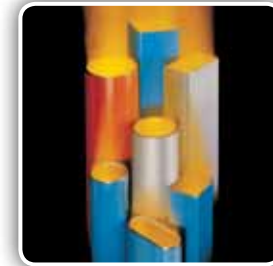


## Part 9 – Material Safety Data Sheets (MSDS) – Contents

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For the latest information on Material Safety Data Sheets, refer to the Australian Tube Mills website, [www.austubemills.com](http://www.austubemills.com)



### Notes:

**Disclaimer** – Whilst every care has been taken in the preparation of this information, OneSteel Australian Tube Mills, and its agents accept no liability for the accuracy of the information supplied. The company expressly disclaims all and any liability to any person whether a purchaser of any product, or otherwise in respect of anything done or omitted to be done and the consequences of anything done or omitted to be done, by any such person in reliance, whether in whole or in part upon the whole or any part of this publication.

**Product availability & other information** – As the section, grade and finish of all products are subject to continuous improvement, reference should be made to the OSATM *PRODUCT AVAILABILITY GUIDE* (PAG) for information on the [availability](#) of [listed sections](#) and associated [finishes](#). The PAG is found at [www.austubemills.com](http://www.austubemills.com).

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# Clear – Material Safety Data Sheet

## 1. Identification of the Material Supplier

<b>Product Name</b>	CLEAR
<b>Company Name</b>	AUSTRALIAN TUBE MILLS
<b>Address</b>	146 Ingram Rd Acacia Ridge
<b>Emergency Tel.</b>	07 3909 6600 (Mon – Fri 8:00am to 5:00pm)
<b>Tel/Fax Number</b>	Tel: 07 3909 6600
<b>Recommended Use</b>	Used in a variety of construction and manufacturing applications.

## 2. Hazards identification

**Hazard** NON-HAZARDOUS SUBSTANCE.  
**Classification** NON-DANGEROUS GOODS.

Hazard classification according to the criteria of NOHSC. Dangerous goods classification according to the Australia Dangerous Goods Code.

### Safety Phrase(s)

S38: In case of insufficient ventilation, wear suitable respiratory equipment.  
S36/37/39: Wear suitable protective clothing gloves and eye/face protection.

### Route(s) of Entry

Target Organs: Overexposure to specific components of this product that are generated in dusts or fumes may cause adverse effects to the following organs or systems: eyes, skin, liver, kidney, central nervous system, cardiovascular system, respiratory system.

### Medical Conditions Generally Aggravated by Exposure

Diseases of the skin such as eczema may be aggravated by exposure. Also, disorders of the respiratory system including asthma, bronchitis, and emphysema. Long-term inhalation exposure to agents that cause pneumoconiosis (e.g. dust) may act synergistically with inhalation of oxide fumes or dusts of this product.

### Other Information

#### Overview:

Steel products in their solid state under normal conditions are not hazardous. Cutting, welding, grinding, sanding, machining etc. may cause dusts and/or fume to be released that may be harmful if inhaled. Dust and fume may irritate the eyes, skin and respiratory tract.

Molten Material May Cause Thermal Burns.

Welding and Dust/Fume Generating Processes:

Welding in confined spaces or with poor ventilation should be avoided.

### Carbon and Alloy Steels:

Welding fumes have been associated with adverse health effects. Contains components that may cause cancer or reproductive effects. The following components are listed by NOHSC as carcinogens: Nickel, chromium (hexavalent), cobalt, lead, cadmium, antimony (trioxide), arsenic and beryllium.

## 3. Composition/ information on ingredients

### Ingredients

Name	CAS	Proportion
Steel	7439-89-6	95-100 %
Manganese	7439-96-5	0.2-1.3 %
Alkyd	N/A	0-1 %

## 4. First aid measures According to routes of exposure

### Inhalation

In case of overexposure to dusts or fumes, Remove from contaminated air and maintain breathing with artificial respiration if necessary. Seek medical assistance. Seek immediate medical attention urgently if symptoms described in the hazards section of this MSDS develop.

### Ingestion

Not considered an ingestion hazard. However, if excessive amounts of dust or particulates are swallowed, treat symptomatically and supportively. Get medical attention.

### Skin

In case of overexposure to dusts or particulates wash with soap and plenty of water. Get medical attention if irritation develops or persists. If thermal burn occurs, flush area with cold water and get immediate medical attention.

### Eye

In case of overexposure to dusts or fumes, immediately flush eyes with plenty of water for at least 15 minutes occasionally lifting the eye lids. Get medical attention if irritation persists. Thermal burns should be treated as medical emergencies.

### Advice to Doctor

See Hazards section for inhalation.

# Clear – Material Safety Data Sheet

## 5. Fire Fighting Measures

### Suitable Extinguishing Media

For molten metal, use dry powder or sand. Base steel does not pose a fire or explosion hazard.

### Hazards from Combustion Products

During a fire situation irritant fumes may be expected from the zinc.

### Specific Methods

Do not use water on molten metal.

### Specific Hazards

Steel products do not present fire or explosion hazards under normal conditions.

Fine metal particles such as produced in grinding or sawing can burn. High concentrations of metallic fines in the air may present an explosion hazard.

## 6. Accidental release measures

### Emergency Procedures

Does not apply to product in solid state. Metal particulate and sludges resulting from fabrication processes should be disposed of in accordance with local government regulations.

## 7. Handling and storage

Store in stable configuration. Avoid contact with corrosive agents such as acids. Transport in accordance with government regulations and ensure loads are secure.

## 8. Exposure controls/personal protection

### National Exposure Standards

No exposure value assigned for this specific material by the National Occupational Health and Safety Commission (NOHSC), Australia. However, the available exposure limits for ingredients are listed below: National Occupational Health And Safety Commission (NOHSC), Australia Exposure Standards:

Substance	TWA		STEL	
	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
Iron oxide fume (as Fe)	-	5	-	-
Manganese fume (as Mn)	-	1	-	3
Aluminium (welding fume)	-	5	-	-
Silica (fumed)	-	2	-	-
Total particulate welding fume	-	5	-	-

TWA (Time Weighted Average): The average airborne concentration of a particular substance when calculated over a normal eight-hour working day, for a five-day week.

STEL (Short Term Exposure Limit): The average airborne concentration over a 15 minute period which should not be exceeded at any time during a normal eight-hour workday.

### Biological Limit Values

No biological limits allocated.

### Engineering Controls

During operations producing fumes or particulates ensure ventilation is adequate to maintain air concentrations of contaminants well below exposure standards. Operations in confined spaces require special procedures as defined in Australian Standard AS 2365. Guidance on ventilation systems is provided in Health and Safety in Welding Tech. Note 7 Welding Technology Institute of Australia. Evaluation of contaminant concentrations should be undertaken in accordance with Australian Standard AS 3583.1.

### Respiratory Protection

If ventilation is inadequate, utilise respiratory protection for thermally generated particulates and fume complying with Australian Standard AS 1715 and use in accordance with Australian Standard AS 1715., Selection, Use and Maintenance of Respiratory Protective Devices; and AS/NZS 1716, Respiratory Protective Devices, in order to make any necessary changes for individual circumstances.

### Eye Protection

Use eye protection during operations which may produce metal particles. Welding goggles or full face shield for welding and safety glasses with side shields for cutting should be worn. Final choice of appropriate eye/face protection will vary according to individual circumstances. Eye protection devices should conform with Australian/New Zealand Standard AS/NZS 1337 – Eye Protectors for Industrial Applications.

### Hand Protection Wear

cotton gloves when handling steel products. Final choice of appropriate gloves will vary according to individual circumstances i.e. methods of handling or according to risk assessments undertaken. Reference should be made to AS/NZS 2161.1: Occupational protective gloves – Selection, use and maintenance.

### Personal Protective Equipment

If ventilation is inadequate, utilise respiratory protection for thermally generated particulates and fume complying with Australian Standard AS 1715 and use in accordance with Australian Standard AS 1715. Use eye protection during operations which may produce metal particles. Wear cotton gloves when handling steel products.

OneSteel Australian Tube Mills A.B.N. 21123 666 679. PO Box 246 Sunnybank, Queensland 4109 Australia Telephone +61 7 3909 6600 Facsimile +61 7 3909 6660 E-mail info@austubemills.com Internet www.austubemills.com

# Clear – Material Safety Data Sheet

## 9. Physical and chemical properties

<b>Appearance</b>	Properties of base steel: Appearance (colour, physical form, shape): Painted (Clear coloured) square, rectangular, circular or other tubular section
<b>Odour</b>	None
<b>Melting Point</b>	1300°C (steel)
<b>Boiling Point</b>	3000°C
<b>pH Value</b>	N/A
<b>Vapour Pressure</b>	N/A
<b>Vapour Density (Air=1)</b>	N/A
<b>Density</b>	7850 kg/m <sup>3</sup>
<b>Flash Point</b>	Not applicable
<b>Auto-Ignition Temperature</b>	Not applicable
<b>Flammable Limits Lower</b>	Not applicable (in air)
<b>Flammable Limits Upper</b>	Not applicable (in air)
<b>Other Information</b>	Solubility: N/A

## 10. Stability and reactivity

### Chemical Stability

Solid steel is chemically stable.

### Conditions to Avoid

Reaction with acids will produce hydrogen gas which is flammable.

### Incompatible Materials

Avoid contact with corrosive agents such as acids alkalis and salts.

## 11. Toxicological information

Long term exposure to iron oxide fumes may produce a benign lung condition (siderosis). High concentrations of iron oxide fumes may increase the risk of lung cancer in operators exposed to pulmonary carcinogens. Long term exposure to manganese fumes may result in disorders of the nervous and reproductive systems.

Occupational hygiene monitoring conducted by Australian Tube Mills and analysed by BHP Environmental Health Laboratories using procedures outlined in Australian Standard AS 3853.1 - indicated air concentrations of trace components present in the product to be well below current Worksafe Australia Exposure Standards for Welding Fumes. Individual MSDS's should be consulted for potential air contaminants resulting from welding electrodes.

### Health Hazard

The Steel product in its solid state under normal conditions, does not present an inhalation, ingestion or skin hazard. However, operations resulting in fume or particulate formation such as welding, sawing, brazing, grinding and machining may present health hazards. Molten steel also is hazardous.

### Inhalation

During welding operations fume emissions can cause metal fume fever with typical symptoms of sweating, shivering, headache, fever; chills, muscle aches, nausea, vomiting and lassitude. Recovery becomes apparent usually 24 hours after exposure. Fumes may also irritate the eyes and mucous membranes. Dust produced by some operations may cause unpleasant deposition in the ears, eyes and nose and may irritate the respiratory tract.

### Ingestion

Not expected to be acutely toxic via ingestion based on the physical and chemical properties of the product. Swallowing of excessive amounts of the dust may cause irritation, nausea, and diarrhea.

### Skin

Dusts or particulates may cause mechanical irritation due to abrasion. Coated steel may cause skin irritation in sensitive individuals. Some components in this product are capable of causing an allergic reaction, possibly resulting in burning, itching and skin eruptions. Sharp edges on steel products can cause lacerations to unprotected skin. During operations using or producing heat (welding, grinding etc.) burns may result from contact with hot surfaces.

### Eye

Operations generating metal particles are potentially injurious to eye tissue. Dusts or particulates may cause mechanical irritation including pain and redness. Scratching of the cornea can occur if eye is rubbed. Fumes may be irritating. Contact with the heated material may cause thermal burns.

### Chronic Effects

Repeated exposure to fine dusts may inflame the nasal mucosa and cause changes to the lung. In addition, a red-brown pigmentation of the eye and/or skin may occur.

# Clear – Material Safety Data Sheet

## 12. Ecological information

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Steel contains trace amount of heavy metals and Individual components have been found to be toxic to the environment. Metal Sludges containing these heavy metal pollutants are the primary concern as these are most susceptible to leaching into the environment where they could can enter the foodchain of wildlife and other organisms.

## 13. Disposal considerations

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Recycle steel or dispose of at an approved site.

## 14. Transport information

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Not classified as Dangerous Goods according to the Australian Code for the Transport of Dangerous Goods by Road and Rail. (7th edition)

### Other Information

Ensure loads are secure. Shifting loads in transport can dislodge and cause injury or death.

## 15. Regulatory information

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Not classified as Hazardous according to criteria of National Occupational Health & Safety Commission (NOHSC), Australia.

Not classified as a Scheduled Poison according to the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP)

### Poisons Schedule

Not Scheduled.

## 16. Other information

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### Date of preparation or last revision of MSDS

MSDS Reviewed: February 2011

Supersedes: October 2010

### Other Information

This MSDS has been transcribed into Infosafe NOHSC format from an original issued by the manufacturer on the date shown. Any disclaimer by the manufacturer may not be included in the transcription.

...End Of MSDS...

# DuraGal® – Material Safety Data Sheet

## 1. Identification of the material and supplier

**Product Name** DURAGAL(R)  
**Company Name** AUSTRALIAN TUBE MILLS  
**Address** 146 Ingram Rd Acacia Ridge  
**Emergency Tel.** 07 3909 6600 (Mon - Fri 8:00am to 5:00pm)  
**Tel/Fax Number** Tel: 07 3909 6600  
**Recommended Use** Used in a variety of construction and manufacturing applications.

