612 937 7979 -> NEW HERMES INC; Page 7

AUG-04-88 02:30AM FROM-BIRCHWOOD LABORATORIES INC

3:34FM:

612-937-7979

T-289 P.07/11 F-994

PRODUCT NAME: ALOXIDE

ALOXIDE

ITEM NUMBER: 6318-

PREPARED: 2-5-98

Page 1 of 5

TRANSPORTATION EMERGENCY NUMBER: CHEMTREC 800-424-9300 U S & CANADA

202-483-7616 INTERNATIONAL

BIRCHWOOD LABORATORIES, INC. MATERIAL SAFETY DATA SHEET

The data provided here is for hazard communication to our employees, our customers and their employees, and authorized regulatory agencies. For the intended purpose, this MSDS may be duplicated or the data transcribed to an alternative form.

NOTE: The information contained herein is provided in good faith and is believed to be correct as of the date hereof. However, Birchwood Laboratories, Inc. makes no representation as to the comprehensiveness or accuracy of the information. It is expected that individuals receiving the information will exercise their independent judgment in determining its appropriateness for a particular period. Accordingly, Birchwood Laboratories, Inc. will not be responsible for damages of any kind resulting from the use of or reliance upon such information. NO REPRESENTATIONS, OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER TO WHICH THE INFORMATION REFERS.

The responsibility to provide a safe workplace remains with the user. The user should consider the health hazards and safety information contained herein as a guide and should take mose precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment.

SECTION I

PRODUCT NAME:

ALOXIDE

ITEM NUMBER: 6318--

MANUFACTURED BY:

Birchwood Casey

Division of BIRCHWOOD LABORATORIES, INCORPORATED

7900 Fuller Road

Eden Praine, MN 55344

Information Telephone Number: 612-937-7900

D-U-N-S:

096488432

CHÉMICAL FAMILY:

Dilute Aqueous Acid

CHEMICAL FORMULA: N/A (Mixture)

NATIONAL FIRE PROTECTION ASSOCIATION CODES:

NFPA

HEALTH = 2

FLAMMABILITY = 0

REACTIVITY = 0

HAZARDOUS MATERIAL IDENTIFICATION SYSTEM.

HMIS

HEALTH = 2

FLAMMABILITY = 0

REACTIVITY = 0

PERSONAL PROTECTION = C

DOT HAZARDOUS MATERIALS DESCRIPTION AND PROPER SHIPPING NAME (49 CFR 172.101): Corrosive Liquid, Acidic, Inorganic N.O.S. 8/UN3264/P.G. III (Selenious Acid, Phosphoric Acid) Exceptions: 49CFR 173.154

DOT HAZARD CLASS: Corrosive Material U. Z GO. . GIG -- NEW MERMES INC; Page 8

AUG-04-98 02:31AM FROM-BIRCHWOOD LABORATORIES INC

612-937-7979

T-283 P.08/11 F-994

PRODUCT NAME: ALOXIDE

ITEM NUMBER: 6318-

PREPARED: 2-5-98

Page 2 of 5

TRANSPORTATION EMERGENCY NUMBER: CHEMTREC 800-424-9300 U S & CANADA 202-483-7616 INTERNATIONAL

SECTION II - INGREDIENTS (See Note 4)

| DESCRIPTION | CAS NUMBER | PERCENT (basis) | <u>TLV/TWA*</u> |
|-------------------------------------|-----------------------------|--------------------------|----------------------------------|
| Selenious Acid - H ₂ SeC | 7783-00-8 | under 4 (w/w) | 0.2⁴mg/m³ |
| Cupric Sulfate - CuSO ₄ | 5H ₂ 0 7758-99-8 | under 8 (w/w) | 1ºmg/m³ |
| Phosphoric Acid - H ₃ PC | 7664-38-2 | under 3 (w/w) | 1 mg/m³ |
| Fluoporic Acid - HBF4 | 16872-11-0 | under 2 (w/w) | 2.5°mg/m³ |
| Nickel Sulfate - NiSO4 | 7786-81-4 | under 1 (w/w) | 1 ^q mg/m ³ |
| Water - H₂0 | 7732-18-5 | over 82 (w/w) | N/E* |
| *OSHA PEL's | | | |
| ⁸ OSHA (as Se) | POSHA (as Cu dust or mist) | ^C OSHA (as F) | |
| OSHA (as Ni) | eone established | | |

