



SOLDERING

# ECOREL™ FREE HT 235-16LVD

TIN ANTIMONY LEAD FREE ALLOY TYPE 6 SOLDER PASTE  
NO CLEAN SMT PRINTING PROCESS  
EXCELLENT LOW VOIDING & GOOD WETTING

## BENEFITS

ECOREL FREE HT235-16LVD is a no clean, lead-free solder paste using Tin-Antimony (SnSb5) alloy formulated with the reliable chemistry of the Ecorel™ LVD range. It's especially developed for hybrid, microelectronics or stacking assemblies where a higher melting point could be required at the first soldering stage. Provided in Type 6 granulometry to accommodate soldering of ultra-fine pitch components.

<b>PERFORMANCE</b>	<ul style="list-style-type: none"> <li>Low voiding to offer great heat dissipation</li> <li>Suitable for electronic assemblies operating close to 200°C</li> </ul>
<b>COST</b>	<ul style="list-style-type: none"> <li>Good first pass yield testability in ICT</li> <li>Increase lifetime and reliability of your product, hence reduces risk of premature failures.</li> </ul>
<b>HSE</b>	<ul style="list-style-type: none"> <li>No CMR containing substances</li> <li>Lead Free &amp; no halogen</li> </ul>

## FEATURES

FEATURES	ECOREL FREE HT 235-16LVD T6
Alloy	Sn95Sb5
Melting point (°C/°F)	232-240
Metal content (%)	88+/-0.5
Post reflow residues	Approximately 5% by w/w
Halogen content	No Halogen
Powder size	5 – 15 microns / Type 6
Spiral pump* Viscosity (Pa.s 25°C)	Typical 250

\*The equipment used to test spiral pump viscosity is Malcom at a 10 rpm rotation speed/Viscosity may be subjected to slight adjustment

## CHARACTERISTICS

CHARACTERISTICS	VALUES	
Flux Classification	ROL0	ANSI/J-STD-004
	113	ISO 9454
Solder balling test	Pass	ANSI/J-STD-005
Copper mirror	Pass	ANSI/J-STD-004
Copper corrosion	Pass	ANSI/J-STD-004
SIR (IPC)	Pass	ANSI/J-STD-004

## PROCESS RECOMMENDATION

The best process will depend on factors such as operating conditions, equipment, board or component design. Our team is ready to advise you.

### SOLDER PASTE PREPARATION

- Put the paste at room temperature for at least 4 hours prior to use.
- Before printing, it is essential to properly mix the solder paste, either manually with a spatula or by doing several preliminary prints on the stencil.
- Automatic solder paste mixing is neither required nor advised.

### PRINTING GUIDELINE

Apply the solder paste to the stencil to form a roll of 1 to 2 cm in diameter all along the squeegee or around 100g per 10 cm of squeegee length. This way, the solder paste will roll easily under the squeegees to offer excellent printing quality.

Pressure set up to be defined according to particle size type and depends on printing speed and printing equipment.

PARAMETER	REMARK
Stencil life in continuous printing process	>8 hours
Abandon time between prints	>2 hours
Steady tackiness	>8 hours

### REFLOW GUIDELINE

Use of nitrogen is strongly recommended to enhance soldering quality especially for type 5 and 6 particle size.

Linear preheating ramp rate is recommended, however high-density boards may require a soak zone during preheating to stabilize the temperature over the circuit board before peak reflow.

REFLOW STEPS	REMARKS
Preheating ramp rate with linear preheating	0.7 to 1.2°C/s (33 to 34°F/s) ( according to the circuit board size and density
Preheating steps in case of preheating soak zone	<ul style="list-style-type: none"> <li>From 20 to 150°C (68 to 302°F): ramp rate 1 to 2°C/s (33 to 36°F/s)</li> <li>Soak zone between 150 to 180°C (302 to 356°F): 60-140s reflow</li> <li>From 170°C (380°F) to liquidus 1 to 2°C/s (33 to 36°F/s)</li> </ul>
Peak ramp rate	1 to 2 °C/s (33 to 36°F/s)
Peak temperature	250 to 275°C (482 to 527°F)
Time above liquidus	45 to 100s - 55 to 70s typical

## CLEANING POST SOLDERING

ECOREL FREE HT 235-16LVD is a no-clean solder paste, so cleaning is not required to meet IPC standards. The chemistry is specially designed so that any remaining flux residue is chemically inert and will not impact your assembled board or packaging under normal conditions. However, when cleaning is desired or required (e.g. high reliability assembly or to improved conformal coating adhesion), the flux residue can be easily removed with INVENTEC's own formulated flux cleaners.