## 2. Hazards identification

**Hazard** NON-HAZARDOUS SUBSTANCE.  
**Classification** NON-DANGEROUS GOODS.  
Hazard classification according to the criteria of NOHSC. Dangerous goods classification according to the Australia Dangerous Goods Code.

### Route(s) of Entry

Target Organs: Overexposure to specific components of this product that are generated in dusts or fumes may cause adverse effects to the following organs or systems: eyes, skin, liver, kidney, central nervous system, cardiovascular system, respiratory system.

### Medical Conditions Generally Aggravated by Exposure

Diseases of the skin such as eczema may be aggravated by exposure. Also, disorders of the respiratory system including asthma, bronchitis, and emphysema. Long-term inhalation exposure to agents that cause pneumoconiosis (e.g. dust) may act synergistically with inhalation of oxide fumes or dusts of this product.

### Other Information

#### OVERVIEW:

Steel products in their solid state under normal conditions are not hazardous. Cutting, welding, grinding, sanding, machining etc. may cause dusts and/or fume to be released that may be harmful if inhaled.

Dust and fume may irritate the eyes, skin and respiratory tract.

Molten Material May Cause Thermal Burns.

The Siloxane passivation treatment applied to the steel is classified as non-hazardous according to the criteria of NOHSC.

Welding and Dust/Fume Generating Processes:

Welding in confined spaces or with poor ventilation should be avoided.

Carbon and Alloy Steels:

Welding fumes have been associated with adverse health effects. Contains components that may cause cancer or reproductive effects. The following components are listed by NOHSC as carcinogens: Nickel, chromium (hexavalent), cobalt, lead, cadmium, antimony (trioxide), arsenic and beryllium. See Section 11 (Toxicological Information), for additional, specific information on effects noted above.

## 3. Composition/ information on ingredients

### Ingredients

Name	CAS	Proportion
Steel	7439-89-6	95-100%
Zinc	7440-66-6	0-5 %
Manganese	7439-96-5	0.2-1.3%

## 4. First aid measures According to routes of exposure

### Inhalation

In case of overexposure to dusts or fumes, Remove from contaminated air and maintain breathing with artificial respiration if necessary. Seek medical assistance. Seek immediate medical attention urgently if symptoms described in the hazards section of this MSDS develop.

### Ingestion

Not considered an ingestion hazard. However, if excessive amounts of dust or particulates are swallowed, treat symptomatically and supportively. Get medical attention.

### Skin

In case of overexposure to oil, dusts or particulates wash with soap and plenty of water. Get medical attention if irritation develops or persists. If thermal burn occurs, flush area with cold water and get immediate medical attention.

### Eye

In case of overexposure to dusts or fumes, immediately flush eyes with plenty of water for at least 15 minutes occasionally lifting the eye lids. Get medical attention if irritation persists. Thermal burns should be treated as medical emergencies.

### First Aid Facilities

Eyewash and normal washroom facilities.

## Advice to Doctor

See Hazards section for inhalation

## 5. Fire fighting measures

### Suitable Extinguishing Media

For molten metal, use dry powder or sand. Base steel does not pose a fire or explosion hazard.

### Hazards from Combustion Products

During a fire situation irritant fumes may be expected from the zinc.

### Specific Methods

Do not use water on molten metal.

### Specific Hazards

Steel products do not present fire or explosion hazards under normal conditions. Fine metal particles such as produced in grinding or sawing can burn. High concentrations of metallic fines in the air may present an explosion hazard.

### Precautions in connection with Fire

Fire fighters should wear Self-Contained Breathing Apparatus (SCBA) operated in positive pressure mode and full protective clothing to prevent exposure to vapours or fumes.

## 6. Accidental release measures

### Emergency Procedures

Does not apply to product in solid state. Metal particulate and sludges resulting from fabrication processes should be disposed of in accordance with local government regulations.

## 7. Handling and storage

### Precautions for Safe Handling

Use proper precautions and protective measures for welding and cutting activities. Avoid contact with corrosive agents such as acids.

### Conditions for Safe Storage

Store in stable configuration. Avoid contact with corrosive agents such as acids. Transport on accordance with government regulations and ensure loads are secure.

## 8. Exposure controls / personal protection

### National Exposure Standards

No exposure value assigned for this specific material by the National Occupational Health and Safety Commission (NOHSC), Australia.

However, the available exposure limits for ingredients are listed below: National Occupational Health And Safety Commission (NOHSC), Australia Exposure Standards:

Substance	TWA		STEL	
	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
Iron oxide fume (as Fe)	-	5	-	-
Manganese fume (as Mn)	-	1	-	3
Aluminium (welding fume)	-	5	-	-
Silica (fumed)	-	2	-	-
Total particulate welding fume	-	5	-	-

TWA (Time Weighted Average): The average airborne concentration of a particular substance when calculated over a normal eight-hour working day, for a five-day week.

STEL (Short Term Exposure Limit): The average airborne concentration over a 15 minute period which should not be exceeded at any time during a normal eight-hour workday.

### Biological Limit Values

No biological limits allocated.

### Engineering Controls

During operations producing fumes or particulates ensure ventilation is adequate to maintain air concentrations of contaminants well below exposure standards. Operations in confined spaces require special procedures as defined in Australian Standard AS 2365. Guidance on ventilation systems is provided in Health and Safety in Welding Tech. Note 7 Welding Technology Institute of Australia. Evaluation of contaminant concentrations should be undertaken in accordance with Australian Standard AS 3583.1.

### Respiratory Protection

If ventilation is inadequate, utilise respiratory protection for thermally generated particulates and fume complying with Australian Standard AS 1715 and use in accordance with Australian Standard AS 1715., Selection, Use and Maintenance of Respiratory Protective Devices; and AS/NZS 1716, Respiratory Protective Devices, in order to make any necessary changes for individual circumstances.

### Eye Protection

Use eye protection during operations which may produce metal particles. Welding goggles or full face shield for welding and safety glasses with side shields for cutting should be worn. Final choice of appropriate eye/face protection will vary according to individual circumstances. Eye protection devices should conform with Australian/New Zealand Standard AS/NZS 1337 - Eye Protectors for Industrial Applications.

# DuraGal® – Material Safety Data Sheet

## Hand Protection

Wear cotton gloves when handling steel products. Final choice of appropriate gloves will vary according to individual circumstances i.e. methods of handling or according to risk assessments undertaken. Reference should be made to AS/NZS 2161.1: Occupational protective gloves - Selection, use and maintenance.

## Body Protection

Suitable protective work wear, e.g. cotton overalls buttoned at neck and wrist is recommended.

## 9. Physical and chemical properties

<b>Appearance</b>	Properties of base steel: Appearance (colour, physical form, shape): Metallic (silver coloured) square, rectangular, circular or other tubular section
<b>Odour</b>	None
<b>Melting Point</b>	1300°C (steel)
<b>Boiling Point</b>	3000°C
<b>pH Value</b>	N/A
<b>Vapour Pressure</b>	N/A
<b>Vapour Density (Air=1)</b>	N/A
<b>Density</b>	7850 kg/m <sup>3</sup>
<b>Flash Point</b>	Not applicable
<b>Auto-Ignition Temperature</b>	Not applicable
<b>Flammable Limits Lower</b>	Not applicable
<b>Flammable Limits Upper</b>	Not applicable
<b>Other Information</b>	Solubility: N/A

## 10. Stability and reactivity

### Chemical Stability

Solid steel is chemically stable.

### Incompatible Materials

Avoid contact with corrosive agents such as acids alkalis and salts.

### Hazardous Reactions

Reaction with acids will produce hydrogen gas which is flammable.

## Hazardous Polymerization

Will not occur.

## 11. Toxicological information

Long term exposure to iron oxide fumes may produce a benign lung condition (siderosis). High concentrations of iron oxide fumes may increase the risk of lung cancer in operators exposed to pulmonary carcinogens.

Long term exposure to manganese fumes may result in disorders of the nervous and reproductive systems.

Occupational hygiene monitoring conducted by Australian Tube Mills and analysed by BHP Environmental Health Laboratories using procedures outlined in Australian Standard AS 3853.1 - indicated air concentrations of trace components present in the product to be well below current Worksafe Australia Exposure Standards for Welding Fumes.

Individual MSDS's should be consulted for potential air contaminants resulting from welding electrodes.

The Steel product in its solid state under normal conditions, does not present an inhalation, ingestion or skin hazard. However, operations resulting in fume or particulate formation such as welding, sawing, brazing, grinding and machining may present health hazards. Molten steel also is hazardous.

### Inhalation

During welding operations fume emissions can cause metal fume fever with typical symptoms of sweating, shivering, headache, fever; chills, muscle aches, nausea, vomiting and lassitude. Recovery becomes apparent usually 24 hours after exposure. Fumes may also irritate the eyes and mucous membranes. Dust produced by some operations may cause unpleasant deposition in the ears, eyes and nose and may irritate the respiratory tract.

### Ingestion

Not expected to be acutely toxic via ingestion based on the physical and chemical properties of the product. Swallowing of excessive amounts of the dust may cause irritation, nausea, and diarrhea.

### Skin

Dusts or particulates may cause mechanical irritation due to abrasion. Coated steel may cause skin irritation in sensitive individuals. Some components in this product are capable of causing an allergic reaction, possibly resulting in burning, itching and skin eruptions. Sharp edges on steel products can cause lacerations to unprotected skin. During operations using or producing heat (welding, grinding etc.) burns may result from contact with hot surfaces.

OneSteel Australian Tube Mills A.B.N. 21123 666 679. PO Box 246 Sunnybank, Queensland 4109 Australia Telephone +61 7 3909 6600 Facsimile +61 7 3909 6660 E-mail info@austubemills.com Internet www.austubemills.com

onesteel



Product Manual: Pipe & Tube + DuraGal® Profiles

MAY 2011 9-9

PART 1  
General Information

PART 2  
Pipe & Tube Products

PART 3  
Other Tube Products

PART 4  
DuraGal® Profiles

PART 5  
Steel Grades

PART 6  
Mill Coatings

PART 7  
Mill Processing

PART 8  
Fabrication

PART 9  
MSDS

# DuraGal® – Material Safety Data Sheet

## Eye

Operations generating metal particles are potentially injurious to eye tissue. Dusts or particulates may cause mechanical irritation including pain and redness. Scratching of the cornea can occur if eye is rubbed. Fumes may be irritating. Contact with the heated material may cause thermal burns.

## Chronic Effects

Repeated exposure to fine dusts may inflame the nasal mucosa and cause changes to the lung. In addition, a red-brown pigmentation of the eye and/or skin may occur.

## 12. Ecological Information

Steel contains trace amount of heavy metals and Individual components have been found to be toxic to the environment. Metal Sludges containing these heavy metal pollutants are the primary concern as these are most susceptible to leaching into the environment where they could enter the foodchain of wildlife and other organisms.

## 13. Disposal Considerations

Recycle steel or dispose of at an approved site.

## 14. Transport Information

Not classified as Dangerous Goods according to the Australian Code for the Transport of Dangerous Goods by Road and Rail. (7th edition)

## Other Information

Ensure loads are secure. Shifting loads in transport can dislodge and cause injury or death.

## 15. Regulatory Information

Not classified as Hazardous according to criteria of National Occupational Health & Safety Commission (NOHSC), Australia.

Not classified as a Scheduled Poison according to the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

## Poisons Schedule

Not Scheduled

## 16. Other Information

### Date of preparation or last revision of MSDS

MSDS Created: February 2011

### Other Information

This MSDS has been transcribed into Infosafe NOHSC format from an original issued by the manufacturer on the date shown. Any disclaimer by the manufacturer may not be included in the transcription.

...End Of MSDS...

# Hot Dip Gal (HDG) – Material Safety Data Sheet

## 1. Identification of the material supplier

<b>Product Name</b>	HOT DIP GAL (HDG)
<b>Company Name</b>	AUSTRALIAN TUBE MILLS
<b>Address</b>	146 Ingram Rd Acacia Ridge
<b>Emergency Tel.</b>	07 3909 6600 (Mon – Fri 8:00am to 5:00pm)
<b>Tel/Fax Number</b>	Tel: 07 3909 6600
<b>Recommended Use</b>	Used in a variety of construction and manufacturing applications.

## 2. Hazards identification

**Hazard** NON-HAZARDOUS SUBSTANCE.  
**Classification** NON-DANGEROUS GOODS.  
Hazard classification according to the criteria of NOHSC. Dangerous goods classification according to the Australia Dangerous Goods Code.

**Safety Phrase(s)**  
S37 Wear suitable gloves.

**Route(s) of Entry**  
Target Organs: Overexposure to specific components of this product that are generated in dusts or fumes may cause adverse effects to the following organs or systems: eyes, skin, liver, kidney, central nervous system, cardiovascular system, respiratory system.

**Medical Conditions Generally Aggravated by Exposure**  
Diseases of the skin such as eczema may be aggravated by exposure. Also, disorders of the respiratory system including asthma, bronchitis, and emphysema. Long-term inhalation exposure to agents that cause pneumoconiosis (e.g. dust) may act synergistically with inhalation of oxide fumes or dusts of this product.