SECTION III - PHYSICAL DATA

| BOILING POINT, Approximately 214°F | SPECIFIC GRAVITY (Water = 1): 1.099 |
|------------------------------------|-------------------------------------|
|------------------------------------|-------------------------------------|

VAPOR PRESSURE. No Data VOLATILE BY VOLUME: None (except water)

VAPOR DENSITY (AIF=1): Less than 1 EVAPORATION RATE (Ethyl Ether = 1):

Greater than 1

SOLUBITY IN WATER: Completely misciple pH: Less than 1

APPEARANCE & ODOR: Odorless blue liquid TOTAL ACIDITY: Under 1.5N (to pH 7)

SECTION IV - FIRE AND EXPLOSION HAZARD

FLASH POINT (method): Non-flammable

LOWER EXPLOSIVE LIMIT (% in air): Not applicable

UPPER EXPLOSIVE LIMIT (% in air): Not applicable

EXTINGUISHING MEDIA: Non-flammable

SPECIAL FIRE FIGHTING PROCEDURES: None

UNUSUAL FIRE AND EXPLOSION HAZARDS. Non-fiammable. Non-explosive except with water-reactive substances.

Recelved: 8/ 4/98 3:34PM: 612 937 7979 -> NEW HERMES INC;

AUG-04-98 02:31AM FROM-BIRCHWOOD LABORATORIES INC 612-937-7979

T-283 P.09/11 F-994

PRODUCT NAME: ALOXIDE

ITEM NUMBER 6318-

PREPARED: 2-5-98

Page 3 of 5

TRANSPORTATION EMERGENCY NUMBER: CHEMTREC 800-424-9300 U S & CANADA 202-483-7616 INTERNATIONAL

SECTION V - HEALTH HAZARD DATA

EYES:

Acute Overexposure Effects. The product is an eye irritant. It can cause redness of the eyes, conjunctivitis, intis.

swelling of the eyelids, a watery-mucoid discharge and comeal opacity.

Emergency and First Aid: Immediately rinse eyes thoroughly with clean water. Instillation of aqueous 10% sodium thiosulfate solution is also recommended Consult a physician.

Chronic Overexposure Effects No data specific to chronic exposures (See ACUTE above)

INHALATION:

Acute Overexposure Effects. Some hydrogen selenide fumes generated in use. Breathing fumes or mists can result in lost sense of smell, nose and throat irritation, gartic odor of breath, headache, dizziness, lassitude, tremors, difficulty breathing, bronchitis, pneumonitis, bronchial asthma. Emergency and First Aid: Remove from exposure. If breathing difficult, provide artificial respiration or oxygen. Consult a physician, Watch for delayed pulmonary edema. Diuretics speed elimination of setenium. Vitamin B Complex, Vitamin C and methionine supplements recommended

Chronic Overexposure Effects: Beside effects as in ACUTE, chronic overexposure may cause weakness, pallor, anemia, enlargement of the liver and degenerative changes in target organs. Preclude from contact with product those with Wilson's Disease or diseases of the skin, lungs, liver, kidneys or gastrointestinal tract. (See Notes 1, 2

and 3.)

INGESTION:

Acute Overexposure Effects: Oral LD50 (rats) is 1 g/kg. May produce metallic taste, garlic odor of breath, headache, dizziness, lassitude, nausea, vomiting, abdominal pain, diarmea, difficulty breathing. Target organs: liver, kidneys, spleen, lungs, heart, adrenal glands, pancreas.

