

EDITION: ENGLISH



**ADVANCED PACKAGING
CLEANING TECHNOLOGY**



KYZEN.COM

WORLDWIDE ENVIRONMENTALLY RESPONSIBLE CLEANING TECHNOLOGIES



CLEANING IS MORE THAN JUST GETTING THE SCIENCE RIGHT

WE CARE. That starts with getting the science right, but it goes way beyond that. At KYZEN, it means putting you, the customer first, no matter what. It means developing scientific processes that ensure you get the right solution for your needs. It means you'll work with KYZEN cleaning scientists who care enough to invest the time to fully understand your specific application, materials and challenges. At KYZEN, success means engineering the most effective, environmentally friendly cleaning technologies and solutions for you through the convergence of science and care. In fact, KYZEN is celebrated for its innovative design and development of award-winning cleaning technologies, and we have been since 1990. You can rest assured that when a KYZEN cleaning expert tackles your cleaning problem, he or she is taking the time and care to look at it in new ways, from every angle, so the right solution results. We guarantee it.

"It's not enough to know that a customer needs a solution. We want to understand why they need it and how it can help them succeed in their business."

KYZEN, our team of caring world-renowned cleaning scientists and our products, have been honored throughout the world with industry awards and, most importantly, loyal customers. KYZEN has been recognized with over 70 prestigious industry awards, including several for multiple, consecutive years in categories ranging from new product engineering to customer service and environmental safety, among others. We are grateful for this recognition. Some of the awards and sponsoring organizations include:

- | GLOBAL TECHNOLOGY AWARD
- | CIRCUIT ASSEMBLY SERVICE EXCELLENCE AWARDS
- | CIRCUIT ASSEMBLY NEW PRODUCT INNOVATION AWARDS
- | SMT VISION AWARD
- | BEST COST OF OWNERSHIP AWARD
- | ADVANCED PACKAGING BEST NEW PRODUCT



AWARD WINNING SCIENCE & CARE





CLEANING SOLUTIONS FOR ADVANCED PACKAGING

Prior to the Information Age, technology innovation was localized and linear. Interconnected technologies have changed the way people work, think and act. Today, we live and work within an environment that is Exponential and Global. The aggressive growth of computing creates opportunity to develop advanced technologies that improve the world's standard of living. With these advances, the growth demand for advanced packaging is exponential as well. Two critical drivers are high yields and reliability over the expected life of the device. The rapid adoption of high tech devices forces the electronics industry to continually develop smaller, faster and more reliable devices, especially mobile and hand-held devices. The new generation of Flip Chip packages, CSP (Chip Scale Package), WLCSP (Wafer Level CSP), 3D IC (3-Dimensional Package), and SiP (System in Package) have been gradually replacing conventional packaging. KYZEN is on the cutting edge of developing advanced cleaning technology, which will result in increased reliability and higher functionality of the final circuit board assembly.

YOU ONLY BUILD THE BEST CLEANING SOLUTIONS IF YOU CARE ENOUGH TO TACKLE THE HARDEST PROBLEMS

What sets KYZEN apart among cleaning technology companies? Beyond the fact that we are continuously honored for our innovation, products and services, it is the way we approach your problems as though they were our own. Others may know that you need a low surface tension solution. WE KNOW WHY you need it, how it needs to work within your distinct parameters, limitations and challenges, where the process problems are occurring, how the solution needs to be modified and your comfort level with installing it. This kind of in-depth knowledge of your company, technical and manufacturing needs is only attained when science and care converge. Care also means responding quickly, showing up anytime, anywhere in the world there is a problem and tackling it head-on until it is successfully resolved. It is what compels us to achieve the highest levels of performance. And, it is what motivates our world-renowned scientists and engineers to pursue and achieve the revolutionary research and innovation you need today and 20 years from now.



A man with white hair and safety glasses, wearing a blue short-sleeved button-down shirt with a 'KYZEN' logo on the pocket, is working in an industrial setting. He is wearing green gloves and is positioned next to a large blue plastic container. The background shows industrial equipment and a green vertical beam.

YOUR CLEANING PROBLEM IS OUR CLEANING PROBLEM

We don't quit until we've delivered the perfect cleaning solution for your specific needs and situation. For over 30 years, our clients have benefited from the care that goes into all our cleaning solutions. When science and care converge, that makes all the difference.

PROCESS CARE

MONITOR, MANAGE & ANALYZE



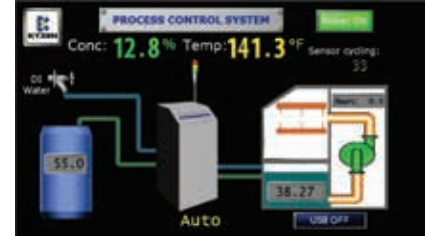
KYZEN ANALYST™ DATA SERVICES

Access and monitor wash bath concentrations and trend processes from multiple sites and cleaning machines no matter where they, or you, are located in the world.



