

# Solutions for ELECTRONIC ASSEMBLY & SEMICON

SOLDERING • CLEANING • COATING • COOLING

  
**INVENTEC**  
**PERFORMANCE CHEMICALS**

INSPIRING INNOVATION



SPECIFIC  
PROCESS



EXCELLENT  
COMPATIBILITY



OPTIMIZE  
PROCESS



ENVIRONMENTALLY  
FRIENDLY

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*IMPORTANT NOTICE: The technical information, recommendations and other statements contained in this document are based upon tests or experience that Inventec Performance Chemicals believes are reliable, but the accuracy or completeness of such information is not guaranteed.*

# We are part of the DEHON group



A family company created in 1874,  
first specialized in the filling and distribution of refrigerants.

- 750 collaborators worldwide
- 16 subsidiaries in 3 continents



**SMB AUTO**

Car care  
solutions & services

**climalife**

Refrigeration,  
air conditioning & heating

**matelex**  
connected refrigeration

Leak detection  
for refrigeration

**SODEREC**  
INTERNATIONAL

High-risk  
chemicals

**INVENTEC**  
PERFORMANCE CHEMICALS

Soldering, Cleaning, Coating  
& cooling solutions

**PUS**  
Powder atomizers  
systems

Powder atomizers & sieving  
Metal powders

**Crealis**

blending, filling & packing  
of chemicals

## INVENTEC PERFORMANCE CHEMICALS

**GLOBAL PROVIDER OF SOLDERING, CLEANING, COATING & COOLING SOLUTIONS  
FOR ELECTRONIC, SEMICONDUCTOR AND INDUSTRIAL APPLICATIONS**

For nearly **60 years**, we have demonstrated innovation leadership by prioritizing High Reliability applications and minimizing environmental and health impacts in our product development.

Our production sites in France, Switzerland, USA, Mexico, Malaysia, and China are ISO9001 and 14001 certified, ensuring a seamless and cost-effective supply chain.

With a portfolio of over 300 products and a track record of satisfying more than 1500 customers, we are well-equipped to identify the optimal solution tailored to your specific requirements, processes, and sustainability objectives.



### PROXIMITY

Our solutions and personnel must be accessible in all key economic regions.

### PERFORMANCE

Our solution must be efficient, and our specialized teams should have the capability to offer excellent support to our customers.

### PROTECTION

Our solutions shall be safe to use and sustainable.  
Our operations should strive for minimum environmental impact.

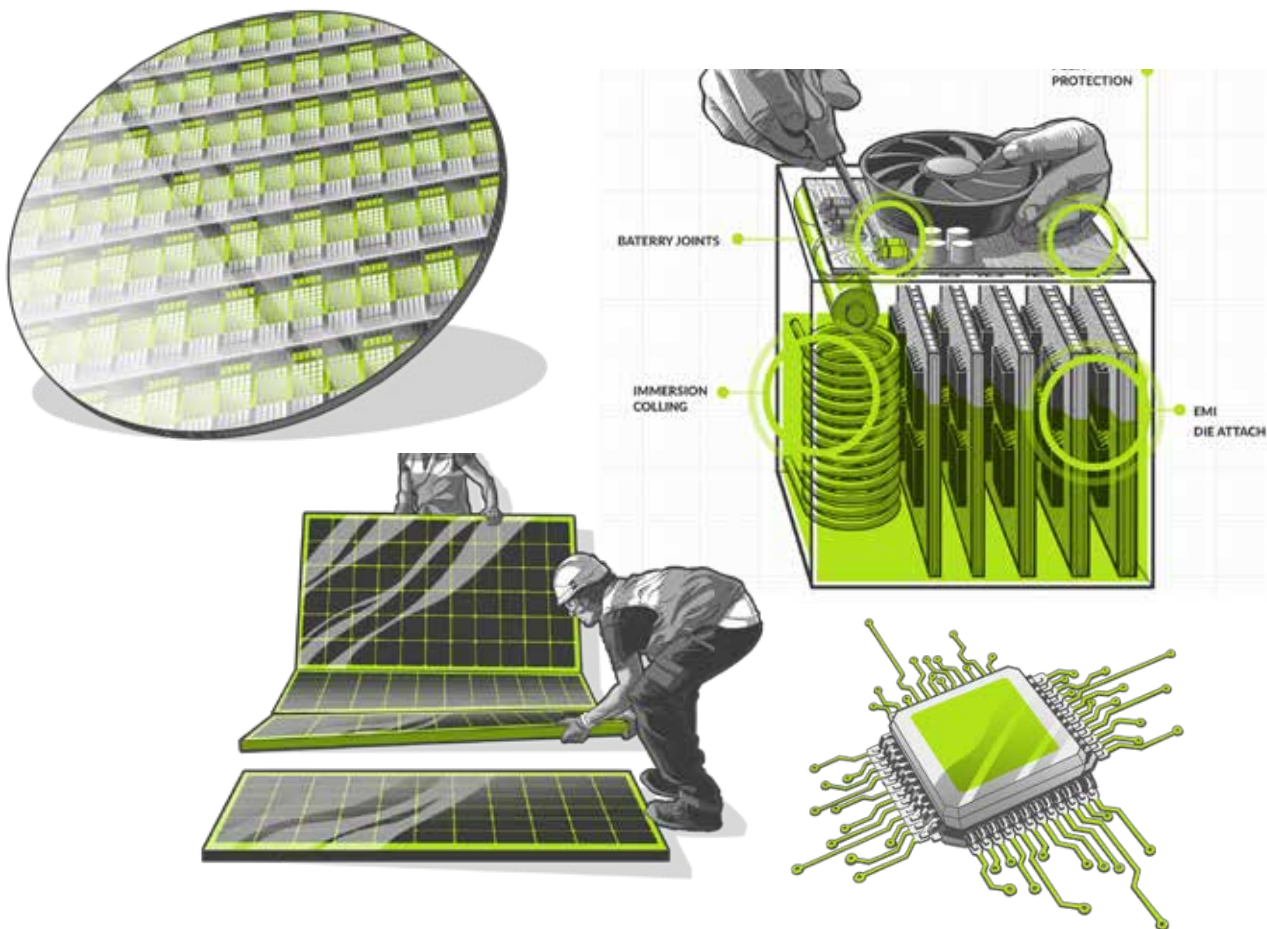
**INVENTEC**  
PERFORMANCE CHEMICALS



# OUR EXPERTISE DEDICATED TO Electronic assembly & semicon manufacturing

We have consistently focused our efforts on applications demanding high reliability, utilizing our technical expertise to make a significant impact. Our products underwent thorough testing by customers and successfully met qualifications.

With these certifications, we supplied and implement our products to various production facilities of our clients or to designated EMS companies around the world. This highlights our excellence not only in product performance but also in global supply chain management.

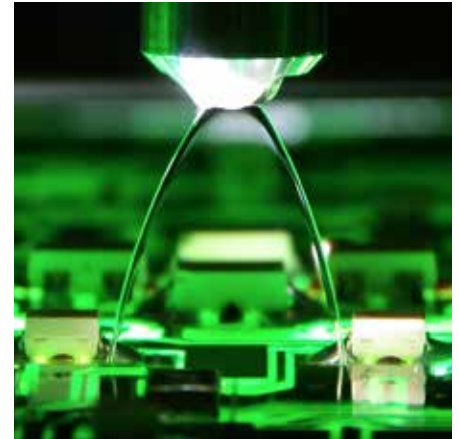
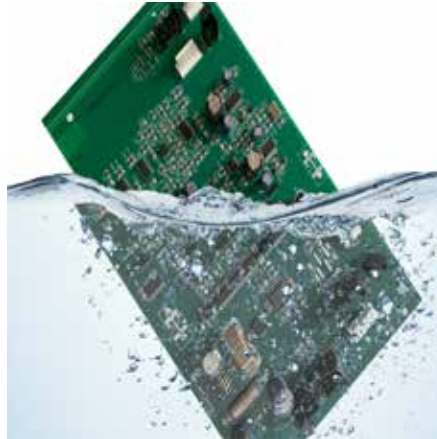
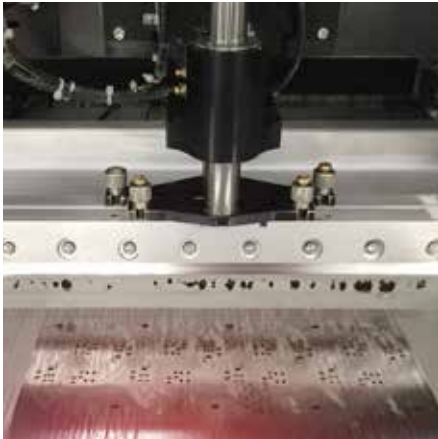


## Key infos

- Inventec France is also **IATF** certified: proof of good quality management system
- More than **600** satisfied customers in the electronic & semicon industry
- **+250** products for soldering, cleaning, coating or cooling applications

# Compatibility

## A WORRYLESS ALL-IN-ONE SOLUTION



Inventec is unique on the market, providing own developed solutions in Soldering, Cleaning & Coating. Made to be compatible with each other for an easy and worryless process implementation.

