

A message from National Standard Parts Associates, Inc.

With OSHA's latest Hazard Communication Standard (HCS), revised in 2012, manufacturers provide a consistent 16-section format for communicating downstream information about hazardous chemicals in their products by published Safety Data Sheets (SDS). Only a subset of NSPA's heat shrink connectors contain a relevant solder alloy component (which contain both lead and cadmium) that requires the new labeling and Safety Data Sheets. In fact, our new tin-bismuth solder sleeves do not require the new safety labeling. Along with the part number listing below, the relevant SDS information from Alpha for these solder sleeves can be found in the following pages.

With the United States now transitioning to this new SDS format, 3M has replaced their old MSDS sheets with new Article Information Sheets for their heat shrink tubing (including the tubing that we use for our heat shrink connectors). NSPA can and will provide 3M's Article Information Sheet information upon request as a courtesy in response to a customer request; however, it is not required to be provided as part of OSHA's latest Hazard Communication Standard (HCS). The following statement outlines why 3M's tubing does not require a Safety Data Sheet as required for hazardous chemicals.

This Article Information Sheet is provided as a courtesy in response to a customer request. A Safety Data Sheet (SDS) has not been prepared for these product(s) because they are articles. Articles are not subject to the Occupational Safety and Health Administration's Hazard Communication Standard (29 CFR 1910.1200(b)(6)(v)). As defined in this standard: "Article" means a manufactured item other than a fluid or particle: (i) which is formed to a specific shape or design during manufacture; (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which under normal conditions of use does not release more than very small quantities, e.g., minute or trace amounts of a hazardous chemical, and does not pose a physical or health risk to employees.

To the best of our knowledge, the information contained herein is accurate; however, NSPA relies solely on the SDS information provided to us by our raw material suppliers. Neither Alpha nor NSPA assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described in the following SDS information, we cannot guarantee that these are the only hazards that exist.



