



Safety Data Sheet

In accordance with CFR 1910.1200 (OSHA HCS)

SDS No. 183

Date of review: November 19, 2018

1 Identification of substance and company

Product name: **Chromium (VI) Oxide**
Product code: 13311, 90753
Relevant use and restrictions on use: Research and product development
Manufacturer/Supplier: Noah Technologies Corporation
1 Noah Park
San Antonio, Texas 78249-3419
Phone: 210-691-2000
Fax: 210-691-2600
Web site: www.noahtech.com
Emergency information: CHEMTREC
800-424-9300

2 Hazards identification

Emergency Overview:



Signal word(s): Danger

Hazard statements:
H271 - May cause fire or explosion; strong oxidizer.
H301 + H311 - Toxic if swallowed or in contact with skin.
H314 - Causes severe skin burns and eye damage.
H317 - May cause an allergic skin reaction.
H318 - Causes serious eye damage
H330 - Fatal if inhaled.
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H340 - May cause genetic defects.
H350 - May cause cancer.
H361 - Suspected of damaging fertility or the unborn child
H372 - Causes damage to organs through prolonged or repeated exposure if inhaled.
H410 - Very toxic to aquatic life with long lasting effects.

Precautionary statements:
P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P210 - Keep away from heat. No smoking.
P220 - Keep / Store away from clothing / combustible materials.
P221 - Take any precaution to avoid mixing with combustibles.
P260 - Do not breathe dust or mist
P264 - Wash skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P271 - Use only outdoors or in a well-ventilated area
P272 - Contaminated work clothing should not be allowed out of the workplace
P273 - Avoid release to the environment
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P283 - Wear fire / flame resistant / retardant clothing.
P284 - Wear respiratory protection
P301 + P310 + P330 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Rinse mouth.
P301 + P 330 + P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water / shower.
P304 + P340 + P310 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact

lenses, if present and easy to do. Continue rinsing.
 P306 + P360 - IF ON CLOTHING: rinse immediately contaminated clothing and skin with plenty of water before removing clothes.
 P308 + P313 - IF exposed or concerned: Get medical advice/attention
 P310 - Immediately call a POISON CENTER/ doctor
 P333 + P313 - If skin irritation or rash occurs: Get medical advice / attention.
 P362 - Take off contaminated clothing and wash before reuse.
 P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish
 P371 + P380 + P375 - In case of major fire and large quantities: Evacuate area. Fight fire remotely due to risk of explosion.
 P391 - Collect spillage
 P403 + P233 - Store in a well-ventilated place. Keep container tightly closed.
 P405 - Store locked up
 P501 - Dispose of contents/ container to an approved waste disposal plant

GHS Classification:

Oxidizing solids - 1
 Acute toxicity, Oral - 3
 Acute toxicity - Inhalation - 2
 Acute toxicity - Dermal - 3
 Skin corrosion - 1A
 Serious eye damage - 1
 Respiratory sensitization - 1
 Skin sensitization - 1
 Germ cell mutagenicity - 1B
 Carcinogenicity - 1A
 Reproductive toxicity - 2
 Specific target organ toxicity - repeated exposure, Inhalation - 1
 Acute aquatic toxicity - 1
 Chronic aquatic toxicity - 1

Hazards not otherwise classified:

None

HMIS ratings (scale 0-4):

Health hazard: 4*
 Flammability: 0
 Physical hazard: 2

3 Composition/Information on ingredients

Chemical name: Chromium (VI) oxide
Designation:
CAS number: 1333-82-0
EC number: 215-607-8
Formula: CrO₃
Synonyms: Chromic acid, chromic anhydride, chromium trioxide

4 First aid measures

After inhalation: Move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
After skin contact: Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.
After eye contact: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.
After ingestion: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
Information for doctor: Show this safety data sheet to the doctor in attendance
Symptoms/effects; acute and delayed: Severe skin burns and eye damage. May cause allergy or asthma symptoms or breathing difficulties.
Immediate medical attention and special treatment needed: See above

5 Fire-fighting measures

Suitable and unsuitable extinguishing agents: Water spray, alcohol-resistant foam, dry chemical or carbon dioxide
Special hazards caused by the material, its products of combustion or resulting gases: Oxides of chromium
Special fire fighting procedures: Wear self-contained breathing apparatus and fully protective fire fighting equipment/ clothing
Unusual fire and explosion hazard: Contact with reducing agents or combustibles may cause ignition

6 Accidental release measures

Person-related safety precautions: Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
Measures for environmental protection: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Measures for cleaning/collecting:	Sweep up and shovel. Contain spillage and then collect with a electrically protected vacuum cleaner or by wet-brushing and place in container for disposal. Keep in suitable , closed containers for disposal.
Additional information:	See Section 7 for information on safe handling See Section 8 for information on personal protective equipment See Section 13 for information on disposal See Section 15 for regulatory information

7 Handling and storage

Information for safe handling:	Avoid contact with skin and eyes. Avoid dust formation. Provide appropriate exhaust ventilation.
Information about protection against explosions and fires:	Keep away from sources of ignition - No smoking
Storage requirements to be met by storerooms and containers:	Keep container tightly closed in a dry and well-ventilated place
Incompatibility (avoid contact with):	Strong acids and alkalis. Ammonia. Organic materials, heat, phosphorus, hydrogen sulfide gas. Avoid contact with metals, oils, greases or any easily oxidizable material.

