

AUSTRALIAN & OVERSEAS ALLOYS PTY LTD
MATERIALS SAFETY DATA SHEET
 For PLASMA CUTTING OF AOA "LONG LIFE" CLAD PLATE
 Complies with OSHA Communications Standard 29 CFR 1910,1200

SECTION 1. – IDENTIFICATION

MANUFACTURERS NAME: Australian & Overseas Alloys Pty Ltd
 15 Doyle Avenue
 Unanderra NSW 2526
 Mail to: PO Box 1486, Unanderra NSW 2526
 Telephone: 02 4272 4999 Fax: 02 4271 7244
 Email: admin@aoa.com.au
 Internet: <http://www.aoa.com.au>

PRODUCT NAME: AOA MK1
 AOA MK2
 AOA MK3

PRODUCT CLASSIFICATION: Hard-faced wear plate

HAZARDOUS MATERIAL DESCRIPTION: Not regulated

SECTION 2. – HAZARDOUS INGREDIENTS

IMPORTANT NOTE! The term "Hazardous" in "Hazardous Materials" is Terminology required and defined in OSHA Hazard Communication Standard 29CFR 1910,1200 and it does not necessarily imply the existence of any hazard.

The nominal chemical compositions of the AOA clad plate grades are:

CLAD PLATE GRADE	PERCENTAGE CONCENTRATION				
	C	Cr	Mn	Si	Nb
AOA MK1	3.5 – 5.3	25 – 40	0.8 – 2.0	0.4 – 1.2	-
AOA MK2	4 – 6	30 – 45	0.8 – 2.0	0.4 – 1.2	-
AOA MK3	4 – 6	25 – 40	0.8 – 2.0	0.4 – 1.2	3 – 8

Note! The upper surface of all AOA clad plate is coated with graphite paint.

INGREDIENT	CAS NUMBER	EXPOSURE LIMIT	REFERENCE
		mg/m3	SOURCE
Iron	7439-89-8	5.0	1
Carbon	7440-44-0	3.5	2
Manganese	7439-98-5	1.0	2
Chromium	7440-47-3	0.5	2
Niobium	7440-03-1	5.0	2
Silicon	7440-21-3	10.0	2

SOURCES:

- Occupational Safety and Health Administration, 29 CFR 1910, 1000, Permissible Exposure Limit (PEL)
- American Conference of Government Industrial Hygienists (ACGIH), Threshold Limit Value (TLV)

SECTION 3. – PHYSICAL AND CHEMICAL DATA

AOA wear plate products as shipped are non-hazardous, non-flammable, non-explosive and non-reactive.

SECTION 4. – FIRE AND EXPLOSION HAZARD DATA

Non-flammable: Cutting, grinding and welding can ignite combustibles. Refer to WTIA Technical Note 7 or American Standard Z49.1 for fire prevention practice.

SECTION 5. – REACTIVITY DATA

AOA “Long-Life” clad plate can be readily profile cut or sized using plasma arc cutting, EDM cutting, and abrasive water-jet cutting, while laser cutting can be applied on the thinner plate grades.

The main purpose of this Data Sheet is to highlight the safety issues with regard to airborne contaminants generated during thermal cutting, which may be inhaled by the operator or by persons exposed to background concentrations of particulate fume in the general workshop area. The allowable threshold level for welding fume depends on the type of constituents in the plume. The limit for fume generated during the cutting of plain carbon steel is 5mg/m³ of breathing air over an 8-hour exposure period. An explanation of fume generation and its control by ventilation can be taken from WTIA Technical Note 7 “Health & Safety in Welding”.

The primary issue with thermal cutting of highly-alloyed wear plate is the potential for chromium compounds to form in the fume. The OH&S Guideline published by the National Health and Medical Research Council restrict the exposure of operators to chromium oxide containing fume to 0.5mg/m³ of breathing air over an 8-hour period. The limit for hexavalent chromium compounds is only 0.05mg/m³, since this fume constituent is a suspected carcinogen. These exposure restrictions make it necessary for employers and employees engaged in hot working of chromium-bearing materials to take precautions to:

- a. Avoid generating copious quantities of fume
- b. Using local exhaust ventilation to capture the fume at source
- c. Having well ventilated workplaces to disperse background fume
- d. Wearing appropriate respiratory protection

SECTION 6. – HEALTH HAZARD DATA

FUMES and GASES can be harmful to your health, since aggravation of pre-existing respiratory or allergic conditions may occur.

SHORT-TERM (ACUTE) OVEREXPOSURE to toxic fumes may result in discomfort such as dizziness, nausea, or dryness and irritation to nose, throat or eyes.

LONG-TERM (CHRONIC) OVEREXPOSURE may lead to siderosis, or even adversely affect pulmonary function.

AVOIDANCE OF OVEREXPOSURE is the most appropriate measure.

Summary of potential hazards during plasma arc cutting of wear plate:

1. Particulate fume
2. Noxious gases
3. Arc radiation causing damage to eyes and skin
4. Noise
5. Burns
6. Electric shock

SECTION 7. – PRECAUTIONS FOR SAFE PLASMA CUTTING

7.1 Off-hand Plasma-arc Cutting

The amount of fume given off during plasma cutting depends largely on the arc current density, which increases with the thickness of the material to be cut. The gaseous components in the fume depend largely on the type of plasma and secondary gases used for cutting. Compressed air is most commonly used in portable cutting plant because it avoids the need for cylinder gases, but operators should be aware that oxides of nitrogen and ozone can be generated in the fume. Most of the fume is given off underneath the material being cut, but where trimming of parts or short cuts on bar material are being done, the operator is normally positioned so that the generated fume can readily enter the breathing zone.

The manual operator should at least wear a particulate respirator (see Fig. 19.5 in TN7), and if noxious gases are being generated in the fume, the operator should wear an airline respirator (see Fig. 19.4 in TN7).

If at all possible, all manual plasma cutting should be carried out on a “down-draft table” so that the particulate and gaseous fume is drawn away from the operator’s breathing zone.

7.2 CNC Machine Plasma-arc Cutting

Intensive profile cutting of AOA wear plate is best done using computer-controlled profile cutting machines which have “water beds” to capture the fume as it is formed. Some machines actually immerse the plate during cutting, whereas other systems use a water shroud nozzle to control noise and fume emission on the top side of the plate, while the underside of the plate is immersed. During machine plasma-arc cutting operations, the operator is normally well removed from the cutting zone, so that the requirement for respiratory protection is less stringent. Nonetheless, the operator should at least wear a disposable dust/fume mask.

SECTION 8. – AOA MANAGEMENT OH&S POLICY

The management of Australian & Overseas Alloys Pty Ltd is concerned about the correct use of plasma arc cutting to process AOA clad plate. Awareness of the potential hazards and measures to control, minimise or eliminate these hazards is an essential requirement to adopting safe practices. A common sense approach is also a vital element in avoiding problems.

The information contained herein is based on data considered accurate at the time. However, no warranty is expressed or implied regarding the accuracy of the information in this data sheet, or for the results obtained by the use thereof. AOA assumes no responsibility for injury or harm to individuals or property, even if reasonable safety precautions are followed.

SIGNATURE: *F W S White*

POSITION:MANAGING DIRECTOR

DATE:21/10/08

MAKE YOUR WORKSHOP A SAFER PLACE TO WORK