

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name	Chromium
Chemical Formula	Cr
Molecular Weight	51.996
CAS No.	7440-47-3
Supplier Address*	ISOFLEX USA PO Box 29475 San Francisco CA 94129 United States
Telephone	+1 415-440-4433
Fax	+1 415-563-4433
Emergency Phone Number (both supplier and manufacturer)	Infotrac/ +1 800-535-5053 *May include subsidiaries or affiliate companies/divisions
Email	iusa@isoflex.com
Website	www.isoflex.com
Preparation Information	ISOFLEX USA Product Safety +1 415-440-4433

2. HAZARDS IDENTIFICATION

Emergency Overview: Warning! May cause allergic skin reaction. Causes digestive tract irritation. May cause liver damage. May cause kidney damage. May cause lung damage. Causes severe respiratory tract irritation. Target Organ: Liver. Causes eye and skin irritation.

H-Statements **Aquatic Acute:** Acute aquatic toxicity. **Aquatic Chronic:** Chronic aquatic toxicity. **H400:** Very toxic to aquatic life. **H410:** Very toxic to aquatic life, with long-lasting effects.

NFPA Ratings: (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

Health Hazard = 0 Flammability = 0 Reactivity = 0



HMIS Ratings: (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

Health Hazard = 0* Flammability = 0 Physical Hazard = 0

HEALTH HAZARD	0
FLAMMABILITY	0
PHYSICAL HAZARD	0
PERSONAL PROTECTION	

*additional chronic hazards present

Potential Health Effects

<i>Eye</i>	Causes eye irritation; may cause conjunctivitis
<i>Skin</i>	Causes skin irritation. Prolonged and/or repeated contact may cause irritation and/or dermatitis. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material.
<i>Ingestion</i>	May cause irritation of the digestive tract; may cause liver damage
<i>Inhalation</i>	Causes respiratory tract irritation. Inhalation of fumes may cause metal fume fever, which is characterized by flu-like symptoms with metallic taste, fever, chills, cough, weakness, chest pain, muscle pain and increased white blood cell count. May cause asthma or shortness of breath. May cause headache, coughing, fever, weight loss or pneumoconiosis.
<i>Chronic</i>	Prolonged inhalation may cause respiratory tract inflammation and lung damage.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name:	Chromium
CAS No.:	7440-47-3
Chemical Formula:	Cr
Molecular Weight:	51.996

4. FIRST AID MEASURES

<i>Eyes</i>	Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately.
<i>Skin</i>	Flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists. Wash clothing before reuse.
<i>Ingestion</i>	Do NOT induce vomiting. If victim is conscious and alert, give 2-4 cups full of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.
<i>Inhalation</i>	Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid. DO NOT use mouth-to-mouth respiration.
<i>Notes to Physician</i>	Treat symptomatically and supportively.

5. FIREFIGHTING MEASURES

<i>General Information</i>	Evacuate area and fight fire from a safe distance. As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. May burn with invisible flame. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Dust can be an explosion hazard when exposed to heat or flame.
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Extinguishing Media

Use dry sand or earth to smother fire. Use dry chemical to fight fire. Contact professional firefighters immediately.

6. ACIDENTAL RELEASE MEASURES

Personal Precautions

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166. Wear appropriate gloves to prevent skin exposure. Wear appropriate protective clothing to prevent skin exposure. Follow the OSHA respirator regulations found in 29CFR 1910.134 or European Standard EN 149. Always use a NIOSH- or European Standard EN 149-approved respirator when necessary.

Environmental Precautions:

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods for Cleaning Up

Clean up spills immediately, observing precautions in the Protective Equipment section. Sweep up or absorb material, then place into a suitable clean, dry, closed container for disposal. Avoid generating dusty conditions. Remove all sources of ignition. Isolate area and deny entry. Place under an inert atmosphere. Do not use combustible materials such as paper towels to clean up spill.

7. HANDLING AND STORAGE

Handling

Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Minimize dust generation and accumulation. Use spark-proof tools and explosion proof equipment. Avoid contact with skin and eyes. Keep container tightly closed. Avoid contact with heat, sparks and flame. Avoid ingestion and inhalation. Handle under an inert atmosphere.

