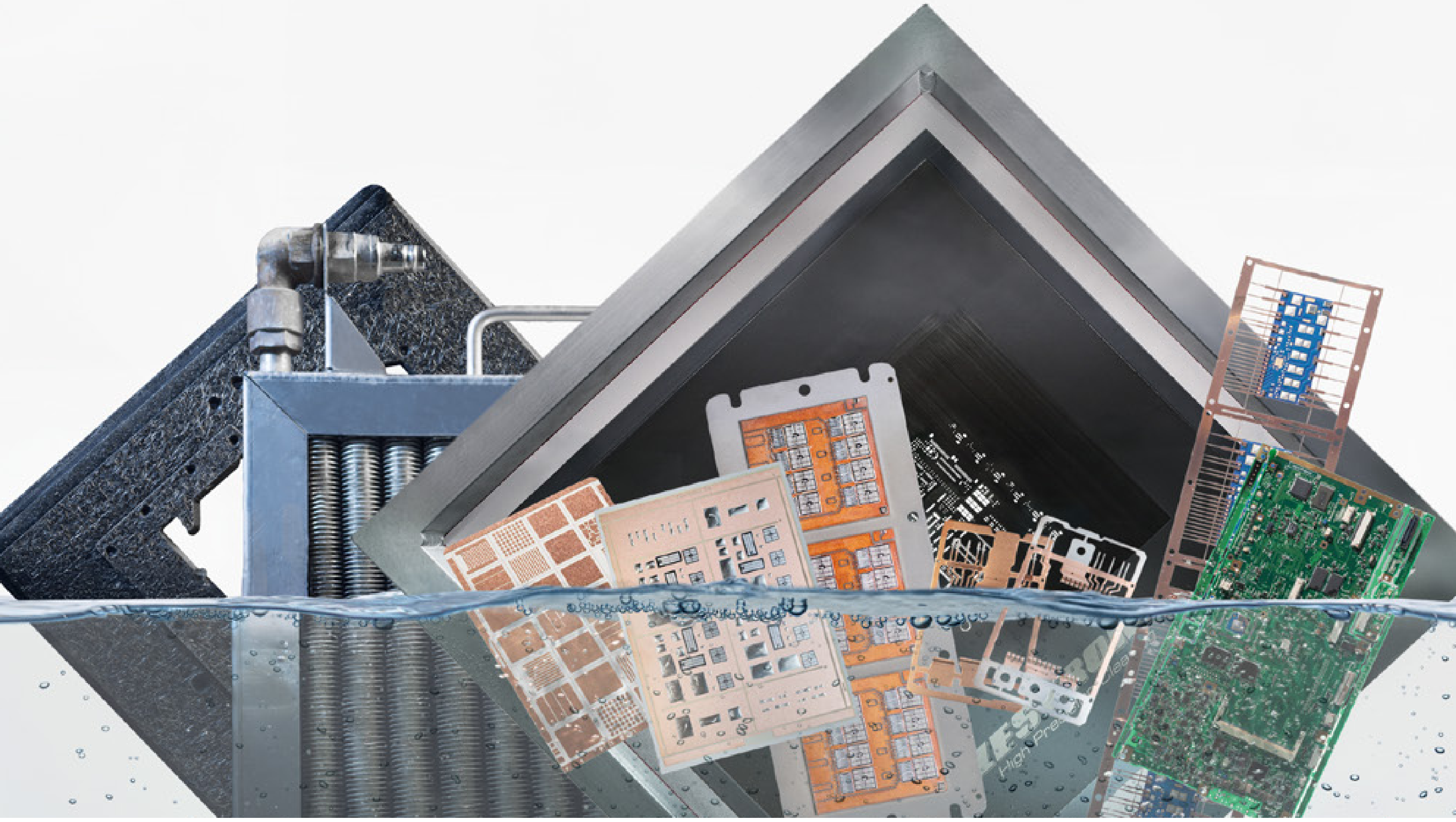


PRODUCT OVERVIEW

Power & SMT-Electronics

ZESTRON

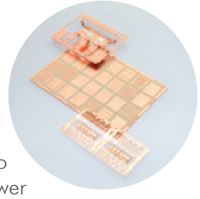
POWER ELECTRONICS

Focus			Key Facts	Cleaning Agents	Application				Product Technology
					AMBs, DCBs, Leadframes with Power Modules	Leadframes with Discretes	Leadframes, Terminals	Heatsinks, Base plates	
Surface Modification			water-soluble flux, optimized Cu-surface for mold adhesion	**ATRON® AP 125A**	+	–	+	–	water-based
	Flux Removal		Cu-deoxidation	**VIGON® PE 190A**	+	+	–	+	MPC® (water-based)
			good rinsability + Cu-deoxidation	**VIGON® PE 196A**	+	+	+	+	
			paste allrounder + Cu-deoxidation	**VIGON® PE 216A**	+	0	+	+	
			Cu-deoxidation	**HYDRON® SE 230A**	0	+	–	–	HYDRON® (single phase, water-based)
		Removal of synthetic pastes	synthetic pastes + best deoxidation	**VIGON® PE 306A**	+	–	–	+	MPC® (water-based)
			synthetic pastes + deoxidation	**VIGON® PE 305N**	+	–	–	+	
			synthetic pastes	**VIGON® PE 304N**	0	–	–	–	
Sensitive Materials & Surfaces			sensitive surfaces	**VIGON® PE 200**	+	0	–	–	
			paste allrounder	**VIGON® PE 215N**	+	0	+	+	
			good compatibility AlSi-Gates	**VIGON® PE 194A**	+	+	–	+	
