SAFETY DATA SHEET

OXYVINYLS® CATOXID® 5

North America EN
SDS No.: M41830

Rev. Date: 17-Aug-2023
Rev. Num. 04

SECTION 1. CHEMICAL PRODUCT / COMPANY IDENTIFICATION

Company Identification:	Oxy Vinyls, LP 14555 Dallas Parkway, Suite 400 Dallas, Texas 75254-4300
Manufacturer:	BASF CORPORATION 100 Park Avenue Florham Park, NJ 07932, USA
24-Hour Emergency Telephone Number:	1-800-733-3665 (USA); CANUTEC (Canada): 1-613-996-6666; CHEMTREC (within USA and Canada): 1-800-424-9300; CHEMTREC (outside USA and Canada): +1 703-527-3887; CHEMTREC Contract No: CCN16186
To Request an SDS:	MSDS@oxy.com or 1-972-404-3245
Customer Service:	1-800-752-5151 or 1-972-404-3700
Product Identifier:	**OXYVINYLS® CATOXID® 5**
Synonyms:	Catoxid® 5; OXYVINYLS(TM) CATOXID® 5
Product Use:	Oxidation catalyst
Uses Advised Against:	Any use other than what is identified above. Not approved for use in cooling water systems. EPA regulation 40 CFR 749.68 applies to hexavalent chromium-based water treatment chemicals in cooling systems and does not apply to product use as a processing oxidation catalyst.
Restrictions on Use (United States):	Employees handling this product must be trained in the requirements of the hazards of chromium and requirements of US OSHA Chromium (VI) standard, 29CFR 1910.1026, if applicable. Establishment of OSHA regulated areas may be required per US OSHA Chromium (VI) standard, 29CFR 1910.1026(e) when physically handling this product. Refer to standard for more information. Handle in accordance with hygiene areas and practices and housekeeping requirements outlined in US OSHA Chromium (VI) standard 29 CFR 1910.1026(i) and (j).

SECTION 2. HAZARDS IDENTIFICATION

OSHA REGULATORY STATUS: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

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EMERGENCY OVERVIEW:

Color: Orange to brown
Physical State: Solid
Appearance: Powder
Odor: Odorless

Signal Word: **DANGER**

MAJOR HEALTH HAZARDS: MAY BE HARMFUL IF SWALLOWED. CAUSES SKIN IRRITATION. MAY CAUSE AN ALLERGIC SKIN REACTION. CAUSES SERIOUS EYE IRRITATION. HARMFUL IF INHALED. MAY CAUSE ALLERGY OR ASTHMA SYMPTOMS OR BREATHING DIFFICULTIES IF INHALED. MAY CAUSE GENETIC DEFECTS. SUSPECTED OF DAMAGING FERTILITY OR THE UNBORN CHILD. MAY CAUSE CANCER. MAY CAUSE DAMAGE TO ORGANS (LUNGS) THROUGH PROLONGED OR REPEATED EXPOSURE (BY INHALATION OF RESPIRABLE PARTICLES).

AQUATIC TOXICITY: HARMFUL TO AQUATIC LIFE. HARMFUL TO AQUATIC LIFE WITH LONG LASTING EFFECTS.

PRECAUTIONARY STATEMENTS: Obtain, read, and follow all safety instructions before use. Do not breathe dust. Wash hands and exposed skin and clothing thoroughly after handling. Do not touch eyes. Use only outdoors or in a well-ventilated area. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves/protective clothing/eye protection/face protection/hearing protection. In case of inadequate ventilation, wear respiratory protection. Avoid release to the environment.

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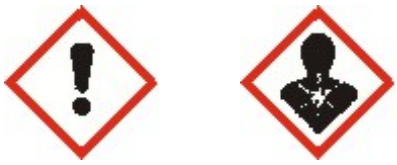
HAZARD CLASSIFICATION:

GHS: CONTACT HAZARD - SKIN:	Category 2 - Causes skin irritation
GHS: CONTACT HAZARD - EYE:	Category 2A - Causes serious eye irritation
GHS: SENSITIZATION HAZARD:	Respiratory Sensitizer Category 1 - May cause allergy or asthma symptoms or breathing difficulties if inhaled Skin Sensitizer Category 1 - May cause an allergic skin reaction
GHS: ACUTE TOXICITY - INHALATION:	Category 4 - Harmful if inhaled
GHS: TARGET ORGAN TOXICITY (REPEATED	Category 2 - May cause damage to respiratory system

EXPOSURE):	through prolonged or repeated exposure
GHS: CARCINOGENICITY:	Category 1A - May cause cancer
GHS: GERM CELL MUTAGENICITY:	Category 1B - May cause genetic defects
GHS: REPRODUCTION TOXIN:	Category 2 - Suspected of damaging fertility or the unborn child
HAZARDS NOT OTHERWISE CLASSIFIED (HNOC):	- ACUTE TOXICITY - ORAL: Category 5 (May be harmful if swallowed) - ACUTE AQUATIC HAZARD - CATEGORY 3: Harmful to aquatic life - AQUATIC TOXICITY - CHRONIC: Category 3 (Harmful to aquatic life with long lasting effects)

GHS SYMBOL: Exclamation mark, Health hazards



GHS SIGNAL WORD: **DANGER**

GHS HAZARD STATEMENTS:

GHS - Health Hazard Statement(s)
• Causes skin irritation
• May cause an allergic skin reaction
• Causes serious eye irritation
• Harmful if inhaled
• May cause allergy or asthma symptoms or breathing difficulties if inhaled
• May cause genetic defects
• May cause cancer
• Suspected of damaging fertility or the unborn child
• May cause damage to organs (lungs) through prolonged or repeated exposure (by inhalation of respirable particles)

Additional Hazards - GHS Hazards Not Otherwise Classified (HNOC):
• ACUTE TOXICITY - ORAL: Category 5 (May be harmful if swallowed)
• ACUTE AQUATIC HAZARD - CATEGORY 3: Harmful to aquatic life
• CHRONIC AQUATIC HAZARD - CATEGORY 3: Harmful to aquatic life with long lasting effects

