

NICKEL CHROMIUM ALLOY

Section I

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Chemical Name and Synonyms Nickel-Chromium Alloy, Pieces		Date of Last Revision 4/27/93	
Formula NiCr	Chemical Family Metal Alloy	Chemical Abstract No. 7440-02-0	
TSCA		Calc. Molecular Wt. NA	

Section II Hazardous Ingredients

Hazardous Ingredients	CAS #	%	TLV	OSHA PEL
Nickel	7440-02-0	50/70	1 mg/m ³	1 mg/m ³
Chromium	744047-3	30/50	.5 mg/m ³	1 mg/m ³

Section III Physical Data

Boiling Point (0°C): NA	Density (gmcc): NA
Vapor Pressure: NA	% Volatile by Volume: NA
Reaction with Water: NA	Evaporation Rate (H ₂ O -1): NA
Solubility in Water: Insoluble	Melting Point (°C): 1500°C
Appearance and Odor: Metallic pieces, no odor	Other Comments:

Section IV Fire & Explosion Hazard Data

Flash Point (method) NA	Autoignition Temp. NA	Flammability Non-flammable	LEI NA	UEI NA
Extinguishing Media: Autoignition temperature for nickel: 1890°C for pieces. Use: not applicable. Use suitable extinguishing media for surrounding materials and type of fire.				
Special Fire Fighting Procedures: Firefighters must wear full face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes. Fumes from fire are hazardous. Isolate runoff to prevent environmental pollution.				
Unusual Fire and Explosion Hazards: Nickel: Contact with strong acids may form flammable and explosive hydrogen gas. Contact with sulfur may cause evolution of heat. Nickel reacts violently with fluorine, ammonium nitrate, hydrazide, ammonia, (H ₂ +dioxane), performic acid, phosphorous, selenium, sulfur and (Ti-KClO ₃). Chromium: Ignites and is potentially explosive in atmospheres of carbon dioxide. Chromium reacts violently or explosively when heated with ammonium nitrate and bromine pentafluoride. Chromium has an				

incandescent reaction with nitrogen oxide or sulfur dioxide. *Powdered forms of these materials are flammable.

Section V Spill or Leak Process

Steps to be Taken in Case Material is Released or Spilled: Wear appropriate respiratory and protective equipment specified. Isolate spill area and provide ventilation. Vacuum up spill using a high efficiency particulate absolute (HEPA) air filter and place in a closed container for proper disposal. Take care not to raise dust.

Waste Disposal Method (Consult federal, state or local authorities for proper disposal procedures.): Dispose of in accordance with local, state and federal regulations.

Section VI Health Hazard Data

Toxicity Data

Nickel

otr-ham:kdy 400 mg/L
orl-rat TDLo: 158 mg/kg (MGN:TER
otr-ham:emb 5 umol/L
scu-rat TDLo: 3000mg/kg/6W-I:ETA
ims-rat TDLo: 56 mg/kg:CAR
par-rat TDLo: 40 mg/kg/52W-I:ETA
imp-rat TDLo: 250mg/kg:CAR
ims-mus TDLo: 200 mg/kg:NEO
imp-rbt TDLo: 165 mg/kg/2Y-I:NEO,TER
orl-rat LDLo: 5 g/kg
itr-rat LDLo: 12 mg/kg
ivn-mus LDLo: 50 mg/kg
ivn-dog LDLo: 10mg/kg
scu-rat LDLo: 12500 ug/kg
ipr-rbt LDLo: 7 mg/kg
scu-rat LDLo: 12500 ug/kg
orl-gpg LDLo: 5 mg/kg
scu-rbt LDLo: 7500 ug/kg

Chromium

ivn-rat TDLo: 2160 ug/kg/6W-I:ETA
orl-hmn LDLo: 71 mg/kg:GIT
imp-Orat TDLo: 1200 ug/kg/6WII TFX:ETA
imp-rbt TDLo: 75 mg/kg:ETA