			high surface energy on metal parts	**VIGON® ME 100A**	–	–	+	+	
			solvent for dip tank processes	**ZESTRON® FA+**	+	+	–	+	Solvent

Caption: + recommended 0 possible but not ideal – not suitable

APPLICATION AREAS

AMBs, DCBs, Leadframes with Power modules

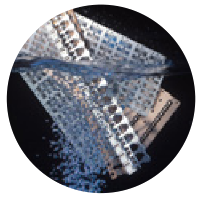


This area covers the two most important technologies: DCB = Direct Copper Bonding, AMB = Active Metal Brazing.
Leadframes, connected with power modules, are also part of this area, although the requirements of the power module must be taken into account when selecting the cleaner rather than the leadframe.

Stamping grids/ Leadframes, Terminals

Stamping grids and AC/DC-terminals are stamped and bent sheet metal parts. They are used as connecting parts to power modules. Frequently used metal surfaces are copper, silver and nickel which offers specific advantages and sets different requirements to the cleaning.

Leadframes with Discretes



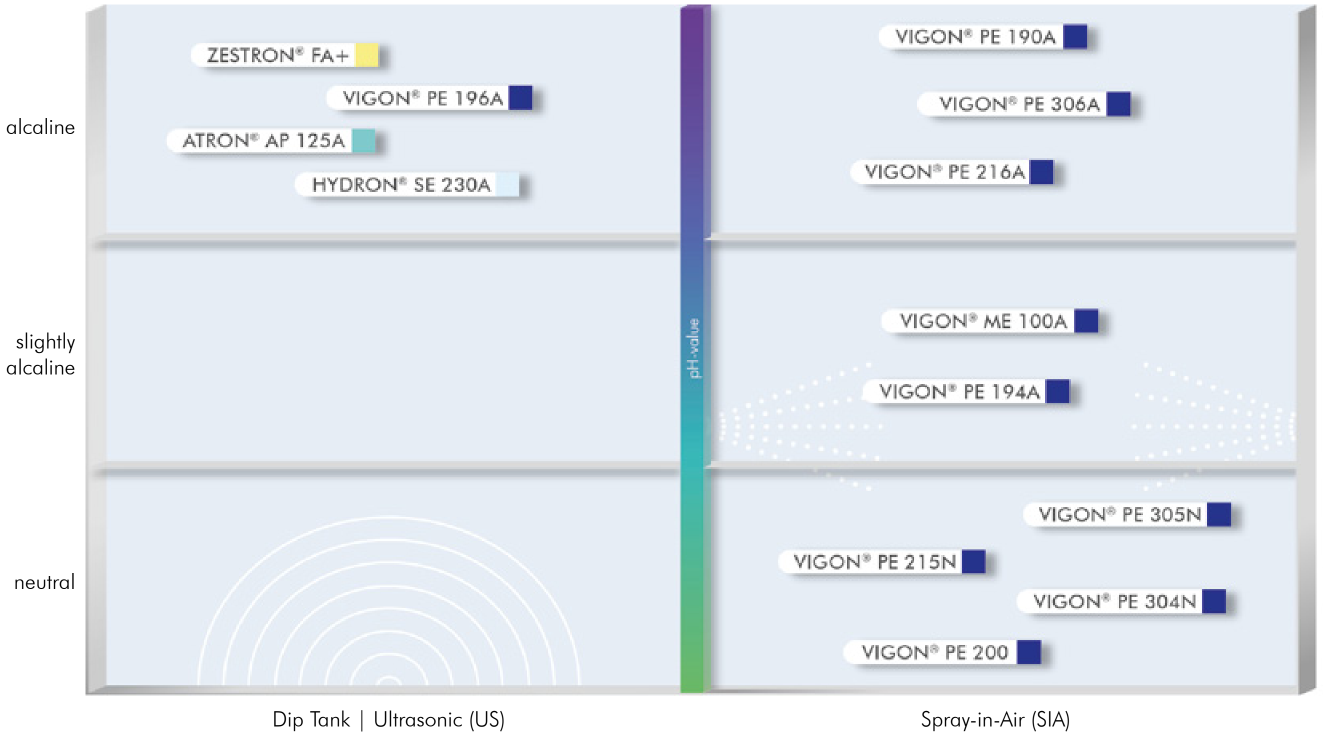
Leadframe based discretes do not point out power modules but only semiconductor that are directly connected to the leadframe. The combination of semiconductor and leadframe determines the cleaning requirements.