GHS - Precautionary Statement(s) - Prevention
• Obtain, read, and follow all safety instructions before use
• Do not breathe dust
• Wash hands and exposed skin clothing thoroughly after handling. Do not touch eyes
• Use only outdoors or in a well-ventilated area
• Contaminated work clothing should not be allowed out of the workplace
• Wear protective gloves/protective clothing/eye protection/face protection/hearing protection
• In case of inadequate ventilation, wear respiratory protection
• Avoid release to the environment

GHS - Precautionary Statement(s) - Response
• IF INHALED: Remove person to fresh air and keep comfortable for breathing
• IF INHALED: Get medical help
• If experiencing respiratory symptoms: Get emergency medical help immediately
• IF ON SKIN: Wash with plenty of water
• If skin irritation or rash occurs: Get medical help
• Specific treatment for skin contact (see "Notes to Physician" in Section 4 of the SDS)
• Take off contaminated clothing and wash it before reuse
• IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
• If eye irritation persists: Get medical help

GHS - Precautionary Statement(s) - Storage
• Store locked up

GHS - Precautionary Statement(s) - Disposal
• Dispose of contents and container in accordance with applicable local, regional, national, and/or international regulations

Physical Hazards of Significance Not Mentioned in GHS Classification
• Dusts may form explosive mixtures in air

PBT and vPvB assessment:
This product does not fulfill the criteria for persistence, bioaccumulation, and toxicity. Therefore, this substance is not considered a PBT or a vPvB substance

Component	U.S. - CERCLA/SARA - Section 313 - PBT Chemical Listing	EU - PBT / vPvB Status
Non-fibrous Alumina / Aluminum Oxide	Not listed	PBT/PvBT assessment does not apply Considered NOT to be an EU PBT
CHROMIUM (III) OXIDE (2:3)	Not listed	PBT/PvBT assessment does not apply Considered NOT to be an EU PBT
Chromium trioxide (CrO3)	Not listed	PBT/PvBT assessment does not apply Considered NOT to be an EU PBT
Chromium inorganic compounds (including Chromium (VI) and (III) inorganic forms, both insoluable and soluable forms)	Not listed	PBT/PvBT assessment does not apply Considered NOT to be an EU PBT

Endocrine Disruptor Assessment:
The components in the table below are listed on one or more global endocrine screening lists as noted:.

Component	Endocrine Screening List
Chromium inorganic compounds (including Chromium (VI) and	TEDX Potential Endocrine List: Present

Component	Endocrine Screening List
(III) inorganic forms, both insoluable and soluable forms)	

See Section 11: TOXICOLOGICAL INFORMATION

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	Systematic Chemical Name	Common name	CAS Number	Percent [%]
Non-fibrous Alumina / Aluminum Oxide	Aluminum oxide (Al2O3)	Alumina	1344-28-1	90 - 95
CHROMIUM (III) OXIDE (2:3)	Chromium oxide (Cr2O3)	Chromium (III) oxide	1308-38-9	5 - 15
Chromium trioxide (CrO3)	Chromium oxide (CrO3)	Chromium (VI) trioxide	1333-82-0	0.5 - 2.0

SECTION 4. FIRST AID MEASURES

EYE CONTACT: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical help.

SKIN CONTACT: If on skin, wash with plenty of water. If skin irritation or rash occurs: Get medical help. Take off contaminated clothing and wash before reuse. Specific Treatment for skin sensitization: Follow clinical protocols for allergic dermatitis.

INHALATION: IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF INHALED: Get medical help. If experiencing respiratory symptoms: Get emergency medical help immediately.

INGESTION: IF SWALLOWED, get medical help.

Most Important Symptoms/Effects (Acute and Chronic [Delayed]):

Acute Symptoms/Effects:
Eye: Eye Irritation: Exposure to eyes may cause irritation, pain, tearing, redness, swelling, and possible corneal damage.
Skin: When this material contacts skin it may cause redness, irritation, itching, burning sensation, rash, hives (acute or delayed contact urticaria), and/or allergic contact dermatitis.
Inhalation (Breathing): Respiratory System Effects: May irritate upper airways, cause coughing, difficulty breathing. Inhalation of this material may cause allergy or asthma symptoms.
Ingestion (Swallowing): Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. Ingesting large quantities may cause pain, nausea, vomiting, diarrhea.

Chronic (Delayed) Symptoms/Effects:
Inhalation may cause an asthma-like allergy or other hypersensitivity reactions such as chest tightness, angioedema, bronchoconstriction, flushing, diaphoresis, urticarial, cause shortness of breath, wheezing, cough, and/or chest tightness. Repeated and prolonged skin contact may cause allergic and non-allergic dermatitis. May cause cancer. May cause genetic defects. Suspected of damaging fertility or the unborn child.

Target Organ Effects: Respiratory system.

Protection of First-Aid Responders: Do not breathe dust. Avoid contact with skin and eyes. Use personal protective equipment (PPE). Refer to Section 8 for specific PPE recommendations. At minimum, treating personnel should utilize PPE sufficient for prevention of bloodborne pathogen transmission.

Notes to Physician:
There is no specific antidote. Treatment is based upon symptomatic and supportive care (decontamination, vital functions). SKIN CONTACT: With chronic exposures, contact dermatitis (irritant and occasionally allergic) can occur. Contact dermatitis can require symptomatic treatment and/or other interventions.

Interaction with Other Chemicals Which Enhance Toxicity: Prior exposure to chromium compounds can lead to sensitization to smaller amounts that would normally cause skin or respiratory sensitization.

Medical Conditions Aggravated by Exposure: May aggravate preexisting conditions such as eye disorders that decrease tear production or have reduced integrity of the eye; skin disorders that compromise the integrity of the skin; and respiratory conditions including asthma and other breathing disorders. Individuals with impaired liver/kidney function may have increased susceptibility to excessive exposures.

SECTION 5. FIRE FIGHTING MEASURES

Fire Hazard: Negligible fire hazard.

Explosive properties: During processing, dust may form explosive mixture in air.

Extinguishing Media: Use dry chemical, carbon dioxide, foam, or water spray. Use water spray to keep containers cool. Do not get water inside container.