Emergency and First Aid: If breathing difficult, provide artificial respiration or oxygen. If victim is conscious and not vomiting, induce emesis. Seek medical attention. A diuretic will speed elimination of selenium. Vitamin B Complex, Vitamin C and mathionine supplements are recommanded.

Chronic Overexposure Effects: Same as for INHALATION: CHRONIC OVEREXPOSURE.

SKIN:

Acute Overexposure Effects: The product is not a primary skin limitant. However, it can produce redness of the skin and slight edema on prolonged or repeated contact. Also, it can cause skin sensitization in some individuals. Emergency and First Aid: Remove contaminated clothing to avoid prolonged contact. Wash affected areas with soap and water. Application of a 10% sodium thiosulfate cream has been recommended. Chronic Overexposure Effects: Setenium may cause skin sensitization resulting in irritation, dermatitis or edema. Nickel is a strong sensitizer (sensitization permanent) resulting in "Nickel Itch" - erythma, nodular eruptions, eczema.

SECTION VI - REACTIVITY DATA

STABILITY: Stable

CONDITIONS TO AVOID. None known

INCOMPATIBILITY (materials to avoid): Cyanides, water-reactive substances, organic solvents, oils, strong

reducing agents.

HAZARDOUS DECOMPOSITION PRODUCTS: Reaction with organics and strong reducing agents can produce volatile organoselenides or hydrogen selenide. Thermal decomposition after evaporation to dryness can produce selenium dioxide fumes and oxides of phosphorus. Blackening of aluminum produces some hydrogen selenide HAZARDOUS POLYMERIZATION: Will not occur

CONDITIONS TO AVOID: None known

. Received: 8/ 4/98 3:35PM;

612 937 7979 -> NEW HERMES INC; Page 10

AUG-04-98 02:31AM FROM-BIRCHWOOD LABORATORIES INC

612-937-7979

T-283 P.10/11 F-994

PRODUCT NAME: ALOXIDE

ITEM NUMBER: 6318-

PREPARED: 2-5-98

Page 4 of 5

TRANSPORTATION EMERGENCY NUMBER: CHEMTREC 800-424-9300 U S & CANADA 202-483-7616 INTERNATIONAL

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Review current local, state and federal laws, codes, statutes, and regulations to determine the appropriate agencies to be notified, and the conditions under which they should be notified. Recover as much free liquid as possible and collect in acid-resistant container Use absorbent to pick up residue. Avoid discharging the liquid directly into a sewer or surface waters. CERCLA Reportable Quantity is 1lb. for Selenious acid (approximately 3 gallons of the product.) See Note 4.

WASTE DISPOSAL METHOD: Review current local, state and federal laws, codes, statutes and regulations to determine the current status and appropriate disposal method for the ingredients listed in Section II. Waste ALOXIDE or its solutions are assigned the EPA Hazardous Waste Number D010 (EP Toxicity-Selenium). Precipitates fiftered from the used solution or generated from treating the liquid are assigned the EPA Hazardous Waste Number D010 (EP Toxicity-Selenium). The wastes can be disposed of through a licensed waste disposal company. To treat the liquid and convert it to a solid waste, add 8 ounces of degreased steel wool or steel machining fines or turnings per gallon of product. Stir frequently or continuously for at least 2 nours. Periodically adjust pH down to 1.5 with nitric acid. When reaction is complete, adjust pH to 8.0 with calcium carbonate or calcium hydroxide and filter. Liquid can go down the drain. See Note 4.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (type): High efficiency particulate filter respirator, supplied-air respirator or self-contained breathing apparatus each with full facepiece, helmet or hood if misting is likely.

LOCAL EXHAUST VENTILATION (rate). To keep below TLV

MECHANICAL VENTILATION (rate): No information

SPECIAL VENTILATION: Equipment for containment and collection of mists if spray application used

PROTECTIVE GLOVES (type): Rubber or plastic gloves

EYE PROTECTION (type): Glasses, goggles or face shield

OTHER PROTECTIVE EQUIPMENT: As appropriate to operation to guard against contamination of clothing projonged or repeated skin contact.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: (See also Sections II, IV and VII.):

Avoid co-loading or storing with cyanides, water-reactive substances or strong reducing agents.