Our solder paste flux residues can be easily removed with our cleaners

### CLEANING

TOPKLEAN™  
PROMOSOLV™  
PROMOCLEAN™  
QUICKSOLV™  
3M™ NOVEC™  
BLUEGOLD™  
M-AERO™

Recommended to clean before coating to get optimal adhesion and to remove other unwanted contaminations on the PCB



### SOLDERING

ECOREL™  
ECOFREC™  
AMTECH™

Most of our solder paste flux residues are compatible with our coatings and don't influence SIR or BONO reliability test outcome

### COATING

PROMOSOLV™ COAT  
ABCHIMIE™  
3M™ NOVEC™

Whatever your needs or requirements, Inventec has a tailor-made solution for you. Needless to say that talking to one supplier who understands very well these three processes is more efficient in order to achieve the desired outcome at the lowest cost of ownership.



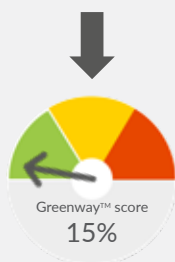
To steer new development to greener products, Inventec launched its Greenway™ approach in 2012. 10 years later, Greenway™ embodies now everything we do from a sustainable point of view. The way we **develop**, **manufacture** and **sell** our solutions.

The objectives remain the same:  
limiting our environmental impact  
and helping our customers reducing theirs.

## THE 3 GREENWAY PILLARS

### GREENWAY™ SCORE

Evaluate and compare  
the safety & environmental impact  
of our products



### GREENWAY™ SERVICES

Our services to help  
our customers to reduce  
their environmental impact

- Solvent recycling (ECOPROGRAM)
- Eco-consultancy
- Waste management advice

### GREENWAY™ PROJECTS

Projects to reduce  
the environmental impact  
of our operations  
to become CO2 neutral

- Use less plastic packaging
- Less paper use & waste
- Less energy use & renewable energy sources.
- ...

# GREENWAY™ SCORE

GUIDES YOU TOWARDS  
THE MOST SUSTAINABLE SOLUTION

## 1- SELECTING INDICATORS TO EVALUATE & CALCULATE THE IMPACT OF EACH PRODUCT

Evaluate the impact in percentage with cross reference datas, which are based on the Safety Data Sheet of the product, industrial expertise & European legislations. Indicators taken into account to evaluate product impact:

### Human health

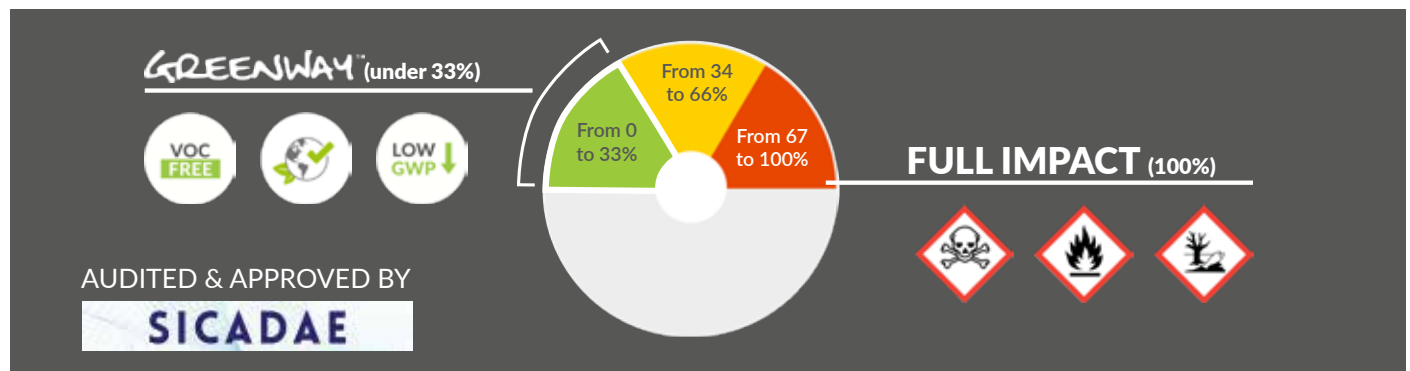
- › flammability
- › toxicity
- › corrosivity
- › risks of raw materials

### Environment protection & resource management

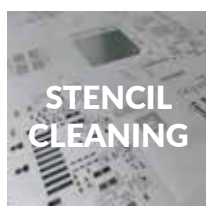
- › water consumption
- › energy consumption
- › Source / origin of raw materials
- › waste management
- › emissions reduction (VOC, GWP)
- › recyclability of the product & packaging
- › circular economy possibilities: with our **ECOPROGRAM** (collection and recycling of polluted fluorinated solvents)
- › consumption of other consumables
- › comparison of processes

## 2- A CLEAR LABELING TO EASILY COMPARE THE IMPACT OF PRODUCTS

The Greenway score and its pictogram can be found on our Product Data Sheet. A product with an impact of less than 33% is also labeled as a «Greenway™ Product».



## 3- CHOOSING THE RIGHT PRODUCT NOT ONLY ON PERFORMANCE BUT ALSO ON SUSTAINABILITY

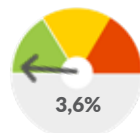


STENCIL  
CLEANING



### IPA

- › needs ATEX/IEC equipment
- › VOC
- › Toxicity



### TOPKLEAN™ EL 606

- › no flash point
- › no VOC
- › no hazardous substances
- › contains renewable raw materials



# Soldering

MADE FOR HIGH RELIABILITY



Inventec offers a wide range of soldering products that go beyond the **technical requirements set by industry standards and environmental legislation**. Inventec's expertise is focused on providing **high reliability & sustainable assembly solutions**.

Our soldering product formulations have been **CMR free for over 20 years** and with a few exceptions, all our product are **halogen free**. By implementing the Bono Corrosion Test in our development approach, the flux residue of our products feature exceptional high levels of chemical reliability.

## OUR BRANDS IN SOLDERING



### **ECOREL™** SOLDER PASTE RANGE

Solder pastes range with different alloys in powder sizes from T3 up to T6 and chemistries to take up today's challenges (low impact of flux residues, low voids %, free of halogen, thermal cycle performance...)



### **ECOFREC™** SOLDER FLUX RANGE

Solder flux range are specially designed to meet current challenges in wave selective soldering and are available in both: solvent- & water-based (no VOC).



### **AMTECH™** SOLDER RANGE

Inventec acquired AMTECH in 2014 from where it received the rights to manufacture and commercialize the AMTECH product range in solderpaste, fluxes and metals.





# Soldering

## GENERALITIES



### POWDER

Most of our solder pastes are standard available in type 3 & 4 powder. Depending on product & application, we also offer solder paste with powder of type 5, 6 or higher.

Our powder is sourced from our sister company P.U.S. and from qualified suppliers around the world.



### PACKAGING

Our solder paste and fluxes are available in packaging commonly used in the industry. Check our product datasheet for available packaging and exact volume per product.



