



MATERIAL SAFETY DATA SHEET

MATERIAL SAFETY DATA SHEET - NO. M14

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Beryllium Basic Acetate

MANUFACTURER

Materion Brush Inc.
14710 West Portage River Road South
Elmore, Ohio 43416
Phone: (419) 862-2745
Fax: (419) 862-4477

SYNONYMS Beryllium Oxide Acetate, Beryllium
Oxyacetate

24-HR. EMERGENCY ASSISTANCE

Transportation Emergency

Call Chemtrec at:
Domestic: (800) 424-9300
International: (703) 527-3887

Other Emergency

Call: (800) 862-4118

Revised: 03-21-14

Replaces: MSDS M14 (03-08-11)

CHEMICAL FAMILY Chemical Compound

CUSTOMER SERVICE

Product Stewardship Department
6070 Parkland Boulevard
Mayfield Heights, Ohio 44124
Phone: (800) 862-4118 or (216) 486-4200
Fax: (216) 383-4091
Website: www.materion.com

2. HAZARD IDENTIFICATION

2.1 EMERGENCY OVERVIEW

White crystalline solid with a vinegar-like odor. See label in Section 16. If the material is involved in a fire; pressure-demand self-contained breathing apparatus and protective clothing must be worn by persons potentially exposed to the airborne particulate during or after a fire.

2.2 POTENTIAL HEALTH EFFECTS

Exposure to the elements listed in Section 3 by inhalation, ingestion, and skin contact can occur during routine handling, material transfer, chemical processing or further processing. If this material is converted or becomes part of a solid shape, exposure can occur when machining, melting, casting, gross handling, pickling, welding, grinding, sanding, polishing, milling, crushing, or otherwise heating or abrading the surface of this material in a manner which generates particulate.

Particulate depositing on hands, gloves, and clothing, can be transferred to the breathing zone and inhaled during normal hand to face motions such as rubbing of the nose or eyes, sneezing, coughing, etc.

2.2.1. Inhalation

Beryllium Basic Acetate: Water-soluble beryllium salts are strong irritants and capable of causing acute inflammatory reactions of the respiratory pathways and chemical pneumonitis upon inhalation. Inhaling particulate containing beryllium may cause a serious, chronic lung disease called Chronic Beryllium Disease (CBD) in some individuals. See Section 2.2.5 Chronic (long-term health effects).

2.2.2. Ingestion

Ingestion can occur from hand, clothing, food and drink contact with particulate during hand to mouth activities such as eating, drinking, smoking, nail biting, etc.

Beryllium Basic Acetate: Ingestion may result in severe nausea, diarrhea, vomiting, and abdominal pain.

2.2.3. Skin

Beryllium Basic Acetate: Soluble beryllium compounds pose a potential for an allergic dermal response. This material poses a potential for contact dermatitis of both the irritation and allergic type. Introduction of this compound into open wounds may result in a severe long-term ulceration.

2.2.4. Eyes

Exposure may result from direct contact with airborne particulate or contact to the eye with contaminated hands or clothing. Damage can result from irritation or mechanical injury to the eyes by particulate.

Beryllium Basic Acetate: Severe injury to the eyes can result from contact with soluble beryllium compounds.

2.2.5. Chronic (long-term health effects)

Beryllium Basic Acetate: Inhaling particulate containing beryllium may cause a serious, chronic lung disease called chronic beryllium disease (CBD) in some individuals. Over time, lung disease can be fatal. Chronic beryllium disease is a hypersensitivity or allergic condition in which the tissues of the lungs become inflamed. This inflammation, sometimes with accompanying fibrosis (scarring), may restrict the exchange of oxygen between the lungs and the bloodstream. Medical science suggests that CBD may be related to genetic factors.

2.2.6. Carcinogenic References

Beryllium Basic Acetate: The International Agency for Research on Cancer (IARC) lists beryllium as a Group 1 – Known Human Carcinogen. The National Toxicology Program (NTP) lists beryllium as known to be human carcinogens. .

IARC lists beryllium as a known human carcinogen (Group 1) and notes that the work environment of workers involved in refining, machining and producing beryllium metal was associated with an increased risk of lung cancer, “the greater excess was in workers hired before 1950 when exposures to beryllium in the work place were relatively uncontrolled and much higher than in subsequent decades”; and “the highest risk for lung cancer being observed among individuals diagnosed with acute beryllium-induced pneumonitis, who represent a group that had the most intense exposure to beryllium.” IARC further noted that “Prior to 1950, exposure to beryllium in working environments was usually very high, and concentrations exceeding 1 mg/m³ [1000 micrograms per cubic meter] were not unusual.”