Store in acid-resistant containers. Protect containers from physical damage.

OTHER PRECAUTIONS: Workers handling the product should wash before smoking or eating.

tecerven: of 4/80 g:30FM;

AUG-04-98 02:32AM FROM-BIRCHWOOD LABORATORIES INC

612-937-7979

T-283 P.11/11 F-994

PRODUCT NAME: ALOXIDE

ITEM NUMBER: 6318--

PREPARED: 2-5-98

Page 5 of 5

TRANSPORTATION EMERGENCY NUMBER: CHEMTREC 800-424-9300 U S & CANADA 202-483-7616 INTERNATIONAL

SECTION X - NOTES

- While both selenium and copper are classified as essential trace elements in animals, the Registry of Toxic Effects of Chemical Substances cites experimental evidence of mutagenic, reproductive and tumorigenic effects of selenites and various copper compounds. In animal studies, selenites have produced fetotoxic and teratogenic effects. The implications of the experimental data for human exposure are uncertain. However, it would be prudent for pregnant individuals to avoid contact with the product.
- 2. With regard to carcinogenesis in animals, the status of selenium is indefinite according to IARC (the International Agency for Research on Cancer). Among rats surviving 18 to 24 months on diets containing 4, 7 or 10 ppm selenium, some developed adenoma or low-grade carcinoma in cirrhotic livers and a few others had advanced adenomatoid hyperplasia. Other animal or epidemiological studies suggest that selenium may have anti-carcinogenic effects.
- RTECS cites experimental evidence of mutagenic effects and equivocal tumorigenic effects of nickel sulfate. NIOSH has proposed that all "airborne nickel" be considered and regulated as an occupational carcinogen, although this is under dispute. There is good evidence that chronic inhalation of nickel dusts and fumes in refining processes can produce cancer in the respiratory passages and lungs. Such exposure would not be anticipated with ALOXIDE, and inorganic nickel compounds are not considered carcinogenic by ingestion.
- 4. <u>ATTENTION!</u> This product contains the following chemicals covered by Section 313 of SARA Title III: Selenious acid, cupric sulfate and phosphoric acid. (The nickel sulfate is below the <u>de minimis</u> concentration limit.)

FORMULA NUMBER: 1704-

FOR ASSISTANCE WITH PLACING ORDERS:

- · Product Pricing / Payment Terms
- · Snipping and Tracing of Snipments
- Sales Rep Locations

Please call our Customer Service Desk at (612) 937-7931, or 1-800-328-6156; Fax #: (612) 937-7979

FOR ASSISTANCE WITH USING THE PRODUCTS:

- Questions on Operation of Products
- . Process Setup / Bath Control / Testing
- Solving Finishing Problems
- . Operator Safety and Pollution Control
- . EMERGENCY MEDICAL PROCEDURES

Call our Sales Department at 1-800-328-6156

Mark Ruhland, Vice President (612) 937-7941 Keith Ravenscroft, Sales (612) 937-7939

@Birchwood Laboratories, Inc.

DATE: February 5, 1998



2200 Northmont Parkway, Duluth, Georgia 30136-5895 (404) 623-9697 (800) 843-7637 Fax (800) 533-7637

TRANSPORTATION EMERGENCY NUMBER: CHEMTREC 800-424-9300 U S & CANADA 202-483-7616 INTERNATIONAL

BIRCHWOOD LABORATORIES, INC. MATERIAL SAFETY DATA SHEET

The data provided here is for hazard communication to our employees, our customers and their employees, and authorized regulatory agencies. For the intended purpose, this MSDS may be duplicated or the data transcribed to an alternative form.

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The responsibility to provide a safe workplace remains with the user. The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment.

