

EDITION: AMERICA/ENGLISH



**METAL FINISHING
TECHNOLOGY**

KYZEN
Where Science and Care Converge.



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 parts cleaning needs. It means you'll work with KYZEN cleaning scientists who care enough to invest the time to fully understand your specific process, metals, soils, 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 parts cleaning 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 nearly 70 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:

- | NEW PRODUCT INNOVATION
- | GLOBAL TECHNOLOGY
- | CUSTOMER SERVICE
- | ENVIRONMENTAL
- | BEST COST OF OWNERSHIP



AWARD WINNING SCIENCE & CARE





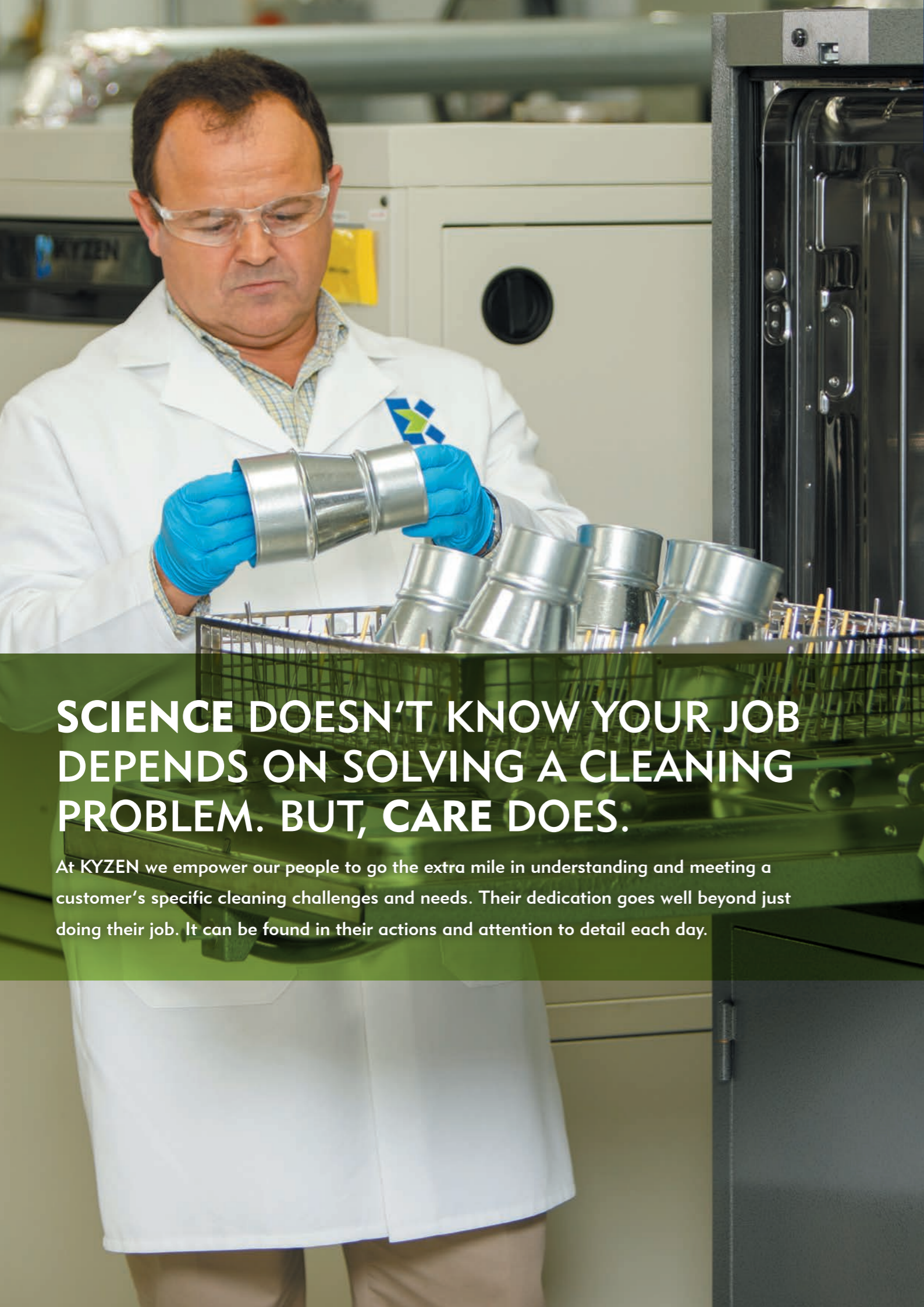
YOU ONLY BUILD THE BEST CLEANING SOLUTIONS IF YOU CARE ENOUGH TO TACKLE THE HARDEST PROBLEMS.

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.

CLEANING SOLUTIONS FOR METAL FINISHING.

We understand that the high performance demands of metal finishing are a broad and diverse set of needs. Whether yours are routine parts cleaning, corrosion protection, demanding Mil-Spec requirements, high reliability, automotive parts, the precision cleaning required by space systems, or anywhere in between, we know you demand reliability and performance from every part every time. Unless a surface is free of lubricants, oils and other imperfections it's not clean enough, smooth enough or ready for finishing. Soils change in metal finishing, and our experienced team of KYZEN engineers adapts and innovates to meet new and growing demands and challenges whether from oils and coolants, metals, smut, oxides, additives or abrasive compounds.