2.2.7. Medical Conditions Aggravated by Exposure

Persons with impaired pulmonary function, airway diseases, or conditions such as asthma, emphysema, chronic bronchitis, etc. may incur further impairment if particulate is inhaled. If prior damage or disease to the neurologic (nervous), circulatory, hematologic (blood), or urinary (kidney) systems has occurred, proper screening or examinations should be conducted on individuals who may be exposed to further risk where handling and use of this material may cause exposure.

Beryllium Basic Acetate: The effects of chronic beryllium disease on the lungs and heart are additive to the effects of other health conditions.

2.3 POTENTIAL ENVIRONMENTAL EFFECTS

See Ecological Information (Section 12)

3. COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL COMPOSITION (Percent by Weight)

CONSTITUENTS	PRODUCT	
	CAS Numbers	Beryllium Basic Acetate
Beryllium Basic Acetate	19049-40-2	100

Hazard Communication regulations of the U.S. Occupational Safety and Health Administration apply to this product.

NOTE: As used in this Material Safety Data Sheet, the term “particulate” refers to dust, mist, fume, fragments, particles and/or powder.

4. FIRST AID MEASURES

4.1 FIRST AID PROCEDURES

INHALATION: Breathing difficulty caused by inhalation of particulate requires immediate removal to fresh air. If breathing has stopped, perform artificial respiration and obtain medical help.

INGESTION: Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person.

SKIN: Thoroughly wash skin cuts or wounds to remove all particulate debris from the wound. Seek medical attention for wounds that cannot be thoroughly cleansed. Treat skin cuts and wounds with standard first aid practices such as cleansing, disinfecting and covering to prevent wound infection and contamination before continuing work. Obtain medical help for persistent irritation. Material accidentally implanted or lodged under the skin must be removed.

EYES: Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

4.2 NOTE TO PHYSICIANS

Treatment of Chronic Beryllium Disease: There is no known treatment which will cure chronic beryllium disease. Prednisone or other corticosteroids are the most specific treatment currently available. They are directed at suppressing the immunological reaction and can be effective in diminishing signs and symptoms of chronic beryllium disease. In cases where steroid therapy has had only partial or minimal effectiveness, other immunosuppressive agents, such as cyclophosphamide, cyclosporine, or methotrexate, have been used. These latter agents remain investigational. Further, in view of the potential side effects of all the immunosuppressive medications, including steroids such as prednisone, they should be used only under the direct care of a physician. In general, these medications should be reserved for cases with significant symptoms and/or significant loss of lung function. Other symptomatic treatment, such as oxygen, inhaled steroids or bronchodilators, may be prescribed by some physicians and can be effective in selected cases.

The decision about when and with what medication to treat is a judgment situation for individual physicians. For the most part, treatment is reserved for those persons with symptoms and measurable loss of lung function. The value of starting oral steroid treatment, before signs or symptoms are evident, remains a medically unresolved issue.

The effects of continued low exposure to beryllium are unknown for individuals who are sensitized to beryllium or who have a diagnosis of chronic beryllium disease. It is generally recommended that persons who are sensitized to beryllium or who have CBD terminate their occupational exposure to beryllium.

5. FIRE FIGHTING MEASURES

Flash Point	Not Applicable
Explosive Limits	Not Applicable
Extinguishing Media	This material is non-combustible. Use extinguishing media appropriate to the surrounding fire.
Unusual Fire and Explosion Hazards	No unusual fire and explosion hazards
Special Fire Fighting Procedures	If this material becomes airborne as a respirable particulate during a fire situation, pressure-demand self-contained breathing apparatus must be worn by firefighters or any other persons potentially exposed.

6. ACCIDENTAL RELEASE MEASURES

6.1 STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED

If this material is released or spilled, establish a restricted entry zone based on the severity of the spill. Persons entering the restricted zone must wear adequate respiratory protection and protective clothing appropriate for the severity of the spill (see Section 8). Cleanup spills with a vacuum system utilizing a high efficiency particulate air (HEPA) filtration system followed by wet cleaning methods. Special precautions must be taken when changing filters on HEPA vacuum cleaners used to clean up hazardous materials. Be careful to minimize airborne generation of particulate and avoid contamination of air and water. Depending upon the quantity of material released into the environment, the incident may be required to be reported to the National Response Center at (800) 424-8802 as well as the State Emergency Response Commission and Local Emergency Planning Committee.

