

Safety Data Sheet: AWS-A5.4 E316L-16

Supersedes Date 10/12/2012

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1. PRODUCT AND COMPANY IDENTIFICATION

Product Name AWS-A5.4 E316L-16
Recommended use ARC welding
Information on Manufacturer
 TOKO GROUP LTD
 (WUXI, CHINA)
 JP@TOKOC.COM

Product Code TOKO E316L-16
Chemical nature Inorganic solid blend
Emergency Telephone Number
 TEL: (86)510-8359 5138

2. HAZARD IDENTIFICATION

Color White

Physical State Solid

Odor Odorless

GHS

Classification

Physical Hazards

None

Health Hazard

Acute Oral Toxicity
 Skin Corrosion/Irritation
 Skin Sensitization
 Carcinogenicity
 Specific target organ systemic toxicity (repeated exposure)

Category 5
 Category 3
 Category 1
 Category 2
 Category 1

Other hazards

None

Labeling

Signal Word

DANGER



Hazard Statements

H303 - May be harmful if swallowed
 H317 - May cause an allergic skin reaction
 H351 - Suspected of causing cancer
 H316 - Causes mild skin irritation
 H372 - Causes damage to organs through prolonged or repeated exposure

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 fume or dust
 P270 - Do not eat, drink or smoke when using this product
 P264 - Wash face, hands and any exposed skin thoroughly after handling.
 P281 - Use personal protective equipment as required
 P280 - Wear protective gloves, protective clothing and eye protection.
 P272 - Contaminated work clothing should not be allowed out of the workplace
 P321 - Specific treatment (see supplemental first aid instructions on this label)
 P302+ P352 - IF ON SKIN: Wash with plenty of soap and water
 P333 + P313 - If skin irritation or rash occurs, get medical attention
 P363 - Wash contaminated clothing before reuse
 P308 + P313 - IF exposed or concerned: Get medical attention/advice
 P312 - Call a physician if unwell.
 P405 - Store locked up
 P273 - Avoid release to the environment
 P501 - Dispose of contents and container to an approved waste disposal plant.

40 % of the mixture consists of ingredient(s) of unknown toxicity

3. COMPOSITION / INFORMATION ON INGREDIENTS

Component	CAS-No	Weight %
Iron	7439-89-6	30-60
Chromium	7440-47-3	10-30
Nickel	7440-02-0	10-30
Titanium dioxide	13463-67-7	5-10
Calcium carbonate	1317-65-3	1-5

Bentonite	1302-78-9	1-5
Molybdenum	7439-98-7	1-5
Calcium Fluoride	7789-75-5	1-5
Manganese	7439-96-5	.5-1.5

4. FIRST AID MEASURES

General advice	Do not breathe dust or fume. Avoid contact with skin, eyes and clothing.
Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If symptoms persist, call a physician.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. Get medical attention if symptoms occur.
Inhalation	Remove person to fresh air. If signs/symptoms continue, get medical attention.
Ingestion	Drink 1 or 2 glasses of water. Do NOT induce vomiting. Get medical attention if symptoms occur.
Notes to physician	May cause sensitization of susceptible persons.

5. FIRE-FIGHTING MEASURES

Flash Point	The product is not flammable	Method	Not applicable
Upper	No data available	Lower	No data available
Suitable Extinguishing Media Carbon dioxide (CO2). Dry chemical. Foam. Water spray.			
Specific hazards arising from the chemical Arcs and sparks can ignite combustibles and flammable products. See American National Standard Z49.1; Safety in Welding and Cutting published by The American Welding Society .			
Protective Equipment and Precautions for Firefighters As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.			
NFPA	Health 2	Flammability 0	Instability 0
HMIS	Health 2	Flammability 0	Instability 0

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	Use personal protective equipment. Avoid contact with skin, eyes, and clothing.
Environmental Precautions	Prevent product from contaminating soil or from entering sewage, drainage systems, and bodies of water .
Methods for Containment	Pick up and arrange disposal without creating dust.
Methods for Cleaning Up	Shovel or vacuum any spilled material into a suitable container. Alloy wastes are normally collected to recover metal value .
Neutralizing Agent	Not applicable.

