PRODUCT NAME
Eutectic Xyron 2-24

SYNONYMS
MMAW, "coated welding rod", "nickel alloy electrode", "cast iron welding rod", "Xyron 224 welding electrode"

PRODUCT USE
Flux coated electrode for manual metal arc welding of machinable cast irons. Suitable for grey cast iron using AC, DC straight or reverse polarity.

SUPPLIER
Company: Smenco Pty Ltd t/as Messer Eutectic Australia
Address: 1 Longview Court Thomastown VIC, 3074 Australia
Telephone: 1300 728 422
Fax: 1300 728 420

Section 2 - HAZARDS IDENTIFICATION

STATEMENT OF HAZARDOUS NATURE
HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS. According to the Criteria of NOHSC, and the ADG Code.

CHEMWATCH HAZARD RATINGS

<table>
<thead>
<tr>
<th>Flammability</th>
<th>Toxicity</th>
<th>Body Contact</th>
<th>Reactivity</th>
<th>Chronic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SCALE: Min/Nil=0 Low=1 Moderate=2 High=3 Extreme=4

RISK
■ Limited evidence of a carcinogenic effect.
■ Risk of serious damage to eyes.
■ May cause SENSITISATION by skin contact.
■ Toxic: danger of serious damage to health by prolonged exposure through inhalation.
■ Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
■ Inhalation may produce health damage*.
■ Cumulative effects may result following exposure*.
■ May produce discomfort of the respiratory system*.

SAFETY
• Keep locked up.
• Avoid contact with skin.
• Avoid contact with eyes.
• Wear suitable protective clothing.
• In case of insufficient ventilation, wear suitable respiratory equipment.
• Wear suitable gloves.
• Wear eye/face protection.
• Use only in well ventilated areas.

continued...
Section 2 - HAZARDS IDENTIFICATION

■ Possible respiratory sensitisier*.  
* (limited evidence).

• Keep container in a well ventilated place.
• To clean the floor and all objects contaminated by this material, use water and detergent.
• This material and its container must be disposed of in a safe way.
• Keep away from food, drink and animal feeding stuffs.
• Take off immediately all contaminated clothing.
• In case of contact with eyes, rinse with plenty of water and contact Doctor or Poisons Information Centre.
• In case of accident by inhalation: remove casualty to fresh air and keep at rest.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>NAME</th>
<th>CAS RN</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>core wire, comprising nickel alloy steel as</td>
<td></td>
<td></td>
</tr>
<tr>
<td>nickel</td>
<td>7440-02-0</td>
<td>&gt;50</td>
</tr>
<tr>
<td>copper</td>
<td>7440-50-8</td>
<td>&lt;5</td>
</tr>
<tr>
<td>ferrosilicon</td>
<td>8049-17-0</td>
<td>&lt;5</td>
</tr>
<tr>
<td>graphite</td>
<td>7782-42-5</td>
<td>&lt;5</td>
</tr>
<tr>
<td>tin</td>
<td>7440-31-5</td>
<td>&lt;1</td>
</tr>
<tr>
<td>flux coating of</td>
<td></td>
<td></td>
</tr>
<tr>
<td>calcium carbonate</td>
<td>471-34-1</td>
<td>5-10</td>
</tr>
<tr>
<td>calcium fluoride</td>
<td>7789-75-5</td>
<td>1-5</td>
</tr>
</tbody>
</table>

During use rods will give off fume as
nickel fume 7440-02-0
fluoride fume 16984-48-8
^ cold rods inert

Section 4 - FIRST AID MEASURES

SWALLOWED
• Immediately give a glass of water.
• First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

EYE
■ If this product comes in contact with the eyes:
  • Wash out immediately with fresh running water.
  • Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
  • Seek medical attention without delay; if pain persists or recurs seek medical attention.
  • Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN
■ If skin or hair contact occurs:
  • Flush skin and hair with running water (and soap if available).
  • Seek medical attention in event of irritation.

INHALED
■ Regular exposure to nickel fume, as the oxide, may result in "metal fume fever" a sometimes debilitating upper respiratory tract condition resembling influenza.
  Symptoms include malaise, fever, weakness, nausea and may appear quickly if operations occur in closed or poorly ventilated areas.
  Inhalation of freshly formed metal oxide particles sized below 1.5 microns and generally between 0.02 to 0.05 microns may result in "metal fume fever".
  Fluoride vapours and thermally produced particulates (fume) of the calcium, sodium and potassium salts are potent mucous membrane irritants.
  • If fumes, aerosols or combustion products are inhaled remove from contaminated area.

continued...
• Other measures are usually unnecessary.