Heatsinks, Base plates

Heat sinks are crucial for the thermal management in power modules. Common materials used for heat sinks are aluminium and copper. In addition there are specific suface treatments like anodising and nickel-plating.

WATER-BASED PRODUCTS & SOLVENTS

This description reflects the main areas of application.



SURFACE MODIFICATION

We support you with innovative wet chemical surface modification and precise analysis to identify and optimize key factors of surfaces. This has been proven to achieve robust, reliable bonds.
Wet chemical surface modification means to condition the surfaces with special chemicals to show perfect characteristics for subsequent processes.

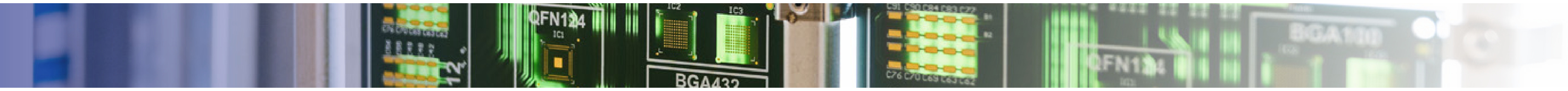
Different surface characteristics can be modified so that a perfect mold adhesion is achieved, for example. With selected water-based products all relevant surface characteristics can be optimized in a single process – for an efficient and sustainable solution.

OUR PRODUCT SERIES

PE-SERIES

Especially developed for power electronics (= PE), with focus on cleaning and surface conditioning of power modules for sturdy and reliable connections and subsequent process steps like molding.

PCBA DEFLUXING

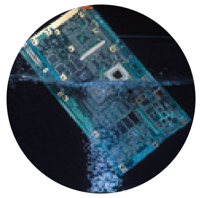


	Key Facts	Cleaning Agents	Surfaces					Product Technology
			FR4, Polyimide, Ceramics | Hybrid	Gold (ENIG)	Aluminium	Copper	Nickel	
Allround Products	allrounder (alcaline)	**VIGON® A 201**	+	+	0	+	+	**MPC®** (water-based)
	synthetic pastes	**VIGON® A 301**	+	+	+	+	0	
	allrounder (neutral), material compatibiliy with sensitive parts	**VIGON® N 600**	+	0	+	+	–	
	cleaner for sensitive metal surfaces	**VIGON® PE 180**	+	+	+	+	+	
	broadband for various pastes	**VIGON® PE 190A**	+	+	–	+	0	
	especially for ultrasound	**VIGON® US**	+	+	0	0	0	
	allround solvent	**ZESTRON® FA+**	+	+	+	+	+	**Solvent**
	manual rework, aerosol	**VIGON® EFM**	+	+	+	+	+	
Products for Special Requirements	for machines with bad mixing	**VIGON® N 640**	+	+	+	+	0	**MPC®** (water-based)
	material compatibility	**VIGON® N 680**	+	+	+	+	+	
	neutral spray cleaner	**VIGON® NX 728**	+	–	+	–	0	
	especially for dip tank processes & Cu	**VIGON® PE 196A**	+	+	–	+	0	
	synthetic pastes, for Ni	**VIGON® PE 304N**	+	+	+	–	+	
	generation of high surface energies on metal	**VIGON® ME 100A**	+	+	+	+	+	
	surfactant cleaner with good rinsability	**ATRON® AC 205**	+	+	–	–	0	**FAST®** (water-based, surfactant)
	good rinsability, for sensitive metal surfaces	**ATRON® AC 207**	+	+	+	+	+	
	single-phase dip tank cleaner	**HYDRON® SE 230A**	+	+	0	+	+	**HYDRON®** (single phase, water-based)
	especially for HFE processes	**ZESTRON® CO 150**	+	+	+	+	+	**Solvent**
	for closed solvent machines with vacuum destillation	**ZESTRON® VD**	+	+	+	+	+	

Caption: + recommended 0 possible but not ideal – not suitable

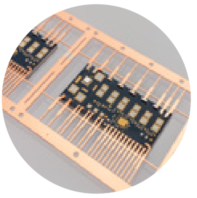
SURFACES

FR4



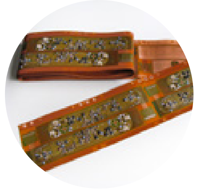
FR4 is a fiber-reinforced epoxy resin, which is the standard material for PCBAs. The stability and robustness of FR4 make it the first choice for complex electronic circuits.

Leadframe-based FR4



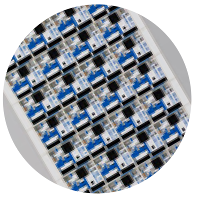
Leadframe-based FR4 combines the advantages of FR4 with a metallic leadframe structure. The leadframe provides the electronical connection for smaller PCBAs and ensures mechanical stability. The combination of FR4 and metallisation determines the choice of cleaner.