HMIS Hazard Rating

Health: 3
Flammability: 0
Reactivity: 2
Personal Protection: J:
goggles, gloves, apron,
respirator

Route(s) of Entry Inhalation: X Skin: X Ingestion: X

Effects of Overexposure (acute and chronic)

Nickel: Confirmed carcinogen with experimental carcinogenic, neoplastigenic, tumorigenic and teratogenic data. Poison by ingestion, intratracheal, intraperitoneal, subcutaneous and intravenous routes. An experimental teratogen. Ingestion of soluble salts causes nausea, vomiting and diarrhea. Hypersensitivity to nickel is common and can cause allergic contact dermatitis, pulmonary asthma, conjunctivitis and inflammatory reactions around nickel containing medical implants and prosthesis. (Sax, Dangerous Properties of Industrial Materials, eighth edition).

Chromium: Confirmed human carcinogen with experimental tumorigenic data. Human poison by ingestion with gastrointestinal effects. (Sax, Dangerous

Inhalation: Nickel may cause irritation to the upper respiratory tract, nasal cavities, and pulmonary asthma. Nickel may cause pneumitis. Chromium may cause histologic fibrosis of lungs, nasal and/or lung cancer.

Dermal: Nickel may cause irritation. Nickel may sensitize the skin (nickel itch). May cause allergic dermatitis, eczematous dermatitis and may be accompanied a week later with superficial skin ulcers, which may discharge and become crusted.

Eye Contact: Chromium may cause irritation. Nickel dust may cause conjunctivitis.

Other (specify): Nickel may affect the nasal cavities, lungs, and skin. Chromium may affect the respiratory system.

Carcinogenicity: NTP: Yes IARC Monographs: Yes OSHA Regulations: Yes

Ingestion: Give 1-2 glasses of milk or water and induce vomiting; seek medical attention immediately. Never induce vomiting or give anything by mouth to an unconscious person.

Inhalation: Remove victim to fresh air; keep warm and quiet; give oxygen if breathing is difficult and seek medical attention immediately.

Skin Contact: Remove contaminated clothing; rush material off skin; wash affected area with mild soap and water; seek medical attention immediately.

Eye Contact: Flush eyes with lukewarm water, lifting upper and lower eyelids for at least 15 minutes. Seek medical attention immediately.

Stable: X Unstable:	Conditions Contributing to Instability: None
Incompatibility (materials to avoid): Nickel: Oxidizing agents, sulfur compounds, hydrogen and oxygen, magnesium silicate, methanol, organic solvents, aluminum, aluminum chloride, ethylene, p-dioxane, strong acids, wood and other combustibles. Chromium: Strong oxidizing agents, ammonium nitrite, bromine pentafluoride and carbon dioxide.	
Hazardous Decomposition Products - Thermal and Other (list): Nickel: nickel carbonyl, oxides of nitrogen, hydrogen gas.	
Hazardous Polymerization May Occur: Will Not Occur: X	Conditions to Avoid: None

Respiratory Protection (specify type). Use Only Niosh Approved Equip.	
Ventilation (always maintain exposure below permissible limits) Local Exhaust: To maintain concentration at or below TLV Mechanical (general): Recommended for non-dusty work Special: _____ Other: _____	
Protective Gloves: Butyl, CPE, PVC	Eye Protection: Safety Goggles
Other Protective Equipment/Work Practices: Protective gear suitable to prevent contamination.	

Precautions to be Taken in Handling and Storing: Store away from acids,

caustics, oxidizing agents and other incompatibilities.

Transportation Requirements

DOT Class:

UN Number:

IMCO Class:

Other:

The above information is accurate to the best of our knowledge. However, since data, safety standards, and government regulations are subject to change and the conditions of handling and use, or misuse are beyond our control, the Kurt J. Lesker Company makes no warranty, either express 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 had all current data relevant to his particular use.

ND = NO DATA FOUND

NA = NOT APPLICABLE