7. HANDLING AND STORAGE

Handling	Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. Do not eat, drink or smoke when using this product.		
Storage	Keep container tightly closed in a dry and well-ventilated place.		
Storage Temperature	Minimum	No information available	Maximum
Storage Conditions	Indoor	X	Outdoor
			Heated
			Refrigerated
			No information available

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH
Iron	No data available	No data available	No data available
Chromium	TWA: 0.5 mg/m ³	TWA: 1 mg/m ³	IDLH: 250 mg/m ³ TWA: 0.5 mg/m ³
Nickel	TWA: 1.5 mg/m ³	TWA: 1 mg/m ³	IDLH: 10 mg/m ³ TWA: 0.015 mg/m ³
Titanium dioxide	TWA: 10 mg/m ³	TWA: 15 mg/m ³	IDLH: 5000 mg/m ³
Calcium carbonate	No data available	TWA: 15 mg/m ³ TWA: 5 mg/m ³	TWA: 10 mg/m ³ TWA: 5 mg/m ³
Bentonite	TWA: 1 mg/m ³	No data available	No data available
Molybdenum	TWA: 10 mg/m ³ TWA: 3 mg/m ³	No data available	IDLH: 5000 mg/m ³
Calcium Fluoride	TWA: 2.5 mg/m ³	TWA: 2.5 mg/m ³	No data available
Manganese	TWA: 0.2 mg/m ³	Ceiling: 5 mg/m ³	IDLH: 500 mg/m ³

			STEL 3 mg/m ³ TWA: 1 mg/m ³
Engineering Measures	Use enough ventilation, local exhaust at the arc, or both to keep the fumes and gases below the TLV's in the worker's breathing zone and in the general area. Train the worker to keep his head out of the fumes .		
Personal Protective Equipment			
Eye/Face Protection	Wear a helmet or use face shield with filter lens of appropriate shade number (SEE ANSI/ASCZ49.1) provide protective screen and flash goggles, if necessary, to shield others. As a rule of thumb, start a shade that is too dark to see the weld zone. Then go next lighter shade which gives sufficient view of the weld zone . Safety glasses with side-shields.		
Skin Protection	Welder's leather gloves, Wear fire/flame resistant/retardant clothing, Wear suitable protective clothing.		
Respiratory Protection	Use enough ventilation, local exhaust at the arc, or both to keep the fumes and gasses below the TLV's in the workers' breathing zone and the general area. Train the worker to keep his head out of the fumes. Use MSHA/NIOSH approved or equivalent fume respirator or air supplied respirator when welding in a confined space or when local exhaust or ventilation does not keep exposure below TLV.		
General Hygiene Considerations	Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing before re-use.		

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Solid	Viscosity	Not applicable
Color	White	Odor	Odorless
Odor Threshold	Not applicable	Appearance	Solid
pH	Not applicable	Specific Gravity	9
Evaporation Rate	Not applicable	Percent Volatile (Volume)	No information available
VOC Content (%)	No information available	Vapor Pressure	Not applicable
Vapor Density	Not applicable	Solubility	Insoluble
n-Octanol/Water Partition	No data available	Melting Point/Range	1560 - 2000 °F / 849 - 1093 °C
Decomposition Temperature	No data available	Boiling Point/Range	4982 °F / 2750 °C
Flammability (solid, gas)	No data available	Method	Not applicable
Flash Point	The product is not flammable		
Autoignition Temperature	No information available.		
Upper	No data available		
Lower	No data available		

10. STABILITY AND REACTIVITY

Chemical Stability	Stable. Hazardous polymerization does not occur.
Conditions to Avoid	Exposure to air or moisture over prolonged periods
Incompatible Products	Incompatible with oxidizing agents, Strong acids.
Hazardous Decomposition Products	Fumes and gasses produced by welding, brazing and similar processes cannot be classified simply. The composition and quantity of both are dependent upon the metal being welded, the process, the procedures and the filler metal being used. Other conditions which also influence the composition and quantity of fumes and gases to which the worker may be exposed include: coatings on the metal being welded, the number of welders and the volume of the work space, the quality and amount of ventilation used, the position of the welder's head in relation to the fume plume, as well as the presence of contaminants in the atmosphere when the filler metal is consumed. The fume and gas decomposition products generated are different in percent and form the product ingredients listed in Section III. The products formed in normal operation include those originating from the volatilization, reaction and oxidation of the filler metal, the metal being welded, the coatings, etc. as noted above. One recommended way to determine the composition and quality of fumes and gases to which workers are exposed is to take an air sample inside the welders helmet if worn or in the workers breathing zone. See ANSI/AWS F1.1
Possibility of Hazardous Reactions	None under normal processing

11. TOXICOLOGICAL INFORMATION

Product Information

The following values are calculated based on chapter 3.1 of the GHS document (Rev. 3, 2009):