Polyimide



Polyimide film shows a high level of flexibility compared to FR4. The ability of bending repeatedly without breaking enables innovative designs in electronics. A wide range of cleaners can be used for polyimide.

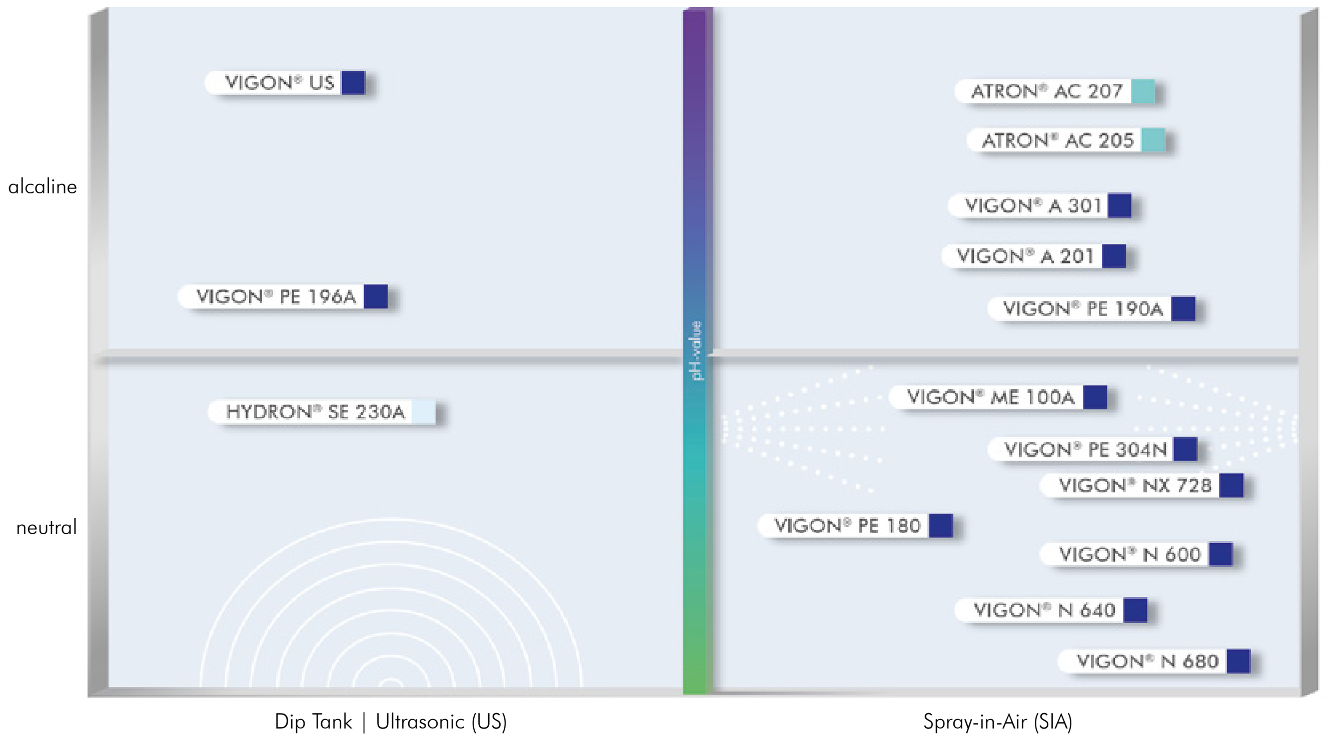
Ceramics | Hybrid



Ceramic substrates are used because of their excellent thermal and electrical properties. The most common materials are aluminium oxide and aluminium nitride, which offer excellent thermal conductivity and slightly restrict the choice of cleaner.

WATER-BASED CLEANING AGENTS

This description reflects the main areas of application.



SOLVENTS

We recommend the following products for cleaning assemblies with solvents:

ZESTRON® FA+

- For immersion processes with ultrasound or pressure circulation
- Rinsing with water

VIGON® EFM

- For manual rework
- Also available as an aerosol can

OUR PRODUCT RANGE

PE-SERIES

Especially developed for power electronics (= PE), with focus on cleaning and surface conditioning of power modules for sturdy and reliable connections and subsequent process steps like molding.

A-SERIES

Water-based cleaning agents with alcaline (= A) pH-value. Assembly cleaner with a strong cleaning performance and a wide range of applications in spray- (inline and batch) and dip tank processes.

N-SERIES

The cleaning agents of the N-Series are water-based, surfactant-free, pH-neutral assembly cleaners (N = neutral). In addition to a very good cleaning performance for flux removal after soldering, the focus is on exceptional material compatibility with sensitive metals and polymeres.