KYZEN ANALYST™

A real-time, automatic concentration monitoring and reporting. KYZEN ANALYST™ was developed in response to extensive research with process engineers who run cleaning applications and are responsible for productivity and quality every day of the week.



KYZEN PCS

A process control system that monitors and automatically reacts to the dynamic changes in the wash bath. Now enabled with KYZEN ANALYST™ Data Services.

KYZEN DEMISTER

The KYZEN 2-Pass Demister significantly reduces the chemical consumption and emissions from your cleaning process. The Demister is specifically designed to combat evacuation and recover the lost cleaning solution, protecting the environment and reducing consumption.

LAB SERVICES

WASH BATH ANALYSIS

Single test or a 6-sample profile kit. Understanding the changes the bath goes through over its life cycle allows for greater predictability and routine maintenance scheduling, saving both time and money.

CLEANLINESS TESTING SERVICES

Ion Chromatography (IC) Testing, SEM Scanning Electron Microscope and standard R.O.S.E. testing available in the KYZEN lab by experts in cleaning.

RISK-FREE TRIALS

Let our process engineers determine the best process parameters and chemistry to help achieve desired results.

ACCESSORIES

Specialized KYZEN Cleaning Accessories enhance the cleaning process. From Wash Baskets to Wash Curtains to Spill Trays and more, we make finding and purchasing effective cleaning accessories easy.



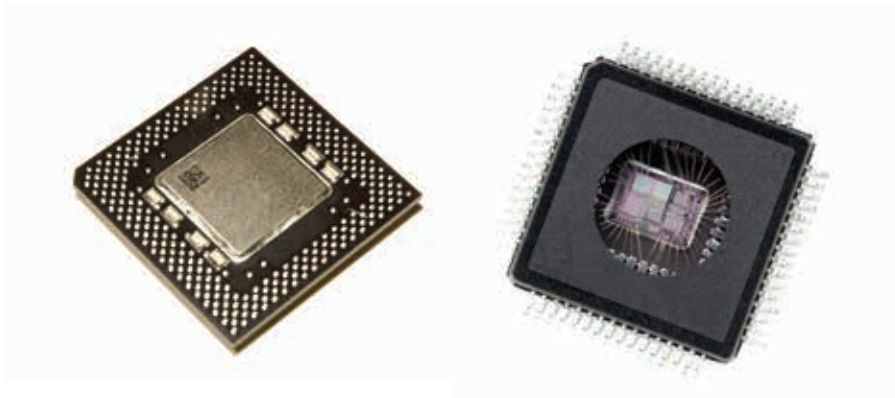
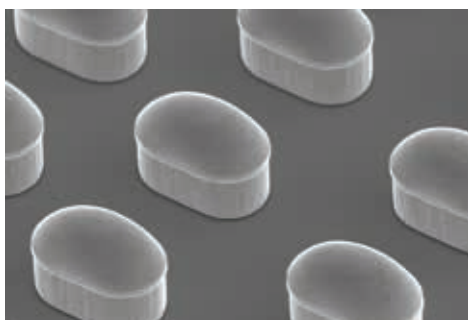
ADVANCED PACKAGING CLEANING PRODUCTS

AQUEOUS CLEANERS

	SEGMENT				SOILS			PROCESS		
	FLIP CHIP	CU LEAD FRAME/IGBT	CAMERA MODULE	SIP/PLP/WAFER LEVEL PACKAGING	OA/WATER SOLUBLE	NO CLEAN	RMA/RA	IMMERSION ULTRASONIC	SPRAY (IN-LINE)	CENTRIFUGAL
MICRONOX® MX2708	•			•	•				•	•
MICRONOX® MX2100		•			•	•	•		•	•
MICRONOX® MX2120		•			•	•	•		•	
AQUANOX® A4727DT	•			•		•	•		•	

SEMI-AQUEOUS CLEANERS

	SEGMENT				SOILS			PROCESS		
	WAFER BUMPING	POWER IC/IGBT	CAMERA MODULE	HIGH POWER LED	OA/WATER SOLUBLE	NO CLEAN	RMA/RA	IMMERSION ULTRASONIC	SINGLE WAFER TOOLS	CENTRIFUGAL
MICRONOX® MX2302	•			•	•	•	•	•	•	•
MICRONOX® MX2322	•	•	•	•	•	•	•	•	•	•
IONOX® FCR		•		•	•	•	•	•		•



ADVANCED PACKAGING CLEANING PRODUCTS

SOILS

PROCESS

MAINTENANCE CLEANING

	SOILS			PROCESS		
	UNCURED ADHESIVE	TAPE RESIDUE	FINGER PRINT PARTICLE	IMMERSION ULTRASONIC	SPRAY	MANUAL
CYBERSOLV® C8449	•			•		
CYBERSOLV® C8882	•			•		
CYBERSOLV® 141-X			•			•
MICRONOX® MX2180		•		•	•	



ADVANCED PACKAGING CLEANING PRODUCTS

AQUEOUS CLEANERS

MICRONOX® MX2708 (*Organic Acid Residue Cleaning Agent*)

MICRONOX MX2708 is formulated for the demanding cleaning challenges presented within leadless devices such as low standoff gaps and fine pitches of Cu Pillar flip chips, 2.5D/3D ICs, SiP and AiP. MX2708 completely removes organic acid residues of all kinds at low, safe operating concentrations all while having no effect on exposed metal and intermetallic alloys including Cu, Al, Sn, Pb, Ni, Ag and Au finishes.

