

1. PRODUCT AND COMPANY IDENTIFICATION:

PRODUCT NAME: Chromalloy TIG 83-1281, 83-1282 and 83-1283

MANUFACTURER: Kimball Midwest
4800 Roberts Road
Columbus, OH 43228
Phone: 800-233-1294

EMERGENCY TELEPHONE NUMBER: Chemtrec 800-424-9300

2. HAZARD IDENTIFICATION:

Emergency Overview: This product is normally not considered hazardous as shipped. Avoid eye contact or inhalation of dust from the product. When this product is used in a welding process, the most important hazards are welding fumes, heat, radiation and electric shock.

Classification of the Substance/Mixture

CLP/GHS Classification (1272/2008):

Skin Sensitization, Category 1

Carcinogenicity, Category 2

Specific Target Organ Toxicity (Repeated Exposure), Category 2

Hazardous to the Aquatic Environment – Acute Hazard, Category 1

EU Classification (67/548/EEC):

Toxic (T), Harmful (Xn), Irritant (Xi), Carcinogen Category 3, R48/23, R40, R43

Labelling:



Symbols:

Signal Word: Warning

Hazard Statements:

H317 – May cause an allergic skin reaction.

H351 – Suspected of causing cancer.

H373 – May cause damage to respiratory system, eyes, brain and nervous system through prolonged or repeated exposure.

H400 – Very toxic to aquatic life.

Precautionary Statements:

P201 – Obtain special instructions before use.

P202 – Do not handle until all safety precautions have been read and understood.

P260 – Do not breathe dust/fume/gas/mist/vapours/spray.

P272 – Contaminated work clothing should not be allowed out of the workplace.

P273 – Avoid release to the environment.

P280 – Wear protective gloves/eye protection/face protection.

P281 – Use personal protective equipment as required.

P302+P352 – IF ON SKIN: Wash with plenty of soap and water.

P333+P313 – IF skin irritation or rash occurs: Get medical advice/attention.

P308+P313 – IF exposed or concerned: Get medical advice/attention.

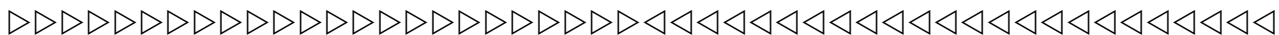
P314 – Get medical advice/attention if you feel unwell.

P363 – Wash contaminated clothing before reuse.

P391 – Collect spillage.

P405 – Store locked up.

P501 – Dispose of contents/container in accordance with local/regional/national/international regulations.



3. COMPOSITION / INFORMATION ON INGREDIENTS:

Chemical Identity	CAS #	Range %	OSHA PEL (mg/m3)	ACGIH-TLV (mg/m3)	Carcinogenicity	EU Classification (67/548/EEC)	CLP/GHS Classification (1272/2008)
#Chromium	7440-47-3	25-35	1.0 (Metal) .05 (Cr II & Cr III Compounds) 0.005(Cr VI Compounds) 0.01 (Cr VI Insoluble Compounds)	0.5 ((Metal) 0.5 (Cr III Compounds) 0.05(Cr VI Soluble Compounds)	Yes	Not Dangerous	(H400) Aquatic Acute 1
#Manganese	7439-96-5	1-11	5	1	No	(Xn) R48	(H373) STOT RE 2
#Nickel	7440-02-0	1-11	1	1	Yes	Carc. Cat. 3 (Xn) R40 (Xi) R43 (T) R48/23	(H317) Skin Sens. 1 (H351) Carc. 2 (H372) STOT RE 1
Iron	7439-89-6	55-65	10 (as Fe2O3)	5 (as Fe2O3)	No	Not Dangerous	Not Hazardous

Important This section covers the materials of which the products manufactured. The fumes and gases produced during normal use of this product are covered in section 10. The term "Hazardous" in "Hazardous Material" should be interpreted as a term required and defined in OSHA Hazard Communication Standard 29CFR 1910-1200 and it does not necessarily imply the existence of hazard. The chemicals or compounds reportable by Section 313 of SARA are marked by the symbol #.

4. FIRST AID MEASURES:

Inhalation: Remove to fresh air immediately or administer oxygen. Get medical attention immediately.

Skin: Flush skin with large amounts of water. If irritation develops and persists, get medical attention.

Eye: Flush eyes with water for at least 15 minutes. Get medical attention.

Ingestion: Obtain medical attention immediately if ingested.

Electric Shock: Disconnect and turn off the power. Use a nonconductive material to pull victim away from contact with live parts or wires. Immediately contact a physician.