Specific Hazards: The product is not flammable.

Unusual Hazards: Runoff may pollute waterways.

Fire Fighting: Wear complete fire service protective equipment, including full-face MSHA/NIOSH approved self-contained breathing apparatus. Keep unnecessary people away, isolate hazard area and deny entry. Move containers from the fire area if it is possible to do so without risk to personnel. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

Component	Immediately Dangerous to Life/ Health (IDLH)
Chromium trioxide (CrO3) 1333-82-0	15 mg/m^3 IDLH Cr(VI)

Hazardous Combustion Products: Oxides of chromium; Oxygen

Sensitivity to Mechanical Impact: May react with acetylene gas to form shock sensitive solid.

Sensitivity to Static Discharge: Not sensitive.

Lower Flammability Level (air): Not flammable

Upper Flammability Level (air): Not flammable

Flash point: Not flammable

Auto-ignition Temperature: Not applicable

Physical Hazards of Significance Not Mentioned in GHS Classification
- Dusts may form explosive mixtures in air

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Breathing protection is mandatory. Avoid dust formation. Do not breathe dust. Avoid contact with skin, eyes and clothing. Wear appropriate personal protective equipment recommended in Section 8, Exposure Controls / Personal Protection, of the SDS.

Personal Protective Equipment: See Section 8 for information on personal protective equipment.

Emergency Procedures: If employees are required to clean-up spills, they must be properly trained and equipped. The OSHA Hazardous Waste Operations and Emergency Response Standard (29 CFR 1910.120) may apply. Prevent material and runoff from entering sewers and waterways if it can be done safely well ahead of the release.

Environmental Precautions: Keep out of water supplies and sewers. Contain runoff from fire control and dilution water. Should not be released into the environment. Releases should be reported, if required, to appropriate regulatory agencies.

Methods and Materials for Clean-up

Recovery: Shoveling or sweeping dry material may generate dust. Ensure that surfaces contaminated with product are cleaned by HEPA-filter vacuuming or other methods that minimize the likelihood of exposure to dust. Dry shoveling, dry sweeping, and dry brushing may be used only where HEPA-filtered vacuuming or other methods that minimize the likelihood of exposure to dust have been tried and found not to be effective. Compressed air should never be allowed to remove product/dust from any surface. When solid material is spilled on land, shovel into appropriate containers (avoid dusting) for recovery or disposal. HEPA vacuum or wet sweep any remaining material into a suitable container. Suitable materials for containers: Carbon steel (Iron).
Neutralization: Reclaim for processing if possible. No additional information available.
Final Disposal: For waste disposal, see section 13.

SECTION 7. HANDLING AND STORAGE

Handling:

Precautions for Safe Handling: Do not breathe dust. Minimize generation of dust. Use only with adequate ventilation. Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. Wear personal protective equipment as described in Exposure Controls/Personal Protection (Section 8) of the SDS. This product does not contribute to the spreading of flames, nor is it combustible or explosive.

Technical measures/precautions: Employees handling this product must be trained in the requirements of the hazards of chromium and requirements of US OSHA Chromium (VI) standard, 29CFR 1910.1026, if applicable.

Prevention of contact: Establishment of OSHA regulated areas may be required per US OSHA Chromium (VI) standard, 29CFR 1910.1026(e) when physically handling this product. Refer to standard for more information.

Storage:

Safe Storage Conditions: Store and handle in accordance with all current regulations and standards. Store in a cool, well-ventilated area. Keep container dry. Keep container tightly closed and properly labeled. Keep separated from incompatible substances (see below or Section 10 of the Safety Data Sheet).

Incompatible Substances: Strong oxidizing agents. Acids. Alkalis. Reducing agents.

Physical Hazards of Significance Not Mentioned in GHS Classification
- Dusts may form explosive mixtures in air

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

REGULATORY EXPOSURE LIMIT(S):
Listed below for the product components that have regulatory occupational exposure limits (OEL's) established.

Component	OSHA Final PEL TWA	OSHA Final PEL STEL	OSHA Final PEL Ceiling
Non-fibrous Alumina / Aluminum Oxide 1344-28-1 (90 - 95 %)	15 mg/m³ (TWA) 5 mg/m³ (TWA)	-----	-----

OEL: Occupational Exposure Limit; OSHA: United States Occupational Safety and Health Administration; PEL: Permissible Exposure Limit; TWA: Time Weighted Average; STEL: Short Term Exposure Limit

Component	Canada - TWAs	Canada - STELs	Canada - Ceilings
Non-fibrous Alumina / Aluminum Oxide 1344-28-1 (90 - 95 %)	Alberta - 10 mg/m³ (TWA)	-----	-----

NON-REGULATORY EXPOSURE LIMIT(S):
Listed below are the product components that have advisory (non-regulatory) occupational exposure limits (OEL's) established.

Component	ACGIH TWA	ACGIH STEL	ACGIH Ceiling	Skin Absorption - ACGIH	NIOSH RELs	AIHA WEELs	OSHA TWA (Vacated)	OSHA STEL (Vacated)	OSHA Ceiling (Vacated)
Non-fibrous Alumina / Aluminum Oxide 1344-28-1 (90 - 95 %)	1mg/m³ TWA respirable particulate matter	-----	-----	-----	-----	-----	10 mg/m³ 5 mg/m³	-----	-----
Chromium trioxide (CrO3) 1333-82-0 (0.5 - 2.0 %)	0.0002mg/m³ TWA Cr(VI) inhalable particulate matter	-----	-----	Listed	0.0002 mg/m³ (TWA) 26	-----	-----	-----	-----

- The Non-Regulatory United States Occupational Safety and Health Administration (OSHA) limits, if shown, are the Vacated 1989 PEL's (vacated by 58 FR 35338, June 30, 1993).

- The American Conference of Governmental Industrial Hygienists (ACGIH) is a voluntary organization of professional industrial hygiene personnel in government or educational institutions in the United States. The ACGIH develops and publishes recommended occupational exposure limits each year called Threshold Limit Values (TLVs) for hundreds of chemicals, physical agents, and biological exposure indices.