**Other Information**  
Overview:  
Steel products in their solid state under normal conditions are not hazardous. Cutting, welding, grinding, sanding, machining etc. may cause dusts and/or fume to be released that may be harmful if inhaled. Dust and fume may irritate the eyes, skin and respiratory tract. Molten Material May Cause Thermal Burns. The Siloxane passivation treatment applied to the steel is classified as non-hazardous according to the criteria of NOHSC.  
Welding and Dust/Fume Generating Processes:  
Welding in confined spaces or with poor ventilation should be avoided.  
Carbon and Alloy Steels:  
Welding fumes have been associated with adverse health effects.

Contains components that may cause cancer or reproductive effects. The following components are listed by NOHSC as carcinogens: Nickel, chromium (hexavalent), cobalt, lead, cadmium, antimony (trioxide), arsenic and beryllium. See Section 11 (Toxicological Information), for additional, specific information on effects noted above.

## 3. Composition/ information on ingredients

Ingredients	Name	CAS	Proportion
	Steel	7439-89-6	95-100 %
	Zinc	7440-66-6	0-5 %
	Manganese	7439-96-5	0.2-1.3 %
	Chromate		0-0.1 %

(passivation treatment, < 5 microns)

## 4. First aid measures According to routes of exposure

**Inhalation**  
In case of overexposure to dusts or fumes, Remove from contaminated air and maintain breathing with artificial respiration if necessary. Seek medical assistance. Seek immediate medical attention urgently if symptoms described in the hazards section of this MSDS develop.

**Ingestion**  
Not considered an ingestion hazard. However, if excessive amounts of dust or particulates are swallowed, treat symptomatically and supportively. Get medical attention.

**Skin**  
In case of overexposure to oil, dusts or particulates wash with soap and plenty of water. Get medical attention if irritation develops or persists. If thermal burn occurs, flush area with cold water and get immediate medical attention.

**Eye**  
In case of overexposure to dusts or fumes, immediately flush eyes with plenty of water for at least 15 minutes occasionally lifting the eye lids. Get medical attention if irritation persists. Thermal burns should be treated as medical emergencies.

**First Aid Facilities**  
Eyewash and normal washroom facilities.

**Advice to Doctor**  
See Hazards section for inhalation

OneSteel Australian Tube Mills A.B.N. 21123 666 679. PO Box 246 Sunnybank, Queensland 4109 Australia Telephone +61 7 3909 6600 Facsimile +61 7 3909 6660 E-mail info@austubemills.com Internet www.austubemills.com

onesteel



Product Manual: Pipe & Tube + DuraGal® Profiles

MAY 2011 9-11

PART 1  
General Information

PART 2  
Pipe & Tube Products

PART 3  
Other Tube Products

PART 4  
DuraGal® Profiles

PART 5  
Steel Grades

PART 6  
Mill Coatings

PART 7  
Mill Processing

PART 8  
Fabrication

PART 9  
MSDS

# Hot Dip Gal (HDG) – Material Safety Data Sheet

## 5. Fire fighting measures

### Suitable Extinguishing Media

For molten metal, use dry powder or sand. Base steel does not pose a fire or explosion hazard.

### Hazards from Combustion Products

During a fire situation irritant fumes may be expected from the zinc.

### Specific Methods

Do not use water on molten metal.

### Specific Hazards

Steel products do not present fire or explosion hazards under normal conditions. Fine metal particles such as produced in grinding or sawing can burn. High concentrations of metallic fines in the air may present an explosion hazard.

### Precautions in connection with Fire

Fire fighters should wear Self-Contained Breathing Apparatus (SCBA) operated in positive pressure mode and full protective clothing to prevent exposure to vapours or fumes.

## 6. Accidental release measures

### Emergency Procedures

Does not apply to product in solid state. Metal particulate and sludges resulting from fabrication processes should be disposed of in accordance with local government regulations.

## 7. Handling and storage

### Precautions for Safe Handling

Use proper precautions and protective measures for welding and cutting activities. Avoid contact with corrosive agents such as acids.

### Conditions for Safe Storage

Store in stable configuration. Avoid contact with corrosive agents such as acids. Transport on accordance with government regulations and ensure loads are secure.

## 8. Exposure controls/ personal protection

### National Exposure Standards

No exposure value assigned for this specific material by the National Occupational Health and Safety Commission (NOHSC), Australia. However, the available exposure limits for ingredients are listed below: National Occupational Health And Safety Commission (NOHSC), Australia Exposure Standards:

Substance	TWA		STEL	
	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
Iron oxide fume (as Fe)	-	5	-	-
Manganese fume (as Mn)	-	1	-	3
Aluminium (welding fume)	-	5	-	-
Silica (fumed)	-	2	-	-
Total particulate welding fume	-	5	-	-

TWA (Time Weighted Average): The average airborne concentration of a particular substance when calculated over a normal eight-hour working day, for a five-day week.

STEL (Short Term Exposure Limit): The average airborne concentration over a 15 minute period which should not be exceeded at any time during a normal eight-hour workday.

### Biological Limit Values

No biological limits allocated.

### Engineering Controls

During operations producing fumes or particulates ensure ventilation is adequate to maintain air concentrations of contaminants well below exposure standards. Operations in confined spaces require special procedures as defined in Australian Standard AS 2365. Guidance on ventilation systems is provided in Health and Safety in Welding Tech. Note 7 Welding Technology Institute of Australia. Evaluation of contaminant concentrations should be undertaken in accordance with Australian Standard AS 3583.1.

### Respiratory Protection

If ventilation is inadequate, utilise respiratory protection for thermally generated particulates and fume complying with Australian Standard AS 1715 and use in accordance with Australian Standard AS 1715., Selection, Use and Maintenance of Respiratory Protective Devices; and AS/NZS 1716, Respiratory Protective Devices, in order to make any necessary changes for individual circumstances.

### Eye Protection

Use eye protection during operations that may produce metal particles. Welding goggles or full face shield for welding and safety glasses with side shields for cutting should be worn. Final choice of appropriate eye/face protection will vary according to individual circumstances. Eye protection devices should conform with Australian/New Zealand Standard AS/NZS 1337 - Eye Protectors for Industrial Applications.

### Hand Protection

Wear cotton gloves when handling steel products. Final choice of appropriate gloves will vary according to individual circumstances i.e. methods of handling or according to risk assessments undertaken.

OneSteel Australian Tube Mills A.B.N. 21123 666 679. PO Box 246 Sunnybank, Queensland 4109 Australia Telephone +61 7 3909 6600 Facsimile +61 7 3909 6660 E-mail info@austubemills.com Internet www.austubemills.com

# Hot Dip Gal (HDG) – Material Safety Data Sheet

Reference should be made to AS/NZS 2161.1: Occupational protective gloves  
– Selection, use and maintenance.

## Body Protection

Suitable protective work wear, e.g. cotton overalls buttoned at neck and wrist is recommended.

## 9. Physical and chemical properties

<b>Appearance</b>	Properties of base steel: Appearance (colour, physical form, shape): Metallic (silver coloured) square, rectangular, circular or other tubular section
<b>Odour</b>	None
<b>Melting Point</b>	1300°C (steel)
<b>Boiling Point</b>	3000°C
<b>pH Value</b>	N/A
<b>Vapour Pressure</b>	N/A
<b>Vapour Density</b>	
<b>(Air=1)</b>	N/A
<b>Density</b>	7850 kg/m <sup>3</sup>
<b>Flash Point</b>	
<b>Auto-Ignition</b>	Not applicable
<b>Temperature</b>	Not applicable
<b>Flammable Limits -</b>	
<b>Lower</b>	Not applicable
<b>Flammable Limits -</b>	
<b>Upper</b>	Not applicable
<b>Other Information</b>	Solubility: N/A

## 10. Stability and reactivity

### Chemical Stability

Solid steel is chemically stable.

### Incompatible Materials

Avoid contact with corrosive agents such as acids alkalis and salts.

### Hazardous Reactions

Reaction with acids will produce hydrogen gas which is flammable.

### Hazardous Polymerization

Will not occur.

## 11. Toxicological information

Long term exposure to iron oxide fumes may produce a benign lung condition (siderosis). High concentrations of iron oxide fumes may increase the risk of lung cancer in operators exposed to pulmonary carcinogens.

Long term exposure to manganese fumes may result in disorders of the nervous and reproductive systems.

Occupational hygiene monitoring conducted by Australian Tube Mills and analysed by BHP Environmental Health Laboratories using procedures outlined in Australian Standard AS 3853.1 – indicated air concentrations of trace components present in the product to be well below current Worksafe Australia Exposure Standards for Welding Fumes.

Individual MSDS's should be consulted for potential air contaminants resulting from welding electrodes.

The Steel product in its solid state under normal conditions, does not present an inhalation, ingestion or skin hazard. However, operations resulting in fume or particulate formation such as welding, sawing, brazing, grinding and machining may present health hazards. Molten steel also is hazardous.

### Inhalation

During welding operations fume emissions can cause metal fume fever with typical symptoms of sweating, shivering, headache, fever; chills, muscle aches, nausea, vomiting and lassitude. Recovery becomes apparent usually 24 hours after exposure. Fumes may also irritate the eyes and mucous membranes. Dust produced by some operations may cause unpleasant deposition in the ears, eyes and nose and may irritate the respiratory tract.

### Ingestion

Not expected to be acutely toxic via ingestion based on the physical and chemical properties of the product. Swallowing of excessive amounts of the dust may cause irritation, nausea, and diarrhea.

### Skin

Dusts or particulates may cause mechanical irritation due to abrasion. Coated steel may cause skin irritation in sensitive individuals. Some components in this product are capable of causing an allergic reaction, possibly resulting in burning, itching and skin eruptions. Sharp edges on steel products can cause lacerations to unprotected skin. During operations using or producing heat (welding, grinding etc.) burns may result from contact with hot surfaces.

# Hot Dip Gal (HDG) – Material Safety Data Sheet

## Eye

Operations generating metal particles are potentially injurious to eye tissue. Dusts or particulates may cause mechanical irritation including pain and redness. Scratching of the cornea can occur if eye is rubbed. Fumes may be irritating. Contact with the heated material may cause thermal burns.

## Chronic Effects

Repeated exposure to fine dusts may inflame the nasal mucosa and cause changes to the lung. In addition, a red-brown pigmentation of the eye and/or skin may occur.

## 12. Ecological information

Steel contains trace amount of heavy metals and Individual components have been found to be toxic to the environment. Metal Sludges containing these heavy metal pollutants are the primary concern as these are most susceptible to leaching into the environment where they could enter the foodchain of wildlife and other organisms.

## 13. Disposal considerations

Recycle steel or dispose of at an approved site.

## 14. Transport information

Not classified as Dangerous Goods according to the Australian Code for the Transport of Dangerous Goods by Road and Rail. (7th edition)

## Other Information

Ensure loads are secure. Shifting loads in transport can dislodge and cause injury or death.

## 15. Regulatory information

Not classified as Hazardous according to criteria of National Occupational Health & Safety Commission (NOHSC), Australia.

Not classified as a Scheduled Poison according to the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

## Poisons Schedule

Not Scheduled

## 16. Other information

**Date of preparation or last revision of MSDS**

MSDS Created: February 2011

## Other Information

This MSDS has been transcribed into Infosafe NOHSC format from an original issued by the manufacturer on the date shown. Any disclaimer by the manufacturer may not be included in the transcription.

...End Of MSDS...

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**onesteel**



Product Manual: Pipe & Tube + DuraGal® Profiles

MAY 2011 9-14

# Liteoil® – Material Safety Data Sheet

## 1. Identification of the Material Supplier

**Product Name** LITEOIL(R)  
**Company Name** AUSTRALIAN TUBE MILLS  
**Address** 146 Ingram Rd Acacia Ridge  
**Emergency Tel.** 07 3909 6600 (Mon - Fri 8:00am to 5:00pm)  
**Tel/Fax Number** Tel: 07 3909 6600  
**Recommended Use** Used in a variety of construction and manufacturing applications.

## 2. Hazards identification

**Hazard** NON-HAZARDOUS SUBSTANCE.  
**Classification** NON-DANGEROUS GOODS.  
Hazard classification according to the criteria of NOHSC. Dangerous goods classification according to the Australia Dangerous Goods Code.

### Safety Phrase(s)

S38 - In case of insufficient ventilation, wear suitable respiratory equipment. S36/37/39 - Wear suitable protective clothing gloves and eye / face protection.

### Route(s) of Entry

Target Organs: Overexposure to specific components of this product that are generated in dusts or fumes may cause adverse effects to the following organs or systems: eyes, skin, liver, kidney, central nervous system, cardiovascular system, respiratory system.

### Medical Conditions Generally Aggravated by Exposure

Diseases of the skin such as eczema may be aggravated by exposure. Also, disorders of the respiratory system including asthma, bronchitis, and emphysema. Long-term inhalation exposure to agents that cause pneumoconiosis (e.g. dust) may act synergistically with inhalation of oxide fumes or dusts of this product.

### Other Information

#### OVERVIEW:

Steel products in their solid state under normal conditions are not hazardous. Cutting, welding, grinding, sanding, machining etc. may cause dusts and/or fume to be released that may be harmful if inhaled. Dust and fume may irritate the eyes, skin and respiratory tract. Molten Material May Cause Thermal Burns. Welding and Dust/Fume Generating Processes: Welding in confined spaces or with poor ventilation should be avoided.