250-500g  
Jar



600-1200g  
Cartridge



10-30g  
Syringes



5-20 L  
Drum

## BONO CORROSION TEST

Miniaturization is a prevalent trend, with boards exhibiting higher densities and narrower spacings between tracks and pads. Consequently, the concern over dendritic growth through electrochemical migration is becoming increasingly prominent.

The purpose of the Bono corrosion test is to assess the corrosive nature of solder pastes and to quantify it by a corrosion factor. It is a test method that allows to quantify and better differentiate the risk for corrosion mechanisms and leakage current in No Clean processes.

It also provides valuable information about compatibility of soldering materials and conformal coating.

This test is applied in addition to all industry standards (Copper mirror, SIR, ECM, etc).

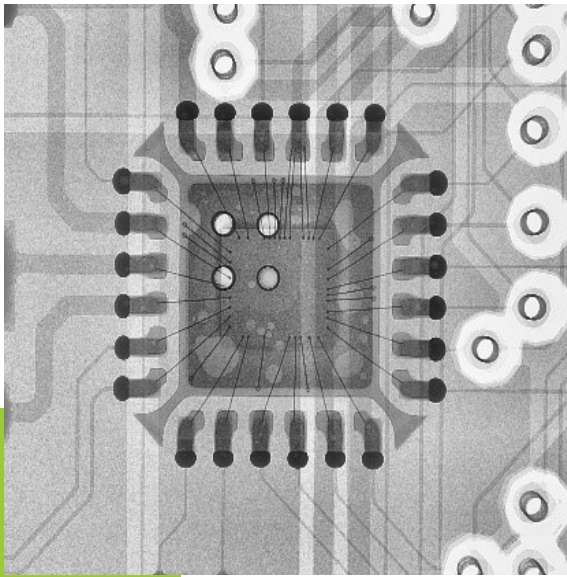
Bono corrosion test features:

- Better differentiates the nature of the residue
- Classification regarding corrosive potential
- Consistent and repeatable
- Diverse information: corrosion, leakage current
- Solder paste / conformal coating compatibility information
- It can be applied to solder paste, liquid flux and tacky flux

The BONO test has served as a crucial tool in the development of our solder paste and fluxes. This and the excellent collaboration between our R&D and TECHNICAL SUPPORT teams, has led to the creation of a diverse array of high-reliability ECOREL<sup>TM</sup> solder pastes and ECOFREC<sup>TM</sup> solder fluxes.

# SMT Soldering

## SAC305 SOLUTIONS



### ECOREL™ 305-16LVD

*So much more  
than just a low void paste!*

- Exceptional low voiding
- Well balanced overall performance
- Made from recycled metals
- Room temperature storage\*

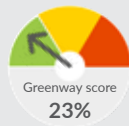
\*only for T4 powder in jar & cartridge packaging

## THE Nr.1 CHOICE OF OUR CUSTOMERS

Due to its favorable reception in the industry and remarkable performance, we have made the 16LVD chemistry readily available alongside a diverse range of other alloys suitable for both printing and dispensing. Powder sizes from T3 to T6 are offered, depending on the product and its intended application.

### ECOREL™ 305-16LVD

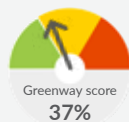
SAC305 no clean solder paste



- Exceptional low voiding
- Well balanced overall performance
- Best sustainable option

### ECOREL™ FREE 305-21

SAC305 no clean solder paste



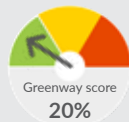
- Very high chemical reliability
- Also available with SAC405Y alloy

### ECOREL™ 305-WS12

SAC305 watersoluble solder paste



NEW



- Exceptional wetting
- Easy to clean
- sustainable solution



Non-exhaustive list of products. INVENTEC assists you to select the best product adapted to your need.

# SMT Soldering

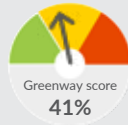
## ALTERNATIVE ALLOYS



### Low & No silver alloys

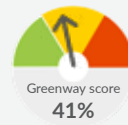
Solder pastes with minimal or no silver alloy, present a cost-effective, environmentally friendly option with enhanced durability for solder joints. Particularly advantageous for improving drop shock performance.

#### ECOREL™ FREE 0307-16LVD SAC0307 no clean solder paste



- Sn99Ag0.3Cu0.7 alloy
- Exceptional low voiding
- Well balanced overall performance

#### ECOREL™ FREE 105-16LVD SAC105 no clean solder paste

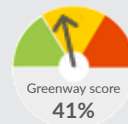


- Sn98.5Ag1Cu0.5 alloy
- Exceptional low voiding
- Well balanced overall performance

### High silver alloys

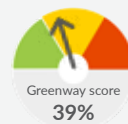
Solder alloys with elevated silver content deliver exceptional electrical and thermal conductivity, resulting in more effective heat dissipation and superior electrical connections in electronic applications. Additionally, they demonstrate increased strength, durability, and enhanced performance during thermal cycling conditions, making them the preferred option for applications exposed to temperature fluctuations.

#### ECOREL™ FREE 387-28 SAC387 no clean solder paste



- Sn95.5Ag3.8Cu0.7 alloy
- Robust assembly under a large process window
- Low flux spattering & low residue spread

#### ECOREL™ FREE 405Y-21 SAC405 no clean solder paste

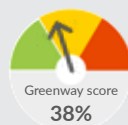


- Sn95.5Ag4Cu0.5 alloy
- High chemical reliability
- Improved thermocycling performance

### High operating temperature alloys

Our HTO alloy offers high temperature and vibration resistance, targeting application in automotive where previously leaded alloys were used. They are also an optimal choice for high power LED's.

#### ECOREL™ HTO-16LVD SnAg3.8Cu0.8Bi3+dopants solder paste



- Dedicated for harsh thermal environments
- Exceptional low voiding
- High chemical reliability

# SMT Soldering

## ALTERNATIVE ALLOYS



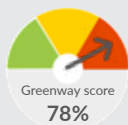
### Leaded alloys

Lead-containing solder pastes remain an option in specific industrial and military applications, notably in the aerospace and defense sectors where their distinctive bonding properties and reliability are essential. Nevertheless, their utilization is closely regulated due to environmental and health considerations, with lead-free solder being the preferred option in the majority of other applications.

#### ECOREL™ SP-16LVD

Sn63Pb37 no clean solder paste

NEW

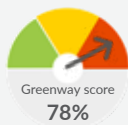


- Exceptional low voiding
- Well balanced overall performance
- Dedicated for harsh thermal environments

#### ECOREL™ SPA-16LVD

Sn62Pb36Ag2 no clean solder paste

NEW



- Exceptional low voiding
- Well balanced overall performance
- Dedicated for harsh thermal environments

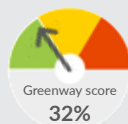
### Low temperature solder alloys

Solder pastes with low melting points are advisable for temperature-sensitive components like LEDs, MEMS, CMOS, and flexible circuits. Additionally, they find use in minimizing process costs by requiring less heat for reflow.

#### ECOREL™ FREE LT 140-18

Sn42Bi57.6Ag0.4 no clean solder paste

GREENWAY

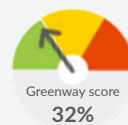


- Low voiding
- Overall well balanced performance

#### ECOREL™ FREE LT 141-16

Sn42Bi57Ag1 no clean solder paste

GREENWAY



- Low voiding
- Overall well balanced performance
- Improved wetting and solder joint strength

#### Examples of solder joints with Ecorel™ FREE LT 140-18 on LED



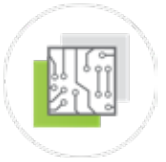
Low solder voids. SEM analysis.  
Uniform and constant IMC to both surfaces (PCB pad and LED)

Non-exhaustive list of products. INVENTEC assists you to select the best product adapted to your need.



# SMT Soldering

## JET PRINTING SOLUTIONS

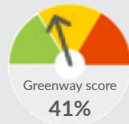


Our jetting solder pastes are especially designed to work on jet printing equipment and to guarantee continuous and consistent deposits of solder paste. Although the flux is chemical inert, it is easy to clean with water or solvent based processes. It is optimized to be used on Mycronic, Vermes, Essemtec and Musashi jet printing equipment.