J Brooks Endacott
President

Lead-Free Sealed Solder Connectors a.k.a. Lead-Free Elektralink		
NSPA#	Description	SDS Product #
ELF110-10X	LEAD-FREE ElektraLink Ring - 500, 12-10 AWG Ring #10 Stud	M332RS4
ELF110-10X-PK	LEAD-FREE ElektraLink Ring - 50, 12-10 AWG Ring #10 Stud	M332RS4
ELF110-12X	LEAD-FREE ElektraLink Ring - 500, 12-10 AWG Ring 1/2" Stud	M332RS4
ELF110-12X-PK	LEAD-FREE ElektraLink Ring - 50, 12-10 AWG Ring 1/2" Stud	M332RS4
ELF110-14X	LEAD-FREE ElektraLink Ring - 500, 12-10 AWG Ring 1/4" Stud	M332RS4
ELF110-14X-PK	LEAD-FREE ElektraLink Ring - 50, 12-10 AWG Ring 1/4" Stud	M332RS4
ELF110-38X	LEAD-FREE ElektraLink Ring - 500, 12-10 AWG Ring 3/8" Stud	M332RS4
ELF110-38X-PK	LEAD-FREE ElektraLink Ring - 50, 12-10 AWG Ring 3/8" Stud	M332RS4
ELF110-516X	LEAD-FREE ElektraLink Ring - 500, 12-10 AWG Ring 5/16 Stud	M332RS4
ELF110-516X-PK	LEAD-FREE ElektraLink Ring - 50, 12-10 AWG Ring 5/16 Stud	M332RS4
ELF114-06X	LEAD-FREE ElektraLink Ring - 500, 16-14 AWG Ring #6 Stud	M332RS4
ELF114-06X-PK	LEAD-FREE ElektraLink Ring - 50, 16-14 AWG Ring #6 Stud	M332RS4
ELF114-08X	LEAD-FREE ElektraLink Ring - 500, 16-14 AWG Ring #8 Stud	M332RS4
ELF114-08X-PK	LEAD-FREE ElektraLink Ring - 50, 16-14 AWG Ring #8 Stud	M332RS4
ELF114-10X	LEAD-FREE ElektraLink Ring - 500, 16-14 AWG Ring #10 Stud	M332RS4
ELF114-10X-PK	LEAD-FREE ElektraLink Ring - 50, 16-14 AWG Ring #10 Stud	M332RS4
ELF114-14X	LEAD-FREE ElektraLink Ring - 500, 16-14 AWG Ring 1/4" Stud	M332RS4
ELF114-14X-PK	LEAD-FREE ElektraLink Ring - 50, 16-14 AWG Ring 1/4" Stud	M332RS4
ELF114-38X	LEAD-FREE ElektraLink Ring - 500, 16-14 AWG Ring 3/8" Stud	M332RS4
ELF114-38X-PK	LEAD-FREE ElektraLink Ring - 50, 16-14 AWG Ring 3/8" Stud	M332RS4
ELF114-516X	LEAD-FREE ElektraLink Ring - 500, 16-14 AWG Ring 5/16 Stud	M332RS4
ELF114-516X-PK	LEAD-FREE ElektraLink Ring - 50, 16-14 AWG Ring 5/16 Stud	M332RS4
ELF116-06X	LEAD-FREE ElektraLink Ring - 500, 22-18 AWG Ring #6 Stud	M332RS4
ELF116-06X-PK	LEAD-FREE ElektraLink Ring - 50, 22-18 AWG Ring #6 Stud	M332RS4
ELF116-08X	LEAD-FREE ElektraLink Ring - 500, 22-18 AWG Ring #8 Stud	M332RS4
ELF116-08X-PK	LEAD-FREE ElektraLink Ring - 50, 22-18 AWG Ring #8 Stud	M332RS4
ELF116-10X	LEAD-FREE ElektraLink Ring - 500, 22-18 AWG Ring #10 Stud	M332RS4
ELF116-10X-PK	LEAD-FREE ElektraLink Ring - 50, 22-18 AWG Ring #10 Stud	M332RS4
ELF116-14X	LEAD-FREE ElektraLink Ring - 500, 22-18 AWG Ring 1/4" Stud	M332RS4
ELF116-14X-PK	LEAD-FREE ElektraLink Ring - 50, 22-18 AWG Ring 1/4" Stud	M332RS4
ELF116-38X	LEAD-FREE ElektraLink Ring - 500, 22-18 AWG Ring 3/8 Stud	M332RS4
ELF116-38X-PK	LEAD-FREE ElektraLink Ring - 50, 22-18 AWG Ring 3/8 Stud	M332RS4
ELF116-516X	LEAD-FREE ElektraLink Ring - 500, 22-18 AWG Ring 5/16 Stud	M332RS4
ELF116-516X-PK	LEAD-FREE ElektraLink Ring - 50, 22-18 AWG Ring 5/16 Stud	M332RS4
ELF120-02X	LEAD-FREE ElektraLink Ring - 500, 24-22 AWG Ring #2 Stud	M332RS4
ELF120-02X-PK	LEAD-FREE ElektraLink Ring - 50, 24-22 AWG Ring #2 Stud	M332RS4
ELF120-04X	LEAD-FREE ElektraLink Ring - 500, 24-22 AWG Ring #4 Stud	M332RS4
ELF120-04X-PK	LEAD-FREE ElektraLink Ring - 50, 24-22 AWG Ring #4 Stud	M332RS4
ELF120-06X	LEAD-FREE ElektraLink Ring - 500, 24-22 AWG Ring #6 Stud	M332RS4

