

SCS705 Lead Free Solder Alloy



Product Description

SCS705 (Sn/Cu0.7/Ag0.5/Si0.02), a cost saving tin copper based lead free alloy, is recommended as an option to high silver alloys or existing low silver content alloy in the market. Its applications cover wave soldering, dipping processes, manual/auto soldering and solder joints touch up using solder wires. This cost effective alloy has been designed to meet the most stringent requirements of the electronics industries.

Asahi SCS705 and its top up solder SCS205 solder alloys are available in hand-casted and extruded bar form. They are also available in solid wire form for autofeeding system. Asahi alloys could be produced into any forms upon users request and application.

Alloy Composition

Main Composition		Asahi Specs (wt%)
Tin	Sn	Remainder
Copper	Cu	0.7 +/- 0.1
Silicon	Si	0.02 +/- 0.01
Silver	Ag	0.5 +/- 0.1
Contamination		
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
Indium	In	0.10 max
Nickel	Ni	0.01 max
Lead	Pb	0.05 max
Antimony	Sb	0.05 max
Zinc	Zn	0.003 max

Specification

Item	Result
Alloy Melting Temperature	218 - 225°C
DSC at 5°C/min	
Density	7.32 g/cm ³
Water Displacement Method	
Surface Insulation Resistance	
(85°C, 85%RH, 168hrs)	> 1 x 10 ⁸ Ω, Pass
IPC-TM-650 2.6.3.3	> 1 x 10 ¹¹ Ω, Pass
JIS Z 3197 8.5.3	Pass
Electromigration	
(85°C, 88.5%RH, 596hrs)	
IPC-TM-650 2.6.14.1	
Mechanical Properties (As-Cast)	
Instron Series IX Automated	
Materials Test System	
ASTM E8M (3 mm/min at 23°C)	
Tensile Strength	36.65 MPa
Yield Strength	27.33 MPa
Max Percent Strain	67.81 %
Energy to Yield Point	0.077 J
Energy to Break Point	14.48 J
Toughness	20.49 MPa

Application

For wave soldering applications, the solder can be used at 250 – 265°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 and HASL applications, it is recommended to use at temperatures > 260°C, depending on applications.

Top-up Solder

Control limit for Cu% is 0.5% to 1.0%. SCS205 is recommended for top-up purpose when the Cu% is $\geq 0.7\%$ whereas SCS705 is recommended for top-up purpose when the Cu% is $< 0.7\%$. Please refer to Asahi technical staffs for more information on the control of Cu% in the solder pot.

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. SCS705 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