ENGINEERING CONTROLS: General or local exhaust ventilation and other forms of engineering controls are the preferred means for controlling exposures. Provide local exhaust ventilation where dust or mist may be generated. Ensure compliance with applicable exposure limits. Refer to exposure determination requirements in US OSHA's Chromium (VI) standard CFR 1910.1026 (d).

PERSONAL PROTECTIVE EQUIPMENT:

Eye Protection: Wear safety glasses with side-shields. If eye contact is likely, wear chemical resistant safety goggles. Wear chemical safety goggles with a face shield to protect against eye and skin contact when appropriate. Provide an emergency eyewash fountain and quick drench shower in the immediate work area.

Skin and Body Protection: Wear protective clothing to minimize skin contact such as standard industrial work clothes or coveralls, safety footwear. Thoroughly clean and dry contaminated clothing before reuse. Contaminated work clothing must not be allowed out of the workplace.

Hand Protection: Wear appropriate chemical resistant gloves. Consult a glove supplier for assistance in selecting an appropriate chemical resistant glove.

Protective Material Types: Nitrile. Polyvinyl chloride (PVC). Tyvek®.

Respiratory Protection: A NIOSH approved respirator with HEPA cartridges may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits, or when symptoms have been observed that are indicative of overexposure. High-efficiency particulate air [HEPA] filter must be at least 99.97 percent efficient in removing mono-dispersed particles of 0.3 micrometers in diameter or larger. The added

protection of a full face-piece respirator is required when visible dusty conditions are encountered and eye irritation may occur. A respiratory protection program that meets 29 CFR 1910.134 must be followed whenever workplace conditions warrant use of a respirator.

Component	Immediately Dangerous to Life/ Health (IDLH)
Chromium trioxide (CrO3) 1333-82-0 (0.5 - 2.0 %)	15 mg/m³ IDLH Cr(VI)

Other Protective Equipment: Establish a regulated area as outlined in US OSHA Chromium (VI) standard 29 CFR 1910.1026(e) when changing out process catalyst if airborne levels are unknown or reasonably expected to be in excess of 5 ug/m³ for chromium compounds.

HYGIENE MEASURES: Handle in accordance with hygiene areas and practices and housekeeping requirements outlined in US OSHA Chromium (VI) standard 29 CFR 1910.1026(i) and (j). Handle in accordance with good industrial hygiene and safety practices. Good hygiene practices include but are not limited to: wearing suitable gloves and/or eye protection; washing hands and affected skin immediately after handling, before breaks, and at the end of the workday; regularly cleaning work area and clothing; etc. Never allow employees to consume food or beverages at a worksite where product is present. Never allow employees to enter eating and drinking areas with protective work clothing or equipment. Ensure employees do not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in regulated areas, or in areas where skin or eye contact with product occurs; or carry the products associated with these activities, or store such products in these areas.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Powder
Physical State:	Solid
Color:	Orange to brown
Odor:	Odorless
pH:	Not applicable
Melting Point/Range:	No data available
Freezing Point/Range:	Not applicable to solids
Boiling Point °C	Not applicable
Flash point:	Not flammable
Evaporation Rate (ether=1):	Not applicable
Flammability (solid, gas):	Not flammable
Lower Flammability Level (air):	Not flammable
Upper Flammability Level (air):	Not flammable
Explosive properties:	Not applicable
Vapor Pressure:	Not applicable
Water Solubility:	Sparingly soluble
Vapor Density (air=1):	Not applicable
Relative Density/Specific Gravity (water=1):	No data available
Partition Coefficient (n-octanol/water):	Not applicable
Auto-ignition Temperature:	Not applicable
Decomposition Temperature:	No data available
Viscosity:	Not applicable to solids

Other Information

Bulk Density:	0.8 – 1.0 g/cc (packed @ 550°C dry weight basis)
VOC Content (%):	Not applicable if virgin product
Volatility:	No data available
Surface tension:	No data available
Particle Size Distribution:	0 - 10% less than 22 microns; 70 - 100 less than 88 microns

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability: Stable at normal temperature and pressure. The product is stable if stored and handled as prescribed/indicated.

Reactivity: Not reactive at normal temperature and pressure.

Possibility of Hazardous Reactions: The product is stable if stored and handled as prescribed/indicated. Reacts with water and basic components to generate heat.

Conditions to Avoid (e.g., static discharge, shock, or vibration): Avoid dust formation.

Incompatible Substances: Strong oxidizing agents. Acids. Alkalis. Reducing agents.

Hazardous Decomposition Products: Chlorine, Hydrogen chloride, Chlorine compounds, Metallic oxides.

Hazardous Polymerization: Will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

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POTENTIAL HEALTH EFFECTS:

TOXICITY:
Aluminum dust may cause eye irritation. Chronic inhalation may reduce lung function. The majority of chromium compounds in this material are bound in a chemical matrix. Chromium compounds cause irritant contact dermatitis, ulcerations, and allergic chromate dermatitis. Eczematous dermatitis due to trivalent chromium compounds has been reported. Allergic contact dermatitis may arise from exposure to either trivalent or hexavalent chromium, although hexavalent chromium is responsible for most of the reported cases. When hexavalent chromium compounds are deposited on the broken skin, a deeply penetrating round hole may develop, especially on the fingers, hands and forearm. Acute eye exposure may cause irritation and conjunctivitis. Chronic skin exposure may cause dermatitis, and eczema. If ingested, violent gastroenteritis, severe circulatory collapse and toxic nephritis may ensue. This material contains hexavalent chromium, known to cause lung cancer in humans.

ACUTE TOXICITY:

Eye contact: Eye contact may cause irritation, pain, tearing, redness, swelling, and possible corneal damage.
Skin contact: May cause allergic skin reaction. Skin contact with this material may cause redness, irritation, burning sensation, rash, hives (acute or delayed contact urticarial), and/or allergic contact dermatitis.
Inhalation: May irritate upper airways, cause coughing, difficulty breathing.
Ingestion: Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. Ingesting large quantities may cause pain, nausea, vomiting, diarrhea.