SECTION I

PRODUCT NAME:

ALOXIDE

ITEM NUMBER: 631827

MANUFACTURED BY:

Birchwood Casey

Division of BIRCHWOOD LABORATORIES, INCORPORATED

7900 Fuller Road

Eden Prairie, MN 55344

Information Telephone Number: 612-937-7931

D-U-N-S:

096488432

CHEMICAL FAMILY:

Dilute Aqueous Acid

CHEMICAL FORMULA: N/A (Mixture)

NATIONAL FIRE PROTECTION ASSOCIATION CODES:

NFPA

HEALTH = 2

REACTIVITY = 0

FLAMMABILITY = 0

HAZARDOUS MATERIAL IDENTIFICATION SYSTEM:

HMIS

HEALTH = 2

REACTIVITY = 0

FLAMMABILITY = 0

PERSONAL PROTECTION = C

TRANSPORTATION EMERGENCY NUMBER: CREMINEC 800-424-9300 U S & CANADA 202-483-7616 INTERNATIONAL

SECTION II - INGREDIENTS

| DESCRIPTION (See Note 3) | CAS NUMBER | PERCENT (basis) | TLV/TWA |
|---|------------|-----------------|----------------------|
| Selenious Acid ~ N2SeO3 | 7783-00-8 | under 4 (w/w) | 0.2mg/m ³ |
| Cupric Nitrate - Cu(NO ₃) ₂ .3H ₂ O | 10031-43-3 | under 4 (w/w) | l mg/m ³ |
| Nitric Acid - HNO ₃ | 7697-37-2 | under 2 (w/w) | 5 mg/m ³ |
| Phosphoric Acid - H ₃ PO ₄ | 7664-38-2 | under 3 (w/w) | l mg/m ³ |
| Polyoxyethylene (12) Tridecyl Alcohol | 24938-91-8 | under 1 (v/v) | N/E |
| Water - H ₂ O | 7732-18-5 | over 86 (w/w) | n/E |

a OSHA PEL (as Se)

b OSHA PEL and TWA
(as Cu, dust or mist)

C OSHA PEL and TWA (STEL 10mg/m3)

d OSHA PEL and TWA (STEL 3 mg/m³)

e None Established

SECTION III - PHYSICAL DATA

BOILING POINT: Approximately 213°F

SPECIFIC GRAVITY (Water = 1): 1.045

VAPOR PRESSURE: No Data

VOLATILE BY VOLUME: None (except water)

VAPOR DENSITY (Air=1): Less than 1

EVAPORATION RATE (Ethyl Ether = 1):

Greater than 1

SOLUBIITY IN WATER: Completely miscible

pH: Less than 1 (undiluted)

APPEARANCE & ODOR: Odorless blue liquid

pH: 1,4 (10% v/v solution)

TOTAL ACIDITY: Under 1N (to pH 5.6)

SECTION IV - FIRE AND EXPLOSION HAZARD

FLASH POINT (method): Non-flammable

LOWER EXPLOSIVE LIMIT (X in air): Not applicable

UPPER EXPLOSIVE LIMIT (% in air): Not applicable

EXTINGUISHING MEDIA: Non-flammable

SPECIAL FIRE FIGHTING PROCEDURES: Non-flammable

UNUSUAL FIRE AND EXPLOSION HAZARDS: Non-flammable. Non-explosive except with water reactive substances.

SECTION V - HEALTH HAZARD DATA

EYES:

Acute Overexposure Effects: The product is an eye irritant. It can cause redness of the eyes, conjunctivitis, iritis, swelling of the eyelids, a watery-mucoid discharge and corneal opacity.

