

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 ³	ppm	mg/m ³
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.

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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

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

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Product Manual: Pipe & Tube + DuraGal® Profiles

MAY 2011 9-9

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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.

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