SOLDERING

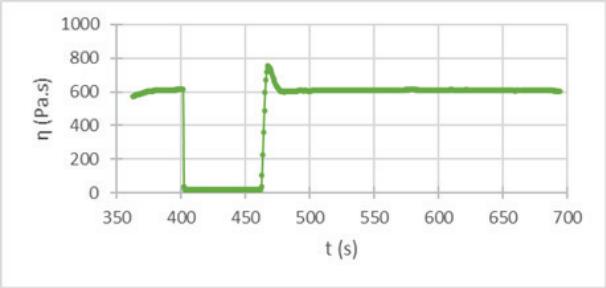
ECOREL™ FREE JP42

Sn42Bi57Ag1 SOLDER PASTE
JET PRINTING PROCESS
REDUCED REFLOW PEAK

BENEFITS

ECOREL FREE JP42 is low-melting point, lead-free solder paste especially designed to work on jet printing equipment and to guarantee continuous and consistent deposits of solder paste. Although the flux is chemical inert, it is easy to clean with water or solvent based processes. It is optimized to be used on Mycronic, Vermes, Musashi and Essemtec jet printing equipment.

Not only is this product ideal to solder temperature-sensitive components but it also reduces the energy needs of your process.



The graph represents our rheological measurement, which shows the very good thixotropic recovery of Ecorel Free JP42. Stable viscosity recovery after a high shear stress on the solder paste guarantees consistent volume deposits.

PERFORMANCE	▪ Excellent continuous & consistent paste deposits ▪ Chemical inert flux residue reducing risk of electrochemical migration & corrosion ▪ Easy to clean reflowed flux residues ▪ Ideal for soldering temperature-sensitive components ▪ Reduced component and PCB warpage risk
COST	▪ Minimizes line-down time & the need for re-work ▪ Increase lifetime and reliability of your product, hence reduces risk of premature failures ▪ Reduced reflow peak temperature, saving energy
HSE	▪ Lead free ▪ No halogen ▪ Free of CMR containing substances

FEATURES

STANDARD JET PRINTING OPTIONS

SPECIFICATIONS	ECOREL FREE JP42 85.0T6
Alloy	Sn42Bi57Ag1
Melting point (°C/°F)	139-140°C/282-284°F
Metal content (%)	85
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)	70-130**
Syringe	EFD
Dedicated for equipment	Vermes, Essemtec, Musashi

*The equipment used to test spiral pump viscosity is Malcom at a 10 rpm rotation speed.
**Slight adjustments in viscosity possible after finalizing full industrialization test procedure.

CHARACTERISTICS

CHARACTERISTICS	VALUES	TEST METHOD
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
SIR (Bellcore)	Pass	Bellcore
Electromigration (IPC / Bellcore)	Pass	ANSI/J-STD-004 / Bellcore

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.
- Syringes must be used in five days following their first use.

EQUIPMENT GUIDELINE

Depending on kind of jetting equipment, different parameter setup is required. On Mycronic equipment, standard setup program for leadfree solder paste can be used. For Vermes, Essemtec, Musashi or other brands please ask for a suggested setup.

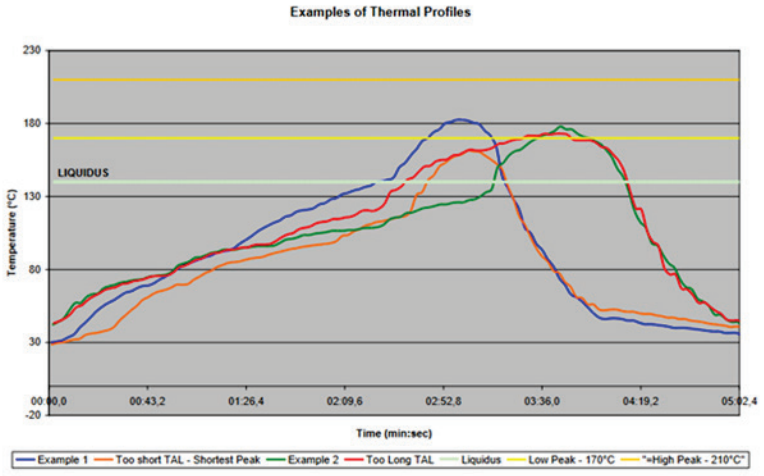
REFLOW GUIDELINE

For solder pastes in type 6 we strongly advise reflowing in a nitrogen atmosphere to improve wettability. Linear preheating ramp rate is recommended.