### ECOREL™ FREE JP32

SAC305 jet printing solder paste

NEW

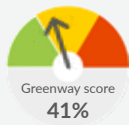


- Continuous & consistent solder paste deposits
- Available in T5 & T6 powder
- Optimized for Mycronic, Vermes, musashi jet printers

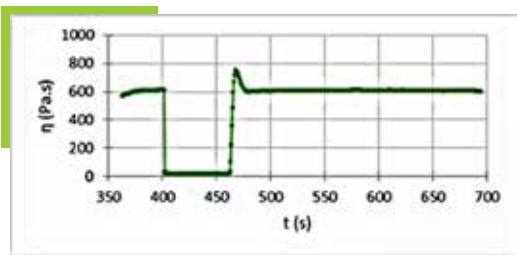
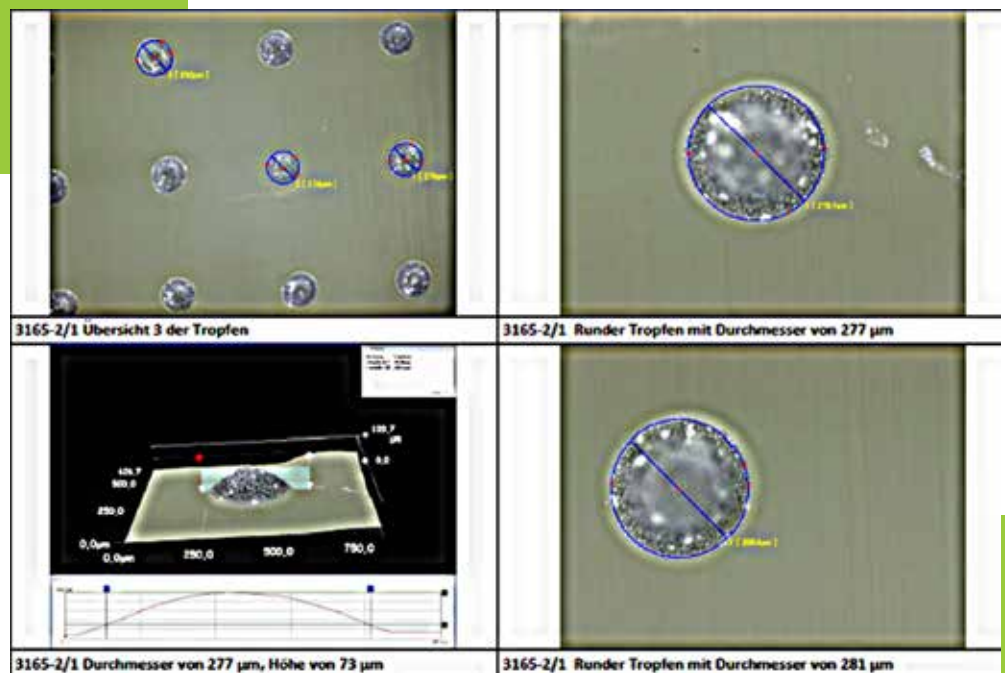
### ECOREL™ FREE JP42

Sn42Bi57Ag1 jet printing solder paste

NEW



- Continuous & consistent solder paste deposits
- Available in T6 powder
- Optimized for Mycronic, Vermes, musashi jet printers



Non-exhaustive list of products. INVENTEC assists you to select the best product adapted to your need.

# Wave & Selective soldering

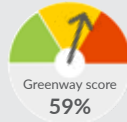


## SOLVENT & WATERBASED LIQUID FLUXES

Our wave and selective soldering fluxes are known for their superior chemical reliability, successfully passing both the SIR and BONO tests. They also exhibit remarkably low levels of solder ball formation. Solvent-based fluxes facilitate a simpler process setup, while water-based fluxes offer a sustainable alternative.

### ECOFREC™ 200

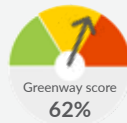
Solvent based no clean liquid flux



- Flux classification: ORLO / 2% solids
- Residue less visual and better spread

### ECOFREC™ 205

Solvent based no clean liquid flux

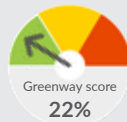


- Flux classification: ORLO / 4,2% solids
- Improved wetting on all kinds of board finishes

### ECOFREC™ 303E

Water based / VOC free liquid flux

**GREENWAY** **NEW**

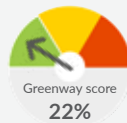


- Flux classification: ORLO / 3,5% solids
- High chemical reliability
- Residues less visual

### ECOFREC™ 320

Water based / VOC free liquid flux

**GREENWAY**



- Flux classification: ORLO / 3,5% solids
- Improved wetting on all kinds of board finishes

## SOLVENT & WATERBASED TINNING FLUXES

### ECOFREC™ 82

Water based / VOC free liquid flux

- Flux classification: ORH1 / 6,5% solids
- Excellent wetting
- Easy to clean flux residues

### ECOFREC™ HT 504

Solvent based high viscosity liquid flux

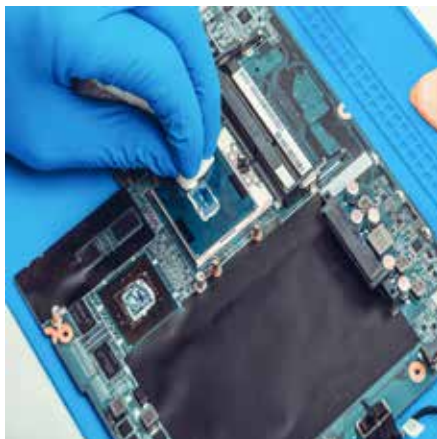
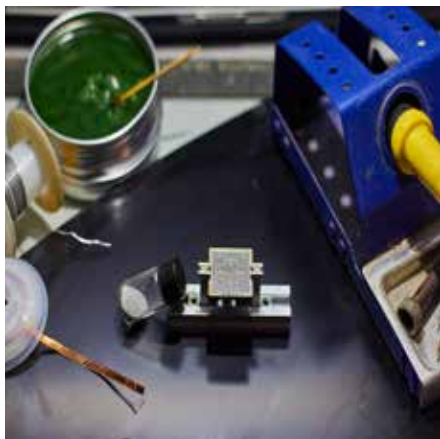
- Flux classification: ROLO / 30% solids
- Excellent wetting
- Dedicated for high temperature tinning



Non-exhaustive list of products. INVENTEC assists you to select the best product adapted to your need.

# Rework & repair

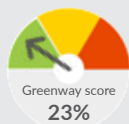
## SOLDER PASTE & FLUXES



## DISPENSING SOLDER PASTE

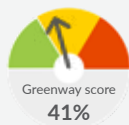
**ECOREL™ 305-16LVD 85.0T5**  
SAC305 no clean dispensing solder paste

GREENWAY



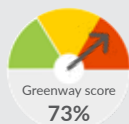
- Formulated with 16LVD chemistry
- Dispensing (85% metal / T5 powder)
- Suitable for repair of lead free assemblies

**ECOREL™ 305-19T-85 T4**  
SAC305 no clean solder paste



- Dispensing (85% metal / T4 powder)
- Suitable for repair of lead free assemblies

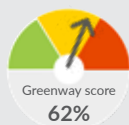
**ECOREL™ EASY 802S-85 T3**  
Sn62Pb36Ag2 no clean solder paste



- Dispensing (85% metal / T3 powder)
- Suitable for repair of leaded assemblies

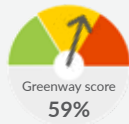
## LIQUID & TACKY FLUX

**ECOFREC™ DD6**  
Solvent based no clean liquid flux



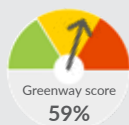
- Flux classification: ORLO / 6% solids
- High chemical reliability / passes BONO-test
- Improved wetting on all kinds of board finishes

**ECOFREC™ TF49**  
ROLO no clean tacky flux



- Excellent wetting
- High chemical reliability / passes BONO-test
- Transparent, colorless flux residue

**AMTECH™ NC559-V3**  
ROLO no clean tacky flux



- 3th generation of the famous NC-559
- Improved wetting
- Suitable for leaded & lead free assemblies

Non-exhaustive list of products. INVENTEC assists you to select the best product adapted to your need.