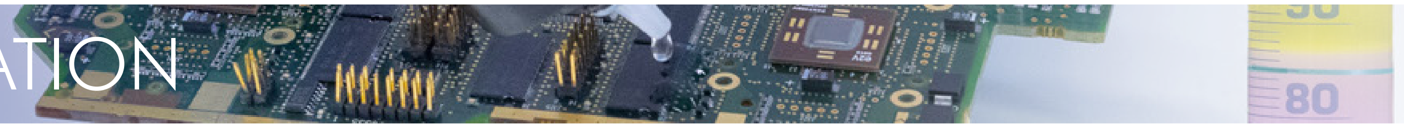
AC-SERIES

Water-based, alcaline cleaning agents especially for assembly cleaning (= AC). Based on a surfactant technology they are an alternative to our surfactant free series A & N.

SE-SERIES

Wide range of applications in semiconductor electronics (= SE). Good mix of material compatibility with sensitive parts and cleaning performance for assemblies, power electronics and SMT-packages.

PRODUCTS FOR PROCESSOPTIMIZATION



Bath Monitoring

For reliable and consistent cleaning results

ZESTRON® EYE
3P-Technology

- Precise and automatic real-time concentration measurement for fresh and loaded cleaning baths
- Traceability of process parameters through continuous data recording
- Possibility of connection to the system PLC for controlling an automatic refilling system

ZESTRON® EYE M
Mobile

- Independent, mobile measurements with long battery life
- Can be used for up to 10 cleaning systems and cleaning agents
- Recommended dosage for cleaning concentrate and deionised water

ZESTRON®
Bath Analyzer 10

ZESTRON®
Bath Analyzer 20

ZESTRON®
Bath Analyzer 30

- Test kits for modern and manual concentration measurement in fresh and loaded cleaning baths
- For pH-neutral and alcaline cleaning agents
- Mobile testing anywhere, anytime

Cleaning → **Rinsing** → **Drying** → **Analysis**

Cleaning Agent Regeneration & Recovery

For a longer bath life and the adsorbtion of heavy metals from the cleaning bath

ADSORBER
HM1

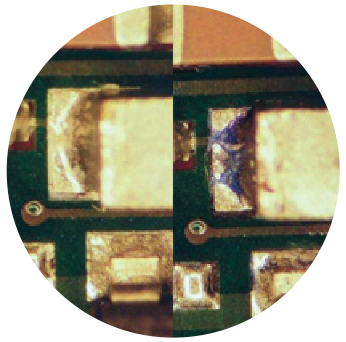
ADSORBER
HM1 Compact

- Heavy metal adsorber for cleaning and rinsing baths
- Prevention of heavy metals (e.g. copper, lead or tin) on less noble parts or components

Surface Analytics

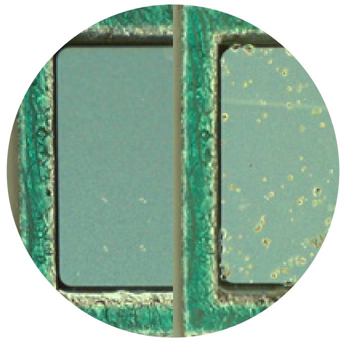
Quality insurance for reliable bonding and coating of PCBAs

ZESTRON®
Flux Test



- Evidence of local distribution of flux activators on assemblies
- Simple and quick test method
- Random sampling possible during ongoing production

ZESTRON®
Resin Test



- Evidence of local distribution of resin-based residues on assemblies
- Simple and quick test method
- Mobile testing everywhere, anytime

ZESTRON®
Coating Layer Test

- Indicates coating defects and edge misalignment
- Quick, easy and cost-effective
- More accurate than inspection with black light / UV light

STENCILS & MISPRINTS

		Applications							
		Contamination						Further Processes	
Product Technology	Cleaning Agents	Solder Pastes	SMT Adhesives	Flux	Thick Film Pastes	Thermal Pastes	Sintering Pastes	Underside Cleaning in SMT-Printers	Squeegee Cleaning
MPC® (water-based)	VIGON® SC 200	+	0	0	–	–	–	+	+
	VIGON® SC 202	+	0	+	–	–	–	–	–
	VIGON® SC	+	–	–	–	–	–	+	–
	VIGON® UC 160	+	–	–	–	–	–	+	–
	VIGON® TC 150	–	–	–	0	+	+	–	–
HYDRON® (single phase, water-based)	HYDRON® SC 300	+	+	0	–	0	+	+	+
Solvent	ZESTRON® SD 100	+	–	–	–	–	–	+	–
	ZESTRON® SD 301	+	+	+	+	+	–	–	–
	ZESTRON® SW	+	–	–	–	–	–	+	–

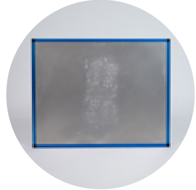
Caption: + recommended 0 possible but not ideal – not suitable

APPLICATION AREAS

Stencil, framed

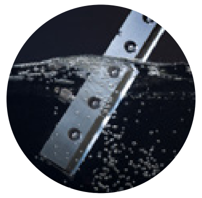
Framed stencils usually have an aluminium frame in which the stainless-steel stencil is glued in place using a tensioned mesh fabric. The compatibility of the material with the adhesive determines the choice of cleaner.