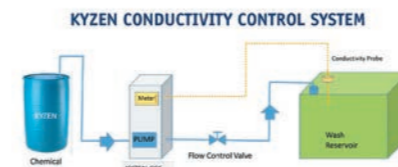


SCIENCE DOESN'T KNOW YOUR JOB DEPENDS ON SOLVING A CLEANING PROBLEM. BUT, CARE DOES.

At KYZEN we empower our people to go the extra mile in understanding and meeting a customer's specific cleaning challenges and needs. Their dedication goes well beyond just doing their job. It can be found in their actions and attention to detail each day.

PROCESS CARE

MONITOR & MANAGE



CCS (Conductivity Control System)

Maintain an accurate chemistry concentration throughout your cleaning process and you'll improve performance and quality. Using the Conductivity Control System, you'll also reduce costs and increase safety by eliminating production interruptions and keeping workers' exposure to chemicals to a minimum.



CHEMTROLLER

A reliable, simple to use and works on a special water-driven proportioning pump for hands-free chemistry additions. Requiring no electricity or compressed air connections, the incoming water pressure powers the positive displacement pump.



KAPTURE

This environmentally friendly recycling system separates soils from the solvent during the degreasing cleaning process. By continuously removing contaminants during normal operation, this system enhances the overall solvent quality and keeps production interruptions to a minimum.

KYZEN DEMISTER

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

LAB SERVICES

CLEANING VALIDATION

KYZEN experts are here to help troubleshoot your cleaning process through any change to meet your end result requirements. Millipore testing, surface tension, visual and FTIR testing available in the KYZEN lab by experts in cleaning.

CORROSION TESTING

Our Atmospheric Control Chamber creates tightly controlled, programmable hot/cold and humid atmospheres that may induce corrosion, rust and/or failure for clean parts for any end use. During testing, each metal part is checked for rust or corrosion. KYZEN corrosion inhibitors are thoroughly tested for long-term protection so you have peace of mind.

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.



CORROSION INHIBITORS

METAL FINISHING

CORROSION INHIBITORS	MATERIAL			PROTECTION TYPE	
	STEEL	ALUMINUM	BRASS / COPPER	AQUEOUS - DRY FILM	SOLVENT - DRY FILM
KYZEN® CP81	•	•	•		•
KYZEN® CP85	•	•	•		•
KYZEN® CP86	•	•	•		•
KYZEN® CP90N*	•			•	
KYZEN® CP90S	•			•	
KYZEN® CP90SA*	•			•	

CORROSION INHIBITORS

KYZEN® CP81 (Corrosion Preventative Additive for Hydrocarbon Solvent)

KYZEN CP81 is a heavy-duty wet film corrosion preventative. CP81 is a blend of organic inhibitors explicitly designed to be used with METALNOX M6381 or other hydrocarbon solvents. CP81 offers short-term and long-term protection on a variety of metal parts for indoor storage.

KYZEN® CP85 (Corrosion Preventative Additive for Modified Alcohol Solvents)

KYZEN CP85 is a heavy-duty blend of organic inhibitors specifically designed to be used with METALNOX M6385 or other modified alcohol solvents. CP85 offers short-term and long-term protection on a variety of metal parts for indoor storage.

KYZEN® CP86 (Corrosion Preventative Additive for Modified Alcohol Solvents)

KYZEN CP86 is a heavy-duty blend of organic inhibitors specifically designed to be used with METALNOX M6386 or other modified alcohol solvents. CP86 offers short-term and long-term protection on a variety of metal parts for indoor storage.

KYZEN® CP90N* (Amine-Free Aqueous Dry Film Corrosion)

KYZEN CP90N is an amine-free aqueous nitrite blend of inhibitors specifically designed for long-term protection from oxidation during in door storage. For long-term protection, add 1-5% to the final rinse.

KYZEN® CP90S (Aqueous Long-Term Dry Film Corrosion Preventative)

KYZEN CP90S is an aqueous blend of organic and inorganic inhibitors specially designed for long-term protection from oxidation during in door storage. To prevent flash rusting of ferrous parts, add 1-3% CP90S to all wet stages.

KYZEN® CP90SA* (Long-Term Dry Film Corrosion Preventative)

KYZEN CP90SA is a long-term corrosion protection product proven effective in preventing rust or oxidation on all ferrous parts in the most humid environment, even during ocean freight shipment. CP90SA also ships safely via airfreight.

*Approvals by one or more of the following: NASA, IMDS, ASTM as well as various Aerospace and Automotive OEMs. Please contact your KYZEN representative for more details.