5. FIRE-FIGHTING MEASURES:

Suitable Extinguishing Media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Welding arcs and sparks can ignite combustible and flammable materials. Use the extinguishing media recommended for the burning material and fire situation.

Unsuitable Extinguishing Media: Not applicable

Specific Hazards Arising From Chemical: Iron Oxides, Nickel/nickel oxides, Chromium oxides, Manganese/manganese oxides, Aluminium oxide

Protective Equipment: Fire fighters should wear complete protective clothing including self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES:

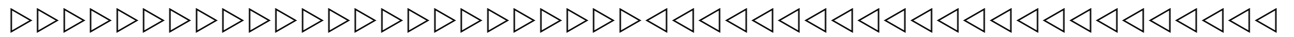
Personal Precautions: Refer to section 8.

Environment Precautions: Refer to section 13.

Cleaning Measures: Solid objects may be picked up and placed into a container. Liquids or pastes should be scooped up and placed into a container. Wear proper protective equipment while handling these materials. Do not discard as refuse.

7. HANDLING AND STORAGE:

Precautions for Safe Handling: Handle with care to avoid stings or cuts. Wear gloves when handling welding consumables. Avoid exposure to dust. Do not ingest. Some individuals can develop an allergic reaction to certain materials. Retain all warning and identity labels.



Conditions for Safe Storage: Store in dry place in closed packages. Keep separate from chemical substances like acids and strong bases, which could cause chemical reactions.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION:

Engineering Controls: Avoid exposure to welding fumes, radiation, spatter, electric shock, heated materials and dust. Ensure sufficient ventilation, local exhaust, or both, to keep welding fumes and gases from breathing zone and general area. Keep work place and protective clothing clean and dry. Train welders to avoid contact with live electrical parts and insulate conductive parts. Check condition of protective clothing and equipment on a regular basis.

Exposure limits: Use industrial hygiene equipment to ensure that exposure does not exceed applicable national exposure limits. The limits defined under section 3 can be used as guidance. Unless noted, all values are for 8 hour time weighted average. For information about welding fume analysis refer to section 10.

Biological limits: No available data

Personal protection:

Respiratory protection: Use an air purifying dust respirator when welding or brazing in a confined space, or when local exhaust or ventilation is not sufficient to keep exposure values within safe limits.

Hands protection: Wear appropriate gloves to prevent skin contact.

EN 12477: Protection gloves for welders

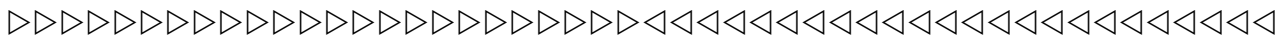
Requirements (EN Levels)	Type A	Type B
Abrasion (Cycles)	2 (500)	1 (100)
Cut (Factor)	1 (1.2)	1 (1.2)
Tear (Newton)	2 (25)	1 (10)
Puncture (Newton)	2 (60)	1 (20)
Burning Behaviour	3	2
Contact Heat	1	1
Convective Heat	2	-
Small Splashes	3	2
Dexterity	1 (11)	4 (6.5)

Type B gloves are recommended when high dexterity is required as for TIG welding, while type A gloves are recommended for other welding processes. The contact temp (°C) is 100 and the threshold time (seconds) >15.

Eyes protection: Welder's helmet or face shield with colour absorbing lenses. Shield and filter to provide protection from harmful UV radiation, infra red and molten metal approved to standard EN379. Filter shade to be a minimum of shade 9.

Skin protection: Heat-resistant protective clothing. Wear safety boots, apron, arm and shoulder protection. Keep protective clothing clean and dry. Clothing should be selected to suit the level, duration and purpose of the welding activity.

Class 1	
Impact of Spatter	15 Drops
Heat Transfer (radiation)	RHTI 24 ≥ 7 seconds
Process	<p>Manual welding with light formation of spatter and drops</p> <ul style="list-style-type: none"> • Gas Welding • TIG Welding • MIG Welding • Micro plasma welding • Brazing • Spot Welding • MMA Welding (with rutile-covered electrode)

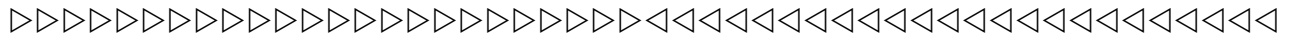


Environmental Conditions	<p style="text-align: center;">Operation of machines</p> <ul style="list-style-type: none"> • Oxygen cutting machines • Plasma cutting machines • Resistance welding machines • Machines for thermal spraying • Bench welding
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Class 2	
Impact of Spatter	25 Drops
Heat Transfer (radiation)	RHTI 24 ≥ 16 seconds
Process	<p style="text-align: center;">Manual welding with heavy formation of spatter and drops</p> <ul style="list-style-type: none"> • MMA welding (with basic or cellulose-covered electrodes) • MAG welding (with CO2 or mixed gases) • MIG Welding (with high current) • Self shielded flux core arc welding • Plasma cutting • Gouging • Oxygen cutting • Thermal spraying
Environmental Conditions	<p style="text-align: center;">Operation of machines</p> <ul style="list-style-type: none"> • In confined spaces • At overhead welding/cutting or in comparable constrained positions