7. HANDLING AND STORAGE

7.1 HANDLING

Keep storage container tightly sealed. Transfer material in closed systems or within a completely hooded containment with local exhaust ventilation. Prevent spillage. Prevent contact with clothing. Flush container clean before discarding.

Particulate may enter the body through cuts, abrasions or other wounds on the surface of the skin. Wear gloves when handling this product.

7.2 STORAGE

Store in a dry area.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

8.1 VENTILATION AND ENGINEERING CONTROLS

Whenever possible, the use of local exhaust ventilation or other engineering controls is the preferred method of controlling exposure to airborne particulate. Where utilized, exhaust inlets to the ventilation system must be positioned as close as possible to the source of airborne generation. Avoid disruption of the airflow in the area of a local exhaust inlet by equipment such as a man-cooling fan. Check ventilation equipment regularly to ensure it is functioning properly. Provide training on the use and operation of ventilation to all users. Use qualified professionals to design and install ventilation systems.

8.2 WORK PRACTICES

Develop work practices and procedures that prevent particulate from coming in contact with worker skin, hair, or personal clothing. If work practices and/or procedures are ineffective in controlling airborne exposure or visual particulate from deposition on skin, hair, or clothing, provide appropriate cleaning/washing facilities. Procedures should be written that clearly communicate the facility's requirements for protective clothing and personal hygiene. These clothing and personal hygiene requirements help keep particulate from being spread to non-production areas or from being taken home by the worker. Never use compressed air to clean work clothing or other surfaces.

Processing may leave a residue of particulate on the surface of parts, products or equipment that could result in employee exposure during subsequent material handling activities. As necessary, clean loose particulate from parts between processing steps. As a standard hygiene practice, wash hands before eating or smoking.

8.3 RESPIRATORY PROTECTION

When airborne exposures exceed or have the potential to exceed the occupational limits shown in Section 8.12, approved respirators must be used as specified by an Industrial Hygienist or other qualified professional. Respirator users must be medically evaluated to determine if they are physically capable of wearing a respirator. Quantitative and/or qualitative fit testing and respirator training must be satisfactorily completed by all personnel prior to respirator use. Users of tight fitting respirators must be clean shaven on those areas of the face where the respirator seal contacts the face. Exposure to unknown concentrations of particulate requires the wearing of a pressure-demand airline respirator or pressure-demand self-contained breathing apparatus (SCBA). Use pressure-demand airline respirators when performing jobs with high potential exposures such as changing filters in a baghouse air cleaning device.

8.4 OTHER PROTECTIVE EQUIPMENT

Protective overgarments or work clothing must be worn by persons who may become contaminated with particulate during activities such as machining, furnace rebuilding, air cleaning equipment filter changes, maintenance, furnace tending, etc. Contaminated work clothing and overgarments must be managed in a controlled manner to prevent secondary exposure to workers of third parties, to prevent the spread of particulate to other areas, and to prevent particulate from being taken home by workers.

8.5 PROTECTIVE GLOVES

Wear gloves to prevent contact with particulate or solutions. Wear gloves to prevent metal cuts and skin abrasions during handling.

8.6 EYE PROTECTION

Wear chemical goggles or a face shield during handling, transferring, applying, etc. Emergency washing equipment, such as an eye wash station and safety shower should be available in the work area.

8.7 HOUSEKEEPING

Use vacuum and wet cleaning methods for particulate removal from surfaces. Be certain to de-energize electrical systems, as necessary, before beginning wet cleaning. Use vacuum cleaners with high efficiency particulate air (HEPA). Do not use compressed air, brooms, or conventional vacuum cleaners to remove particulate from surfaces as this activity can result in elevated exposures to airborne particulate. Follow the manufacturer's instructions when performing maintenance on HEPA filtered vacuums used to clean hazardous materials.