### Carbon and Alloy Steels:

Welding fumes have been associated with adverse health effects. Contains components that may cause cancer or reproductive effects. The following components are listed by NOHSC as carcinogens: Nickel, chromium (hexavalent), cobalt, lead, cadmium, antimony (trioxide), arsenic and beryllium. See Section 11 (Toxicological Information), for additional, specific information on effects noted above.

## 3. Composition/ information on ingredients

### Ingredients

Name	CAS	Proportion
Steel	7439-89-6	95-100 %
Zinc	7440-66-6	0-5 %
Manganese	7439-96-5	0.2-1.3 %
Rust preventative oil	Mixture	0-0.1 %
(paraffins, naphthenes & aromatics)		

## 4. First Aid Measures According to routes of exposure

### Inhalation

In case of overexposure to dusts or fumes, Remove from contaminated air and maintain breathing with artificial respiration if necessary. Seek medical assistance. Seek immediate medical attention urgently if symptoms described in the hazards section of this MSDS develop.

### Ingestion

Not considered an ingestion hazard. However, if excessive amounts of dust or particulates are swallowed, treat symptomatically and supportively. Get medical attention.

### Skin

In case of overexposure to oil, dusts or particulates wash with soap and plenty of water. Get medical attention if irritation develops or persists. If thermal burn occurs, flush area with cold water and get immediate medical attention.

### Eye

In case of overexposure to dusts or fumes, immediately flush eyes with plenty of water for at least 15 minutes occasionally lifting the eye lids. Get medical attention if irritation persists. Thermal burns should be treated as medical emergencies.

## Advice to Doctor

See Hazards section for inhalation

## 5. Firefighting measures

### Suitable Extinguishing Media

For molten metal, use dry powder or sand. Base steel does not pose a fire or explosion hazard.

### Hazards from Combustion Products

During a fire situation irritant fumes may be expected from the zinc.

### Specific Methods

Do not use water on molten metal.

### Specific Hazards

Steel products do not present fire or explosion hazards under normal conditions. Fine metal particles such as produced in grinding or sawing can burn. High concentrations of metallic fines in the air may present an explosion hazard.

### Precautions in connection with Fire

Fire fighters should wear Self-Contained Breathing Apparatus (SCBA) operated in positive pressure mode and full protective clothing to prevent exposure to vapours or fumes.

## 6. Accidental release measures

### Emergency Procedures

Does not apply to product in solid state. Metal particulate and sludges resulting from fabrication processes should be disposed of in accordance with local government regulations.

## 7. Handling and storage

Store in stable configuration. Avoid contact with corrosive agents such as acids. Transport on accordance with government regulations and ensure loads are secure.

## 8. Exposure controls / personal protection

### National Exposure Standards

No exposure value assigned for this specific material by the National Occupational Health and Safety Commission (NOHSC), Australia. However, the available exposure limits for ingredients are listed below: National Occupational Health And Safety Commission (NOHSC), Australia Exposure Standards:

Substance	TWA		STEL	
	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
Iron oxide fume (as Fe)	-	5	-	-
Manganese fume (as Mn)	-	1	-	3
Aluminium (welding fume)	-	5	-	-
Silica (fumed)	-	2	-	-
Total particulate welding fume	-	5	-	-

TWA (Time Weighted Average): The average airborne concentration of a particular substance when calculated over a normal eight-hour working day, for a five-day week.

STEL (Short Term Exposure Limit): The average airborne concentration over a 15 minute period which should not be exceeded at any time during a normal eight-hour workday.

### Biological Limit Values

No biological limits allocated.

### Engineering Controls

During operations producing fumes or particulates ensure ventilation is adequate to maintain air concentrations of contaminants well below exposure standards. Operations in confined spaces require special procedures as defined in Australian Standard AS 2365. Guidance on ventilation systems is provided in Health and Safety in Welding Tech. Note 7 Welding Technology Institute of Australia. Evaluation of contaminant concentrations should be undertaken in accordance with Australian Standard AS 3583.1.

### Respiratory Protection

If ventilation is inadequate, utilise respiratory protection for thermally generated particulates and fume complying with Australian Standard AS 1715 and use in accordance with Australian Standard AS 1715., Selection, Use and Maintenance of Respiratory Protective Devices; and AS/NZS 1716, Respiratory Protective Devices, in order to make any necessary changes for individual circumstances.

### Eye Protection

Use eye protection during operations which may produce metal particles. Welding goggles or full face shield for welding and safety glasses with side shields for cutting should be worn. Final choice of appropriate eye/face protection will vary according to individual circumstances. Eye protection devices should conform with Australian/New Zealand Standard AS/NZS 1337 – Eye Protectors for Industrial Applications.

# Liteoil® – Material Safety Data Sheet

## Hand Protection

Wear cotton gloves when handling steel products. Final choice of appropriate gloves will vary according to individual circumstances i.e. methods of handling or according to risk assessments undertaken. Reference should be made to AS/NZS 2161.1: Occupational protective gloves – Selection, use and maintenance.

## 9. Physical and chemical properties

<b>Appearance</b>	Properties of base steel: Appearance (colour, physical form, shape): Oiled square, rectangular, circular or other tubular section
<b>Odour</b>	None
<b>Melting Point</b>	1300°C (steel)
<b>Boiling Point</b>	3000°C
<b>pH Value</b>	N/A
<b>Vapour Pressure</b>	N/A
<b>Vapour Density (Air=1)</b>	N/A
<b>Density</b>	7850 kg/m <sup>3</sup>
<b>Flash Point</b>	Not applicable
<b>Auto-Ignition Temperature</b>	Not applicable
<b>Flammable Limits - Lower</b>	Not applicable
<b>Flammable Limits - Upper</b>	Not applicable
<b>Other Information</b>	Solubility: N/A

## 10. Stability and reactivity

### Chemical Stability

Solid steel is chemically stable.

### Incompatible Materials

Avoid contact with corrosive agents such as acids alkalis and salts.

### Hazardous Reactions

Reaction with acids will produce hydrogen gas which is flammable.

## 11. Toxicological information

Long term exposure to iron oxide fumes may produce a benign lung condition (siderosis). High concentrations of iron oxide fumes may increase the risk of lung cancer in operators exposed to pulmonary carcinogens. Long term exposure to manganese fumes may result in disorders of the nervous and reproductive systems.

Occupational hygiene monitoring conducted by Australian Tube Mills and analysed by BHP Environmental Health Laboratories using procedures outlined in Australian Standard AS 3853.1 – indicated air concentrations of trace components present in the product to be well below current Worksafe Australia Exposure Standards for Welding Fumes.

Individual MSDS's should be consulted for potential air contaminants resulting from welding electrodes.

The Steel product in its solid state under normal conditions, does not present an inhalation, ingestion or skin hazard. However, operations resulting in fume or particulate formation such as welding, sawing, brazing, grinding and machining may present health hazards. Molten steel also is hazardous.

### Inhalation

During welding operations fume emissions can cause metal fume fever with typical symptoms of sweating, shivering, headache, fever; chills, muscle aches, nausea, vomiting and lassitude. Recovery becomes apparent usually 24 hours after exposure. Fumes may also irritate the eyes and mucous membranes. Dust produced by some operations may cause unpleasant deposition in the ears, eyes and nose and may irritate the respiratory tract.

### Ingestion

Not expected to be acutely toxic via ingestion based on the physical and chemical properties of the product. Swallowing of excessive amounts of the dust may cause irritation, nausea, and diarrhea.

### Skin

Dusts or particulates may cause mechanical irritation due to abrasion. Coated steel may cause skin irritation in sensitive individuals. Some components in this product are capable of causing an allergic reaction, possibly resulting in burning, itching and skin eruptions. Sharp edges on steel products can cause lacerations to unprotected skin. During operations using or producing heat (welding, grinding etc.) burns may result from contact with hot surfaces.

# Liteoil® – Material Safety Data Sheet

## Eye

Operations generating metal particles are potentially injurious to eye tissue. Dusts or particulates may cause mechanical irritation including pain and redness. Scratching of the cornea can occur if eye is rubbed. Fumes may be irritating. Contact with the heated material may cause thermal burns.

## Chronic Effects

Repeated exposure to fine dusts may inflame the nasal mucosa and cause changes to the lung. In addition, a red-brown pigmentation of the eye and/or skin may occur.

## 12. Ecological information

Steel contains trace amount of heavy metals and Individual components have been found to be toxic to the environment. Metal Sludges containing these heavy metal pollutants are the primary concern as these are most susceptible to leaching into the environment where they could enter the foodchain of wildlife and other organisms.

## 13. Disposal considerations

Recycle steel or dispose of at an approved site.

## 14. Transport information

Not classified as Dangerous Goods according to the Australian Code for the Transport of Dangerous Goods by Road and Rail. (7th edition)

## Other Information

Ensure loads are secure. Shifting loads in transport can dislodge and cause injury or death.

## 15. Regulatory information

Not classified as Hazardous according to criteria of National Occupational Health & Safety Commission (NOHSC), Australia. Not classified as a Scheduled Poison according to the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

## Poisons Schedule

Not Scheduled

## 16. Other information

### Date of preparation or last revision of MSDS

MSDS Reviewed: February 2011

Supersedes: October 2010

### Other Information

This MSDS has been transcribed into Infosafe NOHSC format from an original issued by the manufacturer on the date shown. Any disclaimer by the manufacturer may not be included in the transcription.

...End Of MSDS...

# No Oil or Paint Coating (NOPC) – Material Safety Data Sheet

## 1. Identification of the Material Supplier

<b>Product Name</b>	NO OIL OR PAINT COATING (NOPC)
<b>Company Name</b>	AUSTRALIAN TUBE MILLS
<b>Address</b>	146 Ingram Rd Acacia Ridge
<b>Emergency Tel.</b>	07 3909 6600 (Mon - Fri 8:00am to 5:00pm)
<b>Tel/Fax Number</b>	Tel: 07 3909 6600
<b>Recommended Use</b>	Used in a variety of construction and manufacturing applications.

## 2. Hazards identification

<b>Hazard</b>	NON-HAZARDOUS SUBSTANCE.
<b>Classification</b>	NON-DANGEROUS GOODS.

Hazard classification according to the criteria of NOHSC. Dangerous goods classification according to the Australia Dangerous Goods Code.

### Safety Phrase(s)

S38 - In case of insufficient ventilation, wear suitable respiratory equipment.  
S36/37/39 - Wear suitable protective clothing gloves and eye / face protection.

### Route(s) of Entry

Target Organs: Overexposure to specific components of this product that are generated in dusts or fumes may cause adverse effects to the following organs or systems: eyes, skin, liver, kidney, central nervous system, cardiovascular system, respiratory system.

### Medical Conditions Generally Aggravated by Exposure

Diseases of the skin such as eczema may be aggravated by exposure. Also, disorders of the respiratory system including asthma, bronchitis, and emphysema. Long-term inhalation exposure to agents that cause pneumoconiosis (e.g. dust) may act synergistically with inhalation of oxide fumes or dusts of this product.

### Other Information

#### Overview:

Steel products in their solid state under normal conditions are not hazardous. Cutting, welding, grinding, sanding, machining etc. may cause dusts and/or fume to be released that may be harmful if inhaled. Dust and fume may irritate the eyes, skin and respiratory tract. Molten Material May Cause Thermal Burns. Welding and Dust/Fume Generating Processes: Welding in confined spaces or with poor ventilation should be avoided.

Carbon and Alloy Steels: Welding fumes have been associated with adverse health effects. Contains components that may cause cancer or reproductive effects. The following components are listed by NOHSC as carcinogens: Nickel, chromium (hexavalent), cobalt, lead, cadmium, antimony (trioxide), arsenic and beryllium. See Section 11 (Toxicological Information), for additional, specific information on effects noted above.

## 3. Composition/ Information on ingredients

### Ingredients

Name	CAS	Proportion
Steel	7439-89-6	95-100 %
Manganese	7439-96-5	0.2-1.3 %

## 4. First Aid Measures According to routes of exposure

### Inhalation

In case of overexposure to dusts or fumes, Remove from contaminated air and maintain breathing with artificial respiration if necessary. Seek medical assistance. Seek immediate medical attention urgently if symptoms described in the hazards section of this MSDS develop.

### Ingestion

Not considered an ingestion hazard. However, if excessive amounts of dust or particulates are swallowed, treat symptomatically and supportively. Get medical attention.

### Skin

In case of overexposure to dusts or particulates wash with soap and plenty of water. Get medical attention if irritation develops or persists. If thermal burn occurs, flush area with cold water and get immediate medical attention.

### Eye

In case of overexposure to dusts or fumes, immediately flush eyes with plenty of water for at least 15 minutes occasionally lifting the eye lids. Get medical attention if irritation persists. Thermal burns should be treated as medical emergencies.

### First Aid Facilities

Eyewash and normal washroom facilities.

### Advice to Doctor

See Hazards section for inhalation.

# No Oil or Paint Coating (NOPC) – Material Safety Data Sheet

## 5. Firefighting measures

### Suitable Extinguishing Media

For molten metal, use dry powder or sand. Base steel does not pose a fire or explosion hazard.

### Hazards from Combustion Products

During a fire situation irritant fumes may be expected from the zinc.

### Specific Methods

Do not use water on molten metal.

### Specific Hazards

Steel products do not present fire or explosion hazards under normal conditions. Fine metal particles such as produced in grinding or sawing can burn. High concentrations of metallic fines in the air may present an explosion hazard.