Stencil, unframed



Unframed stencils are stainless-steel stencils which have either a thin aluminium edge or perforated strips for tensioning the stencil. Due to the minimal mix of material there are few restrictions on the choice of the cleaner.

Squeegee



Squeegees usually consist of aluminium and/or stainless-steel. As there are not much different materials there is a wide range of usable cleaners.

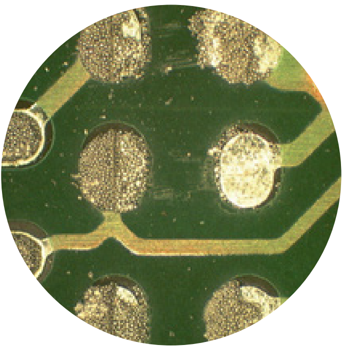
Screens

Screens are – unlike SMT-stencils – not made of stainless-steel but of a mesh with photoresistant lacquer that forms the apertures. This photoresistant lacquer must be suitable for the cleaning agent.

MISPRINTS

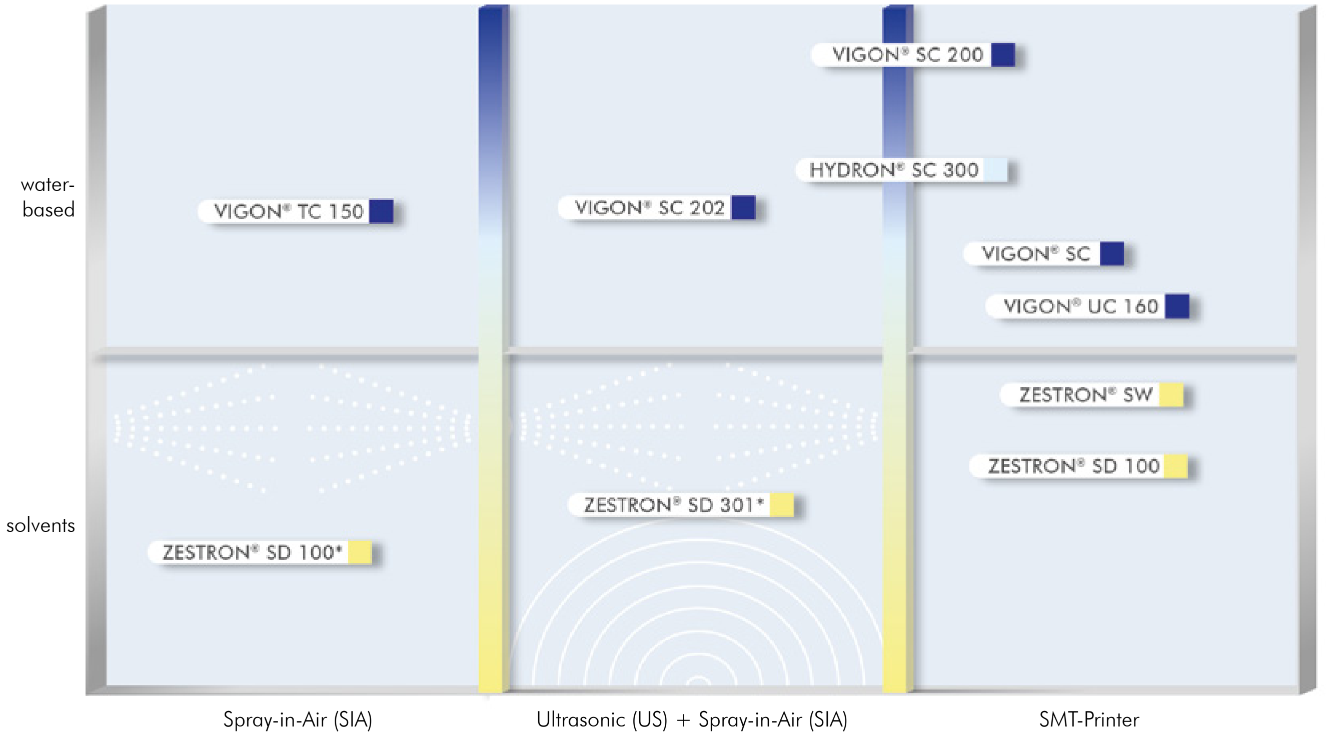
When it comes to misprints, a distinction must be made between single-sided and double-sided misprints. Since no components are soldered in the case of single-sided misprints, there is nothing special to consider.

In the case of double-sided misprints, there are already flux residues on the soldered side of the PCBA. These residues should either not be touched during the cleaning process or removed during the cleaning of misprints. We recommend choosing the second option and removing misprints and one-sided solder residues in a single step.



MACHINE CLEANING

This description reflects the main areas of application.



