16 September 2005

MATERIAL SAFETY DATA SHEET

Classified as hazardous according to the criteria of NOHSC

Identification

Product Names: Multicore Lead-Free Solder Wires Containing the Crystal series of Fluxes.

Multicore Crystal flux cored Lead-Free solder wire is identified by the alloy and flux codes shown below. The flux code can be found under the word '*Type*' on the label.

Alloy: 96S, 99C, 96SC

Flux Type: Crystal 400, 502, 505, and 511.

Note the wire diameter and the pack size do not affect the safety properties of the wire.

Other Names: Not relevant

UN Number: None allocated

Dangerous Goods Class and Subsidiary Risk: None

Hazchem Code: None allocated

Poisons Schedule Number: None allocated

Use:

Flux	Use
400	Halide-free activated flux. Produces clear residues.
502	Halide activated, RA type flux (halide content 0.2%). Produces clear residues.
505	Halide activated, RA type flux (halide content 0.5%). Produces clear residues.
511	Halide activated, very active flux (halide content 1.1%). Produces clear residues.

Physical Description/Properties

Appearance: Silver white alloy wires.

Boiling point: Not applicable

Vapour Pressure: <1 mmHg at 25°C

Alloy	Composition ($\%^{w}/_{w}$)				Melting Range		Specific Gravity
	Tin	Antimony	Silver	Copper	Liquidus	Solidus	
96S	96	-	4	-	221	221	7.5
99C	99.3	-	-	0.7	240	227	7.31
96SC	95.5	-	3.8	0.7	217	217	7.5

Flashpoint: Not applicable

Explosive Limits: Not applicable

Solubility in water: Insoluble.

Other Properties

Reactivity: These solders are of low reactivity.

Ingredients

For alloy composition see above. The figures quoted are nominal concentrations. Refer to the appropriate specification for the permitted levels of impurities. The wires may contain up to 1.2% of flux. The fluxes are based on modified rosins and these are the main components Dependent upon the flux type fluxes may also contain aliphatic amine hydrochlorides or hydrobromides, or carboxylic acids, as activators.

Health Hazard Information

Health Effects

Acute

Swallowed: It is not expected that these products will give any adverse effects.

Eye: Flux fumes produced during soldering may irritate the eyes.

Skin: Flux fumes may irritate the skin.

Inhalation: The flux fumes produced during reflow will irritate the nose and throat.

Chronic

Prolonged exposure to the fumes may cause sensitisation by inhalation.
Exposure will then cause symptoms of asthma (attacks of wheezing, chest tightness and breathlessness), or a runny or stuffy nose and watery or prickly eyes. Prolonged exposure to the flux fumes may also cause an allergic skin reaction leading to allergic contact dermatitis.

First Aid

Swallowing: If the casualty is unconscious but breathing, place on one side in the recovery position. If breathing has stopped apply artificial resuscitation by the mouth to mouth or mouth to nose method. If the casualty is conscious then encourage them to wash their mouths out with water several times, but do not induce vomiting nor give anything to drink if the casualty finds it difficult to swallow. Obtain urgent medical attention.

Eye: Flush ***immediately*** with plenty of water, ensure that the eyeball and the inside of the eyelids are properly bathed by gently prising open the eyelids. Also make sure that the contaminated water runs off the face away from the eyes. Obtain urgent medical attention.

Skin: Wash the affected parts of the body with plenty of cold or lukewarm running water. Continue washing for at least 20 minutes. Remove contaminated clothing, wash before re-use. Obtain medical attention if blistering occurs or redness persists.

Inhalation: Rescuers should ensure they are properly protected before entering the area to remove the casualty. If the casualty is unconscious but breathing, place on one side in the recovery position. If breathing has stopped apply artificial resuscitation by the mouth to mouth or mouth to nose method. Obtain medical attention.

Advice to Doctors: No information available.

Precautions For Use

Whilst these products do not contain lead as a matter of good eating, drinking and smoking should not be allowed in the area where soldering is carried out. The hands should be washed with soap and warm water after handling solder, particularly before eating drinking or smoking.

Exposure Standards (Australian):

Substance	TWA		STEL		Carcinogen Category	Notices
	ppm	mg/m^3	ppm	mg/m^3		
Rosin flux fume (as formaldehyde)	-	0.1	-	-	-	Sen

Sen: Material which is known to cause sensitisation

Information on monitoring strategies and methods can be found in the following publications:

NOHSC:1003, Exposure Standards for Atmospheric Contaminants in the Occupational Environment., National Occupational Health and Safety Commission, Australia.

EH42, Monitoring Strategies for Toxic Substances, UK Health and Safety Executive.

Sawicki, E., Hauser, T R., Stanley, T W., and Elbert W: The 3-Methylbenzothiazoline Test., Anal. Chem., **33,** 1961, 93 - 96.

Hauser, T R., Cummin, R L., Increasing the Sensitivity to 3-Methyl-2-benzothiazoline Hydrazone Test for the Analysis of Aliphatic Aldehydes in Air Anal. Chem. 1964, **36**, 679 - 681.

Engineering Controls

The engineering control methods must reduce hazardous exposure. Suitable methods include benchtop extraction, soldering iron tip extraction or an extraction arm.

Personal Protection

Respirator: If engineering controls are not effective in controlling airborne exposure then respiratory protective equipment should be used suitable for protecting against fume. Reference should be made to Australian Standards *AS/NZS 1715, Selection, Use and maintenance of Respiratory Protective Devices*; and *AS/NZS 1716, Respiratory Protective Devices.*

Eye protection: While the fluxes have been formulated to reduce spitting, these products may spit. It is recommended that eye protection, safety glasses or goggles, to Australian Standard *AS/ANZ 1337, Eye Protectors for Industrial Applications*, should be worn.

Clothing: Suitable workwear should be worn to protect personal clothing, eg cotton overalls buttoned at neck and wrist. Reference should be made to Australian Standard, *AS 3765 Clothing for Protection Against Hazardous Chemicals.*

Flammability

This product will not burn when exposed to fire.

Safe Handling Information

Storage: These products should be stored in a cool, dry area out of reach of children and away from food, drink and animal foodstuffs.

Transport: These products are not classified as hazardous for transport.

Spills: Not Applicable

Disposal

Product Disposal: Waste material should be disposed of in accordance with the relevant government regulations for special waste. The recommended method of disposal is as scrap lead-free solder metal.

Container Disposal: Empty reels may be disposed of by landfill.

Fire Explosion Hazard

Extinguishers: Use foam, water fog, dry powder or carbon dioxide.

Special fire fighting procedures: Firefighters should wear full protective clothing and self contained breathing apparatus operated in positive pressure mode.

Combustion products: Under fire conditions the products will produce carbon dioxide, carbon monoxide, and irritant terpene. High temperatures may produce heavy metal dust, fumes and/or vapours.

Other Information

Ecotoxicity Data

The alloys are not degradable and will persist in the environment. The alloys are generally of low toxicity, but should be recovered for recycling if possible.

The information presented in this safety data sheet is accurate to the best knowledge and belief of Prime Electronic Components Pty Ltd. As we cannot anticipate all conditions under which this information and our products or the products of other manufacturers in combination with our products this safety data sheet cannot constitute the users assessment of workplace risk. Users are advised to make their own tests to determine the safety and suitability of each product or product combination for their own purposes.

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