ELF120-06X-PK	LEAD-FREE ElektraLink Ring - 50, 24-22 AWG Ring #6 Stud	M332RS4
ELF210-10X	LEAD-FREE ElektraLink Spade - 500, 12-10 AWG Spade #10 Stud	M332RS4
ELF210-10X-PK	LEAD-FREE ElektraLink Spade - 50, 12-10 AWG Spade #10 Stud	M332RS4
ELF214-10X	LEAD-FREE ElektraLink Spade - 500, 16-14 AWG Spade #10 Stud	M332RS4
ELF214-10X-PK	LEAD-FREE ElektraLink Spade - 50, 16-14 AWG Spade #10 Stud	M332RS4
ELF216-10X	LEAD-FREE ElektraLink Spade - 500, 22-18 AWG Spade #10 Stud	M332RS4
ELF216-10X-PK	LEAD-FREE ElektraLink Spade - 50, 22-18 AWG Spade #10 Stud	M332RS4
ELF220-02X	LEAD-FREE ElektraLink Spade - 500, 24-22 AWG Spade #2 Stud	M332RS4
ELF220-02X-PK	LEAD-FREE ElektraLink Spade - 50, 24-22 AWG Spade #2 Stud	M332RS4
ELF220-04X	LEAD-FREE ElektraLink Spade - 500, 24-22 AWG Spade #4 Stud	M332RS4
ELF220-04X-PK	LEAD-FREE ElektraLink Spade - 50, 24-22 AWG Spade #4 Stud	M332RS4
ELF220-06X	LEAD-FREE ElektraLink Spade - 500, 24-22 AWG Spade #6 Stud	M332RS4
ELF220-06X-PK	LEAD-FREE ElektraLink Spade - 50, 24-22 AWG Spade #6 Stud	M332RS4
ELF5-08	LEAD-FREE ElektraLink Butt Conn. - 500, 8 AWG Butt Connector	M332RS4
ELF5-08-PK	LEAD-FREE ElektraLink Butt Conn. - 50, 8 AWG Butt Connector	M332RS4
ELF5-10	LEAD-FREE ElektraLink Butt Conn. - 500, 12-10 AWG Butt Connector	M332RS4
ELF5-10-JAR	LEAD-FREE ElektraLink Jar - 8, 12-10 AWG Butt Connector	M332RS4
ELF5-10-PK	LEAD-FREE ElektraLink Butt Conn. - 50, 12-10 AWG Butt Connector	M332RS4
ELF5-14	LEAD-FREE ElektraLink Butt Conn. - 1000, 16-14 AWG Butt Connector	M332RS4
ELF5-14-JAR	LEAD-FREE ElektraLink Jar - 8, 16-14 AWG Butt Connector	M332RS4
ELF5-14-PK	LEAD-FREE ElektraLink Butt Conn. - 50, 16-14 AWG Butt Connector	M332RS4
ELF5-16	LEAD-FREE ElektraLink Butt Conn. - 1000, 22-18 AWG Butt Connector	M332RS4
ELF5-16-JAR	LEAD-FREE ElektraLink Jar - 8, 22-18 AWG Butt Connector	M332RS4
ELF5-16-PK	LEAD-FREE ElektraLink Butt Conn. - 50, 22-18 AWG Butt Connector	M332RS4
ELF5-20	LEAD-FREE ElektraLink Butt Conn., 24-22 AWG Butt Connector	M332RS4
ELF5-20-PK	LEAD-FREE ElektraLink Butt Conn. - 50, 24-22 AWG Butt Connector	M332RS4
ELF6-10F	LEAD-FREE ElektraLink Female Conn. - 500, 12-10 AWG .250 Tab Receptacle	M332RS4
ELF6-10FF	LEAD-FREE ElektraLink Female Conn. - 500, 12-10 AWG .250 Fully Insulated	M332RS4
ELF6-10FF-PK	LEAD-FREE ElektraLink Female Conn. - 50, 12-10 AWG .250 Fully Insulated	M332RS4
ELF6-10F-PK	LEAD-FREE ElektraLink Female Conn. - 50, 12-10 AWG .250 Tab Receptacle	M332RS4
ELF6-10M	LEAD-FREE ElektraLink Male Conn. - 500, 12-10 AWG .250 Tab	M332RS4
ELF6-10M-PK	LEAD-FREE ElektraLink Male Conn. - 50, 12-10 AWG .250 Tab	M332RS4
ELF6-14F	LEAD-FREE ElektraLink Female Conn. - 500, 16-14 AWG .250 Tab Receptacle	M332RS4
ELF6-14FF	LEAD-FREE ElektraLink Female Conn. - 500, 16-14 AWG .250 Fully Insulated	M332RS4
ELF6-14FF-PK	LEAD-FREE ElektraLink Female Conn. - 50, 16-14 AWG .250 Fully Insulated	M332RS4
ELF6-14F-PK	LEAD-FREE ElektraLink Female Conn. - 50, 16-14 AWG .250 Tab Receptacle	M332RS4
ELF6-14M	LEAD-FREE ElektraLink Male Conn. - 500, 16-14 AWG .250 Tab	M332RS4
ELF6-14M-PK	LEAD-FREE ElektraLink Male Conn. - 50, 16-14 AWG .250 Tab	M332RS4
ELF6-18F	LEAD-FREE ElektraLink Female Conn. - 500, 22-18 AWG .250 Tab Receptacle	M332RS4
ELF6-18FF	LEAD-FREE ElektraLink Female Conn. - 500, 22-18 AWG .250 Fully Insulated	M332RS4
ELF6-18FF-PK	LEAD-FREE ElektraLink Female Conn. - 50, 22-18 AWG .250 Fully Insulated	M332RS4

ELF6-18F-PK	LEAD-FREE ElektraLink Female Conn. - 50, 22-18 AWG .250 Tab Receptacle	M332RS4
ELF6-18M	LEAD-FREE ElektraLink Male Conn. - 500, 22-18 AWG .250 Tab	M332RS4
ELF6-18M-PK	LEAD-FREE ElektraLink Male Conn. - 50, 22-18 AWG .250 Tab	M332RS4