REFLOW STEPS	REMARKS
Preheating ramp rate with linear preheating	0.5 to 1°C/s (according to the circuit board size and density) Around 120 to 240 sec. from start to liquidus
Peak ramp rate	0,5 to 2°C/s
Peak temperature	170 to 210°C (338 to 410°F)
Time above liquidus	30 to 90 sec.
Cooling ramp rate	2 to 5°C/sec.

We recommend staying within the specifications above-mentioned. For additional guidance, some profile examples are given below.

- The red curve illustrates a too long TAL
- The orange curve illustrates the lowest limit in terms of TAL and a too low peak temperature.
- The blue and the green curves (example 1 and example 2) are within the specification.



INVENTEC PERFORMANCE CHEMICALS INSPIRING INNOVATION

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.

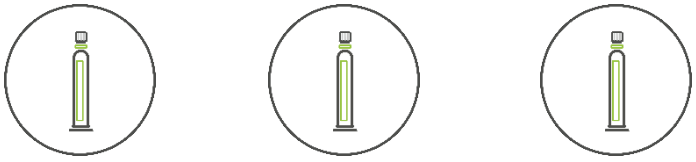
PROCESS TYPE	PCBA DEFLUXING SOLUTIONS
Manual	Quicksolv™ DEF90, Quicksolv™ DEF70, Promoclean™ TP61
Aqueous (Immersion or spray)	Promoclean™ DISPER 607, Promoclean™ DISPER 707, Promoclean™ DISPER 800
Co-solvent	Topklean™ EL 80 + Promosolv™ rinsing solvents
Mono-solvent (vapor phase)	Promosolv™ 70ES, Promosolv™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

Other products available, depending on specific customer requirements. Also check 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.
- Do not store used syringes back in fridge.
- For an optimal preservation, store syringes in a vertical position, tip downwards.
- Shelf-life is 6 months for syringes

AVAILABLE PACKAGING

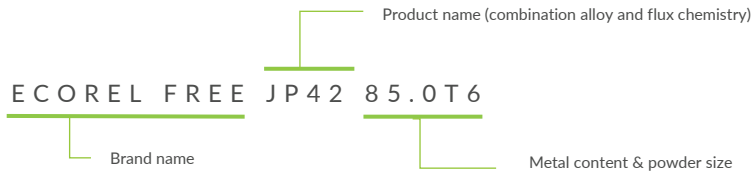


IWASHITA SYRINGE
100g (30cc)

EFD SYRINGE
100g (30cc)

EFD SYRINGE
30g (10cc)

PRODUCT ARTICLE CODIFICATION



HEALTH, SAFETY & ENVIRONMENT

ECOREL FREE JP42 is a **GREENWAY** product. More info on our Greenway concept via this link.

MAIN CONTRIBUTORS WHICH REDUCE IMPACT:

HUMAN HEALTH & SAFETY

- Lead free alloy
- Non-toxic & Low corrosive impact

ENVIRONMENT PROTECTION & RESOURCES SAVINGS

- Low environmental impact: no H labelling regarding aquatic toxicity
- Medium melting-point alloy -> saving energy

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.

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Please refer always to the Safety Data Sheet (SDS or MSDS) prior to use. Our SDS can be downloaded at www.quickfds.com. We will request to provide your email address, so we can automatically send you a new version of the SDS when a future update would occur.

TECHNICAL SUPPORT & FREE-OF-CHARGE TESTING

Inventec has a worldwide dedicated Technical Support team to help you along the various 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 your 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 or your local sales representative.

ABOUT INVENTEC

Inventec is a global provider of SOLDERING, CLEANING, COATING, COOLING materials for Electronic, Semiconductor and Industrial applications. 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.

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

SOLDERING
CLEANING
COATING
COOLING

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