8.8 MAINTENANCE

During repair or maintenance activities the potential exists for exposures to particulate in excess of the occupational standards. Under these circumstances, protecting workers can require the use of specific work practices or procedures involving the combined use of ventilation, wet and vacuum cleaning methods, respiratory protection, decontamination, special protective clothing, and when necessary, restricted work zones.

8.9 EXPOSURE CHARACTERIZATION

Determine exposure to airborne particulate by air sampling in the employee breathing zone, work area, and department. Utilize an Industrial Hygienist or other qualified professional to specify the frequency and type of air sampling. Develop and utilize a sampling strategy which identifies the extent of exposure variation and provides statistical confidence in the results. Conduct an exposure risk assessment of processes to determine if conditions or situations exist which dictate the need for additional controls or improved work practices. Make air sample results available to employees.

8.10 MEDICAL SURVEILLANCE

Beryllium Basic Acetate: Medical surveillance for beryllium health effects includes (1) skin examination, (2) respiratory history, (3) examination of the lungs, (4) lung function tests (FVC and FEV1), and (5) periodic chest x-ray. In addition, a specialized, specific, immunological blood test, the beryllium blood lymphocyte proliferation test (BLPT), is available to assist in the diagnosis of beryllium related reactions. Individuals who have an abnormal BLPT are normally referred to a lung specialist for additional specific tests to determine if chronic beryllium disease is present. Note: Substantial inter- and intra-laboratory disagreement exists among the laboratories that conduct this test. The BLPT does not at this time meet the criteria for a screening test. Despite its limitations, however, the BLPT remains a useful disease surveillance tool.

8.11 RISK FACTORS

Specific genetic factors have been identified and have been shown to increase an individual's susceptibility to CBD. Medical testing is available to detect genetic factors in individuals.

8.12 OCCUPATIONAL EXPOSURE LIMITS

Following good industrial hygiene practice, which includes reducing airborne exposures to the lowest feasible level for all constituents in this product, is recommended. It is also recommended that users of beryllium-containing materials maintain worker exposures to airborne beryllium to levels reliably below its recommended exposure guideline (REG) of 0.0002 milligrams beryllium per cubic meter of air.

CONSTITUENTS	OSHA*			ACGIH*		NIOSH RTECS NUMBER
	PEL	CEILING	PEAK	TLV	TLV-STEL	
Beryllium Basic Acetate (as Be)	0.002	0.005	0.025	0.00005	N/A	DS2900000

*ALL CONCENTRATIONS ARE IN MILLIGRAMS PER CUBIC METER OF AIR
(at the concentrations noted above, these constituents may not be visible to the human eye)

A leading scientific body recommending occupational standards is the American Conference of Governmental Industrial Hygienists (ACGIH). The ACGIH recommends standards for all listed substances. The ACGIH defines a threshold limit value (standard) as follows: "Threshold Limit Values refer to airborne concentrations of substances and represent conditions under which it is believed that nearly all workers may be repeatedly exposed day after day without adverse health effects. Because of wide variation in individual susceptibility, however, a small percentage of workers may experience discomfort from some substances at concentrations at or below the threshold limit; a smaller percentage may be affected more seriously by aggravation of a pre-

existing condition or by development of an occupational illness.” “Individuals may also be hypersusceptible or otherwise unusually responsive to some industrial chemicals because of genetic factors, age, personal habits (smoking, alcohol, or other drugs), medication, or previous exposures. Such workers may not be adequately protected from adverse health effects from certain chemicals at concentrations at or below the threshold limits.”

ACGIH	=	American Conference of Governmental Industrial Hygienists
OSHA	=	Occupational Safety and Health Administration
PEL	=	Eight-Hour Average Permissible Exposure Limit (OSHA)
CEILING	=	Not To Be Exceeded Except for Peak Limit (OSHA)
PEAK	=	30-Minute Maximum Duration Concentration Above Ceiling Limit (OSHA)
TLV	=	Eight-Hour Average Threshold Limit Value (ACGIH)
TLV-STEL	=	15-Minute Short Term Exposure Limit (ACGIH)
CAS	=	Chemical Abstract Service
NIOSH	=	National Institute for Occupational Safety and Health
RTECS	=	Registry of Toxic Effects of Chemical Substances
N/A	=	Not Applicable