CHRONIC TOXICITY:

Chronic Effects: Repeated exposure to high concentrations of dust may cause respiratory system effects such as fibrosis or emphysema. Inhalation may cause an asthma-like allergy or other hypersensitivity reactions such as chest tightness, angioedema, bronchoconstriction, flushing, diaphoresis, urticarial, cause shortness of breath, wheezing, cough, and/or chest tightness. Repeated and prolonged skin contact may cause allergic and non-allergic dermatitis. May cause genetic defects. May cause cancer. This material contains hexavalent chromium, known to cause lung cancer in humans. Suspected of damaging fertility or the unborn child.

SIGNS AND SYMPTOMS OF EXPOSURE:

Inhalation (Breathing): Respiratory System Effects: May irritate upper airways, cause coughing, difficulty breathing. Inhalation of this material may cause allergy or asthma symptoms.
Skin: When this material contacts skin it may cause redness, irritation, itching, burning sensation, rash, hives (acute or delayed contact urticaria), and/or allergic contact dermatitis.
Eye: Eye Irritation: Exposure to eyes may cause irritation, pain, tearing, redness, swelling, and possible corneal damage.
Ingestion (Swallowing): Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. Ingesting large quantities may cause pain, nausea, vomiting, diarrhea.

Interaction with Other Chemicals Which Enhance Toxicity: Prior exposure to chromium compounds can lead to sensitization to smaller amounts that would normally cause skin or respiratory sensitization.

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GHS HEALTH HAZARDS:

GHS: CONTACT HAZARD - SKIN: Category 2 - Causes skin irritation
GHS: CONTACT HAZARD - EYE: Category 2A - Causes serious eye irritation
GHS: SENSITIZATION HAZARD:
Respiratory Sensitizer Category 1 - May cause allergy or asthma symptoms or breathing difficulties if inhaled
Skin Sensitizer Category 1 - May cause an allergic skin reaction
GHS: ACUTE TOXICITY - ORAL: Category 5 - May be harmful if swallowed
GHS: ACUTE TOXICITY - INHALATION: Category 4 - Harmful if inhaled
GHS: TARGET ORGAN TOXICITY (REPEATED EXPOSURE):
Category 2 - May cause damage to respiratory system through prolonged or repeated exposure
GHS: CARCINOGENICITY: Category 1A - May cause cancer
GHS: GERM CELL MUTAGENICITY: Category 1B - May cause genetic defects
GHS: REPRODUCTION TOXIN: Category 2 - Suspected of damaging fertility or the unborn child

TOXICITY DATA:

PRODUCT TOXICITY DATA:

LD50 Oral:	LD50 Dermal:	LC50 Inhalation:
2223 mg/kg - Oral Acute Toxicity Estimate (ATE)	15,000 mg/kg - Dermal Acute Toxicity Estimate (ATE)	2.505 mg/l - Inhalation Acute Toxicity Estimate (ATE)

COMPONENT TOXICITY DATA:

Component	Oral LD50	Dermal LD50	Inhalation LC50
Non-fibrous Alumina / Aluminum Oxide 1344-28-1	>5000 mg/kg (Rat)	No data available	No data available
CHROMIUM (III) OXIDE (2:3) 1308-38-9	>5000 mg/kg (Rat)	No data available	>5.41 mg/L (4-h Rat)
Chromium trioxide (CrO3) 1333-82-0	80 mg/kg (Rat)	57 mg/kg (Rabbit)	217 mg/m^3 (4-h Rat)

EYE IRRITATION/CORROSION: The results of a screening studies in the rabbit in vivo clearly show that chromic acid (aqueous chromium trioxide) is corrosive to skin. Further testing in vivo for eye irritation is therefore not required and cannot be justified on animal welfare grounds. The risk of severe damage to eyes is considered implicit and therefore classification as Category 2A is warranted.

SKIN IRRITATION/CORROSION: Chromium trioxide is markedly more corrosive to skin than other water-soluble hexavalent chromium compounds, as a consequence of its low pH when mixed with water or moisture to form chromic acid.

SKIN ABSORBENT/DERMAL ROUTE: NO
Material is an inorganic solid and not likely to penetrate the skin in any significant quantity.

RESPIRATORY OR SKIN SENSITIZATION: May cause sensitization by inhalation and sensitization by skin contact based on findings in occupationally-exposed humans.

CARCINOGENICITY: Several carcinogenicity studies performed with chromium (VI) trioxide have been reported in the literature: two (2) inhalation studies have been performed in female mice and two studies have been performed in the rat using intrabronchial implantation. A large amount of additional data is available on the carcinogenicity of chromium (VI) compounds using various exposure routes. The respiratory tract effects of chromium (VI) trioxide appear to be specific to this compound due to its corrosive nature, however, once absorbed systemically the different chromium (VI) compounds are considered to be toxicologically equivalent. Epidemiological data are also available and indicate that occupational exposure to chromium (VI) trioxide is linked to increased incidences of lung tumors. In addition, findings of increased lung tumors in occupationally exposed humans.

SPECIFIC TARGET ORGAN TOXICITY (Repeated or Prolonged Exposure): The results of two published repeated exposure inhalation studies in the mouse for chromium trioxide performed over periods of up to 12 months show that the primary effects of exposure are local corrosion and irritation of the respiratory tract.

INHALATION HAZARD: Isolated low level inhalational exposures generally cause only mild short term nose or throat irritation or itching. However heavy exposures, especially if chronic or recurrent over months or years, can result in sneezing, epistaxis (nose bleeds), and ulcers or perforations of the nasal septum. Exceptionally, very high airborne levels have resulted in acute systemic poisoning, with vomiting, abdominal pain, thirst, oliguria or anuria,hepatic involvement, vertigo, seizures, intravascular hemolysis, coagulopathy, and shock.

INGESTION HAZARD: Ingestion of concentrated solutions of chromium salts often causes oropharyngeal, retrosternal and abdominal pain, plus circulatory impairment with risk of rapid demise. Initial gastrointestinal and circulatory effects are typically followed by hepatic necrosis and/or renal tubular damage with renal failure. Hematological effects include methemoglobinemia, hemolysis, and coagulopathy. CNS and respiratory depression are also significant risks. Circulatory collapse may also develop more gradually, and is typically a factor in multi-organ failure and death.