**INVENTEC**  
PERFORMANCE CHEMICALS

# Process Analytical Tools



EC-RAT ApS is a spin-off company from the Center for Electronic Corrosion (CELCORR) research program led by the Technical University of Denmark. The company was founded by researchers with a background in materials and surface science having strong competencies in corrosion and climatic reliability issues.

**Inventec is the exclusive worldwide distributor of EC-RAT corrosion analysing tools**

## QUANTIFLUX

The Quantiflux system provides local quantification of conductive contamination levels which can be converted to standard results and expressed as  $\mu\text{g NaCl}/\text{cm}^2$  ( $\mu\text{g NaCl}/\text{inch}^2$ ) via a conductivity calibration curve. This unique and patented test-method is an easier and lower cost alternative to Rose-testing. Scientifically proven & complies with standards.



### MAIN APPLICATIONS

- Local analysis of conductive contamination levels, especially around critical components
- Compare & quantify contamination on selected solder pastes or fluxes
- Compare & quantify contamination with different process parameters
- Compare & quantify contamination prior and post cleaning

## PINPOINT & QUANTIFY LOCAL CONDUCTIVITY OF RESIDUES

## RESIDUES RAT

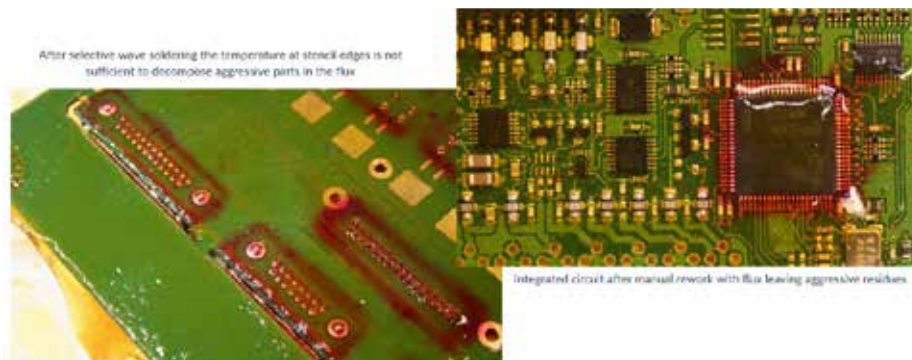
Residues RAT is a gel that identifies active flux residues in order to optimize & control processes and therefore improves the reliability of your manufactured electronics.



### MAIN APPLICATIONS

- Mapping levels of production residues on a PCBA
- Optimization & quality control of the SOLDERING process
- Optimization & quality control of the CLEANING process

## EASY & FAST DETECTION OF FLUX RESIDUES SPREAD





# Process Analytical Tools



## TIN RAT

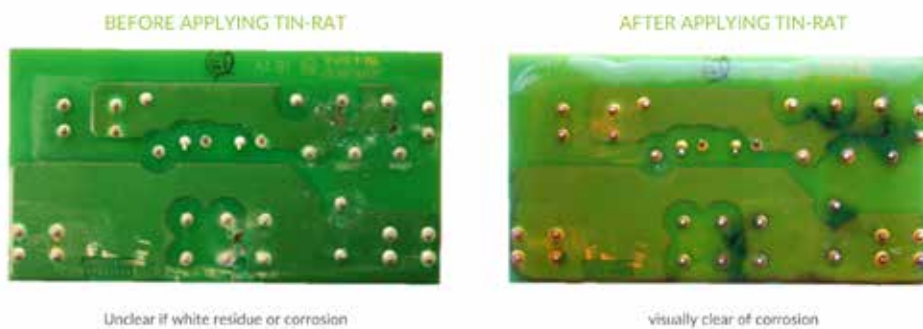
Tin RAT is a gel that easily detects & visualizes tin corrosion and dendrites for the benefit of electronics failure analysis and reliability testing.

### MAIN APPLICATIONS

- Device robustness testing, combined with accelerated humidity/temperature testing
- Failure analysis of electronics from field returns
- A complementary technique for SIR testing

### EASY & FAST

### DETECTION OF CORROSION & DENDRITES



Corrosion analyzing tools

FASTER  
&  
EASIER

AT A SUBSTANTIAL LOWER COST

# Semicon packaging materials

## DCB ASSEMBLY



### CHALLENGES FOR SOLDERING LARGE CHIPS ONTO COPPER DCB SUBSTRATES

#### GOAL

Achieve consistent, robust and reliable **bond-line thicknesses (BLT)** between large dies, chips and diodes onto the DCB copper substrates.

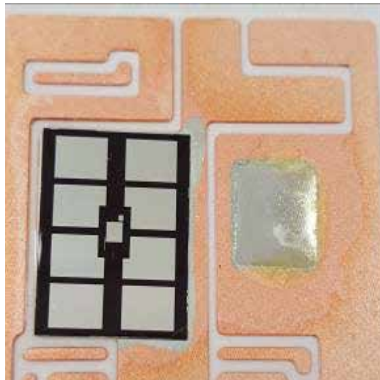
#### REQUIRED SOLDER PASTE PROPERTIES

In order to allow such consistent and reliable connections, an optimized solder paste must fulfill the following requirements:

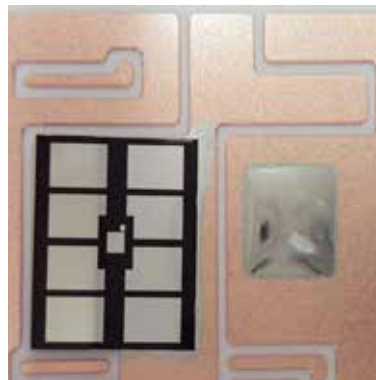
- Easy residue cleaning
- No copper discoloration/oxidation
- Low and repeatable voiding level
- Minimized flux spattering and solder leaking
- Good and consistent wettability on Cu
- High printing consistency on large areas

### ECOREL™ FREE 300-31A RESULT

AFTER SOLDERING

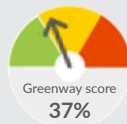


AFTER CLEANING



#### ECOREL™ FREE 305-31A

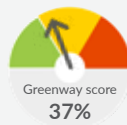
SAC305 no clean solder paste



- Excellent Low voiding for DCB
- Minimized copper oxidation
- Very good wetting

#### ECOREL™ FREE 300-31A

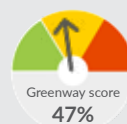
Sn96.5Ag3.5 no clean solder paste



- Excellent Low voiding for DCB
- Minimized copper oxidation
- Very good wetting

#### ECOREL™ FREE HT 245-16LVD

Sn91.5Sb8.5 no clean solder paste



- High soldering & operating temperature
- Large process window



Non-exhaustive list of products. INVENTEC assists you to select the best product adapted to your need.