NOTES TO PHYSICIAN
• In cases of nickel poisoning, dimercaptol delivered by deep intramuscular injection may be a suitable antidote. (Patients should not exhibit renal or hepatic dysfunction.) The use of diethyldithiocarbamate is the subject of ongoing research.
• Irritant contact dermatoses or eczemas may respond to applications of weak antiseptic packs, antibiotic ointments (tetracycline or erythromycin) or inert pastes and ointments. Systemic antibiotics are advisable in the presence of lymphangitis or lymphadenitis.

For acute or short term repeated exposures to fluorides:
• Fluoride absorption from gastro-intestinal tract may be retarded by calcium salts, milk or antacids.
• Fluoride particulates or fume may be absorbed through the respiratory tract with 20-30% deposited at alveolar level.
• Peak serum levels are reached 30 mins. post-exposure; 50% appears in the urine within 24 hours.
• For acute poisoning (endotracheal intubation if inadequate tidal volume), monitor breathing and evaluate/monitor blood pressure and pulse frequently since shock may supervene with little warning. Monitor ECG immediately; watch for arrhythmias and evidence of Q-T prolongation or T-wave changes. Maintain monitor. Treat shock vigorously with isotonic saline (in 5% glucose) to restore blood volume and enhance renal excretion.

Copper, magnesium, aluminium, antimony, iron, manganese, nickel, zinc (and their compounds) in welding, brazing, galvanising or smelting operations all give rise to thermally produced particulates of smaller dimension than may be produced if the metals are divided mechanically. Where insufficient ventilation or respiratory protection is available these particulates may produce “metal fume fever” in workers from an acute or long term exposure.
• Onset occurs in 4-6 hours generally on the evening following exposure. Tolerance develops in workers but may be lost over the weekend. (Monday Morning Fever)
• Pulmonary function tests may indicate reduced lung volumes, small airway obstruction and decreased carbon monoxide diffusing capacity but these abnormalities resolve after several months.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA
• There is no restriction on the type of extinguisher which may be used.

FIRE FIGHTING
■ Alert Fire Brigade and tell them location and nature of hazard.
Product is not combustible. No special firefighting procedures required.

FIRE/EXPLOSION HAZARD
• Non combustible.
• Not considered a significant fire risk, however containers may burn.

HAZCHEM
None

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS
Clean up all spills immediately.
Avoid contact with skin and eyes.
Wear impervious gloves and safety glasses.
Use dry clean up procedures and avoid generating dust.
Place in suitable containers for disposal.

MAJOR SPILLS
Minor hazard.
• Clear area of personnel.
• Alert Fire Brigade and tell them location and nature of hazard.
• Control personal contact with the substance, by using protective equipment if risk of overexposure exists.
• Prevent, by any means available, spillage from entering drains or water courses.

Personal Protective Equipment advice is contained in Section 8 of the MSDS.
Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING
- Earth all lines and equipment.
- Limit all unnecessary personal contact.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Avoid contact with incompatible materials.

SUITABLE CONTAINER
No restriction on the type of containers.
- Check that containers are clearly labelled.

STORAGE INCOMPATIBILITY
Segregate from strong acids.

STORAGE REQUIREMENTS
- Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

<table>
<thead>
<tr>
<th>Source</th>
<th>Material</th>
<th>TWA ppm</th>
<th>TWA mg/m³</th>
<th>STEL ppm</th>
<th>STEL mg/m³</th>
<th>Peak ppm</th>
<th>Peak mg/m³</th>
<th>TWA F/CC</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>nickel (Nickel, metal)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sen</td>
</tr>
<tr>
<td>Australia</td>
<td>copper (Copper, dusts &amp; mists)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Australia</td>
<td>copper (Copper fume)</td>
<td>0.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>copper (Inspirable dust (not otherwise classified))</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>graphite (Graphite (all forms except fibres) (respirable dust)(g)(natural &amp; synthetic))</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(see Chapter 14)</td>
</tr>
<tr>
<td>Australia</td>
<td>tin (Tin, metal)</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>calcium carbonate (Calcium carbonate (a))</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(see Chapter 14)</td>
</tr>
<tr>
<td>Australia</td>
<td>calcium fluoride (Fluorides (as F))</td>
<td>2.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ODOUR SAFETY FACTOR (OSF)
OSF=0.1 (ferrosilicon)
- Exposed individuals are NOT reasonably expected to be warned, by smell, that the Exposure Standard is being exceeded.
Odour Safety Factor (OSF) is determined to fall into either Class C, D or E.