## 6. Accidental release measures

### Emergency Procedures

Does not apply to product in solid state. Metal particulate and sludges resulting from fabrication processes should be disposed of in accordance with local government regulations.

## 7. Handling and storage

### Precautions for Safe Handling

Use proper precautions and protective measures for welding and cutting activities. Avoid contact with corrosive agents such as acids.

### Conditions for Safe Storage

Store in stable configuration. Avoid contact with corrosive agents such as acids. Transport on accordance with government regulations and ensure loads are secure.

## 8. Exposure controls / personal protection

### National Exposure Standards

No exposure value assigned for this specific material by the National Occupational Health and Safety Commission (NOHSC), Australia. However, the available exposure limits for ingredients are listed below: National Occupational Health And Safety Commission (NOHSC), Australia Exposure Standards:

Substance	TWA		STEL	
	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
Iron oxide fume (as Fe)	-	5	-	-
Manganese fume (as Mn)	-	1	-	3
Aluminium (welding fume)	-	5	-	-
Silica (fumed)	-	2	-	-
Total particulate welding fume	-	5	-	-

TWA (Time Weighted Average): The average airborne concentration of a particular substance when calculated over a normal eight-hour working day, for a five-day week.

STEL (Short Term Exposure Limit): The average airborne concentration over a 15 minute period which should not be exceeded at any time during a normal eight-hour workday.

### Biological Limit Values

No biological limits allocated.

### Engineering Controls

During operations producing fumes or particulates ensure ventilation is adequate to maintain air concentrations of contaminants well below exposure standards. Operations in confined spaces require special procedures as defined in Australian Standard AS 2365. Guidance on ventilation systems is provided in Health and Safety in Welding Tech. Note 7 Welding Technology Institute of Australia. Evaluation of contaminant concentrations should be undertaken in accordance with Australian Standard AS 3583.1.

### Respiratory Protection

If engineering controls are not effective in controlling airborne exposure then an approved respirator with a replaceable dust/particulate filter should be used. Reference should be made to Australian/New Zealand Standards AS/NZS 1715, Selection, Use and Maintenance of Respiratory Protective Devices; and AS/NZS 1716, Respiratory Protective Devices, in order to make any necessary changes for individual circumstances.

### Eye Protection

Use eye protection during operations which may produce metal particles. Welding goggles or full face shield for welding and safety glasses with side shields for cutting should be worn. Final choice of appropriate eye/face protection will vary according to individual circumstances. Eye protection devices should conform with Australian/New Zealand Standard AS/NZS 1337 - Eye Protectors for Industrial Applications.

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# No Oil or Paint Coating (NOPC) – Material Safety Data Sheet

## Hand Protection

Wear cotton gloves when handling steel products. Final choice of appropriate gloves will vary according to individual circumstances i.e. methods of handling or according to risk assessments undertaken. Reference should be made to AS/NZS 2161.1: Occupational protective gloves – Selection, use and maintenance.

## Body Protection

Suitable protective work wear, e.g. cotton overalls buttoned at neck and wrist is recommended.

## 9. Physical and chemical properties

<b>Appearance</b>	Properties of base steel: Appearance (colour, physical form, shape): Square, rectangular, circular or other tubular section
<b>Odour</b>	None
<b>Melting Point</b>	1300°C (steel)
<b>Boiling Point</b>	3000°C
<b>pH Value</b>	N/A
<b>Vapour Pressure</b>	N/A
<b>Vapour Density (Air=1)</b>	N/A
<b>Density</b>	7850 kg/m <sup>3</sup>
<b>Flash Point</b>	Not applicable
<b>Auto-Ignition Temperature</b>	Not applicable
<b>Flammable Limits - Lower</b>	Not applicable
<b>Flammable Limits - Upper</b>	Not applicable
<b>Other Information</b>	Solubility: N/A

## 10. Stability and reactivity

### Chemical Stability

Solid steel is chemically stable.

### Incompatible Materials

Avoid contact with corrosive agents such as acids alkalis and salts.

### Hazardous Reactions

Reaction with acids will produce hydrogen gas which is flammable.

## 11. Toxicological information

Long term exposure to iron oxide fumes may produce a benign lung condition (siderosis). High concentrations of iron oxide fumes may increase the risk of lung cancer in operators exposed to pulmonary carcinogens. Long term exposure to manganese fumes may result in disorders of the nervous and reproductive systems.

Occupational hygiene monitoring conducted by Australian Tube Mills and analysed by BHP Environmental Health Laboratories using procedures outlined in Australian Standard AS 3853.1 – indicated air concentrations of trace components present in the product to be well below current Worksafe Australia Exposure Standards for Welding Fumes.

Individual MSDS's should be consulted for potential air contaminants resulting from welding electrodes.

The Steel product in its solid state under normal conditions, does not present an inhalation, ingestion or skin hazard. However, operations resulting in fume or particulate formation such as welding, sawing, brazing, grinding and machining may present health hazards. Molten steel also is hazardous.

### Health Hazard Inhalation

During welding operations fume emissions can cause metal fume fever with typical symptoms of sweating, shivering, headache, fever; chills, muscle aches, nausea, vomiting and lassitude. Recovery becomes apparent usually 24 hours after exposure. Fumes may also irritate the eyes and mucous membranes. Dust produced by some operations may cause unpleasant deposition in the ears, eyes and nose and may irritate the respiratory tract.

### Ingestion

Not expected to be acutely toxic via ingestion based on the physical and chemical properties of the product. Swallowing of excessive amounts of the dust may cause irritation, nausea, and diarrhea.

### Skin

Dusts or particulates may cause mechanical irritation due to abrasion. Coated steel may cause skin irritation in sensitive individuals. Some components in this product are capable of causing an allergic reaction, possibly resulting in burning, itching and skin eruptions. Sharp edges on steel products can cause lacerations to unprotected skin. During operations using or producing heat (welding, grinding etc.) burns may result from contact with hot surfaces.

# No Oil or Paint Coating (NOPC) – Material Safety Data Sheet

## Eye

Operations generating metal particles are potentially injurious to eye tissue. Dusts or particulates may cause mechanical irritation including pain and redness. Scratching of the cornea can occur if eye is rubbed. Fumes may be irritating. Contact with the heated material may cause thermal burns.

## Chronic Effects

Repeated exposure to fine dusts may inflame the nasal mucosa and cause changes to the lung. In addition, a red-brown pigmentation of the eye and/or skin may occur.

## 12. Ecological information

### Ecotoxicity

Steel contains trace amount of heavy metals and Individual components have been found to be toxic to the environment. Metal Sludges containing these heavy metal pollutants are the primary concern as these are most susceptible to leaching into the environment where they could enter the food chain of wildlife and other organisms.

## 13. Disposal considerations

Recycle steel or dispose of at an approved site.

## 14. Transport information

Not classified as Dangerous Goods according to the Australian Code for the Transport of Dangerous Goods by Road and Rail. (7th edition)

### Other Information

Ensure loads are secure. Shifting loads in transport can dislodge and cause injury or death.

## 15. Regulatory information

Not classified as Hazardous according to criteria of National Occupational Health & Safety Commission (NOHSC), Australia. Not classified as a Scheduled Poison according to the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

### Poisons Schedule

Not Scheduled

## 16. Other information

### Date of preparation or last revision of MSDS

MSDS Reviewed: February 2011

Supersedes: October 2010

### Other Information

This MSDS has been transcribed into Infosafe NOHSC format from an original issued by the manufacturer on the date shown. Any disclaimer by the manufacturer may not be included in the transcription.

...End Of MSDS...

# Oiled – Material Safety Data Sheet

## 1. Identification of the Material Supplier

**Product Name** OILED  
**Company Name** AUSTRALIAN TUBE MILLS  
**Address** 146 Ingram Rd Acacia Ridge  
**Emergency Tel.** 07 3909 6600 (Mon – Fri 8:00am to 5:00pm)  
**Tel/Fax Number** Tel: 07 3909 6600  
**Recommended Use** Used in a variety of construction and manufacturing applications.

## 2. Hazards identification

**Hazard Classification** NON-HAZARDOUS SUBSTANCE.  
NON-DANGEROUS GOODS.

Hazard classification according to the criteria of NOHSC. Dangerous goods classification according to the Australia Dangerous Goods Code.

### Safety Phrase(s)

S38 – In case of insufficient ventilation, wear suitable respiratory equipment.  
S36/37/39 – Wear suitable protective clothing gloves and eye / face protection.

### Route(s) of Entry

Target Organs:

Overexposure to specific components of this product that are generated in dusts or fumes may cause adverse effects to the following organs or systems: eyes, skin, liver, kidney, central nervous system, cardiovascular system, respiratory system.

### Medical Conditions Generally Aggravated by Exposure

Diseases of the skin such as eczema may be aggravated by exposure. Also, disorders of the respiratory system including asthma, bronchitis, and emphysema. Long-term inhalation exposure to agents that cause pneumoconiosis (e.g. dust) may act synergistically with inhalation of oxide fumes or dusts of this product.

### Other Information

OVERVIEW:

Steel products in their solid state under normal conditions are not hazardous. Cutting, welding, grinding, sanding, machining etc. may cause dusts and/or fume to be released that may be harmful if inhaled. Dust and fume may irritate the eyes, skin and respiratory tract. Molten Material May Cause Thermal Burns.

Welding and Dust/Fume Generating Processes:

Welding in confined spaces or with poor ventilation should be avoided.

Carbon and Alloy Steels:

Welding fumes have been associated with adverse health effects. Contains components that may cause cancer or reproductive effects. The following components are listed by NOHSC as carcinogens: Nickel, chromium (hexavalent), cobalt, lead, cadmium, antimony (trioxide), arsenic and beryllium. See Section 11 (Toxicological Information), for additional, specific information on effects noted above.

## 3. Composition/ information on ingredients

### Ingredients

Name	CAS	Proportion
Steel	7439-89-6	95-100 %
Manganese	7439-96-5	0.2-1.3 %
Rust preventative oil (aliphatic hydrocarbons)		0-1 %

## 4. First aid measures According to routes of exposure

### Inhalation

In case of overexposure to dusts or fumes, Remove from contaminated air and maintain breathing with artificial respiration if necessary. Seek medical assistance. Seek immediate medical attention urgently if symptoms described in the hazards section of this MSDS develop.

### Ingestion

Not considered an ingestion hazard. However, if excessive amounts of dust or particulates are swallowed, treat symptomatically and supportively. Get medical attention.

### Skin

In case of overexposure to oil, dusts or particulates wash with soap and plenty of water. Get medical attention if irritation develops or persists. If thermal burn occurs, flush area with cold water and get immediate medical attention.

### Eye

In case of overexposure to dusts or fumes, immediately flush eyes with plenty of water for at least 15 minutes occasionally lifting the eye lids. Get medical attention if irritation persists. Thermal burns should be treated as medical emergencies.

### Advice to Doctor

See Hazards section for inhalation

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Product Manual: Pipe & Tube + DuraGal® Profiles

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## 5. Fire fighting measures

### Suitable Extinguishing Media

For molten metal, use dry powder or sand. Base steel does not pose a fire or explosion hazard.

### Hazards from Combustion Products

During a fire situation irritant fumes may be expected from the zinc.

### Specific Methods

Do not use water on molten metal.

### Specific Hazards

Steel products do not present fire or explosion hazards under normal conditions. Fine metal particles such as produced in grinding or sawing can burn. High concentrations of metallic fines in the air may present an explosion hazard.

### Precautions in connection with Fire

Fire fighters should wear Self-Contained Breathing Apparatus (SCBA) operated in positive pressure mode and full protective clothing to prevent exposure to vapours or fumes.

## 6. Accidental release measures

### Emergency Procedures

Does not apply to product in solid state. Metal particulate and sludges resulting from fabrication processes should be disposed of in accordance with local government regulations.

## 7. Handling and storage

Store in stable configuration. Avoid contact with corrosive agents such as acids. Transport on accordance with government regulations and ensure loads are secure.

## 8. Exposure controls / personal protection

### National Exposure Standards

No exposure value assigned for this specific material by the National Occupational Health and Safety Commission (NOHSC), Australia. However, the available exposure limits for ingredients are listed below: National Occupational Health And Safety Commission (NOHSC), Australia Exposure Standards:

Substance	TWA		STEL	
	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
Iron oxide fume (as Fe)	-	5	-	-
Manganese fume (as Mn)	-	1	-	3
Aluminium (welding fume)	-	5	-	-
Silica (fumed)	-	2	-	-
Total particulate welding fume	-	5	-	-

TWA (Time Weighted Average): The average airborne concentration of a particular substance when calculated over a normal eight-hour working day, for a five-day week.

STEL (Short Term Exposure Limit): The average airborne concentration over a 15 minute period which should not be exceeded at any time during a normal eight-hour workday.

### Biological Limit Values

No biological limits allocated.

### Engineering Controls

During operations producing fumes or particulates ensure ventilation is adequate to maintain air concentrations of contaminants well below exposure standards. Operations in confined spaces require special procedures as defined in Australian Standard AS 2365. Guidance on ventilation systems is provided in Health and Safety in Welding Tech. Note 7 Welding Technology Institute of Australia. Evaluation of contaminant concentrations should be undertaken in accordance with Australian Standard AS 3583.1.

