

## Viromet 347 Lead Free Solder Alloy



### Product Description

Viromet 347 is one of the high-performance lead free solder available in the industry. Viromet 347 solder bar can be used as a drop-in replacement for conventional SnPb solder in wave soldering and dipping application. It possesses superior mechanical properties and better reliability as compared to conventional SnPb solders.

### Alloy Composition

Main Composition		IPC J-STD-006 Specs (wt%)
Tin	Sn	Remainder
Silver	Ag	4.1 +/- 0.2
Copper	Cu	0.5 +/- 0.1
Indium	In	7.0 +/- 0.5
<b>Contamination</b>		
Aluminium	Al	0.005 max
Arsenic	As	0.03 max
Bismuth	Bi	0.10 max
Cadmium	Cd	0.002 max
Iron	Fe	0.02 max
Nickel	Ni	0.01 max
Lead	Pb	0.05 max
Antimony	Sb	0.20 max
Zinc	Zn	0.003 max

- \* World Patent No. 03/006200 A1
- \* US Patent No. 5,985,212; 6,176,947; 6,843,862

### Specification

Item	Result
Alloy Melting Temperature	202 - 207 °C
DSC at 5 °C/min	
Density	7.40 g/cm <sup>3</sup>
Water Displacement Method	
Surface Insulation Resistance	
(85°C, 85%RH, 168hrs)	
IPC-TM-650 2.6.3.3	> 1 x 10 <sup>8</sup> Ω, Pass
JIS Z 3197 8.5.3	> 1 x 10 <sup>11</sup> Ω, Pass
Electromigration	Pass
(85°C, 88.5%RH, 596hrs)	
IPC-TM-650 2.6.14.1	
Spread Factor	
JIS Z 3197 8.3.1.1	
230°C	> 75.5%
245°C	> 81.6%
260°C	> 83.7%
Wettability	
IPC-TM-650 2.4.14.2	
JIS Z 3197 8.3.1.2	
235°C	4.16 mN, 0.805 sec
245°C	4.69 mN, 0.620 sec
255°C	4.86 mN, 0.485 sec
Mechanical Properties (As-Cast)	
Instron Series IX Automated	
Materials Test System	
ASTM E8M (3 mm/min at 23 °C)	
Tensile Strength	76.17 MPa
Yield Strength	56.18 MPa
Max Percent Strain	39.08 %
Energy to Yield Point	0.25 J
Energy to Break Point	18.39 J
Toughness	26.01 MPa
Creep Resistance	> 300hrs @ 145°C
Load at 1kg	> 170hrs @ 150°C
Cycle Fatigue Resistance	> 19,000 N <sub>f</sub>
ASTM E606-92	

### Application

For wave soldering applications, the solder can be used at > 245°C, depending on PCB design & complexity. Conveyor speed can be set up to a maximum of 1.8 m/min for single-sided boards and recommended to set at between 1.2m/min to 1.6m/min for double-sided boards. Recommended preheat temperature is 90 – 120°C on-board, dependent on flux activation temperature, machine design and board complexity.

For dipping applications, it is recommended to use at temperatures > 245°C, depending on applications.

### Top-up Solder

Viromet 347 is recommended for top-up purpose.

### Storage

Store the solder alloy in a cool, dry and non-corrosive environment. Wrap up the solder alloy when not in use to reduce exposure to environment. V347 lead free solder bar and solid wire can be kept for 5 years if proper storage conditions are observed.

### Health & Safety

The product when use or handling maybe hazardous to health or environment. Please refer to Material Safety Data Sheet for more information.

### Packaging

Solder Bar: 25kg per box, Solid Wire: 20kg per roll (Diameter: 0.25, 0.3, 0.4, 0.5, 0.6, 0.8, 1.0, 1.2, 1.6, 2.0 and 3.0 mm). For any other packing requirements, please refer to the sales department.

#### DISCLAIMER OF LIABILITY

"All statements, information and recommendations contained in this catalog are based on data and test results which we consider, to the best of our knowledge and belief, to be reliable and informative to the users but the accuracy and completeness thereof is not guaranteed. No warranty, expressed or implied, statutory or otherwise, is given regarding the use of the information and products contained in this catalog since the conditions and suitability for use, handlings, storage or possession of the products are determined by the users and are therefore beyond our control. We shall not be liable in respect of any liabilities, losses (including consequential losses), damages, proceedings, costs, claims or injuries whatsoever sustained or suffered by the users (including any third parties) in connection with the use of the information, recommendation and the products contained in this catalog."

### Singapore Asahi Chemical and Solder Industries Pte Ltd

47 Pandan Road Singapore 609288

Tel: +65 6262-1616 Fax: +65 6261-6311

Website: <http://www.asahisolder.com> Email: [enquiry@sinasahi.com.sg](mailto:enquiry@sinasahi.com.sg)