8 Exposure controls/personal protection

Ventilation requirements:	Local exhaust, chemical fume hood
Components with exposure limits that require monitoring:	ACGIH TLV: TWA 0.05 mg(Cr(VI))/m3:8H confirmed human carcinogen OSHA PEL: TWA 0.005 mg (Cr(VI))/m3:8H - OSHA Specifically Regulated Chemicals/ Carcinogens OSHA 1910.1026 This standard applies to occupational exposures to chromium (VI) in all forms and compounds in general industry, except: (a) Exposures that occur in the application of pesticides regulated by the Environmental Protection Agency or another Federal government agency (e.g., the treatment of wood with preservatives); (b) Exposures to Portland cement; or (c) Where the employer has objective data demonstrating that a material containing chromium or a specific process, operation, or activity involving chromium cannot release dusts, fumes, or mists of chromium (VI) in concentrations at or above 0.5 µg/m3 as an 8-hour time-weighted average (TWA) under any expected conditions of use. Chromium (VI) [hexavalent chromium or Cr(VI)] means chromium with a valence of positive six, in any form and in any compound
General protective and hygienic measures:	The usual precautionary measures for handling chemicals should be adhered to Keep away from foodstuffs, beverages and food Instantly remove any soiled and impregnated garments Wash hands during breaks and at the end of the work Avoid contact with the eyes and skin
Personal protective equipment:	
Respiratory protection: (Use only NIOSH or CEN approved Equipment)	Filter-dust, fume, mist; respirator equipped with HEPA
Hand protection:	Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique.
Eye protection:	Face shield and safety glasses.
Skin protection:	Completely covering work attire with full length apron
Additional protective equipment:	Sufficient to prevent contact. Emergency eyewash and safety shower
Precautionary labeling:	Wash thoroughly after handling Do not get in eyes, on skin or on clothing Do not breathe dust, vapor, mist, gas Keep away from heat, sparks, and open flames Empty container may contain hazardous residues

9 Physical and chemical properties

Physical state:	Flakes or powder
Color:	Dark red or almost-black
Odor:	Odorless
Odor threshold:	No data available
Molecular Weight (Calculated):	99.99
pH	No data available
Melting point/freezing point/range:	196 C (decomposes)
Boiling point/range:	No data available
Sublimation temperature/start:	No data available
Decomposition temperature:	No data available
Flammability (solid, gas):	Non-flammable but contact with combustible material may cause fire
Flash point:	No data available
Autoignition temperature:	No data available
Danger of explosion:	No data available
Flammable limits:	
Lower:	No data available
Upper:	No data available
Evaporation Rate:	No data available

Vapor pressure (mm Hg):	No data available
Vapor density:	No data available
Specific gravity:	2.700
Bulk density:	No data available
Solubility in/Miscibility with water:	630 g/L @ 20 C
Partition coefficient n-octanol/water:	No data available
Viscosity:	No data available
Other information:	No additional information

10 Stability and reactivity

Reactivity:	Not determined
Chemical stability:	Stable under recommended storage conditions
Possibility of hazardous reactions:	Not determined
Conditions to be avoided:	Heat, contact with incompatibles moisture
Materials to be avoided:	Organic materials, phosphorus, powdered metals
Dangerous reactions:	Contact with reducing agents or combustibles may cause ignition
Hazardous decomposition products:	Oxides of chromium