### Respiratory Protection

If ventilation is inadequate, utilise respiratory protection for thermally generated particulates and fume complying with Australian Standard AS 1715 and use in accordance with Australian Standard AS 1715., Selection, Use and Maintenance of Respiratory Protective Devices; and AS/NZS 1716, Respiratory Protective Devices, in order to make any necessary changes for individual circumstances.

### Eye Protection

Use eye protection during operations which may produce metal particles. Welding goggles or full face shield for welding and safety glasses with side shields for cutting should be worn. Final choice of appropriate eye/face protection will vary according to individual circumstances. Eye protection devices should conform with Australian/New Zealand Standard AS/NZS 1337 - Eye Protectors for Industrial Applications.

### Hand Protection

Wear cotton gloves when handling steel products. Final choice of appropriate gloves will vary according to individual circumstances i.e.

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methods of handling or according to risk assessments undertaken. Reference should be made to AS/NZS 2161.1: Occupational protective gloves - Selection, use and maintenance.

## 9. Physical and Chemical properties

<b>Appearance</b>	Properties of base steel: Appearance (colour, physical form, shape): Oiled square, rectangular, circular or other tubular section
<b>Odour</b>	None
<b>Melting Point</b>	1300°C (steel)
<b>Boiling Point</b>	3000°C
<b>pH Value</b>	N/A
<b>Vapour Pressure</b>	N/A
<b>Vapour Density (Air=1)</b>	N/A
<b>Density</b>	7850 kg/m <sup>3</sup>
<b>Flash Point</b>	Not applicable
<b>Auto-Ignition Temperature</b>	Not applicable
<b>Flammable Limits - Lower</b>	Not applicable
<b>Flammable Limits - Upper</b>	Not applicable
<b>Other Information</b>	Solubility: N/A

## 10. Stability and reactivity

### Chemical Stability

Solid steel is chemically stable.

### Incompatible Materials

Avoid contact with corrosive agents such as acids alkalis and salts.

### Hazardous Reactions

Reaction with acids will produce hydrogen gas which is flammable.

## 11. Toxicological information

Long term exposure to iron oxide fumes may produce a benign lung condition (siderosis). High concentrations of iron oxide fumes may increase the risk of lung cancer in operators exposed to pulmonary carcinogens. Long term exposure to manganese fumes may result in disorders of the nervous and reproductive systems. Occupational hygiene monitoring conducted by Australian Tube Mills

and analysed by BHP Environmental Health Laboratories using procedures outlined in Australian Standard AS 3853.1 - indicated air concentrations of trace components present in the product to be well below current Worksafe Australia Exposure Standards for Welding Fumes. Individual MSDS's should be consulted for potential air contaminants resulting from welding electrodes. The Steel product in its solid state under normal conditions, does not present an inhalation, ingestion or skin hazard. However, operations resulting in fume or particulate formation such as welding, sawing, brazing, grinding and machining may present health hazards. Molten steel also is hazardous.

### Health Hazard Inhalation

During welding operations fume emissions can cause metal fume fever with typical symptoms of sweating, shivering, headache, fever; chills, muscle aches, nausea, vomiting and lassitude. Recovery becomes apparent usually 24 hours after exposure. Fumes may also irritate the eyes and mucous membranes. Dust produced by some operations may cause unpleasant deposition in the ears, eyes and nose and may irritate the respiratory tract.

### Ingestion

Not expected to be acutely toxic via ingestion based on the physical and chemical properties of the product. Swallowing of excessive amounts of the dust may cause irritation, nausea, and diarrhea.

### Skin

Dusts or particulates may cause mechanical irritation due to abrasion. Coated steel may cause skin irritation in sensitive individuals. Some components in this product are capable of causing an allergic reaction, possibly resulting in burning, itching and skin eruptions. Sharp edges on steel products can cause lacerations to unprotected skin. During operations using or producing heat (welding, grinding etc.) burns may result from contact with hot surfaces.

### Eye

Operations generating metal particles are potentially injurious to eye tissue. Dusts or particulates may cause mechanical irritation including pain and redness. Scratching of the cornea can occur if eye is rubbed. Fumes may be irritating. Contact with the heated material may cause thermal burns.

### Chronic Effects

Repeated exposure to fine dusts may inflame the nasal mucosa and cause changes to the lung. In addition, a red-brown pigmentation of the eye and/or skin may occur.

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Product Manual: Pipe & Tube + DuraGal® Profiles

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## 12. Ecological information

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Steel contains trace amount of heavy metals and Individual components have been found to be toxic to the environment. Metal Sludges containing these heavy metal pollutants are the primary concern as these are most susceptible to leaching into the environment where they could can enter the foodchain of wildlife and other organisms.

## 13. Disposal considerations

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Recycle steel or dispose of at an approved site.

## 14. Transport information

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Not classified as Dangerous Goods according to the Australian Code for the Transport of Dangerous Goods by Road and Rail. (7th edition)

### Other Information

Ensure loads are secure. Shifting loads in transport can dislodge and cause injury or death.

## 15. Regulatory information

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Not classified as Hazardous according to criteria of National Occupational Health & Safety Commission (NOHSC), Australia.

Not classified as a Scheduled Poison according to the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

### Poisons Schedule

Not Scheduled

## 16. Other information

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### Date of preparation or last revision of MSDS

MSDS Created: February 2011

### Other Information

This MSDS has been transcribed into Infosafe NOHSC format from an original issued by the manufacturer on the date shown. Any disclaimer by the manufacturer may not be included in the transcription.

...End Of MSDS...

# Primer painted – Material Safety Data Sheet

## 1. Identification of the material supplier

<b>Product Name</b>	PRIMER PAINTED
<b>Company Name</b>	AUSTRALIAN TUBE MILLS
<b>Address</b>	146 Ingram Rd Acacia Ridge
<b>Emergency Tel.</b>	07 3909 6600 (Mon - Fri 8:00am to 5:00pm)
<b>Tel/Fax Number</b>	Tel: 07 3909 6600
<b>Recommended Use</b>	Used in a variety of construction and manufacturing applications.

## 2. Hazards identification

**Hazard** NON-HAZARDOUS SUBSTANCE.

**Classification** NON-DANGEROUS GOODS.

Hazard classification according to the criteria of NOHSC. Dangerous goods classification according to the Australia Dangerous Goods Code.

### Route(s) of Entry

Target Organs: Overexposure to specific components of this product that are generated in dusts or fumes may cause adverse effects to the following organs or systems: eyes, skin, liver, kidney, central nervous system, cardiovascular system, respiratory system.

### Medical Conditions Generally Aggravated by Exposure

Diseases of the skin such as eczema may be aggravated by exposure. Also, disorders of the respiratory system including asthma, bronchitis, and emphysema. Long-term inhalation exposure to agents that cause pneumoconiosis (e.g. dust) may act synergistically with inhalation of oxide fumes or dusts of this product.

### Other Information

#### OVERVIEW:

Steel products in their solid state under normal conditions are not hazardous. Cutting, welding, grinding, sanding, machining etc. may cause dusts and/or fume to be released that may be harmful if inhaled. Dust and fume may irritate the eyes, skin and respiratory tract. Molten Material May Cause Thermal Burns. Welding and Dust/Fume Generating Processes. Welding in confined spaces or with poor ventilation should be avoided.

#### Carbon and Alloy Steels:

Welding fumes have been associated with adverse health effects. Contains components that may cause cancer or reproductive effects. The following components are listed by NOHSC as carcinogens: Nickel, chromium (hexavalent), cobalt, lead, cadmium, antimony (trioxide), arsenic and beryllium. See Section 11, for additional, specific information on effects noted above.

## 3. Composition/information on ingredients

### Ingredients

Name	CAS	Proportion
Steel	7439-89-6	95-100 %
Manganese	7439-96-5	0.2-1.3 %
Alkyd (Paint Coating)		0-1 %

## 4. First aid measures

### Inhalation

In case of overexposure to dusts or fumes, Remove from contaminated air and maintain breathing with artificial respiration if necessary. Seek medical assistance. Seek immediate medical attention urgently if symptoms described in the risk phrases section of this MSDS develop.

### Ingestion

Not considered an ingestion hazard. However, if excessive amounts of dust or particulates are swallowed, treat symptomatically and supportively. Get medical attention.

### Skin

In case of overexposure to dusts or particulates wash with soap and plenty of water. Get medical attention if irritation develops or persists. If thermal burn occurs, flush area with cold water and get immediate medical attention.

### Eye

In case of overexposure to dusts or fumes, immediately flush eyes with plenty of water for at least 15 minutes occasionally lifting the eye lids. Get medical attention if irritation persists. Thermal burns should be treated as medical emergencies.

### First Aid Facilities

Eyewash and normal washroom facilities.

### Advice to Doctor

See Hazards section for inhalation.

## 5. Fire fighting measures

### Suitable Extinguishing Media

For molten metal, use dry powder or sand. Base steel does not pose a fire or explosion hazard. Do not use water on molten metal.

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Product Manual: Pipe & Tube + DuraGal® Profiles

MAY 2011 9-27

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## Hazards from Combustion Products

During a fire situation irritant fumes may be expected from the zinc.

### Specific Hazards

Steel products do not present fire or explosion hazards under normal conditions. Fine metal particles such as produced in grinding or sawing can burn. High concentrations of metallic fines in the air may present an explosion hazard.

### Precautions in connection with Fire

Fire fighters should wear Self-Contained Breathing Apparatus (SCBA) operated in positive pressure mode and full protective clothing to prevent exposure to vapours or fumes.

## 6. Accidental release measures

### Emergency Procedures

Does not apply to product in solid state. Metal particulate and sludges resulting from fabrication processes should be disposed of in accordance with local government regulations.

## 7. Handling and storage

### Precautions for Safe Handling

Use proper precautions and protective measures for welding and cutting activities. Avoid contact with corrosive agents such as acids.

### Conditions for Safe Storage

Store in stable configuration. Avoid contact with corrosive agents such as acids. Transport on accordance with government regulations and ensure loads are secure.

## 8. Exposure controls / personal protection

### National Exposure Standards

No exposure value assigned for this specific material by the National Occupational Health and Safety Commission (NOHSC), Australia. However, the available exposure limits for ingredients are listed below: National Occupational Health And Safety Commission (NOHSC), Australia Exposure Standards:

Substance	TWA		STEL	
	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
Iron oxide fume (as Fe)	-	5	-	-
Manganese fume (as Mn)	-	1	-	3
Aluminium (welding fume)	-	5	-	-
Silica (fumed)	-	2	-	-
Total particulate welding fume	-	5	-	-

TWA (Time Weighted Average): The average airborne concentration of a particular substance when calculated over a normal eight-hour working day, for a five-day week.

STEL (Short Term Exposure Limit): The average airborne concentration over a 15 minute period which should not be exceeded at any time during a normal eight-hour workday.

### Biological Limit Values

No biological limits allocated.

### Engineering Controls

During operations producing fumes or particulates ensure ventilation is adequate to maintain air concentrations of contaminants well below exposure standards. Operations in confined spaces require special procedures as defined in Australian Standard AS 2365. Guidance on ventilation systems is provided in Health and Safety in Welding Tech. Note 7 Welding Technology Institute of Australia. Evaluation of contaminant concentrations should be undertaken in accordance with Australian Standard AS 3583.1.

### Respiratory Protection

If ventilation is inadequate, utilise respiratory protection for thermally generated particulates and fume complying with Australian Standard AS 1715 and use in accordance with Australian Standard AS 1715, Selection, Use and Maintenance of Respiratory Protective Devices; and AS/NZS 1716, Respiratory Protective Devices, in order to make any necessary changes for individual circumstances.

### Eye Protection

Use eye protection during operations which may produce metal particles. Welding goggles or full face shield for welding and safety glasses with side shields for cutting should be worn. Final choice of appropriate eye/face protection will vary according to individual circumstances. Eye protection devices should conform with Australian/New Zealand Standard AS/NZS 1337 - Eye Protectors for Industrial Applications.

### Hand Protection

Wear cotton gloves when handling steel products. Final choice of appropriate gloves will vary according to individual circumstances i.e. methods of handling or according to risk assessments undertaken. Reference should be made to AS/NZS 2161.1: Occupational protective gloves - Selection, use and maintenance.

### Body Protection

Suitable protective work wear, e.g. cotton overalls buttoned at neck and wrist is recommended.

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## 9. Physical and chemical properties

<b>Appearance</b>	Properties of base steel: Appearance (colour, physical form, shape): Painted (Blue, Red, Clear coloured) square, rectangular, circular or other tubular section.
<b>Odour</b>	None
<b>Melting Point</b>	1300°C (steel)
<b>Boiling Point</b>	3000°C
<b>pH Value</b>	Not applicable
<b>Vapour Pressure</b>	Not applicable
<b>Vapour Density (Air=1)</b>	Not applicable
<b>Density</b>	7850 kg/m <sup>3</sup>
<b>Flash Point</b>	Not applicable
<b>Flammability</b>	Non-combustible material
<b>Auto-Ignition</b>	
<b>Temperature</b>	Not applicable
<b>Flammable Limits - Lower</b>	Not applicable (in air)
<b>Flammable Limits - Upper</b>	Not applicable
<b>Other Information</b>	Solubility: Not applicable

## 10. Stability and reactivity

### Chemical Stability

Solid steel is chemically stable.