Lead-Free Sealed Crimp & Solder Connectors a.k.a. Lead-Free MultiLink		
NSPA#	Description	SDS Product #
MLF110-06	LEAD-FREE MultiLink Ring - 500, 12-10 AWG #6 Stud	M332RS4
MLF110-06-PK	LEAD-FREE MultiLink Ring - 50, 12-10 AWG #6 Stud	M332RS4
MLF110-08L	LEAD-FREE MultiLink Ring - 500, 12-10 AWG #8 Stud	M332RS4
MLF110-08L-PK	LEAD-FREE MultiLink Ring - 50, 12-10 AWG #8 Stud	M332RS4
MLF110-10L	LEAD-FREE MultiLink Ring - 500, 12-10 AWG #10 Stud	M332RS4
MLF110-10L-PK	LEAD-FREE MultiLink Ring - 50, 12-10 AWG #10 Stud	M332RS4
MLF110-12	LEAD-FREE MultiLink Ring - 500, 12-10 AWG 1/2" Stud	M332RS4
MLF110-12-PK	LEAD-FREE MultiLink Ring - 50, 12-10 AWG 1/2" Stud	M332RS4
MLF110-14L	LEAD-FREE MultiLink Ring - 500, 12-10 AWG 1/4" Stud	M332RS4
MLF110-14L-PK	LEAD-FREE MultiLink Ring - 50, 12-10 AWG 1/4" Stud	M332RS4
MLF110-38L	LEAD-FREE MultiLink Ring - 500, 12-10 AWG 3/8" Stud	M332RS4
MLF110-38L-PK	LEAD-FREE MultiLink Ring - 50, 12-10 AWG 3/8" Stud	M332RS4
MLF110-516L	LEAD-FREE MultiLink Ring - 500, 12-10 AWG 5/16" Stud	M332RS4
MLF110-516L-PK	LEAD-FREE MultiLink Ring - 50, 12-10 AWG 5/16" Stud	M332RS4
MLF114-06L	LEAD-FREE MultiLink Ring - 500, 16-14 AWG #6 Stud	M332RS4
MLF114-06L-PK	LEAD-FREE MultiLink Ring - 50, 16-14 AWG #6 Stud	M332RS4
MLF114-08L	LEAD-FREE MultiLink Ring - 500, 16-14 AWG #8 Stud	M332RS4
MLF114-08L-PK	LEAD-FREE MultiLink Ring - 50, 16-14 AWG #8 Stud	M332RS4
MLF114-10L	LEAD-FREE MultiLink Ring - 500, 16-14 AWG #10 Stud	M332RS4
MLF114-10L-PK	LEAD-FREE MultiLink Ring - 50, 16-14 AWG #10 Stud	M332RS4
MLF114-14L	LEAD-FREE MultiLink Ring - 500, 16-14 AWG 1/4" Stud	M332RS4
MLF114-14L-PK	LEAD-FREE MultiLink Ring - 50, 16-14 AWG 1/4" Stud	M332RS4
MLF114-38L	LEAD-FREE MultiLink Ring - 500, 16-14 AWG 3/8" Stud	M332RS4
MLF114-38L-PK	LEAD-FREE MultiLink Ring - 50, 16-14 AWG 3/8" Stud	M332RS4
MLF114-516L	LEAD-FREE MultiLink Ring - 500, 16-14 AWG 5/16" Stud	M332RS4
MLF114-516L-PK	LEAD-FREE MultiLink Ring - 50, 16-14 AWG 5/16" Stud	M332RS4
MLF116-06L	LEAD-FREE MultiLink Ring - 500, 22-18 AWG #6 Stud	M332RS4
MLF116-06L-PK	LEAD-FREE MultiLink Ring - 50, 22-18 AWG #6 Stud	M332RS4
MLF116-08L	LEAD-FREE MultiLink Ring - 500, 22-18 AWG #8 Stud	M332RS4
MLF116-08L-PK	LEAD-FREE MultiLink Ring - 50, 22-18 AWG #8 Stud	M332RS4
MLF116-10L	LEAD-FREE MultiLink Ring - 500, 22-18 AWG #10 Stud	M332RS4
MLF116-10L-PK	LEAD-FREE MultiLink Ring - 50, 22-18 AWG #10 Stud	M332RS4
MLF116-14	LEAD-FREE MultiLink Ring - 500, 22-18 AWG 1/4" Stud	M332RS4
MLF116-14-PK	LEAD-FREE MultiLink Ring - 50, 22-18 AWG 1/4" Stud	M332RS4
MLF116-38	LEAD-FREE MultiLink Ring - 500, 22-18 AWG 3/8" Stud	M332RS4