Emergency and First Aid: Immediately rinse eyes thoroughly with clean water. Instillation of aqueous 10% sodium thiosulfate solution is also recommended. Consult a physician. Chronic Overexposure Effects: No data specific to chronic overexposures. See ACUTE above. INHALATION:

Acure Overexposure Effects: Toxic fumes not normally generated. Breathing mists can result in lost sense of smell, nose & throat irritation, garlic odor of breath, headache dizziness, lassitude, tremors, difficulty breathing, bronchitis, pneumonitis, bronchial

Emergency and First Aid: Remove from exposure. If breathing difficult, provide artificial respiration or oxygen. Consult a physician. Watch for delayed pulmonary edema. Diuretics speed elimination of selenium. Vitamin B Complex, Vitamin C and methionine supplements recommended.

Chronic Overexposure Effects: Beside effects as in ACUTE, chronic overexposure may cause weakness, pallor, anemia, enlargement of liver and degenerative changes in target organs. Preclude from contact with product those with Wilson's disease or diseases of the skin, lungs, liver, kidneys or gastrointestinal tract. See Notes 1 and 2.

INGESTION: Acute Overexposure Effects: Oral LD50 (rats) is 1.3 g/kg. May produce metallic taste, garlic odor of breath, headache, dizziness, lassitude, nausea, vomiting, abdominal pain, diarrhea, difficulty breathing. Target organs: liver, kidneys, spleen, lungs, heart, adrenal glands, pancreas.

Emergency and First Aid: If breathing difficult, provide artificial respiration or oxygen. If victim is conscious and not vomiting, induce emesis. Seek medical attention. A diuretic will speed elimination of selenium. Vitamin B Complex, Vitamin C and methionine supplements are recommended.

Chronic Overexposure Effects: Same as INHALATION: CHRONIC OVEREXPOSURE above.

Acute Overexposure Effects: The product is not a primary skin irritant. However, it can produce redness of the skin and slight edema on prolonged or repeated contact. Also, it can cause skin sensitization in some individuals.

Emergency and First Aid: Remove contaminated clothing to avoid prolonged contact. Wash affected areas with soap and water. Application of a 10% sodium thiosulfate cream has

Chronic Overexposure Effects: May cause skin sensitization resulting in irritation, dermatitis or edema.

SECTION VI - REACTIVITY DATA

STABILITY: Stable

CONDITIONS TO AVOID: None known INCOMPATIBILITY (materials to avoid): Cyanides, water reactive substances, organic

solvents, oils, strong reducing agents.

MAZARDOUS DECOMPOSITION PRODUCTS: Reaction with organics and strong reducing agents can produce volatile organoselenides or hydrogen selenide. Thermal decomposition after evaporation to dryness can produce selenium dioxide fumes and oxides of nitrogen and phosphorus.

HAZARDOUS POLYMERIZATION: Will not occur

CONDITIONS TO AVOID: None known

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Review current local, state an federal laws, codes, statutes, and regulations to determine the appropriate agencies to b notified, and the conditions under which they should be notified. Recover as much free liquid as possible and collect in acid-resistant container. Use absorbent to pick up residue. Avoid discharging the liquid directly into a sewer or surface waters. CERCLA Reportable Quantity is 1 1b for selenious acid (approximately 3 gallons of the product.) See Note 3.

WASTE DISPOSAL METHOD: Review current local, state and federal laws, codes, statutes and regulations to determine the current status and appropriate disposal method for the ingredients listed in Section II. Waste GRAVOXIDE or its solutions are assigned the EPA Hazardous Waste Number D010 (Toxicity Characteristic-Selenium). Precipitates filtered from used solution or generated from treating the liquid are assigned the EPA Hazardous Waste Number D010 (Toxicity Characteristic-Selenium). The wastes can be disposed of through a licensed waste disposal company. To treat the liquid and convert i to a solid waste, add 2 ounces of degreased steel wool or steel machining fines or turnings per gallon of diluted product or 8 ounces per gallon of concentrate. Stir frequently or continuously for at least 2 hours. Periodically adjust pH down to 1.5 with nitric acid. When reaction is complete, adjust pH to 8.0 with sodium bicarbonate or sodium hydroxide and filter. Liquid can go down the drain. See Note 3. SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (type): Not required under normal use conditions

