ZIKA INDUSTRIES LTD.
Southern Industrial Zone Acre, P.o.b. 2317
Acre 2412202 Israel
Tel.: +972 4 9851800/33/31
Fax: +972 4 9851870/32
Reported VAT consol.: 557871696

URL: www.zika.co.il E-mail: export@zika.co.il

FORM NO Z 307 B **DATE REVISED** 06/06/2016

MATERIAL SAFETY DATA SHEET

Complies with regulation (EC) no 1907/2006, 1272/2008, ISO 11014-1and ANSI Z400.1

1. PRODUCT IDENTIFICATION

PRODUCT TYPE: COVERED ELECTRODES
TRADE NAME: Z 307 B
CLASSIFICATION:
EN ISO 1600: E 18 9 MnMo B 2 2
AWS SFA A5.4: E 307-15
MANUFACTURER: ZIKA INDUSTERIES LTD.
P.O. Box: 2317. Acre 24122 Israel
Tel: 972-4-9851800 Fax: 972-4-9851870.

2. HAZARDS IDENTIFICATION

HAZARDOUS DECOMPOSITION PRODUCTS: Welding fumes and gases cannot be classified simply. The composition and quantity of both
are dependent upon the metal being welded, the process, procedure and electrodes used. Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include: coatings on the metal being welded (such as paint, plating or galvanizing); the number of welders and the volume of the worker area, the quality and amount of ventilation, the position of the welder's head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing activities).

When the electrode is consumed, the fume and gas decomposition products generated are different in percent and form from the ingredients listed in Section ll. Decomposition products of normal operation include those originating from the volatilization, reaction, or oxidation of the materials shown in Section ll, plus those from the base metal and coating, etc, as noted above.

Reasonably expected fume constituents of this product would include: Primarily iron oxide and fluorides; secondarily complex oxides of manganese, potassium, silicon and sodium. Maximum fume exposure guideline for this product (based on manganese content) is 4.0 milligrams per cubic meter.
Gaseous reaction products may include carbon monoxide and carbon dioxide. Ozone and nitrogen oxides may be formed by the radiation from the arc.

Determine the composition and quantity of fumes and gases to which workers are exposed by taking an air sample from inside the welder's helmet if worn or in the worker's breathing zone. Improve ventilation if exposures are not below limits. See ANSI/AWS F1.1.F1.2.F1.3.F1.4 and F1.5 available from the AMERICAN Welding Society, 550 N.W. Lejeune Road, Miami, FL 33126.

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3+8. COMPOSITION INFORMATION ON INGREDIENTS & EXPOSURE CONTROL

This section covers the materials from which this product is manufactured. The fumes and gases produced during welding with normal use of this product are covered by Section 5 see it for industrial hygiene information.
CAS Number shown is representative for the ingredients listed. All ingredients listed may not be present in all sizes.
The term 'hazardous' in Hazardous Materials' should be interpreted as a term required and defined in the Hazards Communication Standard and does not necessarily imply the existence of any hazard.

INGREDIENTS:	**CAS No.**	**WT. %**	**TLV mg/m3**	**PEL mg/m3**
Calcium carbonate	1317-65-3	10	10	5(respirable fraction) 15(dust)
Calcium fluoride	7789-75-5	10	2.5(as F)	2.5(as F)
Silicate binder	1344-09-8	5	none	none
Manganese	7439-96-5	4	0.1(fume)	5 ceiling
Chromium	7440-47-3	5	0.5(metal)	1(metal)
Cr(IV), inorganic, Water insoluble, (as Cr)			0.05(dust)	0.005(dust)
Cr(IV), inorganic, Water insoluble, (as Cr)			0.01(dust)	0.005(dust)
Nickel(inhalable fraction)	7440-02-0	<1	1.5	1
Kaolinite clay	1332-58-7	1	2 (respirable fraction)	5(respirable fraction) 15(dust)
Molybdenum	7439-98-7	1	3 (respirable fraction) 10(inhalable fraction) 0.5(repirable fraction)	None None 5(soluble compounds)
Titanium dioxide	13463-67-7	1	10	15(dust)
Silicon	7440-21-3	1	10(dust) 3(inhalable fraction)	5(respirable fraction) 15(dust)
Titanium	7440-32-6	<0.5	none	none
Lithium	7439-93-2	<0.5	0.025	0.025
Stainless steel core wire (Iron)	7439-89-6	40	5(repirable fraction)	10(fume)

4. FIRST AID MESURES

Read and understand the manufacturer's instruction and the precautionary label on the product. See American National Standard Z49. 1, Safety in Welding, Cutting and Allied Processes' published by the American Welding Society, 550 N.W. P.O. Box 371954, Pittsburgh, PA 15230-7954 for more details on many of the following:

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VENTILATION: Use enough ventilation, local exhaust at the arc, or both to keep the fumes and gases from the worker's breathing zone and the general area. Train the welder to keep his head out of fumes. Keep exposure as low as possible.

RESPIRATORY PROTECTION: Use reparable fume respirator or air supplied respirator when welding in confined space or general work area when local exhaust or ventilation does not keep exposure below TLV.

EYE PROTECTION: Wear helmet or use face shield with filter lens shade number 12 or darker. Shield others by providing screens and flash goggles.

PROTECTIVE CLOTHING: Wear hand, head, and body protection which help to prevent injury from radiation, sparks and electrical shock. See Z49.1.
At a minimum this includes welder's gloves and a protective face shield, and may include arm protectors, aprons, hats, Shoulder protection, as well as dark substantial clothing. Train the welder not to permit electrically live parts or electrodes To contact skin, clothing or gloves if they are wet. Insulate from work and ground.