GERM CELL/IN-VITRO MUTAGENICITY: No proprietary studies are available, however there is a very large body of evidence available in the published literature for various water-soluble hexavalent chromium compounds. This comprehensive dataset indicates that the Cr(VI) compounds in this group are mutagenic in vitro and in vivo.

REPRODUCTIVE TOXICITY: The results of animal studies suggest a fertility impairing effect. Sexually mature male and female mice at 50 days of age were exposed to trivalent (Chromium chloride) or hexavalent (potassium dichromate) chromium compounds in drinking water for 12 weeks. The effects of the direct chromium exposure on fertility was assessed at day 140 of age. Fertility was significantly reduced in males exposed to the trivalent chromium compound. The number of implantation sites and the number of viable fetuses was significantly reduced in females impregnated by males exposed to the hexavalent chromium compound. The number of resorptions and dead fetuses was increased in females impregnated by males exposed to trivalent and hexavalent chromium compounds. The exposure of female mice to trivalent and hexavalent chromium compounds significantly reduced the number of implantation sites and the number of viable fetuses. The number of females with resorptions was significantly increased in hexavalent chromium exposed females. The number of resorptions was increased in trivalent and hexavalent exposed females. Body, seminal vesicles and preputial gland weights were significantly reduced in males exposed to trivalent and hexavalent chromium, whereas testes weight was significantly increased in males exposed to these compounds. Furthermore, ovarian weight was significantly increased in females exposed to trivalent and hexavalent chromium, whereas uterine weight was significantly decreased in trivalent chromium exposed females. In conclusion, the ingestion of trivalent and hexavalent chromium compounds by adult male and female mice would cause adverse effects on fertility and reproduction.

DEVELOPMENTAL TOXICITY: No studies of the developmental toxicity of chromium (VI) trioxide have been identified; however, several studies performed with potassium dichromate are available. Once systemically absorbed, the toxicokinetics and toxicodynamics of chromium (VI) trioxide and the other water-soluble Cr (VI) salts are essentially identical, therefore the results of these studies are relevant and can be extrapolated. The available studies investigated both reproductive and developmental toxicity endpoints. Overall, highly water-soluble chromium (VI) compounds should be considered developmental toxicants in the mouse. These findings can be regarded as relevant to humans.

TOXICOKINETICS: Following inhalation exposure, animal studies have shown that 20-30% of the administered Cr (VI) is absorbed via the respiratory tract. Highly water-soluble Cr (VI) is poorly absorbed via the gastrointestinal tract (only 2-9% of the dose was absorbed in human studies) due to reduction to the relatively poorly absorbed Cr (III). Only limited dermal absorption takes place through intact skin, with 1-4% Cr (VI) from an aqueous solution crossing the skin in guinea pig studies. According to the results of animal testing, chromium derived from these compounds can remain in the lungs for several weeks after inhalation exposure and also becomes bound to hemoglobin in erythrocytes for the lifespan of the cells. Cr(VI) becomes reduced to Cr(III) after entering the body due to the influence of reducing agents, for example glutathione. Distribution is widespread even after a single dose and includes transfer of absorbed Cr (VI) across the placenta. Excretion occurs in urine and feces. Repeated exposure leads to accumulation of chromium in several tissues, particularly the spleen because of the uptake of senescent erythrocytes.

METABOLISM: Chromium compounds are largely eliminated (essentially unchanged) in urine.

BIOLOGICAL DISTRIBUTION: Wide distribution within the body (great majority as Cr (III)): Liver, kidney, spleen,

bone marrow, reticuloendothelial system, heart; lower levels in muscle and brain. Binds to plasma transferrin. May cross the blood brain barrier and crosses the placenta. In addition, is excreted in breast milk with mean levels of ~0.3 ug/L found in one study of lactating women.

PATHOGENICITY AND ACUTE INFECTIOUSNESS (ORAL, DERMAL, AND INHALATION): Not applicable.

ENDOCRINE DISRUPTOR: This product does not contain any known or suspected endocrine disruptors.

NEUROTOXICITY: The toxicity of the water-soluble Cr (VI) compounds has been comprehensively investigated and is well documented in the published scientific literature. There is no evidence of neurotoxicity or neuropathology.

IMMUNOTOXICITY: The toxicity of the water-soluble Cr (VI) compounds has been comprehensively investigated and is well documented in the published scientific literature. There is no evidence of specific immunotoxicity.

SECTION 12. ECOLOGICAL INFORMATION

ECOTOXICITY (EC, IC, and LC):

Component:	*Freshwater Fish:*	*Invertebrate Toxicity:*	*Algae Toxicity:*	*Other Toxicity:*
Non-fibrous Alumina / Aluminum Oxide 1344-28-1 (90 - 95 %)	No data available	No data available	No data available	No Data Available
CHROMIUM (III) OXIDE (2:3) 1308-38-9 (5 - 15 %)	*LC50 Danio rerio: 10000 mg/L 96h static	No data available	No data available	No data available
Chromium trioxide (CrO3) 1333-82-0 (0.5 - 2.0 %)	*LC50 Colisa fasciatus: 40 mg/L 96h static	No data available	No data available	No data available

FATE AND TRANSPORT:

PERSISTENCE: Not applicable for inorganic substances.

BIODEGRADATION: The product is inorganic and readily biodegradable in water.

BIOCONCENTRATION: Under certain environmental conditions, chromium may be subject to low levels of bioaccumulation in aquatic and terrestrial plants and animals.

BIOACCUMULATIVE POTENTIAL: The existing information suggests not only that aluminum does not bio magnify, but rather that it tends to exhibit bio dilution at higher trophic levels in the food chain. However, Chromium (VI) has been shown to be taken up by a wide range of organisms from water, sediment and soil. For fish, although uptake does occur, the bioconcentration factors for chromium (VI) are usually very low (~1 l/kg).