### Conditions to Avoid

Not applicable

### Incompatible Materials

Avoid contact with corrosive agents such as acids alkalis and salts.

### Hazardous Reactions

Reaction with acids will produce hydrogen gas which is flammable.

### Hazardous Polymerization

Will not occur.

## 11. Toxicological information

Long term exposure to iron oxide fumes may produce a benign lung condition (siderosis). High concentrations of iron oxide fumes may increase the risk of lung cancer in operators exposed to pulmonary carcinogens.

Long term exposure to manganese fumes may result in disorders of the nervous and reproductive systems. Occupational hygiene monitoring conducted by Australian Tube Mills and analysed by BHP Environmental Health Laboratories using procedures outlined in Australian Standard AS 3853.1 - indicated air concentrations of trace components present in the product to be well below current Worksafe Australia Exposure Standards for Welding Fumes. Individual MSDS's should be consulted for potential air contaminants resulting from welding electrodes. The Steel product in its solid state under normal conditions, does not present an inhalation, ingestion or skin hazard. However, operations resulting in fume or particulate formation such as welding, sawing, brazing, grinding and machining may present health hazards. Molten steel also is hazardous.

### Inhalation

During welding operations fume emissions can cause metal fume fever with typical symptoms of sweating, shivering, headache, fever; chills, muscle aches, nausea, vomiting and lassitude. Recovery becomes apparent usually 24 hours after exposure. Fumes may also irritate the eyes and mucous membranes. Dust produced by some operations may cause unpleasant deposition in the ears, eyes and nose and may irritate the respiratory tract.

### Ingestion

Not expected to be acutely toxic via ingestion based on the physical and chemical properties of the product. Swallowing of excessive amounts of the dust may cause irritation, nausea, and diarrhea.

### Skin

Dusts or particulates may cause mechanical irritation due to abrasion. Coated steel may cause skin irritation in sensitive individuals. Some components in this product are capable of causing an allergic reaction, possibly resulting in burning, itching and skin eruptions. Sharp edges on steel products can cause lacerations to unprotected skin. During operations using or producing heat (welding, grinding etc.) burns may result from contact with hot surfaces.

### Eye

Operations generating metal particles are potentially injurious to eye tissue. Dusts or particulates may cause mechanical irritation including pain and redness. Scratching of the cornea can occur if eye is rubbed. Fumes may be irritating. Contact with the heated material may cause thermal burns.

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Product Manual: Pipe & Tube + DuraGal® Profiles

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## Chronic Effects

Repeated exposure to fine dusts may inflame the nasal mucosa and cause changes to the lung. In addition, a red-brown pigmentation of the eye and/or skin may occur.

## 12. Ecological information

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### Ecotoxicity

Steel contains trace amount of heavy metals and Individual components have been found to be toxic to the environment. Metal Sludges containing these heavy metal pollutants are the primary concern as these are most susceptible to leaching into the environment where they could enter the foodchain of wildlife and other organisms.

## 13. Disposal considerations

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Recycle steel or dispose of at an approved site.

## 14. Transport information

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Not classified as Dangerous Goods according to the Australian Code for the Transport of Dangerous Goods by Road and Rail. (7th edition)

### Other Information

Ensure loads are secure. Shifting loads in transport can dislodge and cause injury or death.

## 15. Regulatory information

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Not classified as Hazardous according to criteria of National Occupational Health & Safety Commission (NOHSC), Australia. Not classified as a Scheduled Poison according to the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

### Poisons Schedule

Not Scheduled

## 16. Other information

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### Date of preparation or last revision of MSDS

MSDS Reviewed: February 2011

Supersedes: October 2010

## Other Information

This MSDS has been transcribed into Infosafe NOHSC format from an original issued by the manufacturer on the date shown. Any disclaimer by the manufacturer may not be included in the transcription.

...End Of MSDS...

# SupaGal® – Material Safety Data Sheet

## 1. Identification of the Material Supplier

<b>Product Name</b>	SUPAGAL(R)
<b>Company Name</b>	AUSTRALIAN TUBE MILLS
<b>Address</b>	146 Ingram Rd Acacia Ridge
<b>Emergency Tel.</b>	07 3909 6600 (Mon - Fri 8:00am to 5:00pm)
<b>Tel/Fax Number</b>	Tel: 07 3909 6600
<b>Recommended Use</b>	Used in a variety of construction and manufacturing applications.

## 2. Hazards identification

**Hazard** NON-HAZARDOUS SUBSTANCE.  
**Classification** NON-DANGEROUS GOODS.  
Hazard classification according to the criteria of NOHSC. Dangerous goods classification according to the Australia Dangerous Goods Code.

### Route(s) of Entry

Target Organs: Overexposure to specific components of this product that are generated in dusts or fumes may cause adverse effects to the following organs or systems: eyes, skin, liver, kidney, central nervous system, cardiovascular system, respiratory system.

### Medical Conditions Generally Aggravated by Exposure

Diseases of the skin such as eczema may be aggravated by exposure. Also, disorders of the respiratory system including asthma, bronchitis, and emphysema. Long-term inhalation exposure to agents that cause pneumoconiosis (e.g. dust) may act synergistically with inhalation of oxide fumes or dusts of this product.

### Other Information

#### OVERVIEW:

Steel products in their solid state under normal conditions are not hazardous. Cutting, welding, grinding, sanding, machining etc. may cause dusts and/or fume to be released that may be harmful if inhaled. Dust and fume may irritate the eyes, skin and respiratory tract. Molten Material May Cause Thermal Burns. The Siloxane passivation treatment applied to the steel is classified as non-hazardous according to the criteria of NOHSC.

#### Welding and Dust/Fume Generating Processes:

Welding in confined spaces or with poor ventilation should be avoided

#### Carbon and Alloy Steels:

Welding fumes have been associated with adverse health effects. Contains components that may cause cancer or reproductive effects.

The following components are listed by NOHSC as carcinogens: Nickel, chromium (hexavalent), cobalt, lead, cadmium, antimony (trioxide), arsenic and beryllium. See Section 11 (Toxicological Information), for additional, specific information on effects noted above.

## 3. Composition/ Information on ingredients

### Ingredients

Name	CAS	Proportion
Steel	7439-89-6	95-100 %
Zinc	7440-66-6	0-5 %
Manganese	7439-96-5	0.2-1.3 %
Chromate		
(passivation treatment, < 5 microns)		0-0.1 %

## 4. First aid measures

### Inhalation

In case of overexposure to dusts or fumes, Remove from contaminated air and maintain breathing with artificial respiration if necessary. Seek medical assistance. Seek immediate medical attention urgently if symptom described in the hazards section of this MSDS develop.

### Ingestion

Not considered an ingestion hazard. However, if excessive amounts of dust or particulates are swallowed, treat symptomatically and supportively. Get medical attention.

### Skin

In case of overexposure to oil, dusts or particulates wash with soap and plenty of water. Get medical attention if irritation develops or persists. If thermal burn occurs, flush area with cold water and get immediate medical attention.

### Eye

In case of overexposure to dusts or fumes, immediately flush eyes with plenty of water for at least 15 minutes occasionally lifting the eye lids. Get medical attention if irritation persists. Thermal burns should be treated as medical emergencies.

### First Aid Facilities

Eyewash and normal washroom facilities.

## Advice to Doctor

See Hazards section for inhalation

## 5. Fire fighting measures

### Suitable Extinguishing Media

For molten metal, use dry powder or sand. Base steel does not pose a fire or explosion hazard.

### Hazards from Combustion Products

During a fire situation irritant fumes may be expected from the zinc.

### Specific Methods

Do not use water on molten metal.

### Specific Hazards

Steel products do not present fire or explosion hazards under normal conditions. Fine metal particles such as produced in grinding or sawing can burn. High concentrations of metallic fines in the air may present an explosion hazard.

### Precautions in connection with Fire

Fire fighters should wear Self-Contained Breathing Apparatus (SCBA) operated in positive pressure mode and full protective clothing to prevent exposure to vapours or fumes.

## 6. Accidental release measures

### Emergency Procedures

Does not apply to product in solid state. Metal particulate and sludges resulting from fabrication processes should be disposed of in accordance with local government regulations.

## 7. Handling and storage

### Precautions for Safe Handling

Use proper precautions and protective measures for welding and cutting activities. Avoid contact with corrosive agents such as acids.

### Conditions for Safe Storage

Store in stable configuration. Avoid contact with corrosive agents such as acids. Transport on accordance with government regulations and ensure loads are secure.

## 8. Exposure controls/ personal protection

### National Exposure Standards

No exposure value assigned for this specific material by the National Occupational Health and Safety Commission (NOHSC), Australia. However, the available exposure limits for ingredients are listed below: National Occupational Health And Safety Commission (NOHSC), Australia Exposure Standards:

Substance	TWA		STEL	
	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
Iron oxide fume (as Fe)	-	5	-	-
Manganese fume (as Mn)	-	1	-	3
Aluminium (welding fume)	-	5	-	-
Silica (fumed)	-	2	-	-
Total particulate welding fume	-	5	-	-

TWA (Time Weighted Average): The average airborne concentration of a particular substance when calculated over a normal eight-hour working day, for a five-day week.

STEL (Short Term Exposure Limit): The average airborne concentration over a 15 minute period which should not be exceeded at any time during a normal eight-hour workday.

### Biological Limit Values

No biological limits allocated.

### Engineering Controls

During operations producing fumes or particulates ensure ventilation is adequate to maintain air concentrations of contaminants well below exposure standards. Operations in confined spaces require special procedures as defined in Australian Standard AS 2365. Guidance on ventilation systems is provided in Health and Safety in Welding Tech. Note 7 Welding Technology Institute of Australia. Evaluation of contaminant concentrations should be undertaken in accordance with Australian Standard AS 3583.1.

### Respiratory Protection

If ventilation is inadequate, utilise respiratory protection for thermally generated particulates and fume complying with Australian Standard AS 1715 and use in accordance with Australian Standard AS 1715., Selection, Use and Maintenance of Respiratory Protective Devices; and AS/NZS 1716, Respiratory Protective Devices, in order to make any necessary changes for individual circumstances.

# SupaGal® – Material Safety Data Sheet

## Eye Protection

Use eye protection during operations which may produce metal particles. Welding goggles or full face shield for welding and safety glasses with side shields for cutting should be worn. Final choice of appropriate eye/face protection will vary according to individual circumstances. Eye protection devices should conform with Australian/New Zealand Standard AS/NZS 1337 – Eye Protectors for Industrial Applications.

## Hand Protection

Wear cotton gloves when handling steel products. Final choice of appropriate gloves will vary according to individual circumstances i.e. methods of handling or according to risk assessments undertaken. Reference should be made to AS/NZS 2161.1: Occupational protective gloves – Selection, use and maintenance.

## Body Protection

Suitable protective work wear, e.g. cotton overalls buttoned at neck and wrist is recommended.

## 9. Physical and chemical properties

<b>Appearance</b>	Properties of base steel: Appearance (colour, physical form, shape): Metallic (silver coloured) square, rectangular, circular or other tubular section
<b>Odour</b>	None
<b>Melting Point</b>	1300°C (steel)
<b>Boiling Point</b>	3000°C
<b>pH Value</b>	N/A
<b>Vapour Pressure</b>	N/A
<b>Vapour Density (Air=1)</b>	N/A
<b>Density</b>	7850 kg/m <sup>3</sup>
<b>Flash Point</b>	Not applicable
<b>Auto-Ignition</b>	
<b>Temperature</b>	Not applicable
<b>Flammable Limits – Lower</b>	Not applicable
<b>Flammable Limits – Upper</b>	Not applicable
<b>Other Information</b>	Solubility: N/A

## 10. Stability and reactivity

### Chemical Stability

Solid steel is chemically stable.

### Incompatible Materials

Avoid contact with corrosive agents such as acids alkalis and salts.

### Hazardous Reactions

Reaction with acids will produce hydrogen gas which is flammable.

### Hazardous Polymerization

Will not occur.

## 11. Toxicological information

Long term exposure to iron oxide fumes may produce a benign lung condition (siderosis). High concentrations of iron oxide fumes may increase the risk of lung cancer in operators exposed to pulmonary carcinogens. Long term exposure to manganese fumes may result in disorders of the nervous and reproductive systems.

Occupational hygiene monitoring conducted by Australian Tube Mills and analysed by BHP Environmental Health Laboratories using procedures outlined in Australian Standard AS 3853.1 – indicated air concentrations of trace components present in the product to be well below current Worksafe Australia Exposure Standards for Welding Fumes. Individual MSDS's should be consulted for potential air contaminants resulting from welding electrodes.

The Steel product in its solid state under normal conditions, does not present an inhalation, ingestion or skin hazard. However, operations resulting in fume or particulate formation such as welding, sawing, brazing, grinding and machining may present health hazards. Molten steel also is hazardous.

### Inhalation

During welding operations fume emissions can cause metal fume fever with typical symptoms of sweating, shivering, headache, fever; chills, muscle aches, nausea, vomiting and lassitude. Recovery becomes apparent usually 24 hours after exposure. Fumes may also irritate the eyes and mucous membranes. Dust produced by some operations may cause unpleasant deposition in the ears, eyes and nose and may irritate the respiratory tract.