Storage

Keep away from heat, sparks, and flame. Store in a tightly-closed container. Keep from contact with oxidizing materials. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from acids. Do not expose to air. Store under an inert atmosphere.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits

ACGIH - 0.5 mg/m³

NIOSH - as Cr 0.5 mg/m³ TWA

OSHA - Final PELs - Chromium, sol. chromic, chromous salts (as Cr): 0.5 mg/m³ TWA; Chromium, metal and insoluble salts (as Cr): 1 mg/m³ TWA

OSHA Vacated PELs: Chromium: (as Cr): 1 mg/m³ TWA

Personal Protective Equipment

Eyes

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin

Wear appropriate gloves to prevent skin exposure.

Clothing

Wear appropriate protective clothing to prevent skin exposure.

9. PHYSICAL AND CHEMICAL PROPERTIES**Appearance**

<i>Physical State</i>	Solid
<i>Color</i>	Silver gray
<i>Odor</i>	Odorless

Safety Data

pH	Not available
Vapor Pressure	Not applicable
Vapor Density	Not applicable
Evaporation Rate	Not applicable
Viscosity	Not applicable
Boiling Point	4784 °F
Freezing/Melting Point	3375 °F
Auto-ignition Temperature	752 °F (400 °C)
Flash Point	Not applicable
Explosion Limits	
Lower	.0230oz/ft ³
Upper	Not available
Decomposition Temperature	Not available
Solubility	Insoluble in water
Molecular Formula	Cr
Molecular Weight	51.996

10. STABILITY AND REACTIVITY

<i>Stability</i>	Stable under normal temperatures and pressures. Powder or liquid is pyrophoric.
<i>Conditions to Avoid</i>	Incompatible materials, ignition sources, dust generation, exposure to air, acids, strong oxidants
<i>Incompatible Materials</i>	Ammonium nitrate, hydrogen peroxide, lithium, nitric oxide, potassium chlorate, sulfur dioxide, strong oxidizers, hydrochloric acid, sulfuric acid, nitrogen oxide
<i>Hazardous Decomposition Products</i>	Toxic chromium oxide fumes
<i>Hazardous Polymerization</i>	Has not been reported

11. TOXICOLOGICAL INFORMATION

<i>RTECS No.</i>	GB4200000
<i>CAS No.</i>	7440-47-3
<i>LD50</i>	Not available
<i>LC50</i>	Not available
<i>Carcinogenicity: Chromium ACGIH IARC</i>	A4 - not classifiable as a human carcinogen Group 3 carcinogen

Epidemiology

Certain hexavalent chromium compounds have been demonstrated to be carcinogenic on the basis of epidemiologic investigations on workers and experimental studies in animals. Increased incidences of respiratory cancer and stomach irregularities have been found in chromium (VI) workers. There is an increased incidence of lung cancer in industrial workers exposed to chromium (VI) compounds.

Teratogenicity

No information available

Reproductive Effects

No information available

Neurotoxicity

No information available

Mutagenicity

No information available

Other Studies

None

12. ECOLOGICAL CONSIDERATIONS

Toxicity

Toxicity to Fish

Mortality NOEC - *Pimephales promelas* (fathead minnow) - 12 mg/l - 7 d
Mortality LOEC - *Pimephales promelas* (fathead minnow) - 2.4 mg/l - 7 d
LC50 - *Cyprinus carpio* (Carp) - 14.3 mg/l - 96 h

*Toxicity to Daphnia
and Other Aquatic
Invertebrates*

EC50 - *Daphnia magna* (Water flea) - 0.07 mg/l - 48 h

Persistence and Degradability

No data available

Bioaccumulation

Oncorhynchus mykiss (rainbow trout) - 30 d
Bioconcentration factor (BCF): 1.03 - 1.22

Mobility in Soil

No data available

PBT and vPvB Assessment

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.

13. DISPOSAL CONSIDERATIONS

Product

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Additionally, waste generators must consult state and local hazardous waste regulators to ensure complete and accurate classification.

Contaminated Packaging

Dispose of as unused product.

RCRA P-Series

None listed

RCRA U-Series

None listed

14. TRANSPORT INFORMATION

DOT (US)

Not dangerous goods

IMDG

Proper Shipping Name

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
(Chromium)

UN No.

3077

Class

9

Packing Group

III

EMS No.