# Semicon packaging materials

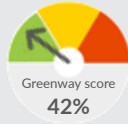


## NO CLEAN, CLEANABLE SOLDER PASTE FOR DIE ATTACH

### Lead free

#### ECOREL™ FREE HT 235-31A

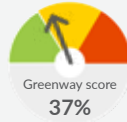
Sn95Sb5 no clean solder paste



- For high soldering or operating temperature
- Minimized copper oxidation
- Excellent low voiding

#### ECOREL™ FREE 300-31A

Sn96.5Ag3.5 no clean solder paste

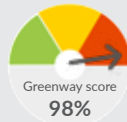


- Excellent Low voiding
- Minimized copper oxidation
- Very good wetting

### Leaded

#### ECOREL™ HT 301T

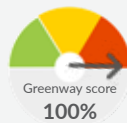
Pb93.5Sn5Ag1.5 no clean solder paste



- Excellent Low voiding
- Easy to clean flux residues
- High speed printing

#### ECOREL™ HT 240A-86

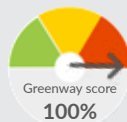
Pb85Sn5Sb10 dispensing solder paste



- For dual step soldering processes
- Consistant dispensing result
- Excellent low voiding

#### ECOREL™ HT 296T-85

Pb92.5Sn5Ag2.5 dispensing solder paste

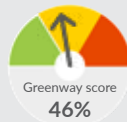


- For dual step soldering processes
- Consistant dispensing result
- Excellent low voiding

## FLIP CHIP, CSP & POP ASSEMBLY

#### ECOFREC™ POP WS30

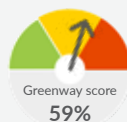
Water soluble PoP flux



- Flux classification: REH1
- Optimized tackiness to hold packages in place
- Easy to clean flux residue

#### ECOFREC™ TF49

ROLO no clean tacky flux



- Excellent wetting
- High chemical reliability / passes BONO-test
- Transparent, colorless flux residue

# Semicon packaging materials

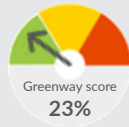


## SMT ASSEMBLY FOR SIP

### ECOREL™ 305-16LVD

SAC305 no clean solder paste

GREENWAY



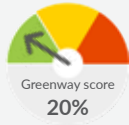
- Exceptional low voiding
- Well balanced overall performance
- Best sustainable option

### ECOREL™ 305-WS12

SAC305 watersoluble solder paste

GREENWAY

NEW



- Exceptional wetting
- Easy to clean
- sustainable solution

Non-exhaustive list of products. INVENTEC assists you to select the best product adapted to your need.

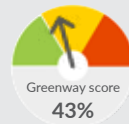
## FORMIC ACID VACUUM REFLOW PASTE

Formic acid reflow has a number of benefits, including a higher yield due to the elimination of flux-related defects, a reduction in floor space requirements due to the removal of flux-related equipment, as well as a reduction in energy consumption and operating costs.

### ECOREL™ HT235-F1

Sn95Sb5 formic acid solder paste

NEW

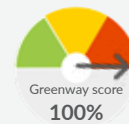


- Excellent low voiding
- Suitable for assemblies operating close to 200°C
- Very low post reflow residues

### ECOREL™ HT296-F1

Pb92.5Sn5Ag2.5 formic acid solder paste

NEW



- Excellent low voiding
- High leaded paste: melting point > 287°C
- Very low post reflow residues

Non-exhaustive list of products. INVENTEC assists you to select the best product adapted to your need.

## HIGH PURITY HYDROFLUORIC ACID (HF)



Our sister company SODEREC offers high purity Hydrofluoric acid (HF) in various packaging for semicon front end processes.

VISIT WEBSITE



<http://www.soderecfluor.com/en>  
email: [adv@soderec.dehon.com](mailto:adv@soderec.dehon.com)  
Tel: +33.4.75.96.96.52



# Semicon packaging materials



## SINTERING PASTE

Sintering solutions are used as an alternative to solder paste in applications where high thermal and electrical conductivity, reliability, and mechanical strength are critical.

Some key areas where sintering is preferred include lead free die-attach, large area module attach, E-Vehicle, Energy conversion of Renewable energies, Optoelectronics and RF power devices. Especially with the latest SiC and GaN developments operating at much higher power, using sintering interconnections with higher thermal and excellent electrical conductivity is crucial.

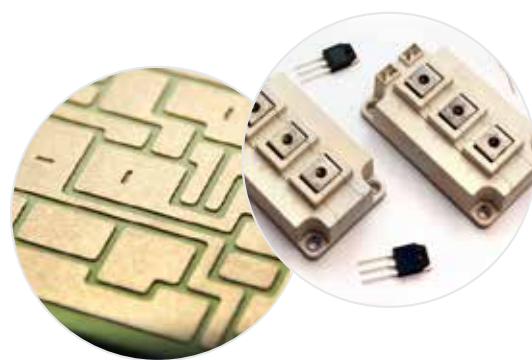
Our ECOREL™ SINTEC range is dedicated for die- and substrate-attach and allows lead free interconnections for components with large die size onto DCB materials or on gold, nickel and silver surfaces. Compatible with the temperature requirement mission profiles of wide band gap material SiC and GaN.

We offer pressureless as well as pressure sintering options.

## ECOREL™ SINTEC

BASED ON **ngn-o-join** TECHNOLOGIES

## KEY FEATURES



1

### High thermal conductivity

ECOREL™ SINTEC sintering solutions achieve thermal conductivity values exceeding 300 W/mK, providing exceptional heat dissipation and making them an ideal choice for high-power applications.

2

### High shear strength

With a shear strength exceeding 50 MPa, robust interconnects are formed, enabling assemblies to easily withstand Thermal Cycling Testing (TCT) from -55°C to +125°C for over 1000 cycles.

3

### Room temperature storage

Most sintering pastes require refrigerated or frozen storage, but our sintering solutions can be stored at room temperature, making them much easier to handle, while still providing a 6 months shelf life.

4

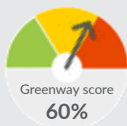
### No nanoparticles

Unlike other sintering solutions available on the market, ECOREL™ SINTEC products are free of nanoparticles, making them safer for both users and the environment.

### ECOREL™ SINTEC XP95

Ag sintering paste

NEW

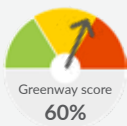


- Pressure-less sintering
- Die-attach printing application
- High shear strength and thermal conductivity

### ECOREL™ SINTEC AP90D

Ag sintering paste

NEW



- Low pressure sintering
- Flat-bed dispensing application
- High shear strength and thermal conductivity

Non-exhaustive list of products. INVENTEC assists you to select the best product adapted to your need.

**INVENTEC**  
PERFORMANCE CHEMICALS

# Cleaning

## EXPERTISE, SUSTAINABLE & GLOBAL SUPPORT



Inventec's **60** years expertise in precision cleaning has led to a wide range of cleaning products for both **mechanical and electronic applications**.

Effective defluxing is vital for ensuring the reliability and longevity of electronic devices, as it helps prevent issues like corrosion, short circuits, and degraded performance. Cleaning becomes even more crucial when **dealing with low standoff components**, such as surface-mount devices (SMDs) and fine-pitch integrated circuits. These miniature components are highly susceptible to contamination due to their compact nature, making them more prone to electrical shorts and other performance issues if not properly cleaned.

We cover **aqueous as well as solvent solutions** and many of our products are **qualified** by the major actors in the **electronic & semicon** industry.

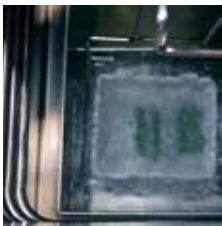
## OUR BRANDS IN CLEANING



### TOPKLEAN™

#### HYDROCARBON CLEANING RANGE

Cleaning fluids dedicated for co-solvent system or as a single solvent in vacuum cleaning process.



### PROMOSOLV™

#### SOLVENT CLEANING & DRYING RANGE

Solvent based cleaning fluids for vapor phase cleaning process or used as rinsing agent in co-solvent systems. Also products for spotless solvent drying process.



### PROMOCLEAN™

#### DETERGENT CLEANING RANGE

Cleaning fluids for water-based immersion or spray processes.



### QUICKSOLV™

#### FAST EVAPORATING SOLVENT RANGE

Fast evaporating solvents for cleaning at ambient temperature. Mainly used for manual cleaning.

## OUR PARTNER BRAND IN CLEANING



Inventec is an authorized distributor & formulator of 3M™ Novec™ fluids for precision cleaning applications. **ATTENTION:** Novec™ products will be phased out by end 2025 but no worries, we have alternatives available under our PROMOSOLV™ brand.

# Cleaning

## DEFLUXING



For flux removal in electronic assembly or semicon applications, Inventec has cleaning chemistries to operate at different production stages:

- Before underfill for better adhesion performance
- Before wire bonding for better bonding process
- After reflow to remove flux residues & other pollutants
- Before applying conformal coating or potting to improve adhesion



### Aqueous process

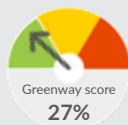
Aqueous cleaning solutions are known for their non-flammable nature, lack of volatile organic compounds (VOCs), and compatibility with a wide range of plastics. It's important to note, though, that when dealing with sensitive metals, there may be potential risks.

