



# STANNOL®

Wenn's ums Löten geht  
When it's about soldering  
Quand il s'agit du soudage

## Technical Data Sheet

### STANNOL® solder wire X39B

#### NO-CLEAN SOLDER WIRE WITH CLEAR RESIDUES

- Halide-free
- Fast soldering on copper and brass
- Eliminates cost of cleaning
- Negligible residues
- Non-corrosive formulation

#### Description

**STANNOL® X39B Low Residue Solid** flux has been specially formulated to complement no clean wave and reflow soldering processes. It is also applicable to repair operations following a cleaning process to eliminate the need for further cleaning.

#### Application

**Soldering Iron:** The optimum tip temperature and heat capacity required for a hand soldering process is a function of the design of the iron and the task. However, unnecessarily high tip temperatures for excessive times should be avoided and good results can be obtained with a tip temperature of 340-420°C (650-780°F).

The tip of the soldering iron should be properly tinned and this may be achieved with **STANNOL® X39B** cored wire. Severely contaminated soldering iron tips should first be cleaned and pre-tinned using **STANNOL® Tippy**, then wiped on a clean, damp sponge before re-tinning with **X39B** solder wire.

**Soldering Process:** **STANNOL® X39B** flux cored wires contain a careful balance of resins and activators to provide minimal residues and high reliability without cleaning. Some adjustment to operator practices may be required to gain the maximum advantages from the product but the principles of normal hand soldering still apply. The process should be as follows:

- Apply the soldering iron tip to the work surface. The iron tip should contact both the base material and the lead at the same time to heat both surfaces properly. The excess solder on the iron tip will assist in the heating process by forming a larger contact area between the base material and the lead. It should take no more than a fraction of a second to heat both surfaces adequately.
- At this time the **X39B** flux cored wire should be applied to a part of the joint surface away from the soldering iron and allowed to flow to form the joint fillet. This should take about ½ second.  
*Note: If the solder is applied directly to the soldering iron tip, the flux may be overheated and its effectiveness diminished. Do not apply excessive solder to the joint, as this will leave excess flux residues on the surface.*
- Remove solder from work piece and then remove the heat source (iron tip).

This total process should take from ½ to 1½ seconds per joint, depending upon mass, iron temperature and tip configuration, along with the solderability of the surfaces. Excessive times or temperatures may exhaust the flux before solder wetting has occurred and may cause increased residue levels.

**Flux:** **STANNOL® X39B** solid flux is based on modified rosins and halide free carboxylic acid activators. In use it has a mild rosin smell and leaves a small quantity of clear residues. It may be classified as ROL0 according to IEC 61190-1-3, LR3CN according to IPC-SF-818 or 1.2.3 according to DIN 29454-1.

**Cleaning:** **STANNOL® X39B** flux cored wires have been formulated to leave minimal quantities of flux residue and to resist spitting and fuming. Cleaning will not therefore be required in most situations so the product may be used to complement a no clean wave soldering or reflow process or to allow repair to cleaned boards without the need for a second cleaning process.

Should cleaning be required, this is best achieved in **STANNOL® Flux-Ex 200/B**. Other proprietary solvent or semi-aqueous processes may be suitable but cleaning by saponification is not recommended.

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**SIR:** Standard cored wire is available with a nominal flux content of 1.0%. The uncleaned residues PASS SIR testing to the Bellcore TR-NWT-000078 issue 3 (December 1991) and IPC Class 1,2 and 3 protocols. They also pass the electromigration test specified by Bellcore TR-NWT-000078.

BELLCORE TR-NWT-000078 ISSUE 3 SIR TEST RESULTS ON UNCLEANNED COMBS				
Test conditions	35°C, 85% RH			
Test time, h	24	96		
Surface insulation resistance, ohms	$3.17 \times 10^{11}$	$3.52 \times 10^{11}$		
Passmark, ohms		$10^{11}$		
IPC-SF-818 SIR TEST RESULTS ON UNCLEANNED COMBS				
Test conditions	85°C, 85% RH			
Test time, h	0	24	96	168
Surface insulation resistance, ohms	$1,63 \times 10^{12}$	$1,68 \times 10^9$	$3,37 \times 10^9$	$3,43 \times 10^9$
Passmark, ohms		$10^8$	$10^8$	$10^8$
BELLCORE TR-NWT-000078 ISSUE 3 ELECTROMIGRATION TEST RESULTS ON UNCLEANNED COMBS				
Test conditions	85°C, 85% RH			
Test time, h	96	500		
Bias, V (DC)	No bias	10		
Surface insulation resistance, ohms	$1.16 \times 10^9$	$5.43 \times 10^9$		
Passmark, ohms	$5.09 \times 10^9$	$8.91 \times 10^9$		

## Physical Properties und Data

General properties	STANNOL® solder wire X39B
Flux type:	REL0 (IEC 61190-1-3) / 1.2.3.B (DIN EN 29454-1) / F-SW33
Flux content:	1.0 weight % ± 0.3 %
Flux cores:	3 cores
Acid Value mg/KOH/g	215
Halide content:	none
Corrosion effect:	none, according to DIN 8516
Copper mirror:	Pass
Chromate paper	Pass
Corrosion effect:	none, according to DIN 8516
Corrosion Test:	Pass
- J-STD-004	Pass (10 days)
- IPC-SF-818	Pass
- BS 5625	Pass
- DTD 599A	Pass
- DIN 8516	Pass
- JIS-Z-3197	Pass
Standard alloys acc. to ISO 9453:2006	S-Sn60Pb40 S-Sn62Pb36Ag2
Available diameters:	from 0.4 mm
Available reel sizes:	250 g, 500 g, 1 kg

Other alloys, flux contents or reel sizes are available on request.

## Health and Safety

Before using please read the material safety data sheet carefully and observe the safety precautions described.

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