MLF116-38-PK	LEAD-FREE MultiLink Ring - 50, 22-18 AWG 3/8" Stud	M332RS4
MLF116-516	LEAD-FREE MultiLink Ring - 500, 22-18 AWG 5/16" Stud	M332RS4
MLF116-516-PK	LEAD-FREE MultiLink Ring - 50, 22-18 AWG 5/16" Stud	M332RS4
MLF210-06	LEAD-FREE MultiLink Spade - 500, 12-10 AWG #6 Stud	M332RS4
MLF210-06-PK	LEAD-FREE MultiLink Spade - 50, 12-10 AWG #6 Stud	M332RS4
MLF210-08	LEAD-FREE MultiLink Spade - 500, 12-10 AWG #8 Stud	M332RS4
MLF210-08-PK	LEAD-FREE MultiLink Spade - 50, 12-10 AWG #8 Stud	M332RS4
MLF210-10	LEAD-FREE MultiLink Spade - 500, 12-10 AWG #10 Stud	M332RS4
MLF210-10-PK	LEAD-FREE MultiLink Spade - 50, 12-10 AWG #10 Stud	M332RS4
MLF214-06	LEAD-FREE MultiLink Spade - 500, 16-14 AWG #6 Stud	M332RS4
MLF214-06-PK	LEAD-FREE MultiLink Spade - 50, 16-14 AWG #6 Stud	M332RS4
MLF214-08	LEAD-FREE MultiLink Spade - 500, 16-14 AWG #8 Stud	M332RS4
MLF214-08-PK	LEAD-FREE MultiLink Spade - 50, 16-14 AWG #8 Stud	M332RS4
MLF214-10	LEAD-FREE MultiLink Spade - 500, 16-14 AWG #10 Stud	M332RS4
MLF214-10-PK	LEAD-FREE MultiLink Spade - 50, 16-14 AWG #10 Stud	M332RS4
MLF216-06	LEAD-FREE MultiLink Spade - 500, 22-18 AWG #6 Stud	M332RS4
MLF216-06-PK	LEAD-FREE MultiLink Spade - 50, 22-18 AWG #6 Stud	M332RS4
MLF216-08	LEAD-FREE MultiLink Spade - 500, 22-18 AWG #8 Stud	M332RS4
MLF216-08-PK	LEAD-FREE MultiLink Spade - 50, 22-18 AWG #8 Stud	M332RS4
MLF216-10	LEAD-FREE MultiLink Spade - 500, 22-18 AWG #10 Stud	M332RS4
MLF216-10-PK	LEAD-FREE MultiLink Spade - 50, 22-18 AWG #10 Stud	M332RS4
MLF310S-06	LEAD-FREE MultiLink Spring Spade - 500, 12-10 AWG #6 Stud	M332RS4
MLF310S-06-PK	LEAD-FREE MultiLink Spring Spade - 50, 12-10 AWG #6 Stud	M332RS4
MLF310S-08	LEAD-FREE MultiLink Spring Spade - 500, 12-10 AWG #8 Stud	M332RS4
MLF310S-08-PK	LEAD-FREE MultiLink Spring Spade - 50, 12-10 AWG #8 Stud	M332RS4
MLF310S-10	LEAD-FREE MultiLink Spring Spade - 500, 12-10 AWG #10 Stud	M332RS4
MLF310S-10-PK	LEAD-FREE MultiLink Spring Spade - 50, 12-10 AWG #10 Stud	M332RS4
MLF314S-06	LEAD-FREE MultiLink Spring Spade - 500, 16-14 AWG #6 Stud	M332RS4
MLF314S-06-PK	LEAD-FREE MultiLink Spring Spade - 50, 16-14 AWG #6 Stud	M332RS4
MLF314S-08	LEAD-FREE MultiLink Spring Spade - 500, 16-14 AWG #8 Stud	M332RS4
MLF314S-08-PK	LEAD-FREE MultiLink Spring Spade - 50, 16-14 AWG #8 Stud	M332RS4
MLF314S-10	LEAD-FREE MultiLink Spring Spade - 500, 16-14 AWG #10 Stud	M332RS4
MLF314S-10-PK	LEAD-FREE MultiLink Spring Spade - 50, 16-14 AWG #10 Stud	M332RS4
MLF316S-06	LEAD-FREE MultiLink Spring Spade - 500, 22-18 AWG #6 Stud	M332RS4
MLF316S-06-PK	LEAD-FREE MultiLink Spring Spade - 50, 22-18 AWG #6 Stud	M332RS4
MLF316S-08	LEAD-FREE MultiLink Spring Spade - 500, 22-18 AWG #8 Stud	M332RS4
MLF316S-08-PK	LEAD-FREE MultiLink Spring Spade - 50, 22-18 AWG #8 Stud	M332RS4
MLF316S-10	LEAD-FREE MultiLink Spring Spade - 500, 22-18 AWG #10 Stud	M332RS4
MLF316S-10-PK	LEAD-FREE MultiLink Spring Spade - 50, 22-18 AWG #10 Stud	M332RS4
MLF5-10	LEAD-FREE MultiLink Butt Conn. - 500, 12-10 AWG Butt Connector	M332RS4
MLF5-10-JAR	LEAD-FREE MultiLink Jar - 8, 12-10 AWG Butt Connector	M332RS4