F-A, S-F

Marine Pollutant

Marine pollutant

IATA

Proper Shipping Name
UN No.
Class
Packing Group

Environmentally hazardous substance, solid, n.o.s. (Chromium)
3077
9
III

Further Information

EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

15. REGULATORY INFORMATION**OSHA Hazards**

Target Organ Effect

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313: Chromium / CAS No. 7440-47-3 / Revision Date 2007-07-01

SARA 311/312 Hazards

Chronic Health Hazard

Massachusetts Right to Know Components

Chromium / CAS No. 7440-47-3 / Revision Date 2007-07-01

Pennsylvania Right to Know Components

Chromium / CAS No. 7440-47-3 / Revision Date 2007-07-01

New Jersey Right to Know Components

Chromium / CAS No. 7440-47-3 / Revision Date 2007-07-01

California Prop. 65 Components

This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Prepared By

ISOFLEX USA
PO Box 29475
San Francisco CA 94129
United States

Issuing Date

January 12, 2014

Revision Date

August 01, 2021

Revision Number

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Revision Note

Required review and update

ISOFLEX USA's Commonly Used Abbreviations and Acronyms*

ACGIH	American Conference of Governmental Industrial Hygienists
ADR	European Agreement Concerning the International Carriage of Dangerous Goods by Road
AICS	Australian Inventory of Chemical Substances
ALARA	As Low As Is Reasonably Achievable
AMU	Atomic Mass Unit
ANSI	American National Standards Institute
BLS	Basic Life Support
BOD5	Biochemical Oxygen Demand
CAM	Continuous Air Monitor
CAS	Chemical Abstracts Service (division of the American Chemical Society)
CEN	European Committee for Standardization
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CLP	Classification, Labelling and Packaging (European Union)
COD	Chemical Oxygen Demand
CPR	Controlled Products Regulations (Canada)
CWA	Clean Water Act (USA)
DAC	Derived Air Concentration (USA)
DOE	United States Department of Energy (USA)
DOT	United States Department of Transportation (USA)
DSL	Domestic Substances List (Canada)
EC50	Half Maximal Effective Concentration
ECL	Korean Existing Chemicals List
EINECS	European Inventory of Existing Commercial Chemical Substances
EHS	Environmentally Hazardous Substance
ELINCS	European List of Notified Chemical Substances
EMS	Emergency Response Procedures for Ships Carrying Dangerous Goods
EPA	Environmental Protection Agency (USA)
EPCRA	Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986
GHS	Globally Harmonized System
HMS	Hazardous Materials Identification System (USA)
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IBC	Intermediate Bulk Containers
ICAO	International Civil Aviation Organization
IDLH	Immediately Dangerous to Life or Health
IECSC	Inventory of Existing Chemical Substances Produced or Imported in China
IMDG	International Maritime Code for Dangerous Goods
LC50	Lethal concentration, 50 percent
LD50	Lethal dose, 50 percent
LDLO	Lethal Dose Low
LOEC	Lowest-Observed-Effective Concentration
MARPOL	International Convention for the Prevention of Pollution from Ships
MSHA	Mine Safety and Health Administration (USA)
NCRP	National Council on Radiation Protection & Measurements (USA)
NDSL	Non-Domestic Substances List (Canada)
NFPA	National Fire Protection Association (USA)
NIOSH	National Institute for Occupational Safety and Health (USA)
NOEC	No Observed Effect Concentration
N.O.S.	Not Otherwise Specified
NRC	Nuclear Regulatory Commission (USA)
NTP	National Toxicology Program (USA)
OSHA	Occupational Safety and Health Administration (USA)
PBT	Persistent Bioaccumulative and Toxic Chemical
PEL	Permissible Exposure Limit
PICCS	Philippines Inventory of Chemicals and Chemical Substances
PIH	Poisonous by Inhalation Hazard

RCRA	Resource Conservation and Recovery Act (USA)
RCT	Radiation Control Technician
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals (Europe)
RID	Regulations Concerning the International Transport of Dangerous Goods by Rail
RQ	Reportable Quantity
RTECS	Registry of Toxic Effects of Chemical Substances
RTK	Right to Know
SARA	Superfund Amendments and Reauthorization Act (USA)
SNUR	Significant New Use Rule (TSCA)
TDG	Transportation of Dangerous Goods (Canada)
TIH	Toxic by Inhalation Hazard
TLV	Threshold Limit Value
TPQ	Threshold Planning Quantity
TSCA	Toxic Substances Control Act
TWA	Time Weighted Average
UN	United Nations (Number)
VOC	Volatile Organic Compound
vPvB	Very Persistent Very Bioaccumulative Chemical
WGK	Wassergefährdungsklassen (Germany: Water Hazard Classes)
WHMIS	Workplace Hazardous Materials Information System

*One or more of the above-listed items may not appear in this document.

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