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Technical Datasheet

Clearflow M1

Cored Solder Wire with Activated Rosin Flux

Applications

DKL Clearflow M1 is a new product developed for all lead-free solder alloys and applications. The new activator system is based on a previous successful activator. Clearflow M1 is designed for applications where higher activation with less residues are required.

Product Description

Clearflow M1 is a halide containing, rosin based no clean solder wire. The standard flux content is 2.2 % but 1.1%, 3.3% and 4.6% are also available. The activator of Clearflow M1 is designed to meet the higher temperature requirements for lead free alloys. Clearflow M1 shows good thermal stability due to a modified rosin. The post soldering residues, can be left on the board without cleaning. Clearflow M1 is available in a variety of lead-free alloys e.g. SnCu0,7; SN100C, Sn96C (SAC 387), Sn97C (SAC 305) and Sn99Cu0.7Ag0.3 (Lowsac). It is supplied in a wide range of diameters from 0.2 – 3.25mm on 250g, 500g and 1kg reels.

Performance Characteristics:

- Classified per J-STD-004B as: ROM1
- Classified per EN 61190-1-1: ROM1
- Metal classified per EN 61190-1-3.
- RoHS and REACH compliant*
- Compatible with RoHS compliant solder masks
- Excellent solderability
- Clear hard residues

Patent Information:

DKL Metals Ltd offer licensed products:
SN100C-SnCu0,7Ni (EU 0985486; JPN 3152945; US 6180055)
SN96C-SnAg3,8Cu0,7 (JPN 3027441; US 5527628)
* Clearflow M1 contains no substances in concentrations which are prohibited by the European legislation 2002/95/EG ("RoHS").

Physical Properties:

- Acid Number: 200 ± 5% mg KOH/g of flux

Tested to J-STD-004, IPC-TM-650, Method 2.3.13

- Spread Test: 138 mm² ± 15mm²

Tested to DIN EN ISO 9455-10:2000 (alloy SN100C)

- Copper Mirror Corrosion: Pass

Tested to J-STD-004A/B, IPC-TM-650, Method 2.3.32

- Silver Chromate Test: Positive

Tested to J-STD-004B, IPC-TM-650, Method 2.3.33

- Chlorides and Bromides: 1.5%

Tested to J-STD-004B, IPC-TM-650, Method 2.3.35

- Corrosion Test: Pass

Tested to J-STD-004A/B, IPC-TM-650, Method 2.6.15

- Fluoride by Spot Test: Pass

Tested to J-STD-004B, IPC-TM-650, Method 2.3.35.1

- SIR, IPC:

Tested to J-STD-004, IPC-TM-650, Method 2.6.3.3
Test board 0,2mm spaces, 3mm lines, 5Volt bias voltage**

- Electrochemical migration: Pass

Test board 0,2mm spaces, 3mm lines; 5Volt bias voltage
Data given for SN100C, 1.1%, ø1mm

Application:

Clearflow M1 is suitable for hand and robotic soldering operations where fast wetting and defect free soldering is required. Due to the wide range of diameters available it is easy to select the correct size to suit the application being soldered.

Packaging:

Reel weight	0.25 kg	0.5 kg	1 kg
Reel marking			Hafner
Reel height	57 mm	57 mm	
Reel diameter	66 mm	66 mm	
Reel hole diameter	21 mm	21 mm	
Packing (reels/carton)	10/20	10/20	

Standard Diameters/Flux Content:

Wire diameter	0.2, 0.3, 0.5, 0.6, 0.7, 0.8, 1.0, 1.2, 1.6, 2.0, 2.5, 3.0, 3.25 mm
Flux content (M/M)	1.1, 2.2, 3.3, 4.6 %

Other diameters and flux contents available on request.

Physical Properties Lead Free Alloys:

Clearflow M1 cored solder wire is available in the following lead-free alloys:

Alloy Name	Composition	Melting Point (°C)	Tensile Strength* 10mm/min (Mpa)	Strain* (%)
SN100C	SnCu0,7Ni	227	32	48
SAC387	SnAg3,8Cu0,7	217	52	27
SAC305	SnAg3,0Cu0,5	217-220	50	32
SnAg4	Sn96Ag4	221	46	33
SnSb5	Sn95Sb5	235-240	46	38
SnCu3	Sn97Cu3	227-310	55	22
SnCu0,7	Sn99,3Cu0,7	227	32	48
BiSn42	Bi58Sn42	138	75	33
LowSAC	Sn99Cu0.7Ag0.3	217-227	29	22

Further alloys are available on request. *Mechanical properties from bulk samples.

Max. Impurity level of SN100C

Sn	Cu	Ni	Pb	Sb	Bi	Ag	Zn	Fe	Al	As	Cd
Bal	**0.6 ±0.1**	*	**0.05 max**	**0.05 max**	**0.03 max**	**0.05 max**	**0.002 max**	**0.02 max**	**0.002 max**	**0.03 max**	**0.002 max**

Max. Impurity level of SN96C

Sn	Cu	Ni	Pb	Sb	Bi	Ag	Zn	Fe	Al	As	Cd
Bal	**0.7 ±0.1**	**0.005 max**	**0.05 max**	**0.05 max**	**0.01 max**	**3.8 ±0.2**	**0.001 max**	**0.008 max**	**0.001 max**	**0.01 max**	**0.001 max**

Storage/Shelf Life:

Store in a clean dry environment at normal room temperatures. Has a minimum 2 years shelf life.

Health & Safety:

Read the material safety data sheet and warning label before use.

DKL Clearflow M1 Cored Solder Wire is manufactured in the UK.

Version 2 01/12/2022