The Odour Safety Factor (OSF) is defined as:

\[
\text{OSF} = \frac{\text{Exposure Standard (TWA) ppm}}{\text{Odour Threshold Value (OTV) ppm}}
\]

Classification into classes follows:

<table>
<thead>
<tr>
<th>Class</th>
<th>OSF</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>550</td>
<td>Over 90% of exposed individuals are aware by smell that the Exposure Standard (TLV- TWA for example) is being reached, even when distracted by working activities</td>
</tr>
<tr>
<td>B</td>
<td>26- 550</td>
<td>As &quot;A&quot; for 50-90% of persons being distracted</td>
</tr>
<tr>
<td>C</td>
<td>1-26</td>
<td>As &quot;A&quot; for less than 50% of persons being distracted</td>
</tr>
<tr>
<td>D</td>
<td>0.18-1</td>
<td>10-50% of persons aware of being tested perceive by smell that the Exposure Standard is being reached</td>
</tr>
<tr>
<td>E</td>
<td>&lt;0.18</td>
<td>As &quot;D&quot; for less than 10% of persons aware of being tested</td>
</tr>
</tbody>
</table>

MATERIAL DATA

EUTECTIC XYRON 2-24:

- None assigned. Refer to individual constituents.

NICKEL FUME:

- NOTE: Detector tubes for nickel, measuring in excess of 0.25 mg/m³ (as Ni), are commercially available.

FLUORIDE FUME:

- It is the goal of the ACGIH (and other Agencies) to recommend TLVs (or their equivalent) for all substances for which there is evidence of health effects at airborne concentrations encountered in the workplace.
- At this time no TLV has been established, even though this material may produce adverse health effects (as evidenced in animal experiments or clinical experience).
- NOTE: The ACGIH occupational exposure standard for Particles Not Otherwise Specified (P.N.O.S) does NOT apply.
- Sensory irritants are chemicals that produce temporary and undesirable side-effects on the eyes, nose or throat. Historically occupational exposure standards for these irritants have been based on observation of workers' responses to various airborne concentrations.

PERSONAL PROTECTION

**RESPIRATOR**

- Type B-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

**EYE**

- Welding helmet with suitable filter. Welding hand shield with suitable filter.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent].
- For most open welding/brazing operations, goggles, even with appropriate filters, will not afford sufficient facial protection for operators. Where possible use welding helmets or handshields corresponding to AS 1336 and AS 1338 which provide the maximum possible facial protection from flying particles and fragments.

continued...
HANDS/FEET
● Welding Gloves
Safety footwear.

ENGINEERING CONTROLS
● For manual arc welding operations the nature of ventilation is determined by the location of the work.
   • For outdoor work, natural ventilation is generally sufficient.
   • For indoor work, conducted in open spaces, use mechanical (general exhaust or plenum) ventilation. (Open work spaces exceed 300 cubic metres per welder)
   • For work conducted in limited or confined spaces, mechanical ventilation, using local exhaust systems, is required. (In confined spaces always check that oxygen has not been depleted by excessive rusting of steel or snowflake corrosion of aluminium)

Mechanical or local exhaust ventilation may not be required where the process working time does not exceed 24 mins. If risk of inhalation or overexposure exists, wear SAA approved respirator or work in fume hood.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE
Grey arc welding electrode with white identifying tip.
Odourless. Insoluble.

PHYSICAL PROPERTIES
Does not mix with water.

