



ECOREL™ 0307-16LVD

SAC0307 SOLDER PASTE
SMT PRINTING PROCESS
LOW VOIDING

BENEFITS

ECOREL 0307-16LVD is a no-clean SAC0307 solder paste composed of 99.0% tin, 0.3% silver, and 0.7% copper. It is suitable for electronic devices that require enhanced drop-shock resistance, making it particularly suitable for wearables, handheld and portable device manufacturing. Its reduced silver content also makes it a cost-effective choice for high-volume, price-sensitive production.

ECOREL 0307-16LVD is specifically developed to offer a SAC0307 alloy with our proven low-void 16LVD chemistry. This low-voiding technology helps compensate for the reduced mechanical strength typically associated with low-silver alloys. The 16LVD flux system delivers a wide process window, good wetting properties and consistently reliable soldering performance. It leaves clear, transparent residues even after multiple reflow cycles and supports high first-pass yields during ICT testing. Additionally, the flux residues are compatible with most conformal coatings available on the market.

SAC0307 is typically selected for its improved drop-shock resistance, in applications where high mechanical strength and thermal cycling performance are less critical.

PERFORMANCE	- Low voiding - Excellent drop-shock resistance - Broad process window and good wetting properties - Clear flux residue - Good compatibility with conformal coatings
COST	- Lower cost due to low silver content - Less sensitive to silver price fluctuations
HSE	- No CMR containing substances - Lead Free & no halogen

FEATURES

PRINTING OPTIONS

SPECIFICATIONS	ECOREL 0307-16LVD 88.0T4
Alloy	Sn99Ag0.3Cu0.7
Melting point	217-227°C/423-441°F
Metal content (%)	88.0 +/-0,5
Post reflow residues	Approximately 5% by w/w
Halogen content	No Halogen
Powder size	20-38 microns / Type 4
Spiral pump* Viscosity (Pa.s 25°C)	Typical 160**

*The equipment used to test spiral pump viscosity is Malcom at a 10 rpm rotation speed

**Viscosity may be subjected to slight adjustment

The chemistry of ECOREL 0307-16LVD is also available with other alloys and particle sizes on request.

SOLDERING
CLEANING
COATING
COOLING

CHARACTERISTICS

CHARACTERISTICS	VALUES	METHOD
Flux Classification	ROLO	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
Chromate paper	Pass	ANSI/J-STD-004
SIR (IPC)	Pass	ANSI/J-STD-004
SIR (BELLCORE)	Pass	Bellcore
Electromigration (IPC / Bellcore)	Pass	ANSI/J-STD-004 / Bellcore
Oxygen bomb test	Pass	EN 14582

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

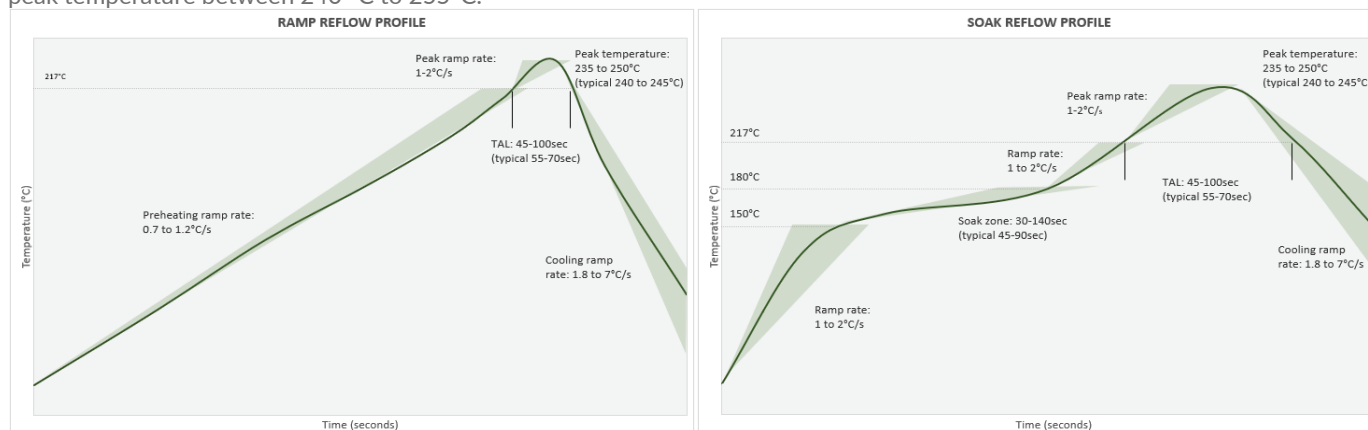
Apply the solder paste to the stencil to form a roll of 1 to 2cm in diameter all along the squeegee or around 100g per 10cm of squeegee length. This way, the solder paste will roll easily under the squeegees to offer excellent printing quality.

