergen, Blood, Bone Marrow, Cardiac, Central nervous system, Corrosive, Irritant, Kidney, Liver, Lung, Muscle, Nervous System, Respiratory, Teeth

Hazardous Component(s)	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen (Specifically Regulated)
Phosphoric acid	No	No	No
Chromic acid	No	No	Yes
Hydrogen fluoride	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: Dispose of according to Federal, State and local governmental regulations.

Hazardous waste number: This product, if discarded directly, would be a characteristic RCRA corrosive waste (D002). This product contains chromium which is a hazardous waste (D007). This product contains a component or components identified as hazardous under 40 CFR 261.24. U134: Hydrogen fluoride

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 liquids, toxic, n.o.s. (Hydrofluoric acid, Phosphoric acid)
Hazard class or division: 8 (6.1)
Identification number: UN 2922
Packing group: II
DOT Hazardous Substance(s): Chromic acid, Hydrofluoric acid

International Air Transportation (ICAO/IATA)

Proper shipping name: Corrosive liquid, toxic, n.o.s. (Hydrofluoric acid, Phosphoric acid)
Hazard class or division: 8 (6.1)
Identification number: UN 2922
Packing group: II

Water Transportation (IMO/IMDG)

Proper shipping name: CORROSIVE LIQUID, TOXIC, N.O.S. (Hydrofluoric acid, Phosphoric acid)
Hazard class or division: 8 (6.1)
Identification number: UN 2922
Packing group: II
Additional information: IMDG-Code: Segregation group 1- Acids

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: Chromic acid (CAS# 7738-94-5).

CERCLA/SARA Section 302 EHS: Hydrogen fluoride (CAS# 7664-39-3).
CERCLA/SARA Section 311/312: Immediate Health, Delayed Health, Reactive
CERCLA/SARA Section 313: This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (40 CFR 372). Chromic acid (CAS# 7738-94-5). Hydrogen fluoride (CAS# 7664-39-3).
CERCLA Reportable quantity: Phosphoric acid (CAS# 7664-38-2) 5,000 lbs. (2,270 kg)
Chromic acid (CAS# 7738-94-5) 10 lbs. (4.54 kg)
Hydrogen fluoride (CAS# 7664-39-3) 100 lbs. (45.4 kg)

California Proposition 65: This product contains a chemical known in the State of California to cause cancer. This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

Canada Regulatory Information

CEPA DSL/NDSL 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 Safety Data Sheet format.

Prepared by: Mark Mau, Regulatory Affairs Specialist

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