The recommended products below are all **safe to use on aluminium & other sensitive metals**.

#### PROMOCLEAN™ DISPER 707

Aqueous spray defluxing

GREENWAY



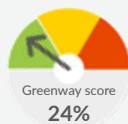
- High cleaning power, even at 10% concentration
- Non-foaming, even at high pressure

#### PROMOCLEAN™ DISPER 800

Aqueous spray-in-line defluxing

GREENWAY

NEW



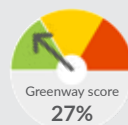
- High cleaning power, even at 10% concentration
- Designed for high production rates
- Removes also oxidation on copper, aluminium, ...

#### PROMOCLEAN™ TP 61

Aqueous immersion defluxing

GREENWAY

NEW

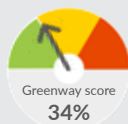


- Improved formulation of Promoclean TP 60
- Higher cleaning power & compatibility with aluminium

### Vacuum process

#### TOPKLEAN™ EL 20D

Vacuum process defluxing



- Thermally and chemically stable (no additive need)
- No ODP & GWP
- Relative high flashpoint (safe for transport)

Non-exhaustive list of products. INVENTEC assists you to select the best product adapted to your need.

**INVENTEC**  
PERFORMANCE CHEMICALS

# Cleaning

## DEFLUXING



### Co-solvent process



The co-solvent process has been a game changer for over 15 years and is qualified by several actors in the electronic and semicon industry.

Designed to offer a **fast & sustainable cleaning process** in accordance with the latest and future environmental regulations.

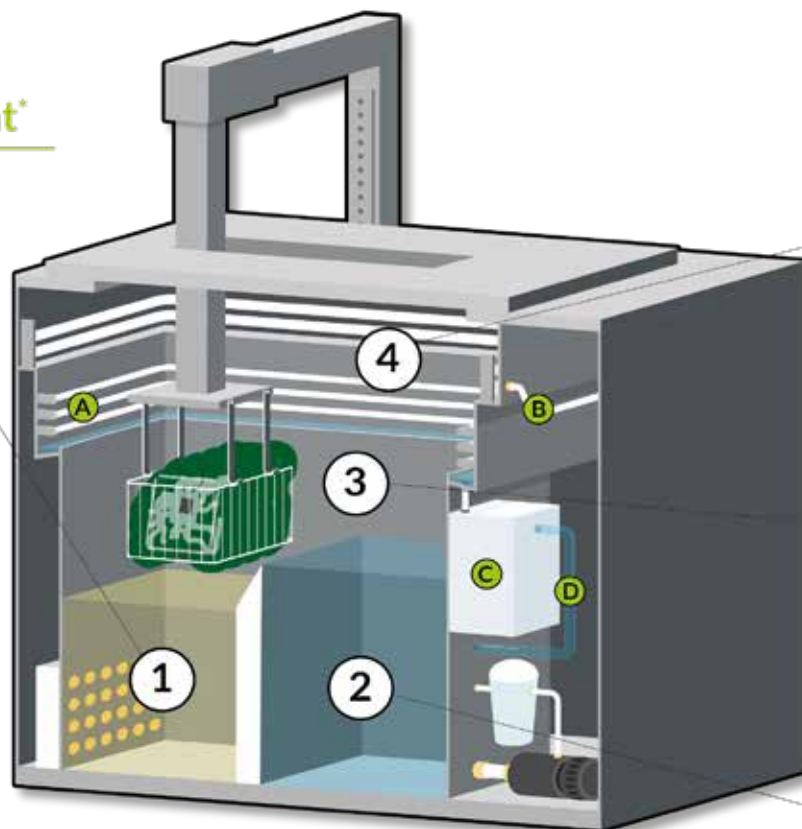
It is the only solvent process which can reach even better cleaning efficiency levels (kb values) than nPB, perchloroethylene and other hazardous alternatives.

The co-solvent process consists of a cleaning solvent and a rinsing solvent. In a mixed co-solvent, the cleaning fluid and rinsing solvent are mixed in the cleaning tank. In a separated co-solvent, the cleaning fluid is used pure in a separated cleaning tank.

### Standard cycle Mixed co-solvent\*

  
Co-solvent cleaning tank :  
**TOPKLEAN™ EL 80**  
+ **PROMOSOLV™ DR1**

- A** Condensing coils
- B** Condensate drain
- C** Chemical separator
- D** PROMOSOLV™ DR1  
Solvent Recovery



  
Cold zone final drying  
(condensation)

Rinsing with vapors of  
**PROMOSOLV™ DR1**

  
Rinsing tank with  
**PROMOSOLV™ DR1**



# Cleaning

## DEFLUXING



### Co-solvent process

The surface tension is a key element on how well the cleaning fluid can penetrate narrow and difficult to reach spaces. This is especially important with dense populated boards and low standoff components. The cleaning & rinsing fluids we offer for a co-solvent process, are designed to have a very low surface tension.

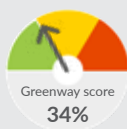
Our Topklean cleaning fluids have an excellent ability to solubilize organic and minerals compounds, which allows to remove almost any solder flux residues used in the electronic industry today. It leaves no white residue and also provides a shiny effect on alloys & metals.

### CLEANING FLUIDS

#### TOPKLEAN™ EL 80

Co-solvent defluxing fluid

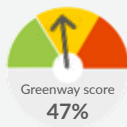
NEW



- Faster solubilization of organic compounds
- Improved cleaning
- Very high flashpoint

#### TOPKLEAN™ EL 20B

Co-solvent defluxing fluid



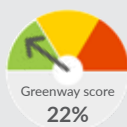
- A minor evolution of TOPKLEAN™ EL 20A
- High flashpoint

### RINSING FLUIDS

#### PROMOSOLV™ DR1

Co-solvent rinsing fluid

GREENWAY



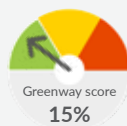
- Low GWP
- Can be returned for recycling and re-use
- Non-flammable & no flash point

#### PROMOSOLV™ NEO A2

Co-solvent rinsing fluid

GREENWAY

NEW



- Ultra-low GWP
- Can be returned for recycling and re-use
- Non-flammable & no flash point



Non-exhaustive list of products. INVENTEC assists you to select the best product adapted to your need.



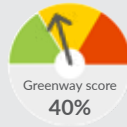
# Cleaning

## DEFLUXING

### Vapor Phase process

#### PROMOSOLV™ 70ES

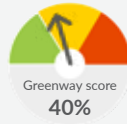
Vapor phase defluxing solvent



- High cleaning power
- Non-flammable (azeotropic)

#### PROMOSOLV™ 70IS

Vapor phase defluxing solvent



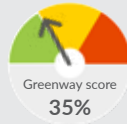
- High cleaning power
- Non-flammable (azeotropic)
- For high humidity environments

NEW

### Manual cleaning

#### QUICKSOLV™ DEF 90

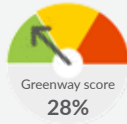
Multi-purpose cleaner



- Cleans perfectly flux residues, oils & organic residues
- Fast evaporating
- Non-flammable

#### QUICKSOLV™ DEF 70

Multi-purpose cleaner in aerosol packaging

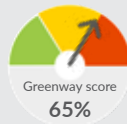


- Cleans perfectly flux residues, oils & organic residues
- Fast evaporating
- Non-flammable aerosol

GREENWAY

#### TOPKLEAN™ EL 10F

Multi-purpose cleaner



- Cleans perfectly flux residues, oils & organic residues
- Medium evaporating
- Immersion process at ambient temperatures

# Ecoprogram™

## RECYCLING OF SOLVENTS



### ECOPROGRAM

Service for **SOLVENT RECYCLING**, **SOLVENT REGENERATION** & **ECO-CONSULTANCY**

Benefits:

- To reduce the amount of waste in the environment
- To avoid cost & administration for the destruction
- To buy recycled but still high-quality product at lower cost
- To improve your company's environmental image

### REDUCE

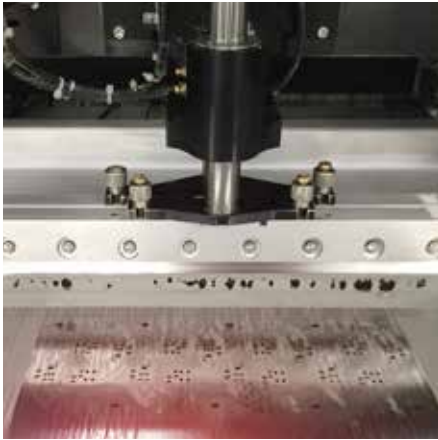
- ENVIRONMENTAL IMPACT
- COST



Our ECOPROGRAM service availability may differ from one to another country as recycling and waste-treatment is strictly regulated.