5. FIRE FIGHTING MESURES

No specific recommendation for welding consumable. Welding arc and sparks can ignite combustible and flammable materials. Use extinguishing media recommended for the burning materials and fire situation. Wear self contained breathing apparatus as fumes or vapors may be harmful.

6. ACCIDENTAL RELEASE MEASURES

Solid objects may be picked up and placed into a container.
Personal precautions: refer to section 8
Environmental precautions: refer to section 13

7. HANDLING AND STORAGE

Handle with care to avoid sittings and cuts. Wear gloves when handling welding consumables. Avoid exposure to dust. Do not ingest.
Can be a catalyst to allergic reaction. Retain all warning and identity labels.
Storage:
keep separate from chemical substances like acid and strong bases, which could cause chemical reaction.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Solid, non-volatile with varying color
Melting point: >1300°C / >2300ºF

10. STABILITY AND REACTIVITY

General: These products are only intended for normal welding purposes.
Stability: These products are stable under normal conditions.
Reactivity: Contact with chemical substances like acids or strong bases could cause generation of gas.
When these products are used in a welding process, hazardous decomposition products would include those from the volatilization, reaction or oxidation of the materials listed in Section 3 and those from the base metal and coating.
The amount of fumes generated from manual metal arc welding varies with welding parameters and dimensions but is generally no more than 7 to 20 g/kg consumable. Fumes from these products may contain compounds of the following chemical elements: Fe, O, Mn, Zr, Cr, Ni, F, Na, Si, K, Ca, Cu, Mo, V, Mg, and Ti. The rest is not analyzed, according to available standards.

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Refer to applicable national exposure limits for fume compounds, including those exposure limits for fume compounds found in Section8. A significant amount of the chromium in the fumes can be hexavalent chromium, which has a very low exposure limit in some countries. Manganese and nickel also have low exposure limits, 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 quantity of fumes and gases produced.

11. TOXICOLOGICAL INFORMATION

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 contamination and processes. The International Agency for Research on Cancer has classified welding fumes as possibly carcinogenic to humans (Group 2B).
Acute toxicity: Overexposure to welding fumes may result in symptoms like metal fume fever, dizziness, nausea, dryness or irritation of the nose, throat or eyes.
Chronic toxicity: Overexposure to welding fumes may affect pulmonary function. Prolonged inhalation of nickel and chromium compounds above safe exposure limits can cause cancer. 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. Inhalable quartz is a respiratory carcinogen; however, the process of welding converts crystalline quartz to the amorphous form which is not considered to be a carcinogen.

12. ECOLOGICAL INFORMATION

Welding consumables and materials could degrade/weather into components originating from the consumables or from the materials used in the welding process. Avoid exposure to conditions that could lead to accumulation in soils or groundwater.

13. DISPOSAL CONSIDERATIONS

Discard any product, residue, disposable container or liner in an environmentally acceptable manner, in full compliance with federal and local
Regulations. Use recycling procedures if available.

USA RCRA: Unused products or product residue containing chromium is considered hazardous waste if discarded, RCRA ID Characteristic Toxic Hazardous Waste D007.

Residues from welding consumables and processes could degrade and accumulate in soils and groundwater. Welding slag from these products typically contain mainly the following components originating from the coating of the electrode: Fe, O, Mn, Zr, Cr, Ni, F, Na, Si, K, Ca, Cu, Mo, V, Mg, and Ti.

14. TRANSPORT INFORMATION

No international regulations or restrictions are applicable.

15. REGULATORY INFORMATION

Read and understand the manufacturer's instructions, your employer's safety practices and the health and safety instructions on the label. Observe any federal and local regulations. Take precautions when welding and protect yourself and others.
WARNING: Welding fumes and gases are hazardous to your health and may damage lungs and other organs. Use adequate ventilation.
ELECTRIC SHOCK can kill.
ARC RAYS and SPARKS can injure eyes and burn skin.
Wear correct hand, head, eyes and body protection.

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Canada: WHMIS classification: Class D; Division 2, Subdivision a Canadian Environmental Protection Act (CEPA): All constituents of these products are on the Domestic Substance List (DSL).
USA: Under the OSHA Hazard Communication Standard, these products are considered hazardous.
These products contain or produce a chemical known to the state of California to cause cancer and birth defects (or other reproductive harm). (California Health & Safety Code § 25249.5 et seq.)
United States EPA Toxic Substance Control Act: All constituents of these products are on the TSCA inventory list or are excluded from listing.
CERCLA/SARA Title III
Reportable Quantities (RQs) and/or Threshold Planning Quantities (TPQs):
Ingredient name RQ (lb) TPQ (lb)
Product is a solid solution in the form of a solid article. - -
Spills or releases resulting in the loss of any ingredient at or above its RQ require immediate notification to the National Response Center and to your Local Emergency Planning Committee. Section 311 Hazard Class As shipped: Immediate
In use: Immediate delayed EPCRA/SARA Title III 313 Toxic Chemicals The following metallic components are listed as SARA 313 "Toxic Chemicals" and potential subject to annual SARA 313 reporting. See Section 3 for weight percent.

Ingredient name	Disclosure threshold
Chromium	1.0% de minimis concentration
Copper	1.0% de minimis concentration
Manganese	1.0% de minimis concentration
Nickel	0.1% de minimis concentration

According to EC Directive 88/379/EEC, some of these products are classified with the following risk and safety phrases due to their content of nickel:
Symbols:

Harmful:
R-phrases: R40 – Limited evidence of a carcinogenic effect.
R43 – May cause sensitization by skin contact.
S-phrases: S2 – Keep out of the reach of children.
S22 – Do not breathe dust.
S36 – Wear suitable protective clothing.
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