* ex-proof

UNDERSIDE CLEANING IN THE SMT-PRINTER

Using the above recommended VIGON® and ZESTRON® cleaning agents for the SMT-printer guarantees stable print images, excellent soldering results, and overall cost-efficient processes:

- Specially developed for use in printers, they offer improved cleaning performance compared to conventional stencil cleaners
- This reduces contamination on the underside, increases trigger behaviour, and enables a reduction in process time
- Defects such as solder balls, bridging, or cold solder joints are demonstrably avoided

MANUAL CLEANING

We recommend the following products for manual cleaning of stencils:

- **VIGON® SC 200**
- **HYDRON® SC 300**
- **ZESTRON® SD 301**

OUR PRODUCT RANGE

SC-SERIES

Products for stencil cleaning (= SC). They remove residues from solder pastes and SMT adhesives.

SD-SERIES

Solvent cleaner, especially recommended for stencil and screen cleaning.

MAINTENANCE

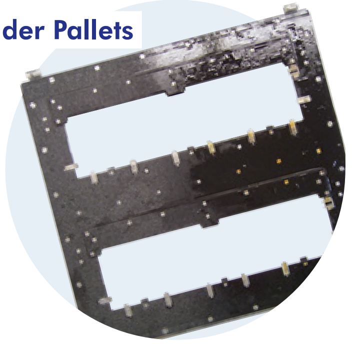
		Application						
Product Technology	Cleaning Agents	Condensation Traps, Filter	Solder Pallets, Frames, Carrier	Machine Parts, Oven Parts	Reflow Ovens, Wave Solder Systems	Dispenser Needles, Pick & Place Nozzles	Coating Frames + Tools	Key Facts
water-based, surfactant	**ATRON® SP 200**	0	+	+	–	–	–	all-purpose cleaner, well suited for bare aluminium
	ATRON® SP 300	+	+	+	–	–	–	well suited for anodised aluminium
	ATRON® SP 400	+	+	–	–	–	–	for spray processes at room temperature
water-based	**ATRON® DC**	–	–	–	–	–	+	special decoater
MPC® (water-based)	**VIGON® RC 303**	–	–	–	+	–	–	spray bottle for manual cleaning
HYDRON® (single phase, water-based)	**HYDRON® SC 300**	–	–	–	–	+	–	for use in ultrasonic tabletop vibrating tanks
Solvent	**ZESTRON® HC**	–	–	–	–	+	–	aerosol can with adapter for manual cleaning

