



SOLDERING

ECOFREC™ 303E

WATER BASED NO-CLEAN LIQUID FLUX
 WAVE & SELECTIVE SOLDERING
 EXCELLENT WETTING & HIGH ELECTRONIC RELIABILITY

BENEFITS

ECOFREC 303E is a low-residue, no-clean, VOC-free flux designed for wave and selective soldering. It is based on our legacy product ECOFREC 303, offering enhanced wetting performance while maintaining exceptionally low residue levels.

Thanks to its high SIR values, cleaning before applying compatible conformal coatings is generally unnecessary.

PERFORMANCE	- Great performance for Ni/Au, Sn, Ag, HAL and OSP PCB finishes - Very low flux spreading - Exceptionally low levels of solder-ball formation - High SIR values and passes BONO corrosion test - Excellent pin-point testability
COST	- Helps to avoid pre-mature failures of your electronic assembly - No-clean formulation minimizing cleaning needs - Minimized storage and shipment costs – non-DG material - Suitable for Non explosion-protected equipment
HSE	- Free of halide (Fluoride, Chloride, Bromide) and halogen - Free of CMR containing substances - Non-VOC formulation - Greenway product

FEATURES

SPECIFICATIONS	ECOFREC 303E
Appearance	Colorless liquid
Solid content	3,5
Acid index (mg KOH/g)	32
Density at 20°C	1,005 - 1,013
Halogen content	No halogen
Flash point	no

CHARACTERISTICS

CHARACTERISTICS	VALUES	METHOD
Flux Classification	ORLO	ANSI/J-STD-004
Copper mirror	Pass	ANSI/J-STD-004
Chromate paper	Pass	ANSI/J-STD-004
SIR (IPC)	Pass	ANSI/J-STD-004
Bono Corrosion test (85°C / 85% HR – 15 days)	Pass / Corrosion Factor=1,1%	Inventec procedure

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.

ECOFREC 303E must be applied by spray. Topside preheat temperature of 110 to 130°C is recommended to boil off the water and non-volatile solvents before entering wave soldering. The temperatures obtained during preheat and solder wave will eliminate the residues and will give good cosmetics. Unlike alcohol-based fluxes, ECOFREC 303 does not require acid index and density control.

PARAMETER	REMARK
Flux amount deposit	40-80 g/m ²
Preheating PCB top side PCB bottom side	110°C/238°F maximum 130°C/266°F maximum
Conveyer speed	0,8 – 1,5 m/min
Conveyer angle	4-7° (7° typical)
Chip wave contact time	0,5-1 sec
Main wave contact time	2,5-4 sec
Solder bath temperature SnAgCu SnPb	Depending on alloy 260-270°C/500-518°F 245-255°C/473-491°F

Both laboratory testing and onsite product implementation at customers, lead to the recommended process settings. However, the actual settings may vary depending on manufactured assemblies, process equipment, components and boards being used.

Water-based fluxes have a slower physical drying rate compared to alcohol-based flux systems. Hence, it is crucial to ensure proper preheating of the assemblies before subjecting them to the wave when replacing alcohol-based flux systems with a water-based formulation.

Additionally, when using water-based fluxes, it may be necessary to decrease the amount of flux applied by approximately 15-30% compared to alcohol-based systems. In cases where equipment utilizes short-rack preheating, it might also be necessary to reduce the conveyer speed to maintain an optimal movement rate.

CLEANING POST SOLDERING

This product is a no-clean solder flux, 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 over 70 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.*

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 between 20°C to 30°C.
- Shelf-life is 18 months from production date.

AVAILABLE PACKAGING

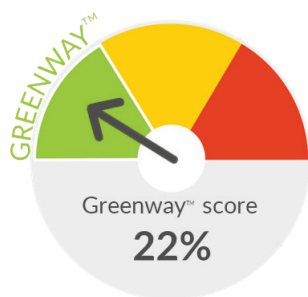


20L JERRYCAN

Please verify the packaging details, including volume and availability, with your sales representative, as they may vary depending on the production facility where the product is manufactured.

HEALTH, SAFETY & ENVIRONMENT

ECOFREC 303E is a **GREENWAY** product. More info on our Greenway concept via this [link](#).



MAIN CONTRIBUTORS WHICH REDUCE IMPACT:

HUMAN HEALTH & SAFETY

- Non-flammable, no flashpoint
- Non-toxic & low corrosive impact

ENVIRONMENT PROTECTION & RESOURCES SAVINGS

- Made from biobased dicarbon acid
- No environmental hazard: no H labelling regarding environment
- High reliability formulation (pass BONO test)
- No-clean formulation, minimizes the need for post reflow cleaning

No issues when used as recommended. Safety glasses and gloves should be worn when handling the flux.

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 & 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 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 70 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.

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