PARAMETER	REMARK
Printing speed	Minimum 20 to maximum 150 mm/s (1 to 6 inches/s) Maximum depends on printer capabilities
Minimum pitch	0.3 mm
Pressure	Guideline value for a 250 mm squeegee Printing Speed / Pressure 50 mm/sec / 4kg 100mm/sec / 6kg 150mm/sec / 8kg
Stencil life in continuous printing process	>12 hours
Abandon time between prints	>4 hours
Steady tackiness	>16 hours

REFLOW GUIDELINE

This paste can be processed under air or nitrogen. 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.

Although low silver alloys usually show quite similar reflow graph like SAC 305 still it is recommended to choose a slightly higher peak temperature between 240 °C to 255°C.



REFLOW STEPS	REMARKS
Preheating ramp rate with linear preheating	0.7 to 1.2°C/s (according to the circuit board size and density)
Preheating steps in case of preheating soak zone	From 20 to 150°C (68 to 302°F): ramp rate 1 to 2°C/s Soak zone between 150 to 180°C (302 to 356°F): 30-140s reflow (typical soak 45-90s) From 170°C (380°F) to liquidus 1 to 2°C/s
Peak ramp rate	1 to 2 °C/s
Peak temperature	235 to 250°C (455 to 582°F) / 240 to 245°C (464 to 473°F) is optimum The paste can stand a temperature higher than 250°C (482°F), but it is not recommended to preserve component integrity
Time above liquidus	45 to 100s - 55 to 70s typical
Cooling ramp rate	1.8 to 7°C/s

CLEANING POST SOLDERING

This product 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 on 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 over 60 years' experience in high-tech cleaning for aqueous and solvent based systems.
Our solder materials are aligned with our cleaning solutions, which guarantee excellent cleaning.*

PROCESS TYPE	DEFLUXING SOLUTIONS
Manual	Quicksolv™ DEF90, Quicksolv™ DEF70, Promoclean™ TP61
Aqueous (Immersion or spray)	Promoclean™ DISPER 607, Promoclean™ DISPER 707, Promoclean™ DISPER 800
Co-solvent	Topklean™ EL 80 + Promosolv™ rinsing solvents
Mono-solvent (vapor phase)	Promosolv™ 70ES, Promosolv™ 70IS

Other products are 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 9 months for jar packaging and 9 months for cartridges.

AVAILABLE PACKAGING



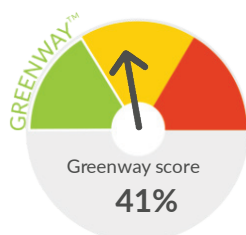
JAR
500G



CARTRIDGE
1200G

HEALTH, SAFETY & ENVIRONMENT

ECOREL 0307-16LVD is **NOT** a **GREENWAY** product. Although fully in line with safety & environmental regulations, this product doesn't match our strict criteria to be labelled as a Greenway product. More info on our Greenway concept via this [link](#).



LOOKING FOR A MORE SUSTAINABLE SOLUTION?

GREENWAY ALTERNATIVE

We currently don't have a Greenway alternative but our target is to develop one in the near future. In case you want us to prioritize the development of a Greenway alternative, do not hesitate to contact us.

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 contain 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. Our SDS can be downloaded at www.quickfds.com. Your email address is requested, so we can send you the latest version of the SDS when a future update occurs.

TECHNICAL SUPPORT

Inventec has a worldwide dedicated Technical Support team to help you along with 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
- assist you in your product qualification process
- guide you through the initial setup of your process at all worldwide manufacturing facilities
- provide a fast response to technical issues that may occur at any time during mass production

When 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.

For the electronics manufacturing industry, Inventec offers a unique advantage by formulating and supplying soldering, cleaning, and coating solutions. These materials are closely interconnected from a process standpoint. Our Technical Team's expertise across all three areas helps you more effectively overcome technical challenges through your entire production process.

Contact our technical support via contact@inventec.dehon.com or your local sales representative.

ABOUT INVENTEC

Inventec Performance Chemicals is a global B2B provider of Electronic Assembly Materials, Precision Cleaning Fluids, Protective Coatings and Thermal Management Fluids. For over 60 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 across the globe. Trusted across many industries, our solutions excel in automotive, aerospace, semiconductor, energy, and medical applications where reliability matters most.

www.inventec.dehon.com

SOLDERING
CLEANING
COATING
COOLING

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 damage. The user is responsible to the Administrative Authorities (regulations for the protection of the Environment) for the conformity of his installation.

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