11 Toxicological information

LD/LC50 values that are relevant for classification:	oral-rat LD ₅₀ : 52 mg/kg inhalation-rat LC ₅₀ : 217 mg/kg:4H dermal-rabbit LD ₅₀ : 57 mg/kg
Irritation or corrosion of skin:	skin-rabbit: Corrosive:24H
Irritation or corrosion of eyes:	eyes-rabbit: Corrosive to eyes
Primary irritant or corrosive effect:	
on the skin:	Severe
on the eye:	Severe
Sensitization:	No data available
Signs and symptoms of exposure:	Cough, shortness of breath, headache, nausea. May be fatal if inhaled, swallowed or absorbed through skin. Poison by ingestion, intraperitoneal and subcutaneous routes. A human carcinogen by inhalation (nasal and lung tumors). An experimental teratogen. Other experimental reproductive effects. Human mutagenic data. NOTE: Massive overexposure to solutions could lead to kidney failure and death. Most effective antidote is ascorbic acid given intravenously and locally (converting Cr(VI) to Cr(III) in preventing renal tubular failure. Skin ulcers may be treated with daily cleansing, debridement and antibiotic area. Dialysis may be necessary. Monitor blood chemistry and force fluids. Do NOT attempt chelation. Protect renal tubules. Suspect carcinogen. Adverse health effects associated with Cr(VI) exposure include occupational asthma, eye irritation and damage, perforated eardrums, respiratory irritation, kidney damage, liver damage, pulmonary congestion and edema, upper abdominal pain, nose irritation and damage, respiratory cancer, skin irritation, and erosion and discoloration of the teeth. Some workers can also develop an allergic skin reaction, called allergic contact dermatitis. This occurs from handling liquids or solids containing Cr(VI). Allergic contact dermatitis is long-lasting and more severe with repeated skin exposure. Furthermore, contact with non-intact skin can lead to ulceration of the skin sometimes referred to as chrome ulcers. Chrome ulcers are crusted, painless lesions showing a pitted ulcer covered with fluid.
Carcinogenicity:	This is or contains a component that has been reported to be carcinogenic based on its IARC, OSHA, ACGIH, NTP or EPA classification. Human carcinogen. IARC: 1 - Group 1: Carcinogenic to humans (Chromium trioxide) NTP: Known to be a human carcinogen (Chromium trioxide) OSHA: OSHA specifically regulated carcinogen (Chromium trioxide)
Additional information:	Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes and skin.

12 Ecotoxicological information

Toxicity:	
Toxicity to fish:	Rainbow trout LC ₅₀ : 69 mg (Cr)/L:96H Fathead minnow LC ₅₀ : 37 mg (Cr)/L:96H Tilapia mossambica LC ₅₀ : 21.05 - 141.38 mg/L:96H Golden Orfe LC0: 100 mg/L:48H
Toxicity to daphnia and other aquatic invertebrates:	Daphnia magna EC ₅₀ : 0.8mg/L:48H
Toxicity to algae:	No data available
Persistence and degradability:	
Biodegradability:	No data available
Bioaccumulation:	No data available
Mobility in soil:	No data available
Other adverse effects:	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal Very toxic to aquatic life with long lasting effects

13 Disposal considerations

Recommendation: Consult state, local or national regulation for proper disposal
Allow professional disposal company to handle waste
Must be specially treated under adherence to official regulations

Unclean packagings recommendation: Disposal must be made according to official regulations

14 Transport information

Land transport DOT



Proper shipping name: Chromium trioxide, anhydrous
DOT Hazard Class: 5.1
Subsidiary risk: 6.1, 8
UN Identification number: UN1463
Label(s): Oxidizer, Toxic, Corrosive, Marine Pollutant
Packing group: II
North American Emergency Response Guidebook No.: 141

Air transport ICAO-TI and IATA-DGR:



Proper shipping name: Chromium trioxide, anhydrous
DOT Hazard Class: 5.1
Subsidiary risk: 6.1, 8
UN Identification number: UN1463
Label(s): DOT-SP-8249, Marine Pollutant
Packing group: II
North American Emergency Response Guidebook No.: 141

UPS Ground / FedEx Ground



Proper shipping name: Chromium trioxide, anhydrous
DOT Hazard Class: 5,1
Subsidiary risk: 6.1, 8
UN Identification number: UN1463
Label(s): Oxidizer, Toxic, Corrosive, Marine Pollutant
Packing group: II
North American Emergency Response Guidebook No.: 141

UPS Air FORBIDDEN

15 Regulatory information

SARA Section 302 Extremely Hazardous components and corresponding TPQs: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302

SARA Section 311 / 312 hazards: Reactivity Hazard, Acute Health Hazard, Chronic Health Hazard

SARA Section 313 components: The following components are subject to reporting levels established by SARA Title III, Section 313:
Chromium trioxide - CAS No. 1333-82-0

California Proposition 65 components: WARNING! This product contains a chemical known to the State of California to cause cancer:
Chromium trioxide - CAS No. 1333-82-0
WARNING! This product contains a chemical known to the State of California to cause birth defects or other reproductive harm:
Chromium trioxide - CAS No. 1333-82-0

TSCA: Product is listed on TSCA Inventory

16 Other information

The above information is accurate to the best of our knowledge. However, since data, safety standards and government regulation are subject to change and the conditions of handling and use, or misuse are beyond our control. NOAH MAKES NO WARRANTY, EITHER EXPRESSED OR IMPLIED, WITH RESPECT TO THE COMPLETENESS OR CONTINUING ACCURACY OF THE INFORMATION CONTAINED HEREIN AND DISCLAIMS ALL LIABILITY FOR RELIANCE THEREON. User should satisfy himself that he has all current data relevant to his particular use.