MICRONOX® MX2100 (*Aqueous Cleaner for PMICs*)

MICRONOX MX2100 is an aqueous, single-phase solvent designed to remove tough flux residue from PMIC devices including power MOSFET and IGBT. MX2100 is effective at low concentration that provides outstanding cleaning performance and metal compatibility and leaves great surface condition for post wire bond and EMC processes. It's designed to be applied in in-line SIA and remove flux residues under flip chip.

MICRONOX® MX2120 (*Multi-Metal Safe Power Module Cleaner*)

MICRONOX MX2120 is an aqueous, single-phase cleaner designed to remove tough flux residue from all types of power modules that utilize nickel and most copper DBC as substrates. MX2120 has a well-balanced formula that provides outstanding cleaning performance and metal compatibility.

AQUANOX® A4727DT (*Enhanced Aqueous Advanced Packaging Cleaner*)

AQUANOX A4727DT is designed to remove difficult No-Clean flux residues for all types of advanced packaging. With outstanding buffer technology, A4727DT can be used at low concentration and offers stable pH throughout its long bath life. Its gentle formula also provides great compatibility with all sensitive metals and makes it a good solution for advanced packaging devices such as SiP, PLP and Flip Chip packaging. Even under fine pitch and low standoff gap height, AQUANOX A4727DT is easy to rinse completely in in-line cleaning systems.

SEMI-AQUEOUS CLEANERS

MICRONOX® MX2302 (*Semiconductor & Advanced Packaging Cleaning Solutions*)

MICRONOX MX2302 is an engineered semi-aqueous solvent blend designed to remove difficult flux and paste residues from wafer bumps found in die-attach, flip chip, copper pillar, and emerging semiconductor assemblies.

MICRONOX® MX2322 (*Semiconductor & Advanced Packaging Cleaning Solutions*)

MICRONOX MX2322 is a semiconductor grade engineered semi-aqueous solvent and designed to clean all types of paste fluxes common in wafer bumping, wafer level packaging, flip chip and SiP that contain copper pillar. MX2322 has a wide process window, as well as a long bath life, to remove tough flux residue at a fast rate and is compatible with all sensitive metals. MICRONOX MX2322 demonstrates its excellent cleaning performance and benefits in single-wafer spray-in-air tools as well as all immersion cleaning systems.

IONOX® FCR (*High-Strength, Semi-Aqueous Cleaner*)

IONOX FCR is a high-strength, concentrated cleaner designed to be used in immersion agitation, ultrasonic or centrifugal systems. FCR effectively removes all types of flux residues including rosin, water soluble, lead-free and low residue products. A water rinse is required to remove all traces of soils and cleaner residues from substrate surfaces.

MAINTENANCE CLEANING

CYBERSOLV® C8449 (*Adhesive and Coating Stripper*)

CYBERSOLV C8449 is a full strength solvent cleaning agent designed to be effective on many types of uncured epoxy, silicone, glue and coatings used in manufacturing operations. C8449 is engineered to dissolve both polar and non-polar compounds. Effective in ultrasonic or agitated immersion processes, CYBERSOLV C8449 is designed to be a safer alternative to traditional strippers.

CYBERSOLV® C8882 (*Understencil Wipe Stencil Cleaning Solvent*)

CYBERSOLV C8882 is a fast-acting stencil cleaning solvent designed for the understencil wipe process. C8882 instantly dissolves all flux types within the solder paste, including water soluble, rosin and low residue no-clean fluxes.

CYBERSOLV® 141-X (*Precision Solvent Bench-Top Cleaner*)

CYBERSOLV 141-X is a precision cleaner blend of organic solvents that is safe and ready to use for bench-top electronics cleaning. 141-X is effective on a wide variety of soils typically found in electronic assembly and maintenance cleaning applications.

MICRONOX® MX2180 (*Aqueous Cleaning Agent for Tape Residue*)

MICRONOX MX2180 is designed to remove minor residual pressure sensitive adhesives (PSA) from UV and blue tapes post wafer grinding and wafer dicing process. MX2180 is effective in ultrasonic and spray-in-air systems with low concentration. MICRONOX MX2180 provides excellent compatibility with a broad range of materials such as silicone/glass base substrates, passivation layers and all types of solder joints.





Because we want you to achieve the highest levels of performance, we connect care with leading science to continuously improve, problem solve and create the most effective cleaning solutions to suit your specific needs.



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