*Inventec has more than 40 years experience in high-tech cleaning for aqueous and solvent based systems. Our solder materials are aligned with our cleaning solutions, providing you a guaranteed cleaning result with our materials.*

PROCESS TYPE	PCBA DEFLUXING SOLUTIONS
Manual	Quicksolv™ DEF90 EL
Aqueous system (Immersion or spray)	Promoclean™ DISPER 607
Co-solvent system	Topklean™ EL 20P or EL 20A + HFE bases solvents
Mono-solvent (Azeotropic)	Promosolv™ 70ES

Other products available, depending on specific customer requirements. Check also our maintenance cleaning solutions.

## PACKAGING, STORAGE & SHELF LIFE

- To ensure the best product performance, the recommended storage temperature range is from 0°C to 10°C.
- For an optimal preservation, store cartridges in a vertical position, tip downwards.
- Shelf-life is 6 months for jar packaging and for cartridges

### AVAILABLE PACKAGING



JAR  
500g



CARTRIDGE  
600g

## HEALTH, SAFETY & ENVIRONMENT

No issues when used as recommended.

In accordance with the Annex II of Directive 2011/65/UE (RoHS), including its amendments, we certify that this product does not contains quantities above 0.1% of Hg, Pb, Cr VI, PBB, PBDE, DEHP, BBP, DBP, DIBP and above 0.01% of Cd. . INVENTEC PERFORMANCE CHEMICALS also fulfils its direct obligations under the REACH and Conflict Mineral regulations.

Please refer always to the Safety Data Sheet (SDS or MSDS) prior to use.

## TECHNICAL SUPPORT & FREE-OF-CHARGE TESTING

---

Inventec has a worldwide dedicated Technical Support team to help you along the different stages of our cooperation.

Depending on your request, we provide online or onsite support

- to select the right product based on your specific needs
- to assist you in your product qualification process
- to guide you with the initial set up of you process at all your worldwide manufacturing facilities
- to provide fast response on technical issues which could occur at any time during mass production.

When prior cleaning is required, customers are also welcome in our CLEANING CENTERS to see the process in action and to get convinced by our solutions. We cover water- and solvent based processes.

Inventec is unique in the world by developing not only soldering materials but also cleaning and coating solutions. These materials are very closely linked with each other from a process point of view. Talking to our Technical Team, who understands very well these 3 different product groups, will help you greatly to overcome technical challenges within your overall process.

Contact our technical support via [contact@inventec.dehon.com](mailto:contact@inventec.dehon.com) or your local sales representative.

## ABOUT INVENTEC

---

Inventec is a global provider of SOLDERING, CLEANING & COATING materials for Electronic, Semiconductor and Industrial applications. For over 40 years we have shown leadership in innovation by putting HEALTH IMPACT, SUSTAINABILITY and RELIABILITY at the core of our product development.

With ISO 9001 & 14001 production sites in France, Switzerland, USA, Mexico, Malaysia and China we can guarantee a smooth and cost-effective supply chain.

We supply to many industries but the excellent performance of our products in applications which demand high reliability, leads us to focus especially on the AUTOMOTIVE, AEROSPACE, SEMICONDUCTOR, ENERGY and MEDICAL industry.

[www.inventec.dehon.com](http://www.inventec.dehon.com)



S O L D E R I N G • C L E A N I N G • C O A T I N G

This data is based on information that the manufacturer believes to be reliable and offered in good faith. In no event will INVENTEC PERFORMANCE CHEMICALS be responsible for special, incidental and consequential damages. The user is responsible to the Administrative Authorities (regulations for the protection of the Environment) for the conformity of his installation.

Inventec Performance Chemicals – 26 rue de Coulons. 94360 Bry-sur-Marne, France  
Limited company with capital of 600 000€ - 964 500 706 RCS Créteil