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PRODUCT SPECIFICATION SHEET

Product Name: Thermo-Flex Heat Shield

I. Ingredients

Base Metal	CAS Number	% Composition By Weight	ACGIH TLV (MG/M³) *	OSHA 1910.1000 TWA (MG/M¹) **	WISHA PEL (MG/M¹) ***
Aluminum (Al)	7429-90-5	80.0-99.7	10.0, as metal dust and oxide 5.0, as welding fume	Not established	Not established

Alloying Element	CAS Number	Maximum % Composition By Weight			ACGIH TLV (MG/M³) *	OSHA 1910.1000 TWA (MG/M¹) **	WISHA PEL (MG/M¹) ***
		0.1 - 1.0	1.0 - 10.0	1.0 - 20.0			
Cobalt (Co)	7440-45-4	P	W		0.1	0.1	0.1, as fume
Copper (Cu)	7440-50-8		W	P	0.2, as fume	0.1, as fume	0.1, as fume
Iron (Fe)	1309-37-1		W, P		5.0, as oxide fume	10.0, as oxide fume	10.0, as oxide fume
Magnesium (Mg)	1309-48-4		W	P	10.0, as oxide fume	15.0, as oxide fume	10.0, as oxide fume
Manganese (Mn)	7439-96-5		W		1.0, as fume	5.0, Ceiling	5.0, Ceiling
Silicon (Si)	7440-21-3			W, P	10.0, as metal dust	not established	not established
					5.0, as respirable dust	-	-
Silver (Ag)	7440-22-4	P			0.1, as metal	0.01, as metal	0.01, as metal
Tin (Sn)	7440-31-5		P		2.0, as oxide and metal	2.0, inorganic compounds	10.0, as oxide fume
Zinc (Zn)	1314-13-2		W, P		5.0, as oxide fume	5.0, as oxide fume	5.0, as oxide fume

Key:	Note:
W = Wrought Aluminum (fabricated products)	Kelsar Aluminum alloys may be comprised of all or variations of the alloys shown here. In addition, the welding of aluminum alloys may produce the products listed in Section VII, #7.
See Section VII #6 for components concerning aluminum scrap.	
P = Prime hardened aluminum	
* TLV = Threshold Limit Value	
** TWA = Time Weighted Average	
*** PEL = Permissible Exposure Limit	

II. Physical Data					
PH	**Melting Point**	**Boiling Point**	**Specific Gravity (H^20 = 1)**	**Solubility In Water (% By Weight)**	**Vapor Pressure**
N/A	950°F - 1215°F	N/A	2.5 - 2.9	nil	N/A

III. Personal Protective Equipment

Appropriate personal protective equipment is required when melting, casting, machining, forging, or otherwise processing, The nature of the processing activity will determine what form of equipment is necessary, i.e. glasses, respirator, protective clothing, and ear protection.

IV. Emergency Medical Procedures

For skin contact, remove particles by thoroughly washing with soap and water.
For eye contact, flush with water for at least 15 minutes. Get medical attention if irritation persists.
For inhalation, remove from exposure. Get medical attention if experiencing breathing difficulty.

V. Health / Safety Information		
Health	Inhalation	Not likely unless material machined, welded, or re-melted. Exposure to zinc oxide fume can result in "zinc chills" (metal fume fever). The temporary symptoms can include fever, chills, nausea, vomiting, and muscular pain. Recovery is usually complete in 24 to 48 hours. Overexposure to copper fume can cause upper respiratory tract irritation.
	Ingestion	Not likely
	Skin	Not likely
	Eyes	May irritate eyes when welding or plasma cutting. See #7, Additional Information

VI. Environmental

Waste Disposal Methods: Used or unused product should be tested to determine hazard status and disposal requirements under federal, state, or local laws and regulations Disposer must comply with Federal, State, and Local disposal or discharge laws.

VII. Additional Information

1. Halogen acids and sodium hydroxide in contact with aluminum may generate explosive mixtures with hydrogen
2. Finely divided aluminum will form explosive mixtures in air. It will also form explosive mixtures in air in the presence of bromates, iodates, or ammonium nitrate.
3. When re-melting aluminum scrap, entrapped molecule or the presence of strong oxidizers such as ammonium nitrate could cause and explosion. This applies to the collection of moisture in saw cavities as well. Moisture must be driven off prior to re-melting.
4. Do not touch cast aluminum metal or heated aluminum product without knowing metal temperature. Aluminum experiences no color change during heating. If hot metal is touched, burns can result.
5. Aluminum powder must be packaged and shipped as a Flammable Solid, UN1395.
6. Hard alloy ingots in the 2000 and 7000 series must be stress-relieved to prevent explosion (or violent cracking) when sawed.
7. The welding of aluminum alloys may generate carbon monoxide, carbon dioxide, ozone, nitrogen oxides, infra-red radiation, and ultra-violet radiation, in addition to metal fume.
8. Some aluminum scrap may be contaminated with oil at levels greater than 1%. Melting of aluminum scrap may generate ail vapors which are irritating to the eyes and upper respiratory tract. Prolonged or repeated skin contact with oil may cause skin irritation.
9. Vapor degrease must be properly maintained to limit the accumulation of aluminum fumes. The accumulation of aluminum fumes could result in a potential degrease fire or explosion.