State
Manufactured
Melting Range (°C)
Not available.
Solubility in water (g/L)
Immiscible
pH (1% solution)
Not applicable.
ph (as supplied)
Not applicable
Vapour Pressure (kPa)
Not available.
Specific Gravity (water=1)
Not available.
Relative Vapour Density (air=1)
Not available.
Evaporation Rate
Not applicable

Section 10 - STABILITY AND REACTIVITY

CONDITIONS CONTRIBUTING TO INSTABILITY
■ Product is considered stable and hazardous polymerisation will not occur.
For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED
■ Not normally a hazard due to physical form of product. Considered an unlikely route of entry in commercial/industrial environments.

EYE
■ Fumes from welding/brazing operations may be irritating to the eyes.

SKIN
■ Not normally a hazard due to physical form of product. Skin contact does not normally present a hazard, though it is always possible that occasionally individuals may be found who react to substances usually regarded as inert.

continued...
INHALED
■ Fumes evolved during welding operations may be irritating to the upper-respiratory tract and may be harmful if inhaled.

CHRONIC HEALTH EFFECTS
■ Principal route of exposure is inhalation of welding fumes from electrodes and workpiece. Reaction products arising from electrode core and flux appear as welding fume depending on welding conditions, relative volatilities of metal oxides and any coatings on the workpiece.

Metal fume fever is possible after exposure to fumes of nickel and copper alloys.

WARNING: Nickel is classified by IARC as Group 1 - CARCINOGENIC TO HUMANS.

There is little information on the effects on welders of fume containing nickel.

Ozone is suspected to produce lung cancer in laboratory animals; no reports of this effect have been documented in exposed human populations.

Other welding process exposures can arise from radiant energy UV flash burns, thermal burns or electric shock.

The welding arc emits ultraviolet radiation at wavelengths that have the potential to produce skin tumours in animals and in over-exposed individuals, however, no confirmatory studies of this effect in welders have been reported.

Harmful levels of ozone may be found when working in confined spaces. Symptoms of exposure include irritation of the upper membranes of the respiratory tract and lungs as well as pulmonary (lung) changes including irritation, accumulation of fluid (congestion and oedema) and in some cases haemorrhage.

TOXICITY AND IRRITATION
■ Not available. Refer to individual constituents.

CARCINOGEN
Fluorides (inorganic, used in drinking-water) International Agency for Research on Cancer (IARC) - Agents

Reviewed by the IARC Monographs Group 3

REPROTOXIN
nickel fume ILO Chemicals in the electronics industry

that have toxic effects on reproduction Reduced fertility or sterility A

Section 12 - ECOLOGICAL INFORMATION

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Ecotoxicity

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Persistence: Water/Soil</th>
<th>Persistence: Air</th>
<th>Bioaccumulation</th>
<th>Mobility</th>
</tr>
</thead>
<tbody>
<tr>
<td>nickel fume</td>
<td>No Data</td>
<td>No Data</td>
<td>LOW</td>
<td></td>
</tr>
<tr>
<td>fluoride fume</td>
<td>LOW</td>
<td>No Data</td>
<td>LOW</td>
<td>HIGH</td>
</tr>
</tbody>
</table>

Section 13 - DISPOSAL CONSIDERATIONS

• Recycle wherever possible or consult manufacturer for recycling options.
• Consult State Land Waste Management Authority for disposal.
• Bury residue in an authorised landfill.
• Recycle containers if possible, or dispose of in an authorised landfill.
Section 14 - TRANSPORTATION INFORMATION

HAZCHEM:
None (ADG7)

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS: UN, IATA, IMDG

Section 15 - REGULATORY INFORMATION

POISONS SCHEDULE
None

REGULATIONS

Regulations for ingredients

nickel fume (CAS: 7440-02-0) is found on the following regulatory lists:

fluoride fume (CAS: 16984-48-8) is found on the following regulatory lists:

No data for Eutectic Xyron 2-24 (CW: 46451)
### INGREDIENTS WITH MULTIPLE CAS NUMBERS

<table>
<thead>
<tr>
<th>Ingredient Name</th>
<th>CAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>calcium carbonate</td>
<td>471-34-1, 13397-26-7, 15634-14-7, 1317-65-3</td>
</tr>
<tr>
<td>calcium fluoride</td>
<td>7789-75-5, 14542-23-5</td>
</tr>
</tbody>
</table>

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references. A list of reference resources used to assist the committee may be found at: www.chemwatch.net/references.

The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings.

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Issue Date: 13-Jan-2012
Print Date: 23-Jul-2012

This is the end of the MSDS.