# Cleaning

## MAINTENANCE CLEANERS

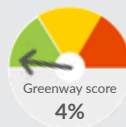


### Stencil cleaning

#### TOPKLEAN™ EL 606

Aqueous spray-in-air & immersion jet process

GREENWAY

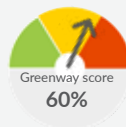


- Perfect cleaning even at very short cleaning cycles
- No rinsing required
- No health & safety risk phrases

#### TOPKLEAN™ EL 7

Dedicated to be used inside SMT printer

GREENWAY



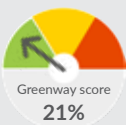
- Fast evaporation to leave no residues on stencil
- Compatible with aluminium & other sensitive metals
- Odorless

### Reflow oven & wave carrier cleaning

#### PROMOCLEAN™ OVEN 4

Manual cleaning

GREENWAY

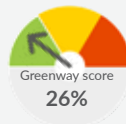


- Perfect cleaning of baked-on flux residues
- Compatible with aluminium & other sensitive metals
- Non-flammable & low environmental impact

#### PROMOCLEAN™ DISPER 610

Aqueous spray-in-air & immersion jet

GREENWAY

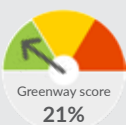


- Perfect cleaning of baked-on flux residues
- Compatible with aluminium & other sensitive metals
- Low environmental impact

#### PROMOCLEAN™ DISPER 707

Aqueous spray & immersion

GREENWAY



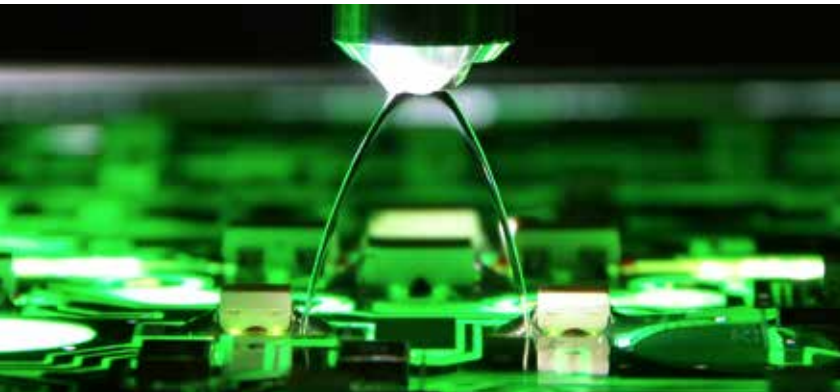
- High cleaning power, even at 10% concentration
- Versatile use regarding application and process
- Non-foaming, even at high pressure

Non-exhaustive list of products. INVENTEC assists you to select the best product adapted to your need.

**INVENTEC**  
PERFORMANCE CHEMICALS

# Coating

## CONFORMAL & ULTRA-THIN COATINGS



To extend the life-time of your electronic assembly and protect it against harsh environments they operate in, coating is a valuable option.

They can also provide additional mechanical strength to the assembly by absorbing vibrations.

### OUR BRAND IN COATING



#### PROMOSOLV™ COAT ULTRA-THIN COATING RANGE

Ultra-thin coating range developed to protect electronics or other substrates with an easy, fast & environmental friendly process.

### OUR PARTNER BRANDS IN COATING



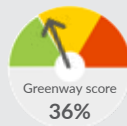
ABchimie's conformal coatings are great PCB protection solutions, especially developed with sustainability in mind.



Inventec is an authorized distributor of 3M™ Novec™ EGC ultra-thin coatings.  
**ATTENTION:** Novec™ products will be phased out by end 2025 but no worries, we have alternatives available under our PROMOSOLV™ COAT brand.

#### PROMOSOLV™ COAT UT10

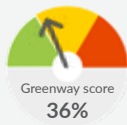
Transparent ultra-thin coating



- Hydrophobic and oleophobic
- Fast drying at room temperature (<1 min)
- Non-flammable & Low environmental impact

#### PROMOSOLV™ COAT UT10-UV

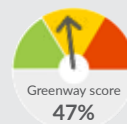
Transparent ultra-thin coating with UV tracer



- Hydrophobic and oleophobic
- Fast drying at room temperature (<1 min)
- Non-flammable & Low environmental impact

#### ABchimie™ 746E UV LED

Conformal coating cured by UV LED



- Non flammable & no VOC
- Very flexible film, no cracks
- Fast & cost effective curing by UV LED

Non-exhaustive list of products. INVENTEC assists you to select the best product adapted to your need.

INVENTEC IS A MEMBER OF





# Cooling

## DIELECTRIC COOLING FLUIDS



Electronic or electrical devices in use creates heat and **need to be cooled to avoid malfunction**. Inventec developed a range of dielectric cooling fluids to tackle today's needs for EV, high power applications and immersion cooling for datacenters.

Key parameters are taken into account, such as:

- Heat transfer effectiveness
- Safety & environmental impact
- Electrical Insulating Properties
- Compatibility with materials

## OUR BRAND IN DIELECTRIC COOLING FLUIDS



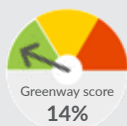
### THERMASOLV™

#### Dielectric cooling fluid range

Dielectric cooling fluids for both single phase & two phase immersion or direct cooling systems. Also suitable for dielectric testing.

#### THERMASOLV™ IM6

Dielectric heat transfer fluid



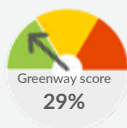
- Dedicated for 2-phase systems (BP: 49°C/120°F)
- Ultra-low GWP
- Non-flammable & no flashpoint

#### THERMASOLV™ CF3

Dielectric heat transfer fluid



NEW



- Dedicated for 1-phase systems (BP: 120°C/248°F)
- Low GWP
- Non-flammable & no flashpoint

Non-exhaustive list of products. INVENTEC assists you to select the best product adapted to your need.



CHECK OUT  
OUR DEDICATED BROCHURE  
ON COOLING FLUIDS

# THERMASOLV™

HIGH PERFORMANCE

SUSTAINABLE

SAFE

# Technical support & product trials

## FINDING THE BEST SOLUTIONS WITH OUR EXPERTS

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

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.

Talking to our Technical Team, who are experts in soldering, cleaning, coating materials, will help you greatly to **overcome technical challenges within your overall process**.

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.



# OUR MEMBERSHIPS TO STRENGTHEN OUR INDUSTRY KNOWLEDGE



## Our partners



## They support us

Inventec is one of the **110 laureates of the France Relance automotive & aeronautical modernization funds** in 2020.

By being part of laureates, Inventec developed its **FLUSHING NET** project:

- Set up of a **flushing cleaning line** at Inventec France,
- Creation of a **laboratory dedicated to particle counting** in order to validate cleaning effectiveness,
- Optimization of the **recycling process** in order to minimize flushing fluid consumption and improve the sustainability of the process.



# INVENTEC WORLDWIDE

6  
PRODUCTION SITES

11  
SUBSIDIARIES

WORLDWIDE  
DISTRIBUTOR  
NETWORK



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PERFORMANCE CHEMICALS  
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