MLF5-10-PK	LEAD-FREE MultiLink Butt Conn. - 50, 12-10 AWG Butt Connector	M332RS4
MLF5-14	LEAD-FREE MultiLink Butt Conn. - 1000, 16-14 AWG Butt Connector	M332RS4
MLF5-14-JAR	LEAD-FREE MultiLink Jar - 8, 16-14 AWG Butt Connector	M332RS4
MLF5-14-PK	LEAD-FREE MultiLink Butt Conn. - 50, 16-14 AWG Butt Connector	M332RS4
MLF5-16	LEAD-FREE MultiLink Butt Conn. - 1000, 22-18 AWG Butt Connector	M332RS4
MLF5-16-JAR	LEAD-FREE MultiLink Jar - 8, 22-18 AWG Butt Connector	M332RS4
MLF5-16-PK	LEAD-FREE MultiLink Butt Conn. - 50, 22-18 AWG Butt Connector	M332RS4
MLF5-20	LEAD-FREE MultiLink Butt Conn. - 500, 24-22 AWG	M332RS4
MLF5-20-PK	LEAD-FREE MultiLink Butt Conn. - 50, 24-22 AWG	M332RS4
MLF56-10	LEAD-FREE MultiLink Stepdow Butt - 500, 8 to 12-10 AWG	M332RS4
MLF56-10-PK	LEAD-FREE MultiLink Stepdow Butt - 50, 8 to 12-10 AWG	M332RS4
MLF56-14	LEAD-FREE MultiLink Stepdow Butt, 12-10 to 16-14 AWG	M332RS4
MLF56-14-PK	LEAD-FREE MultiLink Stepdow Butt - 50, 12-10 to 16-14 AWG	M332RS4
MLF56-16	LEAD-FREE MultiLink Stepdow Butt, 16-14 to 22-18 AWG	M332RS4
MLF56-16-PK	LEAD-FREE MultiLink Stepdow Butt - 50, 16-14 to 22-18 AWG	M332RS4
MLF56-20	LEAD-FREE MultiLink Stepdow Butt - 500, 22-18 to 26-24 AWG	M332RS4
MLF56-20-PK	LEAD-FREE MultiLink Stepdow Butt - 50, 22-18 to 26-24 AWG	M332RS4
MLF6-10-250F	LEAD-FREE MultiLink Female - 500, 12-10 AWG .250"	M332RS4
MLF6-10-250FF	LEAD-FREE MultiLink F-I Female - 500, 12-10 AWG .250"	M332RS4
MLF6-10-250FF-PK	LEAD-FREE MultiLink F-I Female - 50, 12-10 AWG .250"	M332RS4
MLF6-10-250F-PK	LEAD-FREE MultiLink Female - 50, 12-10 AWG .250"	M332RS4
MLF6-10-250M	LEAD-FREE MultiLink Male - 500, 12-10 AWG .250"	M332RS4
MLF6-10-250M-PK	LEAD-FREE MultiLink Male - 50, 12-10 AWG .250"	M332RS4
MLF6-14-250F	LEAD-FREE MultiLink Female - 500, 16-14 AWG .250"	M332RS4
MLF6-14-250FF	LEAD-FREE MultiLink F-I Female - 500, 16-14 AWG .250"	M332RS4
MLF6-14-250FF-PK	LEAD-FREE MultiLink F-I Female - 50, 16-14 AWG .250"	M332RS4
MLF6-14-250F-PK	LEAD-FREE MultiLink Female - 50, 16-14 AWG .250"	M332RS4
MLF6-14-250M	LEAD-FREE MultiLink Male - 500, 16-14 AWG .250"	M332RS4
MLF6-14-250M-PK	LEAD-FREE MultiLink Male - 50, 16-14 AWG .250"	M332RS4
MLF6-18-250F	LEAD-FREE MultiLink Female - 500, 22-18 AWG .250"	M332RS4
MLF6-18-250FF	LEAD-FREE MultiLink F-I Female - 500, 22-18 AWG .250"	M332RS4
MLF6-18-250FF-PK	LEAD-FREE MultiLink F-I Female - 50, 22-18 AWG .250"	M332RS4
MLF6-18-250F-PK	LEAD-FREE MultiLink Female - 50, 22-18 AWG .250"	M332RS4
MLF6-18-250M	LEAD-FREE MultiLink Male - 500, 22-18 AWG .250"	M332RS4
MLF6-18-250M-PK	LEAD-FREE MultiLink Male - 50, 22-18 AWG .250"	M332RS4