LOCAL EXHAUST VENTILATION (rate): Not required under normal use conditions

MECHANICAL VENTILATION (rate): No information

SPECIAL VENTILATION: Not required under normal use conditions

PROTECTIVE GLOVES (type): Rubber or plastic gloves

EYE PROTECTION (type): Glasses, goggles or face shield

OTHER PROTECTIVE EQUIPMENT: As appropriate to operation to guard against contamination of clothing & prolonged or repeated skin contact.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: (See also Sections II, IV and VII.): Avoid storing with cyanides, water reactive substances or strong reducing agents. Store in acid resistant containers. Protect containers from physical damage. OTHER PRECAUTIONS: Workers handling the product should wash before smoking or eating. · SECTION X - NOTES

While both selenium and copper are classified as essential trace elements in animals the Registry of Toxic Effects of Chemical Substances cites experimental evidence of mutagenic, reproductive, and tumorigenic effects of selenites and various copper compounds. In animal studies, selenites have produced fetotoxic and teratogenic effects. The implications of the experimental data for human exposure are uncertain However, it would be prudent for pregnant individuals to avoid contact with the product.

With regard to carcinogenesis in animals, the status of selenium is indefinite according to IARC (the International Agency for Research on Cancer). Among rats surviving 18 to 24 months on diets containing 4, 7 or 10 ppm selenium, some develope adenoma or low-grade carcinoma in cirrhotic livers and a few others had advanced adenomatoid hyperplasia. Other animal or epidemiological studies suggest that selenium may have anti-carcinogenic effects.

ATTENTION! This product contains the following chemicals covered by Section 313 of 3. SARA Title III: selenious acid, cupric nitrate, nitric acid and phosphoric acid.

NAME: TITLE: Richard K Williams Technical Director

112.1.

TELEPHONE NUMBER: 612-937-7931 FORMULA NUMBER: 1702---

PRODUCT NAME: ALOXIDE ITEM NUMBER: 631827

PREPARED: 3/20/95

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TRANSPORTATION EMERGENCY NUMBER: CHEMTREC 800-424-9300 U S & CANADA 202-483-7616 INTERNATIONAL

SECTION X - NOTES

- 1. While both selenium and copper are classified as essential trace elements in animals, the Registry of Toxic Effects of Chemical Substances cites experimental evidence of mutagenic, reproductive and tumorigenic effects of selenites and various copper compounds. In animal studies, selenites have produced fetotoxic and teratogenic effects. The implications of the experimental data for human exposure are uncertain. However, it would be prudent for pregnant individuals to avoid contact with the product.
- 2. With regard to carcinogenesis in animals, the status of selenium is indefinite according to IARC (the International Agency for Research on Cancer). Among rats surviving 18 to 24 months on diets containing 4, 7 or 10 ppm selenium, some developed adenoma or low-grade carcinoma in cirrhotic livers and a few others had advanced adenomatoid hyperplasia. Other animal or epidemiological studies suggest that selenium may have anti-carcinogenic effects.
- 3. RTECS cites experimental evidence of mutagenic effects and equivocal tumorigenic effects of nickel sulfate. NIOSH has proposed that all "airborne nickel" be considered and regulated as an occupational carcinogen, although this is under dispute. There is good evidence that chronic inhalation of nickel dusts and fumes in refining processes can produce cancer in the respiratory passages and lungs. Such exposure would not be anticipated with Aloxide; and inorganic nickel compounds are not considered carcinogenic by ingestion.
- 4. ATTENTION! This product contains the following chemicals covered by Section 313 of SARA Title III: Selenious acid, cupric sulfate and phosphoric acid. (The nickel sulfate is below the de minimis concentration limit.)

NAME: TITLE: Richard K. Williams

E: Technical Director

TELEPHONE NUMBER: 612-937-7931

FORMULA NUMBER: 1704--

SIGNATURE:

DATE: 3/20/95