Oral LD50 No information available
 Dermal LD50 No information available
 Inhalation LC50
 Gas No information available
 Mist No information available
 Vapor No information available

Principle Route of Exposure Inhalation, Ingestion.
 Primary Routes of Entry Inhalation

Acute Effects

Eyes Causes eye irritation. Molten product can cause thermal burns . Welding arc may damage eyes .
Skin May cause allergic skin reaction. The molten product can cause serious burns.
Inhalation Welding fumes may result in discomfort such as: dizziness, nausea, or dryness or irritation of nose, throat, or eyes. Fumes can aggravate asthma, bronchial conditions, or allergies. Individuals with allergies or impaired respiratory function may have symptoms worsen by exposure to welding fumes . Very toxic by inhalation. Inhalation may cause central nervous system effects. May cause allergic respiratory reaction.

Ingestion Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. May be harmful if swallowed.

Chronic Toxicity

May cause sensitization by skin contact. Prolonged exposure may cause chronic effects. Constant inhalation of chromium (VI) compounds may cause an ulceration and perforation of the nasal septum as well as liver and kidney damage. IARC has concluded that the evidence for carcinogenicity to humans and animals is inadequate for chromium metal and trivalent compounds, but sufficient for hexavalent chromium compounds. Chromium compounds are on the IARC list as posing a carcinogenic risk to humans. OSHA (29 CFR 1910.120) lists chromium as possible carcinogen. Chromium VI compounds are required by OSHA to be considered carcinogenic . Repetitive exposure to nickel oxides may lead to lung fibrosis or pneumoconiosis. Soreness and itchiness of the nose and changes in skin color and/or appearance may also result. Nickel compounds are on the IARC list as posing a carcinogenic risk to humans. OSHA (29 CFR 1910.120) lists nickel as possible carcinogen . Nickel may cause respiratory sensitization in susceptible individuals. Inhalation of manganese fumes may affect the central nervous system, may cause spastic gait, drowsiness, paralysis and other neurological problems with symptoms including weakness and tremors resembling Parkinson's disease. Behavioral changes and changes in handwriting may also appear . The TLV for Manganese (0.02 mg/m³) will be reached before the general limit for welding fumes of 5mg/m³ is reached. Monitor fumes for manganese levels. Long term overexposure to iron fumes may lead to siderosis (iron deposits in the lung) and is believed by investigators to affect pulmonary function. Lungs will clear in time when exposure to iron and its components cease . Inhalation of Molybdenum fumes has caused kidney damage, respiratory irritation and liver damage in animals .

Target Organ Effects

Liver, Kidney, Respiratory system, Central nervous system, Lungs, Nasal Cavities, Skin, Eyes, Immune system, Blood.

Aggravated Medical Conditions

Skin disorders, Kidney disorders, Liver disorders, Respiratory disorders, Neurological disorders, Blood disorders.

Component Information

Acute Toxicity

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation	Draize Test	Other
Iron	= 984 mg/kg (Rat)	no data available	no data available	no data available	no data available
Chromium	no data available	no data available	no data available	no data available	no data available
Nickel	> 9000 mg/kg (Rat)	no data available	no data available	no data available	no data available
Titanium dioxide	> 10000 mg/kg (Rat)	no data available	no data available	no data available	no data available
Calcium carbonate	= 6450 mg/kg (Rat)	no data available	no data available	no data available	no data available
Bentonite	> 5000 mg/kg (Rat)	no data available	no data available	no data available	no data available
Molybdenum	no data available	no data available	no data available	no data available	no data available
Calcium Fluoride	= 4250 mg/kg (Rat)	no data available	no data available	no data available	no data available
Manganese	= 9 g/kg (Rat)	no data available	no data available	no data available	no data available

Chronic Toxicity

Component	Mutagenicity	Sensitization	Developmental Toxicity	Reproductive Toxicity	Target Organ Effects
Iron	no data available	no data available	no data available	no data available	no data available
Chromium	no data available	no data available	no data available	no data available	eyes, respiratory system, skin
Nickel	no data available	no data available	no data available	no data available	nasal cavities, lungs, skin (lung and nasal cancer) lungs, skin, nasal cavities (lung and nasal cancer)
Titanium dioxide	no data available	no data available	no data available	no data available	respiratory system
Calcium carbonate	no data available	no data available	no data available	no data available	eyes, respiratory system, skin
Bentonite	no data available	no data available	no data available	no data available	no data available
Molybdenum	no data available	no data available	no data available	no data available	eyes, respiratory system, liver, kidneys
Calcium Fluoride	no data available	no data available	no data available	no data available	no data available