alpha

Safety Data Sheet

Safety Data Sheet

Section 1. Identification

Product name : Preforms, Alloy Sn42/Bi58, Coated with RS4 Flux
Product code : M332RS4
Product type : Solid.
Date of issue/Date of revision : June 11 2015.

Manufacturer - Supplier	Telephone no.:	Fax no.	Emergency phone:
ALPHA Global Headquarters 300 Atrium Drive Somerset, New Jersey 08873	Toll Free: (800) 367-5460 Main Phone: (908) 791-3000	(908) 791-3090	UNITED STATES AND CANADA Tel: 800-424-9300 INTERNATIONAL, CALL Tel: +1 703-527-3887 (collect calls accepted) Alpha Chemtrec #5591
ALPHA METALS MEXICO SA DE CV Ave Nafta 800, Parque Industrial STIVA Apodaca NL 66600 Mexico	Tel: +52 81 1156-6602	Fax: +52 81 1156-6655	Tel: 01 800 022 1400 Tel: +52 55 5559-1588
Alent Brasil Soldas Ltda. Rio Jaguarão, 1540 - Vila Buriti Manaus Amazonas 69072-055 Brasil	Tel: 55 92 3614-7400	Fax: 55 92 3614-7400	Tel: 55 92 3614-7423

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : AQUATIC HAZARD (LONG-TERM) - Category 3

GHS label elements

Signal word : No signal word.

Hazard statements : Harmful to aquatic life with long lasting effects.

Precautionary statements

Prevention : Avoid release to the environment.

Response : Get medical attention if you feel unwell.

Storage : Store in cool/well-ventilated place. Keep container tightly closed.

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazards not otherwise classified : None known.

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Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Ingredient name	%	CAS number
tin	40-50	7440-31-5
[1R-(1 α ,4 α β ,10 α)]-1,2,3,4,4a,9,10,10a-octahydro-7-isopropyl-1,4a-dimethylphenanthren-1-carboxylic acid	1-10	1740-19-8
Proprietary Rosin/Resin	1-10	-
Modified Rosin/Resin	0.1-1.0	-

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

- Eye contact** : Check for and remove any contact lenses. Immediately flush eyes with running water for at least 30 minutes, keeping eyelids open. Get medical attention if irritation occurs.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : No known significant effects or critical hazards.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : No known significant effects or critical hazards.
- Ingestion** : No known significant effects or critical hazards.

Over-exposure signs/symptoms

- Eye contact** : No specific data.
- Inhalation** : No specific data.
- Skin contact** : No specific data.
- Ingestion** : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Continued on next page

Section 4. First aid measures

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
metal oxide/oxides

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.

Methods and materials for containment and cleaning up

Small spill : Move containers from spill area. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.

Large spill : Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Continued on next page

Section 6. Accidental release measures

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid release to the environment. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
tin	OSHA PEL (United States, 9/2005). TWA: 2 mg/m ³ 8 hours. ACGIH TLV (United States, 4/2014). TWA: 2 mg/m ³ , (as Sn) 8 hours. NIOSH REL (United States, 10/2013). TWA: 2 mg/m ³ , (as Sn) 10 hours.

- Appropriate engineering controls** : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Section 8. Exposure controls/personal protection

- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

- Physical state** : Solid.
- Color** : Not available.
- Odor** : Not available.
- Odor threshold** : Not available.
- pH** : Not available.
- Melting point** : Not available.
- Boiling point** : Not available.
- Flash point** : Not available.
- Evaporation rate** : Not available.
- Flammability (solid, gas)** : Not available.
- Lower and upper explosive (flammable) limits** : Not available.
- Vapor pressure** : Not available.
- Vapor density** : Not available.
- Relative density** : 1
- Solubility** : Partially soluble in the following materials: hot water.
Very slightly soluble in the following materials: cold water.
- VOC** : 10.1 g/l
- Partition coefficient: n-octanol/water** : Not available.
- Auto-ignition temperature** : Not available.
- Decomposition temperature** : Not available.
- Viscosity** : Not available.

Section 10. Stability and reactivity

- Reactivity** : No specific test data related to reactivity available for this product or its ingredients.
- Chemical stability** : The product is stable.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.