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES

Boiling Point (°F):	627.8	Radioactivity:	Not Applicable
Evaporation Rate:	Not Available	Solubility:	Soluble
Freezing Point (°F):	543.2	Sublimes At (°F):	Not Available
Odor:	Vinegar like odor	Vapor Density (Air = 1):	Not Available
pH:	Not Available	Vapor Pressure (mmHg):	Not Available
Physical State:	Crystals	% Volatiles By Volume:	Not Available
Color:	White	Melting Point (°F):	543.2
Density (lb/in3):	0.049		

10. STABILITY AND REACTIVITY

General Reactivity	Material very hygroscopic.
Incompatibility (materials to avoid)	Oxidizing agents.
Hazardous Decomposition Products	Decomposes on heating to give off Beryllium Oxide.
Hazardous Polymerization	Not Applicable

11. TOXICOLOGICAL INFORMATION

For questions concerning toxicological information, write to: Medical Director, Materion Brush Inc., 14710 West Portage River South Road, Elmore, Ohio 43416-9502.

12. ECOLOGICAL INFORMATION

This material can be recycled; contact your Sales Representative.

13. DISPOSAL CONSIDERATIONS

13.1 BYPRODUCT RECYCLING

When recycled (used in a process to recover metals), this material is not classified as hazardous waste under federal law. Seal particulate or particulate containing materials inside two plastic bags, place in a DOT approved container, and label appropriately.

13.2 SOLID WASTE MANAGEMENT

When recycled (used in a process to recover metals), this material is not classified as hazardous waste under federal law. When spent products are declared solid wastes (no longer recyclable), they must be labeled, managed and disposed of, in accordance with federal, state and local requirements.

14. TRANSPORT INFORMATION

The following requirements of the U.S. Department of Transportation apply to this product.

SHIPPING NAME:	Beryllium Compounds, N.O.S. (Beryllium Basic Acetate)
HAZARD CLASS:	6.1
IDENTIFICATION NUMBER:	UN1566
PACKING GROUP	II
LABEL(S) REQUIRED:	TOXIC
REPORTABLE QUANTITY:	NA
PLACARD	Required when shipping 454 kg (1,000 lbs.) aggregate gross weight.
EMERGENCY RESPONSE	Emergency response must be provided on the shipping document

Hazard Communication regulations of the U.S. Occupational Safety and Health Administration require this product be labeled.

15. REGULATORY INFORMATION

15.1 UNITED STATES FEDERAL REGULATIONS

15.1.1. Occupational Safety and Health Administration (OSHA)

Air contaminants, 29 CFR 1910.1000
Hazard Communication Standard, 29 CFR 1910.1200

15.1.2. Environmental Protection Agency (EPA)

AMBIENT AIR EMISSIONS: Beryllium-containing materials are subject to the National Emission Standard for Beryllium as promulgated by EPA (40 CFR 61, Subpart C). The National Emission Standard for beryllium is 0.01 micrograms per cubic meter (30-day average) in ambient air for those production facilities which have been qualified to be regulated through ambient air monitoring. Other facilities must meet a 10 gram per 24-hour total site emission limit. Most process air emission sources will require an air permit from a local and/or state air pollution control agency. The use of air cleaning equipment may be necessary to achieve the permissible emission. Tempered makeup air should be provided to prevent excessive negative pressure in a building. Direct recycling of cleaned process exhaust air is not recommended. Plant exhausts should be located so as not to re-enter the plant through makeup air or other inlets. Regular maintenance and inspection of air cleaning equipment and monitoring of operating parameters is recommended to ensure adequate efficiency is maintained.

WASTEWATER: Wastewater regulations can vary considerably. Contact your local and state governments to determine their requirements.

TOXIC SUBSTANCES CONTROL ACT: Component(s) of this material is/are listed on the TSCA Chemical Substance Inventory of Existing Chemical Substances

SARA TITLE III REPORTING REQUIREMENTS: On February 16, 1988, the U.S. Environmental Protection Agency (EPA) issued a final rule that implements the requirements of the Superfund Amendments and Reauthorization Act (SARA) Title III, Section 313 (53) Federal Register 4525. Title III is the portion of SARA concerning emergency planning and community right-to-know issues. Section 313 covers annual emission reporting on specific chemicals which are manufactured, processed or used at certain U.S. Industrial facilities.

This product is reportable under the Section 313 category of Compounds and/or Mixtures. This compound contains beryllium, a reportable constituent. The specific chemical makeup, concentration by weight and the Chemical Abstracts Services number for each of our products is provided in Section 3.