Caption: + recommended 0 possible but not ideal – not suitable

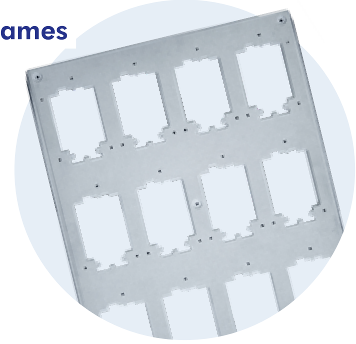
APPLICATION AREAS

Condensation Traps

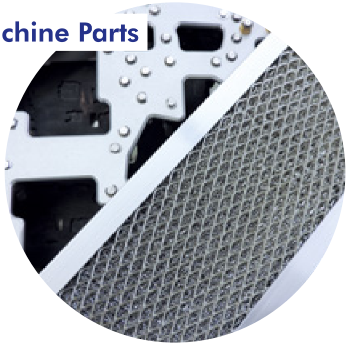
Solder Pallets



Frames

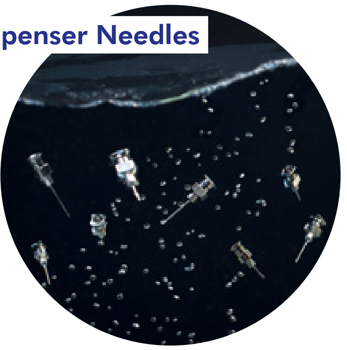


Machine Parts



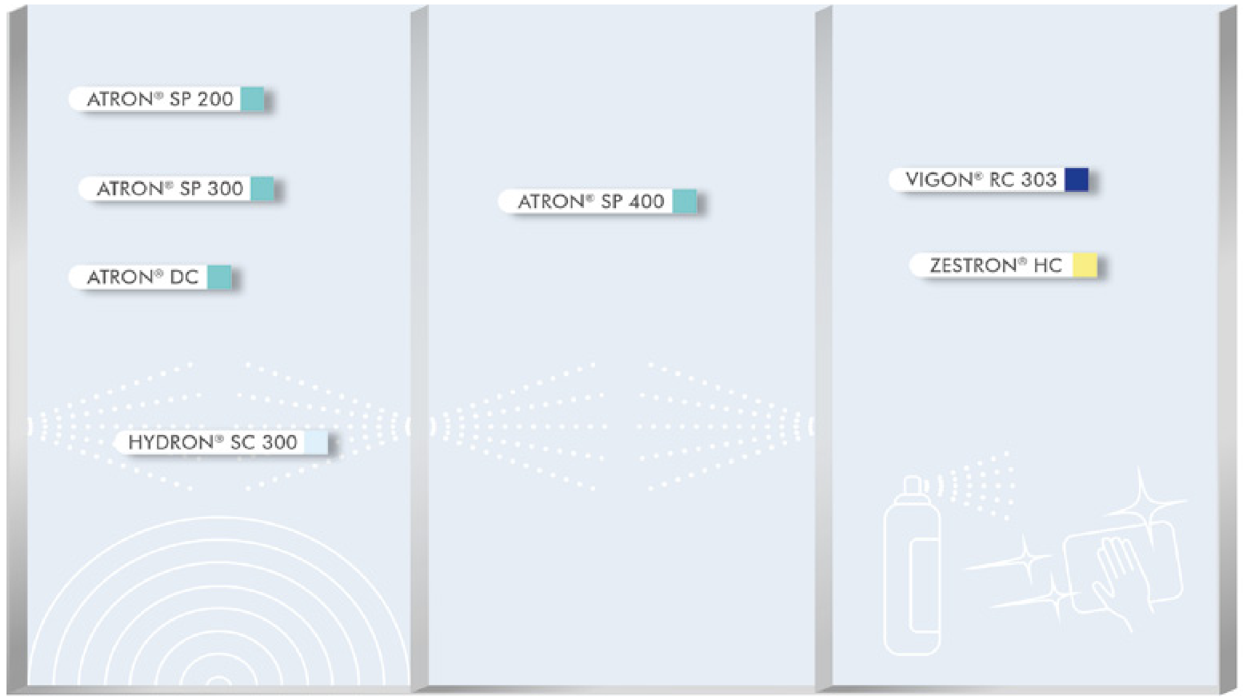
Reflow Ovens

Dispenser Needles



CLEANING AGENTS & PROCESSES

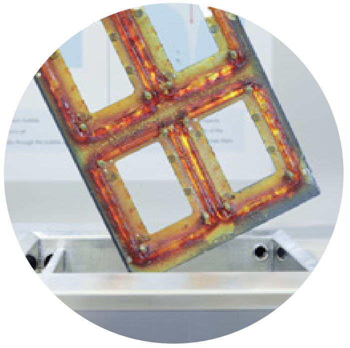
This description reflects the main areas of application.



Dip Tank + Spray-in-Air (SIA) Spray-in-Air (SIA) manual

ATRON® DC

- First water-based decoater worldwide
- High work-safety – no need for aggressive stripper-chemicals anymore
- Strong decoating performance
- Good material compatibility – both selective decoating and complete decoating of frames, carriers and tools is possible
- Removal of:
  acrylic, polyurethane, epoxy, UV-curable types or parylene



OUR PRODUCT RANGE

SP-SERIE

Especially developed for maintenance cleaning of solder pallets (= SP)/ condensation traps. Reliably removes larger amounts of baked-on flux residues.

CLEANING TECHNOLOGIES & BRANDS

MPC® Technology – VIGON®

VIGON® products are based on the Micro Phase Cleaning Technology (MPC®). They are water-based, surfactant-free products providing a wide process window for various cleaning applications and a very long bath life time resulting in low operating costs. They are non-flammable and have low VOCs.

Single-phase Technology – HYDRON®

HYDRON® products are water-based, single-phase cleaning agents offering excellent process-ability in the presence of different cleaning process limitations and with regards to process handling. They offer a very good rinseability and can easily be filtered to ensure an extended bath life time and low operating costs.

FAST® Technology – ATRON®

ATRON® products are new generation surfactants based on the Fast Acting Surfactant Technology (FAST®). They provide exceptional cleaning performance, especially at short contact times, and a high bath loading capacity compared to conventional surfactants.

Solvent Technology – ZESTRON®

ZESTRON® products are modern solvents developed for high-end cleaning applications. They provide a wide process window for the removal of various contaminations, offer a long bath life and the highest health & safety standards compared to simple alcohols or halogenated solvents.

ADDITIONAL AVAILABLE PRODUCT INFORMATION

» **Technical Information**
Information about the product including application, advantages and physical data

» **Material Compatibility**
Overview of material compatibility with components, parts and cleaning machines

» **Safety Data Sheet**
Information on composition, handling precautions, transport and storage

» **MPC® Technology Flyer**
Information about the water-based cleaning technology

» **HYDRON® Technology Flyer**
Information about the water-based, single-phase cleaning technology

» **FAST® Technology Flyer**
Information about the surfactant-based cleaning technology

ENVIRONMENTAL, HEALTH & SAFETY REGULATIONS

All ZESTRON cleaning agents are compliant with RoHS I, II & III/WEEE, GHS/CLP, and REACH and do not contain any substances included in the SVHC or S.I.N. list. Only the most environmentally-friendly and worker-safe raw materials are used.

For additional information documents, please contact us at: info@zestron.com