# SupaGal® – Material Safety Data Sheet

## Ingestion

Not expected to be acutely toxic via ingestion based on the physical and chemical properties of the product. Swallowing of excessive amounts of the dust may cause irritation, nausea, and diarrhea.

## Skin

Dusts or particulates may cause mechanical irritation due to abrasion. Coated steel may cause skin irritation in sensitive individuals. Some components in this product are capable of causing an allergic reaction, possibly resulting in burning, itching and skin eruptions. Sharp edges on steel products can cause lacerations to unprotected skin. During operations using or producing heat (welding, grinding etc.) burns may result from contact with hot surfaces.

## Eye

Operations generating metal particles are potentially injurious to eye tissue. Dusts or particulates may cause mechanical irritation including pain and redness. Scratching of the cornea can occur if eye is rubbed. Fumes may be irritating. Contact with the heated material may cause thermal burns.

## Chronic Effects

Repeated exposure to fine dusts may inflame the nasal mucosa and cause changes to the lung. In addition, a red-brown pigmentation of the eye and/or skin may occur.

## 12. Ecological information

Steel contains trace amount of heavy metals and Individual components have been found to be toxic to the environment. Metal Sludges containing these heavy metal pollutants are the primary concern as these are most susceptible to leaching into the environment where they could enter the foodchain of wildlife and other organisms.

## 13. Disposal considerations

Recycle steel or dispose of at an approved site.

## 14. Transport information

Not classified as Dangerous Goods according to the Australian Code for the Transport of Dangerous Goods by Road and Rail. (7th edition)

## Other Information

Ensure loads are secure. Shifting loads in transport can dislodge and cause injury or death.

## 15. Regulatory information

Not classified as Hazardous according to criteria of National Occupational Health & Safety Commission (NOHSC), Australia. Not classified as a Scheduled Poison according to the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

## Poisons Schedule

Not Scheduled

## 16. Other information

### Date of preparation or last revision of MSDS

MSDS Created: March 2011

### Other Information

This MSDS has been transcribed into Infosafe NOHSC format from an original issued by the manufacturer on the date shown. Any disclaimer by the manufacturer may not be included in the transcription.

...End Of MSDS...

# Temporary Rust Preventative (TRP) – Material Safety Data Sheet

## 1. Identification of the Material Supplier

<b>Product Name</b>	TEMPORARY RUST PREVENTATIVE (TRP)
<b>Company Name</b>	AUSTRALIAN TUBE MILLS
<b>Address</b>	146 Ingram Rd Acacia Ridge
<b>Emergency Tel.</b>	07 3909 6600 (Mon - Fri 8:00am to 5:00pm)
<b>Tel/Fax Number</b>	Tel: 07 3909 6600
<b>Recommended Use</b>	Used in a variety of construction and manufacturing applications.

## 2. Hazards identification

<b>Hazard</b>	NON-HAZARDOUS SUBSTANCE.
<b>Classification</b>	NON-DANGEROUS GOODS.

Hazard classification according to the criteria of NOHSC. Dangerous goods classification according to the Australia Dangerous Goods Code.

### Safety Phrase(s)

S38 - In case of insufficient ventilation, wear suitable respiratory equipment.  
S36/37/39 - Wear suitable protective clothing gloves and eye / face protection.

### Route(s) of Entry

Target Organs:

Overexposure to specific components of this product that are generated in dusts or fumes may cause adverse effects to the following organs or systems: eyes, skin, liver, kidney, central nervous system, cardiovascular system, respiratory system.

### Medical Conditions Generally Aggravated by Exposure

Diseases of the skin such as eczema may be aggravated by exposure. Also, disorders of the respiratory system including asthma, bronchitis, and emphysema. Long-term inhalation exposure to agents that cause pneumoconiosis (e.g. dust) may act synergistically with inhalation of oxide fumes or dusts of this product.

### Other Information

#### OVERVIEW:

Steel products in their solid state under normal conditions are not hazardous. Cutting, welding, grinding, sanding, machining etc. may cause dusts and/or fume to be released that may be harmful if inhaled. Dust and fume may irritate the eyes, skin and respiratory tract.

Molten Material May Cause Thermal Burns.

Welding and Dust/Fume Generating Processes: Welding in confined spaces or with poor ventilation should be avoided.

Carbon and Alloy Steels: Welding fumes have been associated with adverse health effects. Contains components that may cause cancer or reproductive effects. The following components are listed by NOHSC as carcinogens: Nickel, chromium (hexavalent), cobalt, lead, cadmium, antimony (trioxide), arsenic and beryllium. See Section 11 (Toxicological Information), for additional, specific information on effects noted above.

## 3. Composition/ Information on ingredients

### Ingredients

Name	CAS	Proportion
Steel	7439-89-6	95-100 %
Manganese	7439-96-5	0.2-1.3 %
Rust preventative oil (aliphatic hydrocarbons)		0-1 %

## 4. First aid measures According to routes of exposure

### Inhalation

In case of overexposure to dusts or fumes, Remove from contaminated air and maintain breathing with artificial respiration if necessary. Seek medical assistance. Seek immediate medical attention urgently if symptoms described in the hazards section of this MSDS develop.

### Ingestion

Not considered an ingestion hazard. However, if excessive amounts of dust or particulates are swallowed, treat symptomatically and supportively. Get medical attention.

### Skin

In case of overexposure to dusts or particulates wash with soap and plenty of water. Get medical attention if irritation develops or persists. If thermal burn occurs, flush area with cold water and get immediate medical attention.

### Eye

In case of overexposure to dusts or fumes, immediately flush eyes with plenty of water for at least 15 minutes occasionally lifting the eye lids. Get medical attention if irritation persists. Thermal burns should be treated as medical emergencies.

### Advice to Doctor

See Hazards section for inhalation

# Temporary Rust Preventative (TRP) – Material Safety Data Sheet

## 5. Fire fighting measures

### Suitable Extinguishing Media

For molten metal, use dry powder or sand.

Base steel does not pose a fire or explosion hazard.

### Hazards from Combustion Products

During a fire situation irritant fumes may be expected from the zinc.

### Specific Methods

Do not use water on molten metal.

### Specific Hazards

Steel products do not present fire or explosion hazards under normal conditions. Fine metal particles such as produced in grinding or sawing can burn. High concentrations of metallic fines in the air may present an explosion hazard.

### Precautions in connection with Fire

Fire fighters should wear Self-Contained Breathing Apparatus (SCBA) operated in positive pressure mode and full protective clothing to prevent exposure to vapours or fumes.

## 6. Accidental release measures

### Emergency Procedures

Does not apply to product in solid state. Metal particulate and sludges resulting from fabrication processes should be disposed of in accordance with local government regulations.

## 7. Handling and storage

Store in stable configuration. Avoid contact with corrosive agents such as acids. Transport on accordance with government regulations and ensure loads are secure.

## 8. Exposure controls / personal protection

### National Exposure Standards

No exposure value assigned for this specific material by the National Occupational Health and Safety Commission (NOHSC), Australia. However, the available exposure limits for ingredients are listed below:

National Occupational Health And Safety Commission (NOHSC), Australia Exposure Standards:

Substance	TWA		STEL	
	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
Iron oxide fume (as Fe)	-	5	-	-
Manganese fume (as Mn)	-	1	-	3
Aluminium (welding fume)	-	5	-	-
Silica (fumed)	-	2	-	-
Total particulate welding fume	-	5	-	-

TWA (Time Weighted Average): The average airborne concentration of a particular substance when calculated over a normal eight-hour working day, for a five-day week.

STEL (Short Term Exposure Limit): The average airborne concentration over a 15 minute period which should not be exceeded at any time during a normal eight-hour workday.

### Biological Limit Values

No biological limits allocated.

### Engineering Controls

During operations producing fumes or particulates ensure ventilation is adequate to maintain air concentrations of contaminants well below exposure standards. Operations in confined spaces require special procedures as defined in Australian Standard AS 2365. Guidance on ventilation systems is provided in Health and Safety in Welding Tech. Note 7 Welding Technology Institute of Australia. Evaluation of contaminant concentrations should be undertaken in accordance with Australian Standard AS 3583.1.

### Respiratory Protection

If ventilation is inadequate, utilise respiratory protection for thermally generated particulates and fume complying with Australian Standard AS 1715 and use in accordance with Australian Standard AS 1715., Selection, Use and Maintenance of Respiratory Protective Devices; and AS/NZS 1716, Respiratory Protective Devices, in order to make any necessary changes for individual circumstances.

### Eye Protection

Use eye protection during operations which may produce metal particles. Welding goggles or full face shield for welding and safety glasses with side shields for cutting should be worn. Final choice of appropriate eye/face protection will vary according to individual circumstances. Eye protection devices should conform with Australian/New Zealand Standard AS/NZS 1337 – Eye Protectors for Industrial Applications.

# Temporary Rust Preventative (TRP) – Material Safety Data Sheet

## Hand Protection

Wear cotton gloves when handling steel products. Final choice of appropriate gloves will vary according to individual circumstances i.e. methods of handling or according to risk assessments undertaken. Reference should be made to AS/NZS 2161.1: Occupational protective gloves - Selection, use and maintenance.

## 9. Physical and chemical properties

<b>Appearance</b>	Properties of base steel: Appearance (colour, physical form, shape): Oiled square, rectangular, circular or other tubular section
<b>Odour</b>	None
<b>Melting Point</b>	1300°C (steel)
<b>Boiling Point</b>	3000°C
<b>pH Value</b>	N/A
<b>Vapour Pressure</b>	N/A
<b>Vapour Density (Air=1)</b>	N/A
<b>Density</b>	7850 kg/m <sup>3</sup>
<b>Flash Point</b>	Not applicable
<b>Auto-Ignition Temperature</b>	Not applicable
<b>Flammable Limits - Lower</b>	Not applicable
<b>Flammable Limits - Upper</b>	Not applicable
<b>Other Information</b>	Solubility: N/A

## 10. Stability and reactivity

### Chemical Stability

Solid steel is chemically stable.

### Incompatible Materials

Avoid contact with corrosive agents such as acids alkalis and salts.

### Hazardous Reactions

Reaction with acids will produce hydrogen gas which is flammable.

## 11. Toxicological information

Long term exposure to iron oxide fumes may produce a benign lung condition (siderosis). High concentrations of iron oxide fumes may increase the risk of lung cancer in operators exposed to pulmonary carcinogens.

Long term exposure to manganese fumes may result in disorders of the nervous and reproductive systems.

Occupational hygiene monitoring conducted by Australian Tube Mills and analysed by BHP Environmental Health Laboratories using procedures outlined in Australian Standard AS 3853.1 - indicated air concentrations of trace components present in the product to be well below current Worksafe Australia Exposure Standards for Welding Fumes.

Individual MSDS's should be consulted for potential air contaminants resulting from welding electrodes.

The Steel product in its solid state under normal conditions, does not present an inhalation, ingestion or skin hazard. However, operations resulting in fume or particulate formation such as welding, sawing, brazing, grinding and machining may present health hazards. Molten steel also is hazardous.

### Health Hazard Inhalation

During welding operations fume emissions can cause metal fume fever with typical symptoms of sweating, shivering, headache, fever; chills, muscle aches, nausea, vomiting and lassitude. Recovery becomes apparent usually 24 hours after exposure. Fumes may also irritate the eyes and mucous membranes. Dust produced by some operations may cause unpleasant deposition in the ears, eyes and nose and may irritate the respiratory tract.

### Ingestion

Not expected to be acutely toxic via ingestion based on the physical and chemical properties of the product. Swallowing of excessive amounts of the dust may cause irritation, nausea, and diarrhea.

### Skin

Dusts or particulates may cause mechanical irritation due to abrasion. Coated steel may cause skin irritation in sensitive individuals. Some components in this product are capable of causing an allergic reaction, possibly resulting in burning, itching and skin eruptions. Sharp edges on steel products can cause lacerations to unprotected skin. During operations using or producing heat (welding, grinding etc.) burns may result from contact with hot surfaces.

# Temporary Rust Preventative (TRP) – Material Safety Data Sheet

## Eye

Operations generating metal particles are potentially injurious to eye tissue. Dusts or particulates may cause mechanical irritation including pain and redness. Scratching of the cornea can occur if eye is rubbed. Fumes may be irritating. Contact with the heated material may cause thermal burns.

## Chronic Effects

Repeated exposure to fine dusts may inflame the nasal mucosa and cause changes to the lung. In addition, a red-brown pigmentation of the eye and/or skin may occur.

## 12. Ecological information

Steel contains trace amount of heavy metals and Individual components have been found to be toxic to the environment. Metal Sludges containing these heavy metal pollutants are the primary concern as these are most susceptible to leaching into the environment where they could enter the foodchain of wildlife and other organisms.

## 13. Disposal considerations

Recycle steel or dispose of at an approved site.

## 14. Transport information

Not classified as Dangerous Goods according to the Australian Code for the Transport of Dangerous Goods by Road and Rail. (7th edition)

## Other Information

Ensure loads are secure. Shifting loads in transport can dislodge and cause injury or death.

## 15. Regulatory information

Not classified as Hazardous according to criteria of National Occupational Health & Safety Commission (NOHSC), Australia.

Not classified as a Scheduled Poison according to the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

## Poisons Schedule

Not Scheduled

## 16. Other information

### Date of preparation or last revision of MSDS

MSDS Created: February 2011

### Other Information

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