9. PHYSICAL AND CHEMICAL PROPERTIES:

- Appearance:** Solid
- Color:** None
- Odour:** Odourless
- Odour Threshold:** Not Available
- pH Value:** Not Available
- Specific Gravity:** Not Available
- Melting Point/Melting Range:** 2000 - 2552° F, 1093 - 1399° C
- Freezing Point:** Not Available
- Boiling Point/Boiling Range (° F @ 760 mmHg):** N/A
- Flash point:** Not Available
- Evaporation Rate:** Not Available
- Self-in flammability:** Not Available
- Explosion limits:** Not Available
- Vapour pressure:** (mm Hg): NA
- Vapour density:** (Air= 1): NA
- Density at 20°C:** Not Available
- Percent volatile by volume:** Not Available
- Bulk Density:** Not Available
- Relative density:** 6-9 g/cm³
- Solubility:** Soluble in water
- Reactivity in Water:** Not Available
- Partition coefficient:** Not Available
- Auto-ignition temperature:** Not Available
- Decomposition temperature:** Not Available
- Other Information:** No available data.



10. STABILITY AND REACTIVITY:

Chemical Stability: This product is stable under normal conditions.

Hazardous Reactions: Contact with chemical substances like acids or strong bases cause generation of gas.

Conditions to Avoid: This product is stable under normal conditions.

Incompatible Materials: Reacts with acid.

Hazardous Decomposition Products: When this product is used in a welding process, hazardous decomposition product would include those from volatilization, reaction or oxidation of the material listed in section 3 and those from the base metal and coating. The amount of fumes generated from this product varies with welding parameters and dimensions. Refer to applicable national exposure limits for fume compounds, including those exposure limits for fume compounds found in section 3. Manganese has a low exposure limit, in some countries that may be easily exceeded. Reasonably expected gaseous products would include carbon oxides, nitrogen oxides and ozone. Air contaminants around the welding area can be affected by the welding process and influence the composition and quality of fumes and gases produced.

11. TOXICOLOGICAL INFORMATION:

Signs and Symptoms of Overexposure: Inhalation of welding fumes and gases can be dangerous to your health. Classification of welding fumes is difficult because of varying base materials, coatings, air contaminants and processes. The Internal Agency for Research on Cancer has classified welding fumes as possible carcinogenic to humans (Group 2B).

Acute Effects: Overexposure to welding fumes may result in symptoms like metal fume fever, dizziness, nausea, dryness or irritation of the nose, throat or eyes. May cause sensitisation by skin contact.

LD/LC50 Values that are relevant for classification		
Chromium 7440-47-3		
Oral	LD50	19.8 mg/kg (rat) (highly toxic)

LD/LC50 Values that are relevant for classification		
Manganese 7439-96-5		
Oral	LD50	9000 mg/kg (rat)

LD/LC50 Values that are relevant for classification		
Nickel 7440-02-0		
Oral	LD50	>9000 mg/kg (rat)
Inhalation	LC50	>10.2 mg/L/1 hr (rat)

LD/LC50 Values that are relevant for classification		
Iron 7439-89-6		
Oral	LD50	30000 mg/kg (rat)

Chronic Effects: Overexposure to welding fumes may affect pulmonary function and eyes. Overexposure to manganese and manganese compounds above safe exposure limits can cause irreversible damage to the central nervous system, including the brain, symptoms of which may include slurred speech, lethargy, tremor, muscular weakness, psychological disturbances and spastic gait. Prolonged inhalation of nickel (Classified 2B by IARC and R by NTP) above safe exposure limits may cause cancer.

12. ECOLOGICAL INFORMATION:

Toxicity: Welding rods contain metals which are considered to be very toxic towards aquatic organisms. Finely divided welding rods are therefore considered harmful to aquatic organisms.

Persistence and Degradability: The welding rods consist of elements that can not degrade any further in the environment.

Bio accumulative Potential: Welding rods contain heavy metals which bio accumulates in the food chain. The following figures are the bio concentration factor (BCF) for the substances on their own.

BCF:

