Technical Data Sheet

X32SQ/1-SMT

July 2010

PRODUCT DESCRIPTION

X32SQ/1-SMT provides the following product characteristics:

Technology	Liquid flux
Application	Wave soldering flux

X32SQ/1-SMT liquid flux is recommended for consumer electronic applications using conventional wave soldering machines or units with nitrogen inerted waves. It features minimal residues, especially when used with pallets, due to the levels of solids in the formulation.

FEATURES AND BENEFITS

- Halide Free
- No cleaning flux
- Excellent solderability on conventional surface finishes
- Highly effective solderability on oxidized metal surface finishes
- Minimal residues to interfere with ATE probes without cleaning
- Low solder balling
- Foam, spray or wave applications

TYPICAL PROPERTIES

Liquid Flux Typical Properties

Color	Colorless
Solids Content, %	1.9
Halide Content, %	0
Acid Value, mg KOH, g	18
Specific Gravity @ 25°C	0.802
Flash Point	see MSDS

DIRECTIONS FOR USE

The Printed Circuit Board:

X32SQ/1-SMT is recommended for use on copper or tin-lead coated PCBs. It is particularly effective on bare, passivated or lacquered (resin-coated) copper circuit boards, plus poorly preserved copper substrates. Low residue fluxes generally produce poor through-hole filling, particularly on copper finishes. X32SQ/1-SMT is especially formulated to overcome this problem.

Machine Preparation:

When switching to X32SQ/1-SMT from any other flux, ensure all fingers, pallets and conveyors are thoroughly cleaned.

Fluxing

X32SQ/1-SMT is formulated for use in spray fluxers in the same way as ordinary fluxes on standard wave soldering machines. It is important to remove excess flux from the circuit boards using the standard air knife supplied on the wave soldering machine. An air pressure of about 5-7 psi is recommended and the nozzle should be about 25mm below the board and angled back at a few degrees to the perpendicular to the plane of the board. This will ensure effective removal of excess flux without transferring droplets to the top of the following board. X32SQ/1-SMT can be applied by spray or wave with an upper application limit of 40g/M2 of circuit. Good soldering can be achieved with half this application.

Flux Control

Control of the flux concentration can be achieved in the conventional manner by measuring temperature and specific gravity. However, as the specific gravities of the flux and thinners are similar and will vary with water content, flux concentration control by measurement of acid value is more convenient and accurate.

Preheating

- The optimum preheat temperature and time for a PCB depend on its design and the thermal mass of the components but the cycle should be sufficient to ensure that the flux coating is not visibly wet when it contacts the wave.
- It is advantageous to fit a topside canopy over the preheaters to produce more effective drying and Activation.
- At a speed of 1.5m/min, a contact length of 38 to 50 mm between the wave and the PCB is recommended. At lower speeds, this contact length should be reduced.
- Conditions will vary from one machine to another but the settings listed below are a guide for both lead free and leaded alloys.
Conveyor Speed, ft/min	Conveyor Speed, M/min	Topside Preheat, °C	Topside Preheat, ºF
4	1.2	80-85	176-185
5	1.5	90-95	194-203

  .
- **IT IS IMPORTANT** that flux solvent be removed by the preheat and that the PCB **IS NOT WET** when it reaches the solder wave.
- It is advantageous to fit a topside canopy over the preheaters to produce more effective drying and activation. This will allow the use of faster conveyor speeds and improve soldering.

Solders

- X32SQ/1-SMT can be used with SnPb solder alloys.
- The recommended bath temperature is 260°C .
- The solder bath temperature can generally be reduced compared with processes using conventional fluxes.
- Temperatures as low as 235°C may be used in some situations and this results in improved soldering and less wastage through drossing.
- Dwell time on the wave should be 1.5 to 2.5 seconds.
- Conveyor speed for dual wave systems should be at least 1.2m/min.

Cleaning:

1. Special applications may have regulations insisting on board cleaning and in such cases MCF800 cleaner may be used.
2. This is an economic cleaner which is free from CFC compounds and may be used to remove any small accumulation of flux solids that might develop on parts of the soldering machine after prolonged use.
3. Machine contamination will in any case be much less than with conventional rosin fluxes.
4. Unlike water soluable fluxes, this product is not corrosive towards PCB-handling equipment.

RELIABILITY PROPERTIES

IPC Corrosion	IPC TM-650-2.6.15c	Pass
Copper Mirror Corrosion	IPC TM-650-2.3.32	Pass
Chlorides & Bromides	IPC TM-650-2.3.33	Pass
Corrosion	IPC TM-650-2.6.15c	Pass
SIR	IPC TM-650-2.6.3.3a	Pass
J-STD-004		ORL0

PACKAGING

Containers: X32SQ/1-SMT is supplied in:

- 1, 5 and 55 gallon drums

Other packaging types may be available on request; please contact your local technical service helpdesk for assistance.

Storage:
It is recommended to store X32SQ/1-SMT at 10 to 30°C. X32SQ/1-SMT is classified as FLAMMABLE (as determined by OSHA) and must be stored in compliance with relevant regulations.

Shelf Life:
The shelf life of X32SQ/1-SMT is 2 years when stored as recommended in the original container.

DATA RANGES

The data contained herein may be reported as a typical value and/or a range. Values are based on actual test data and are verified on a periodic basis.

GENERAL INFORMATION

For safe handling information on this product, consult the Material Safety Data Sheet (MSDS).

Not for Product Specifications
The technical information contained herein is intended for reference only. Please contact Henkel Technologies Technical Service for assistance and recommendations on specifications for this product.

Conversions
(°C x 1.8) + 32 = °F
kV/mm x 25.4 = V/mil
mm / 25.4 = inches
µm / 25.4 = mil
N x 0.225 = lb
N/mm x 5.71 = lb/in
N/mm² x 145 = psi
MPa x 145 = psi
N·m x 8.851 = lb·in
N·m x 0.738 = lb·ft
N·mm x 0.142 = oz·in
mPa·s = cP

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