Section 10. Stability and reactivity

- Incompatibility with various substances** : Highly reactive or incompatible with the following materials: alkalis and moisture.
Reactive or incompatible with the following materials: acids.
Slightly reactive or incompatible with the following materials: oxidizing materials and reducing materials.
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.
- Hazardous polymerization** : Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Routes of entry : Inhalation. Ingestion.

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
tin	LD50 Oral	Rat	>2000 mg/kg	-
[1R-(1 α ,4 α ,10 α)]-1,2,3,4,4a,9,10,10a-octahydro-7-isopropyl-1,4a-dimethylphenanthren-1-carboxylic acid	LD50 Oral	Rat	1710 mg/kg	-
Proprietary Rosin/Resin	LD50 Dermal	Rabbit	>2.5 g/kg	-
	LD50 Oral	Mouse	>3 g/kg	-
	LD50 Oral	Rat	>4 g/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
[1R-(1 α ,4 α ,10 α)]-1,2,3,4,4a,9,10,10a-octahydro-7-isopropyl-1,4a-dimethylphenanthren-1-carboxylic acid	Skin - Mild irritant	Guinea pig	-	72 hours 10 Percent	-

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

No applicable toxicity data

Additional information:

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Continued on next page

Section 11. Toxicological information

Potential acute health effects

Eye contact	: No known significant effects or critical hazards.
Inhalation	: No known significant effects or critical hazards.
Skin contact	: No known significant effects or critical hazards.
Ingestion	: No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	: No specific data.
Inhalation	: No specific data.
Skin contact	: No specific data.
Ingestion	: No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects	: Not available.
Potential delayed effects	: Not available.

Long term exposure

Potential immediate effects	: Not available.
Potential delayed effects	: Not available.

Potential chronic health effects

General	: No known significant effects or critical hazards.
Carcinogenicity	: No known significant effects or critical hazards.
Mutagenicity	: No known significant effects or critical hazards.
Teratogenicity	: No known significant effects or critical hazards.
Developmental effects	: No known significant effects or critical hazards.
Fertility effects	: No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
Oral	4155.9 mg/kg

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
[1R-(1 α ,4 α β ,10 α)]-1,2,3,4,4a,9,10,10a-octahydro-7-isopropyl-1,4a-dimethylphenanthren-1-carboxylic acid	Acute LC50 2470 μ g/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
Proprietary Rosin/Resin	Acute LC50 700 μ g/l Fresh water LC50 60.3 mg/l	Fish - Esox lucius Fish	96 hours 96 hours

Persistence and degradability

Not available.

Bioaccumulative potential

Continued on next page

Section 12. Ecological information

Product/ingredient name	LogP _{ow}	BCF	Potential
[1R-(1 α ,4 α ,10 α)]-1,2,3,4,4a,9,10,10a-octahydro-7-isopropyl-1,4a-dimethylphenanthren-1-carboxylic acid	4.8	131.83	low
Proprietary Rosin/Resin	3.42	-	low

Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	DOT Classification	TDG Classification	Mexico Classification	UN	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-	-	-	-
Transport hazard class(es)	-	-	-	-	-	-
Packing group	-	-	-	-	-	-
Environmental hazards	No.	No.	No.	No.	No.	No.

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Section 15. Regulatory information

U.S. Federal regulations : TSCA 5(a)2 proposed significant new use rule (SNUR): No products were found.
 TSCA 5(a)2 final significant new use rule (SNUR): No products were found.
 TSCA 12(b) one-time export notification: No products were found.
 TSCA 12(b) annual export notification: No products were found.

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 311/312

Classification : Not applicable.

Canada

WHMIS (Canada) : Not controlled under WHMIS (Canada).

International lists

National inventory

Europe : All components are listed or exempted.

Republic of Korea : All components are listed or exempted.

Section 16. Other information

Hazardous Material Information System (U.S.A.)

Health	1
Flammability	0
Physical hazards	0

Procedure used to derive the classification

Classification	Justification
Aquatic Chronic 3, H412	Calculation method

History

Date of issue/Date of revision : June 11 2015.

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Key to abbreviations

: ATE = Acute Toxicity Estimate
 BCF = Bioconcentration Factor
 GHS = Globally Harmonized System of Classification and Labelling of Chemicals
 IATA = International Air Transport Association
 IBC = Intermediate Bulk Container
 IMDG = International Maritime Dangerous Goods
 LogPow = logarithm of the octanol/water partition coefficient
 MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)

Continued on next page

Section 16. Other information

UN = United Nations

▣ Indicates information that has changed from previously issued version.

[Notice to reader](#)

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

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