MOBILITY IN SOIL: Adsorption to solid soil phase is expected. The potential of alumina for adsorption to sediment and soil particles is mainly driven by its speciation, the concentration of dissolved organic carbon (DOC), and pH, In general, Chromium (III) is more strongly absorbed than Chromium (VI). Adsorption for both Chromium (III) and Chromium (VI) is pH dependent. Adsorption of Chromium (III) is stronger in alkaline conditions whereas

conversely adsorption of Chromium (VI) is stronger in acidic conditions.

ADDITIONAL ECOLOGICAL INFORMATION: This material is harmful to aquatic life. This material is harmful to aquatic life with long lasting effects.

PBT and vPvB assessment: This product does not fulfill the criteria for persistence, bioaccumulation, and toxicity. Therefore, this substance is not considered a PBT or a vPvB substance.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste from material:
Reuse or reprocess, if possible. May be subject to disposal regulations. Dispose in accordance with all applicable regulations. This product may meet the Criteria for a D007 Waste (Characteristic of toxicity). Test prior to disposal.

Container Management:
Dispose of container in accordance with applicable local, regional, national, and/or international regulations. Container rinsate must be disposed of in compliance with applicable regulations. Contaminated packaging should be emptied as far as possible and disposed of in the same manner as the substance/product.

Contaminated Material:
Dispose of in accordance with local authority regulations. Disposal requirements are dependent on the hazard classification and will vary by location and the type of disposal selected. All waste materials should be reviewed to determine the applicable hazards (testing may be necessary). Used catalysts may have different hazardous properties than the original products. One or more components of this product exhibit toxic characteristics as determined by the Toxicity Characteristic Leaching Procedure.

SECTION 14. TRANSPORT INFORMATION

IMPORTANT: This material is not classified as a dangerous good under transport regulations. The shipper/consignor/sender is responsible to ensure that the packaging, labeling, and markings are in compliance with the selected mode of transport.

LAND TRANSPORT

U.S. DOT 49 CFR 172.101:
Status: Not Regulated
CANADIAN TRANSPORTATION OF DANGEROUS GOODS:
Status: Not Regulated

MARITIME TRANSPORT (IMO / IMDG)

Status - IMO / IMDG: Not Regulated.

AIR TRANSPORT (ICAO / IATA)

Status - ICAO/IATA: Not Regulated

SECTION 15. REGULATORY INFORMATION

U.S. REGULATIONS

OSHA REGULATORY STATUS:
This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):
If a release is reportable under CERCLA section 103, notify the state emergency response commission and local emergency planning committee. In addition, notify the National Response Center at (800) 424-8802 or (202) 426-2675.

Component	U.S. DOT Hazardous Substances/ RQs	CERCLA Hazardous Substances / RQs	CERCLA Section 302 EHS EPCRA RQs	Section 302 Threshold Planning Quantity (TPQ)
Chromium inorganic compounds (including Chromium (VI) and (III) inorganic forms, both insoluable and soluable forms) 7440-47-3 (0 %)	5000 lbs(RQ)	5000 lb no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm	Not listed	Not Listed

SARA EHS Chemical (40 CFR 355.30)
If a release is reportable under EPCRA, notify the state emergency response commission and local emergency planning committee. If the TPQ is met, facilities are subject to reporting requirements under EPCRA Sections 311 and 312.

Acute Health Hazard, Chronic Health Hazard

SARA HAZARD CATEGORIES ALIGNED WITH GHS (2018):
Health Hazard - Carcinogen
Health Hazard - Sensitizer (Respiratory or Skin)
Health Hazard - Reproductive Toxin
Health Hazard - Germ Cell Mutagenicity
Health Hazard - Specific Target Organ Toxicity (STOT) Repeat Exposure (RE)
Health Hazard - Skin Corrosion or Irritation
Health Hazard - Serious eye damage or eye irritation
Health Hazard - Acute Toxin (any route of exposure)

EPCRA SECTION 313 (40 CFR 372.65):
The following chemicals are listed in 40 CFR 372.65 and may be subject to Community Right-to Know Reporting requirements.

Component	SARA 313 - Emission Reporting	SARA 313 PBT
Non-fibrous Alumina / Aluminum Oxide 1344-28-1 (90 - 95)	1.0% (de minimis concentration)	Not Listed
CHROMIUM (III) OXIDE (2:3)	Not Listed	Not Listed

1308-38-9 (5 - 15)		
Chromium trioxide (CrO3) 1333-82-0 (0.5 - 2.0)	Not Listed	Not Listed
Chromium inorganic compounds (including Chromium (VI) and (III) inorganic forms, both insoluable and soluable forms) 7440-47-3 (0)	1.0% (de minimis concentration)	Not Listed

DEPARTMENT OF HOMELAND SECURITY (DHS)- Chemical Facility Anti-Terrorism Standards (6 CFR 27):
No components in this material are regulated under DHS

OSHA SPECIFICALLY REGULATED SUBSTANCES:
OSHA 29 CFR 1910.1026 (Chromium VI); The U.S. Department of Labor, Occupational Safety and Health Administration specifically regulates manufacturing, handling and processing of materials containing Chromium VI. Such regulations have been published at 29 CFR 1910.1026.

OSHA PROCESS SAFETY (PSM) (29 CFR 1910.119):
Not regulated.

EPA'S CLEAN WATER AND CLEAN AIR ACTS:
Regulated as noted in table below.

Component	Clean Water Act - Priority Pollutants	CAA - ODS CLASS 1 AND CLASS 2	CAA - Volatile Organic Compounds (VOCs) in SOCMI	CAA - HON Rule - Organic HAPs	CAA - Hazard Air Pollutants	CAA - Urban HAPs List (Integrated Urban Strategy)	SNAP - Substitutes for ODS	EPA RMP Toxic or Flammable TPQ
Non-fibrous Alumina / Aluminum Oxide 1344-28-1 (90 - 95 %)	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed
CHROMIUM (III) OXIDE (2:3) 1308-38-9 (5 - 15 %)	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed	Present	Not Listed	Not Listed
Chromium trioxide (CrO3) 1333-82-0 (0.5 - 2.0 %)	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed	Present	Not Listed	Not Listed
Chromium inorganic compounds (including Chromium (VI) and (III) inorganic forms, both insoluable and soluable forms) 7440-47-3 (0 %)	Present	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed

NATIONAL INVENTORY STATUS

U.S. INVENTORY STATUS: Toxic Substance Control Act (TSCA):

Component	TSCA Inventory	TSCA ACTIVE LIST	TSCA 12(b)	TSCA/Section 4	TSCA/Section 5	TSCA/Section 6	TSCA/Section 8
Non-fibrous Alumina / Aluminum Oxide 1344-28-1 (90 - 95 %)	Listed	ACTIVE	Not Listed	Not listed	Not Listed	Not Listed	Not listed
CHROMIUM (III) OXIDE (2:3) 1308-38-9 (5 - 15 %)	Listed	ACTIVE	Not Listed	Not listed	Not Listed	Not Listed	Not listed

Chromium trioxide (CrO3) 1333-82-0 (0.5 - 2.0 %)	Listed	ACTIVE R	Section 6 (0.1 %)	Not listed	Not Listed	Restricted Substance	Not listed
Chromium inorganic compounds (including Chromium (VI) and (III) inorganic forms, both insoluable and soluable forms) 7440-47-3 (0 %)	Listed	ACTIVE	Not Listed	Not listed	Not Listed	Not Listed	Not listed

Toxic Substance Control Act (TSCA) Restriction of Use:
- (R) Indicates a substance that is the subject of a TSCA Section 6 risk management rule

TSCA 12(b): THIS PRODUCT IS SUBJECT TO EXPORT NOTIFICATION.

Canadian Chemical Inventory: All components of this product are listed on either the DSL or the NDSL.

Component	DSL	NDSL
Non-fibrous Alumina / Aluminum Oxide 1344-28-1 (90 - 95)	Listed	Not Listed
CHROMIUM (III) OXIDE (2:3) 1308-38-9 (5 - 15)	Listed	Not Listed
Chromium trioxide (CrO3) 1333-82-0 (0.5 - 2.0)	Listed	Not Listed
Chromium inorganic compounds (including Chromium (VI) and (III) inorganic forms, both insoluable and soluable forms) 7440-47-3 (0)	Listed	Not Listed

STATE REGULATIONS

California Proposition 65:
This product contains a chemical known to the State of California to cause cancer, and/or birth defects, and/or other reproductive harm as listed under Proposition 65 State Drinking Water and Toxic Enforcement Act. For additional information, contact OxyChem Technical Services.

Component	U.S. - California - Proposition 65 - Carcinogens List	CA. Prop. 65 Teratogen	California Proposition 65 CRT List - Male reproductive toxin:	California Proposition 65 CRT List - Female reproductive toxin:	Massachusetts Right to Know Hazardous Substance List	Rhode Island Right to Know Hazardous Substance List
Non-fibrous Alumina / Aluminum Oxide 1344-28-1 (90 - 95 %)	Not listed	Not listed	Not Listed	Not Listed	Listed	Listed
CHROMIUM (III) OXIDE (2:3) 1308-38-9 (5 - 15 %)	Not listed	Not listed	Not Listed	Not Listed	Listed	Listed
Chromium trioxide (CrO3) 1333-82-0 (0.5 - 2.0 %)	Not listed	Not listed	Not Listed	Not Listed	Listed	Listed
Chromium inorganic compounds (including Chromium (VI) and (III) inorganic forms, both insoluable and soluable forms)	Not listed	Not listed	Not Listed	Not Listed	Listed	Listed

7440-47-3 (0 %)						

Component	New Jersey Right to Know Hazardous Substance List	New Jersey Special Health Hazards Substance List	New Jersey - Environmental Hazardous Substance List	Pennsylvania Right to Know Hazardous Substance List	Pennsylvania Right to Know Special Hazardous Substances	Pennsylvania Right to Know Special Hazardous Substances	Pennsylvania Right to Know Environmental Hazard List
Non-fibrous Alumina / Aluminum Oxide	2891	Not Listed	Listed	Listed	Not Listed	Not Listed	Present
CHROMIUM (III) OXIDE (2:3)	0434	Not Listed	Listed	Listed	Not Listed	Not Listed	Not Listed
Chromium trioxide (CrO3)	0437	Carcinogen	Listed	Listed	Present	Present	Not Listed
Chromium inorganic compounds (including Chromium (VI) and (III) inorganic forms, both insoluable and soluable forms)	0432	Carcinogen Mutagen	Listed	Listed	Present	Present	Present

CANADIAN REGULATIONS

This product has been classified in accordance with the hazard criteria of the Workplace Hazardous Materials Information System (WHMIS 2015) which includes the amended Hazardous Products Act (HPA) and the Hazardous Product Regulations (HPR).

Component	Canada - CEPA - Schedule I - List of Toxic Substances	Canada - NPRI	Canada - CEPA - Greenhouse Gases (GHG) Subject to Mandatory Reporting	Canadian Chemical Inventory:	NDSL
Non-fibrous Alumina / Aluminum Oxide 1344-28-1 (90 - 95)	Not listed	Part 1, Group A Substance (009)	Not Listed	Listed	Not Listed
CHROMIUM (III) OXIDE (2:3) 1308-38-9 (5 - 15)	Not listed	Not Listed	Not Listed	Listed	Not Listed
Chromium trioxide (CrO3) 1333-82-0 (0.5 - 2.0)	Present (033)	Not Listed	Not Listed	Listed	Not Listed
Chromium inorganic compounds (including Chromium (VI) and (III) inorganic forms, both insoluable and soluable forms) 7440-47-3 (0)	Not listed	Part 1, Group A Substance (052)	Not Listed	Listed	Not Listed

SECTION 16. OTHER INFORMATION

Prepared by: Occidental Chemical Corporation - HES&S Product Stewardship Department

Rev. Date: 17-Aug-2023

IMPORTANT:

OXYVINYLS® CATOXID® 5

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OSHA Standard 29 CFR 1910.1200 requires that information be provided to employees regarding the hazards of chemicals by means of a hazard communication program including labeling, safety data sheets, training and access to written records. We request that you, and it is your legal duty to, make all information in this Safety Data Sheet available to your employees.

End of Safety Data Sheet