



SINTERING

ECOREL™ SINTEC AP92

LOW PRESSURE AG SINTERING PASTE PRINTING APPLICATION FOR DIE-ATTACH

BENEFITS

ECOREL SINTEC AP92 is a low-pressure sintering paste for stencil or screen printing-process with silver as its main component. It has been developed for Si, SiC and GaN die attach through sintering process and ensure optimal wetting performance on DCB and AMB materials, gold, silver, copper and some nickel finishes.

It is suitable for sintering dies from 0.5x0.5 mm up to 20x20mm

Based on Nano-Join technology, ECOREL SINTEC AP92 exhibits superior levels of thermal conductivity and shear strength. Typical applications are found in the field of high-power die-attach, RF devices and power-LED.

Our sintering pastes does not contain halogen nor nanoparticles and can be stored at room temperature without affecting the workability.

PERFORMANCE	- Stable over long print-runs without degradation, keeping accurate printing performance - High thermal conductivity to offer great heat dissipation - Higher silver content without agglomeration risk - Very good wetting on all surface finishes - High shear strength for improved reliability 100% silver content post-sintering - TCT -55°C-+ 125°C >1000 cycles - Excellent compatibility with hard and soft tool
COST	- Increase lifetime and reliability of your product, hence reduces risk of premature failures - Room temperature storage - Faster process with optimized BLT result
HSE	- Lead free - No CMR containing substances - No halogen - No nanoparticles - REACH & RoHS compliant

CHARACTERISTICS

CHARACTERISTICS	ECOREL SINTEC AP92
Metal	Ag + binders
Sintering temperature	Typically 220 to 250°C
Silver content after sintering	100%

FEATURES

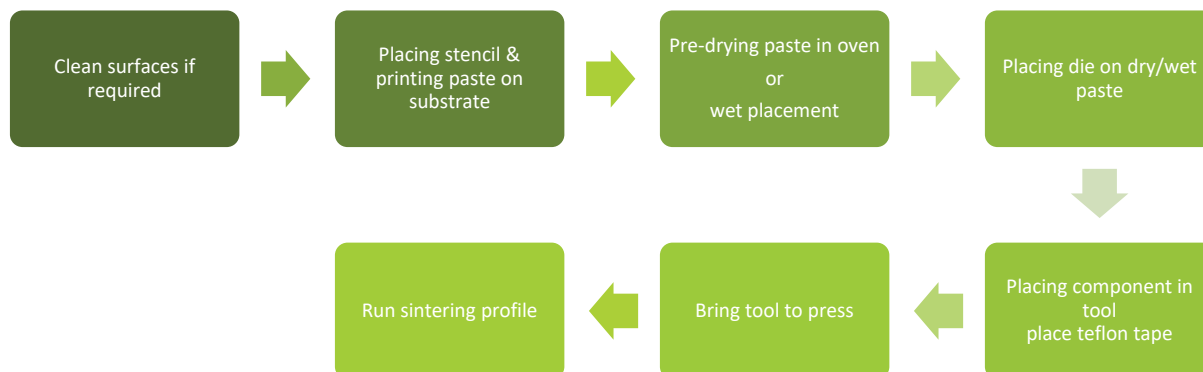
FEATURES	ECOREL SINTEC AP92
Shear strength	*40 to 90 MPa
Heat conductivity	>300 W/mK
Electric conductivity	40 MS/m

*Depending on applied sintering pressure (2-25 MPa)

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.

LOW PRESSURE SINTERING PROCESS OUTLINE



PRINTING GUIDELINE

PARAMETER	RECOMMENDED VALUE
Stencil thickness	80-120 μm
Printing speed	10 mm/sec
Squeegee angle	45°
Aperture size	Typically same as die size
Recommended wet paste thickness	~100 μm for a BLT of ~30 μm *
Abandon time	Abandon time in-between printing and drying is uncritical (5-30 Minutes)

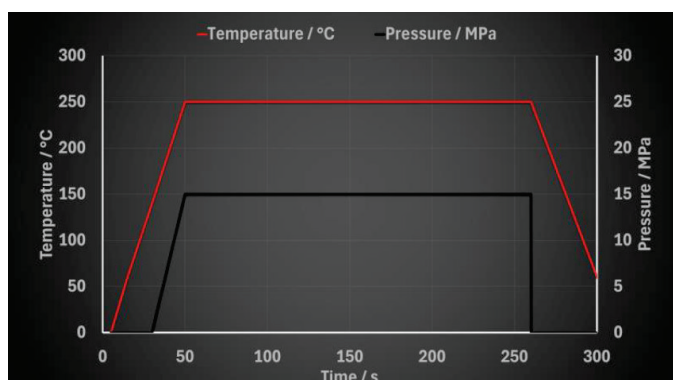
*Minimum BLT post-sintering will avoid delamination and die-cracking risk

PLACEMENT AND DRYING GUIDELINE FOR DIE-ATTACH

This paste can be used either with dry or wet placement steps and is compatible with hard or soft tool

OPTIONS	PROCESS
Dry placement with hard tool	- Pre-drying up to 20min at 120°C - Die placement with force 1-4MPa for 2sec - Pressure Sintering
Wet placement with hard tool	- Die placement with force 0,01-0,05MPa for 1sec - Drying: 25min @ 120°C - Pressure Sintering

- Drying temperature: 120-140°C during 35 min
- Sintering temperature 220-255°C 300sec Pressure 2MPa- 25MPa
- Fast cool down is not ideal



ADDITIONAL COMMENTS

- Sintering with soft-tool: temperatures and sintering time will have to slightly adapt.
- Nitrogen atmosphere is recommended with copper finish

CLEANING

When cleaning is desired or required before sintering, Inventec has a broad range of own formulated cleaners. If the copper substrates need to be cleaned before sintering (recommended), the cleaners TOPKLEAN EL80 or EL20A with IPA rinsing can be used with good result.

*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 guarantees excellent cleaning.*

PACKAGING, STORAGE & SHELF LIFE

- To ensure the best product performance, the recommended storage is at room temperature (25°C) in a dry environment.
- Prevent the paste to be exposed to light when stored.
- Shelf-life in jar is 6 months. When the packaging is opened, there is no effect on shelf-life.

AVAILABLE PACKAGING



JAR
50/250/500g

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. 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

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

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