Manganese	no data available	no data available	no data available	no data available	CNS,respiratory system,blood,kidneys
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Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	ACGIH	IARC	NTP	OSHA	Other
Iron	not applicable	not applicable	not applicable	not applicable	not applicable
Chromium	not applicable	not applicable	not applicable	not applicable	not applicable
Nickel	not applicable	Group 1 Group 2B	Known Reasonably Anticipated	X	not applicable
Titanium dioxide	A4	Group 2B	not applicable	X	not applicable
Calcium carbonate	not applicable	not applicable	not applicable	not applicable	not applicable
Bentonite	not applicable	not applicable	not applicable	not applicable	not applicable
Molybdenum	not applicable	not applicable	not applicable	not applicable	not applicable
Calcium Fluoride	not applicable	not applicable	not applicable	not applicable	not applicable
Manganese	not applicable	not applicable	not applicable	not applicable	not applicable

12. ECOLOGICAL INFORMATION

Product Information No information available.

Component Information

Component	Toxicity to Algae	Toxicity to Fish	Microtox	Water Flea	log Pow
Iron	no data available	LC50 = 13.6 mg/L <i>Morone saxatilis</i> 96 h LC50 = 0.56 mg/L <i>Cyprinus carpio</i> 96 h	no data available	no data available	N/A
Chromium	no data available	no data available	no data available	no data available	N/A
Nickel	EC50 = 0.18 mg/L <i>Pseudokirchneriella</i> <i>subcapitata</i> 72 h EC50 0.174 - 0.311 mg/L <i>Pseudokirchneriella</i> <i>subcapitata</i> 96 h	LC50 > 100 mg/L <i>Brachydanio rerio</i> 96 h LC50 = 1.3 mg/L <i>Cyprinus carpio</i> 96 h LC50 = 10.4 mg/L <i>Cyprinus carpio</i> 96 h	no data available	EC50 > 100 mg/L 48 h EC50 = 1 mg/L 48 h	N/A
Titanium dioxide	no data available	no data available	no data available	no data available	N/A
Calcium carbonate	no data available	no data available	no data available	no data available	N/A
Bentonite	no data available	LC50 8.0 - 19.0 g/L <i>Salmo gairdneri</i> 96 h LC50 = 19000 mg/L <i>Oncorhynchus</i> <i>mykiss</i> 96 h	no data available	no data available	N/A
Molybdenum	no data available	no data available	no data available	no data available	N/A
Calcium Fluoride	no data available	no data available	no data available	no data available	N/A
Manganese	no data available	no data available	no data available	no data available	N/A

Persistence and Degradability

No information available.

Bioaccumulation

No information available.

Mobility

No information available.

13. DISPOSAL CONSIDERATIONS

Product Disposal

Dispose of in accordance with local regulations.

Container Disposal

Empty containers should be taken for local recycling, recovery, or waste disposal.

14. TRANSPORT INFORMATION

DOT Not regulated

TDG Not regulated

ICAO Not regulated

IATA Not regulated

IMDG/IMO Not regulated

15. REGULATORY INFORMATION

Inventories

TSCA Complies
 DSL Complies

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Component	CAS-No	Weight %	SARA 313 - Threshold Values
Chromium	7440-47-3	10-30	1.0
Nickel	7440-02-0	10-30	0.1
Manganese	7439-96-5	.5-1.5	1.0

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Chronic Health Hazard	Fire Hazard	Sudden Release of Pressure Hazard	Reactive Hazard
Yes	Yes	No	No	No

CERCLA

Component	Hazardous Substances RQs	CERCLA EHS RQs
Iron	Not applicable	Not applicable
Chromium	5000 lb	Not applicable
Nickel	100 lb	Not applicable
Titanium dioxide	Not applicable	Not applicable
Calcium carbonate	Not applicable	Not applicable
Bentonite	Not applicable	Not applicable
Molybdenum	Not applicable	Not applicable
Calcium Fluoride	Not applicable	Not applicable
Manganese	Not applicable	Not applicable

U.S. State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals

Component	CAS-No	California Prop. 65
Titanium dioxide	13463-67-7	carcinogen
Nickel	7440-02-0	carcinogen
Chromium	7440-47-3	carcinogen, initial date 2/27/87, developmental female, male 12/19/08

16. OTHER INFORMATION

Prepared By Linda Chow
 Supersedes Date 10/12/2012
 Issuing Date 06/17/2013
 Reason for Revision No information available.
 Glossary No information available.
 List of References. No information available.

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