You may obtain additional information by calling the EPA SARA Title III Hotline at 1-800-535-0202 (or 703-412-9810).

15.2 STATE REGULATIONS

Beryllium Basic Acetate

- Is listed on the following state right-to-know lists: California, New Jersey, Florida, Pennsylvania, Minnesota and Massachusetts.
- The following statements are made in order to comply with the California State Drinking Water Act - Warning: This product contains BERYLLIUM BASIC ACETATE, a chemical known to the state of California to cause cancer.
- California No Significant Risk Level: CAS# 19049-40-2: No significant risk level = 0.1 µg/day.

15.3 CANADA

<u>Constituent</u>	<u>DSL/NDSL</u>	<u>WHMIS Classification</u>	<u>Ingredient Disclosure List</u>
Beryllium Basic Acetate	No/No	Not classified	Yes

16. OTHER INFORMATION

Following is the label which accompanies this product during shipment.

<p>M14</p> <p style="text-align: center;">Beryllium Basic Acetate</p> <p style="text-align: center;"> WARNING </p> <p>INHALING DUST OR FUMES MAY CAUSE CHRONIC BERYLLIUM DISEASE, A SERIOUS CHRONIC LUNG DISEASE, IN SOME INDIVIDUALS. CANCER HAZARD. OVER TIME, LUNG DISEASE AND CANCER CAN BE FATAL. SKIN, EYE AND MUCUOUS MEMBRANE IRRITANT. TARGET ORGAN IS PRIMARILY THE LUNG.</p> <p>INHALING DUST, FUMES OR MISTS CAN CAUSE A SERIOUS ACUTE CHEMICAL PNEUMONIA AND CAN BE FATAL</p> <p>READ THE MATERIAL SAFETY DATA SHEET (MSDS) ON FILE WITH YOUR EMPLOYER BEFORE WORKING WITH THIS MATERIAL.</p> <hr/> <p>This product contains soluble beryllium. Overexposure to soluble beryllium by inhalation may cause serious lung diseases (acute and/or chronic disease) or death.</p> <p>If exposed:</p> <p>On skin wash immediately.</p> <p>In eyes flush immediately with lots of water.</p> <p>To lungs delayed chemical pneumonia may occur. Go to a hospital.</p> <ul style="list-style-type: none"> • If processing or recycling produces airborne dust, fumes or mists, use exhaust ventilation or other controls designed to prevent exposure to workers. Any activity, which abrades the surface of this material can generate airborne particulate. • Use or transfer this material only with exhaust ventilation or other controls adequate to prevent exposure to workers. • Keep stored container tightly closed. Prevent spillage. • Handle only in closed systems with no release outside the enclosure. Do not get any powder on your clothing, hair or skin. • Soluble beryllium compounds may cause severe irritation and/or death if swallowed. • The Occupational Safety and Health Administration (OSHA) has set mandatory limits on occupational exposures. • If spilled, evacuate all persons from area immediately. Consult Materion Brush Inc. or Chemtrec 1-800-424-9300 before re-entering. <p>The Occupational Safety and Health Administration requires employers to provide training in the proper use of this product.</p> <hr/> <p>For further information, please telephone or write to: Product Stewardship Department, Materion Brush Inc., 6070 Parkland Boulevard, Mayfield Heights, Ohio 44124, telephone: (800) 862-4118, www.materion.com. For transportation emergency call Chemtrec at (800) 424-9300.</p> <p style="text-align: right;">M14</p>

*Label may vary in size

*Label color (light purple edge with black lettering)

This MSDS has been revised following the guidelines outlined in the American National Standard for Hazardous Industrial Chemicals - "Material Safety Data Sheets - Preparation." Z400.1-2004

MSDS Status: Date change

IMPORTANT: If you have any questions or require additional information regarding the materials described in this Material Safety Data Sheet, please telephone or write to the Product Stewardship Department at the location given on page 1. Additional product safety information, such as Safety Facts, is available from your sales representative or at <http://www.materion.com/>.

Additional information and guidance on the safe use and handling of these materials is available in the “Interactive Guide to Working Safely with Beryllium and Beryllium-containing Materials.” This innovative, computer based tool can be accessed online at www.beryllium-safety.com. A copy of the Interactive Guide on compact disc (CD) can be obtained by contacting the Product Stewardship Department at the location given on page 1.