



Trade Name: **Innershield NR-311**
Sizes: All
Date: Dec. 1999 No. **ACW 106**

MATERIAL SAFETY DATA SHEET

For Welding Consumables and Related Products

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STATEMENT OF HAZARDOUS NATURE

Hazardous according to criteria of Worksafe Australia.

COMPANY DETAILS

Company: The Lincoln Electric Co.(Australia) Pty. Ltd.
Address: 35 Bryant Street
Padstow, NSW, 2211
Telephone Number: (02) 9772 7222
Emergency Telephone Number (AH): (02) 9772 7251

IDENTIFICATION

Product Name: Innershield NR-311
Manufacturer's Product Code: KC3112006, KC3112425, KC3112825
UN Number: None allocated
Dangerous Goods Class and Subsidiary Risk: None allocated
Hazchem Code: None allocated
Poisons Schedule Number: None allocated
Use: Flux cored arc welding electrode.

Physical Description/Properties

Appearance: Grey steel wire
Boiling Point/Melting Point: >1300°C
Vapour Pressure: N/A steel wire
Specific Gravity: N/A steel wire
Flashpoint: N/A
Flammability Limits: Non flammable
Solubility in Water: Insoluble

Ingredients

<u>Chemical Name:</u>	<u>CAS Number:</u>	<u>Proportion:</u>
Carbon Steel Tube	7439-89-6	80%
<u>Core composition:</u>		
Iron	7439-89-6	10%
Aluminium and/or aluminium alloys (as Al)	7429-90-5	<5%
Fluorides (as F)	7789-75-5	<5%
Magnesium &/or Magnesium alloys and compounds(as Mg)	7439-95-4	<5%
Limestone and/or calcium carbonate	1317-65-3	1%
Complex compounds	66402-68-4	0.5%
Lithium compounds (as Li)	554-13-2	<0.5%
Barium compounds (as Ba)	513-77-9	<0.5%
Manganese &/or manganese alloys and compounds (as Mn)	7439-96-5	<0.5%
Silicon &/or silicon alloys and compounds (as Si)	7440-21-3	<0.5%
Carbon Black	1333-86-4	<0.5%

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HEALTH HAZARD INFORMATION

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 galvanising), 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 vapours 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 above. Decomposition products of normal operation include those originating from the volatilisation, reaction, or oxidation of the materials shown above, plus those from the base metal and coating, etc. as noted above.

Reasonably expected fume constituents of this product would include: Primarily iron oxide, magnesium oxide and fluorides; secondarily complex oxides of aluminium, calcium, lithium, manganese and potassium.

Maximum fume exposure guideline and PEL for this product is 5.0 mg/m³.

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, F1.4, and F1.5, available from the Welding Technology Institute of Australia, PO Box 6165, Silverwater, NSW 2128

Arc Rays can injure eyes and burn skin. *Skin cancer has been reported.*

Electric shock when not used in accordance with manufacturers recommendations

Health Effects

Acute

Swallowed: Metallic wire. Not a likely source of exposure.

Eye: Arc rays from electric arc welding can injure eyes.

Skin: Not irritating to the skin. Arc rays can cause burns to the skin

Inhaled: Short-term overexposure to welding fumes may result in discomfort such as metal fume fever, dizziness, nausea, or dryness or irritation of nose, throat, or eyes. May aggravate pre-existing respiratory problems (eg. Asthma, emphysema. Exposure to extremely high levels of fluorides can cause abdominal pain, diarrhoea, muscular weakness and convulsions. In extreme cases it can cause loss of consciousness and death. Maximum fume exposure guideline and PEL for this product is 5.0 mg/m³.

Chronic:

Long-term overexposure to welding fumes can lead to siderosis (iron deposits in lung) and may affect pulmonary function. Manganese overexposure can affect the central nervous system, resulting in impaired speech and movement. Bronchitis and some lung fibrosis have been reported. Repeated exposure to fluorides may cause excessive calcification of the bone and calcification of ligaments of the ribs, pelvis and spinal column. May cause skin rash.



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First Aid

Swallowed: Seek medical aid.

Eye: In the event of severe arc radiation exposure seek immediate medical attention.

Skin: In the event of severe arc radiation exposure seek immediate medical attention.

Inhaled: Remove from fume exposure. If breathing has stopped perform expired air resuscitation E.A.R. and seek immediate medical attention.

Advice to Doctor

Treat symptomatically.

PRECAUTIONS FOR USE

Exposure Standards: Maximum welding fume exposure guidelines and PEL for this product are 5.0 mg/m³.

Engineering Controls: When welding use enough ventilation, local exhaust at the arc, or both to keep the fumes and gases from the workers' breathing zone. Keep exposure as low as possible. Train the welder to keep his head out of the fumes. *Keep exposure as low as possible.*

Personal Protection: Respiratory Protection: Use respirable fume respirator or air supplied respirator when welding in confined space or general work area when local exhaust or ventilation do not keep exposure below TLV.
Eye Protection: Use flash goggles to avoid accidental arc radiation exposure.
Protective Clothing: Wear head, hand and body protection which helps to prevent injury from UV radiation, sparks and electrical shock.

Flammability: This product is not flammable, but welding arc and sparks can ignite combustibles.

SAFE HANDLING INFORMATION

Storage and Transport: Store in original containers in a dry area away from moisture. Not defined as a Dangerous Good as per the Australian Code for the Transport of Dangerous Goods.

Spills and Disposal: No special procedures required. Discard any product, residue, disposable container, or liner as ordinary waste in an environmentally acceptable manner according to Federal, State and Local Regulations unless otherwise noted.

Fire/Explosion Hazard: Non flammable. Welding arcs and sparks can ignite combustibles.

CONTACT POINT

Contact Person: Manager, Consumables Engineering
(02) 9772 7204

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