CLEANERS WITH CORROSION PROTECTION	PROCESS			SOIL TYPE			MATERIAL			
	SPRAY SYSTEMS	ULTRASONIC CLEANING	IMMERSION WITH AGITATION	OILS/COOLANTS (POLAR)	OILS (NON-POLAR)	CARBON/SMUT/OXIDES	LAPPING BUFFING COMPOUNDS	STEEL/MAGNESIUM/TITANIUM	ALUMINUM/ZINC/DIE CAST	BRASS/COPPER/BRONZE
METALNOX® M6310*	•	•	•	•	•		•		•	
METALNOX® M6324CP*	•	•	•	•	•	•	•	•		•

CLEANERS WITH CORROSION PROTECTION

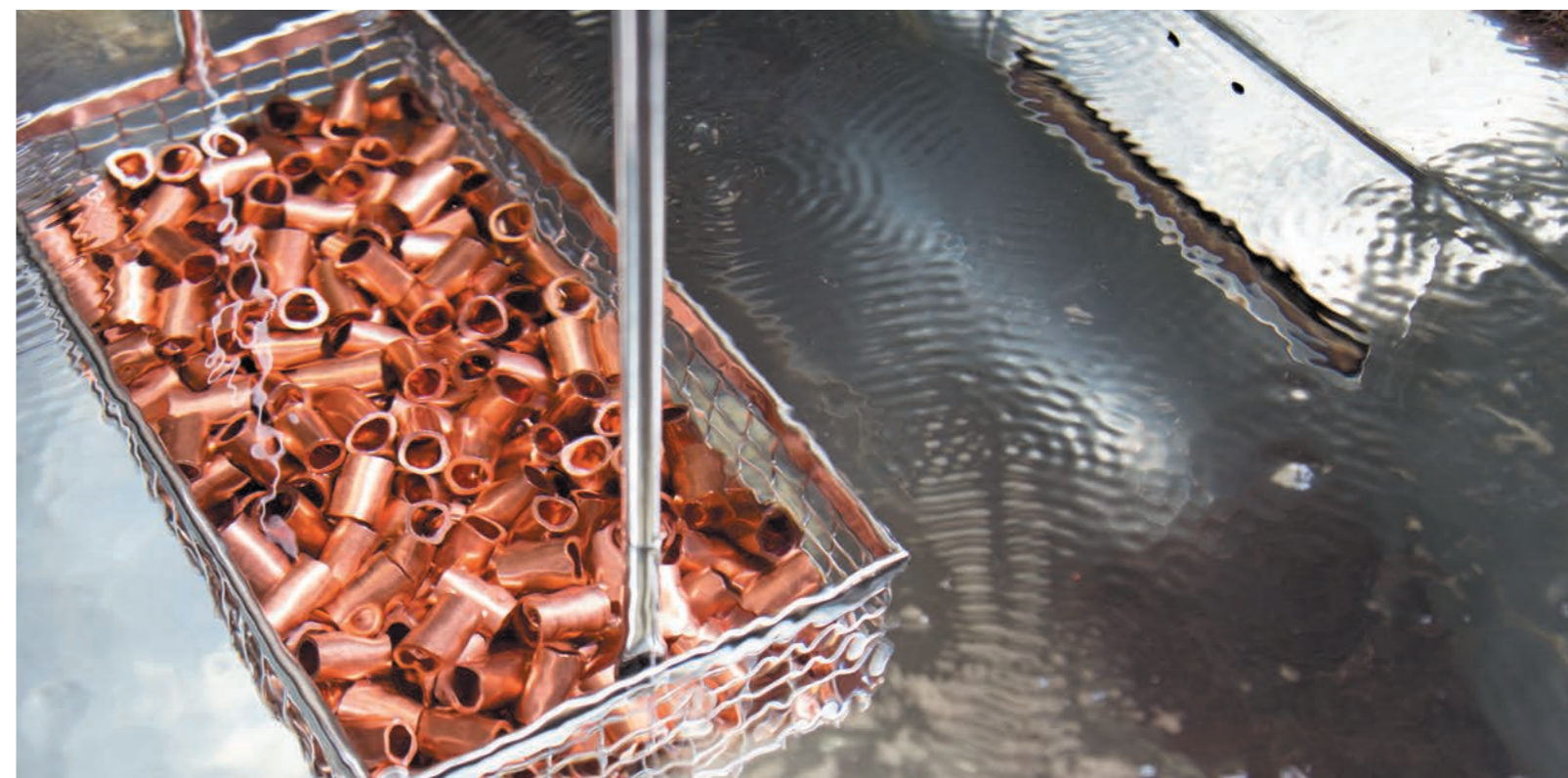
METALNOX® M6310* (Mild Alkaline Cleaner with Aluminum/Brass Protection)

METALNOX M6310 is a mild alkaline, aqueous cleaning chemistry designed to remove machining oils, burned on carbon and other manufacturing soils from all types of metal substrates. M6310 provides flash corrosion protection for steel and long term protection for aluminum, brass and copper alloys. METALNOX M6310 is highly effective on tungsten carbide and other metals susceptible to chemical attack.

METALNOX® M6324CP* (Heavy-Duty Alkaline Industrial Parts Cleaner with Rust Protection)

METALNOX M6324CP is a heavy-duty, alkaline cleaner/inhibitor formulated to remove chlorinated, paraffinic oils used in a wide range of machining, stamping, and deep draw operations. M6324CP is built with effective steel corrosion inhibitors to provide long-term protection from rust. M6324CP can also be added to both the wash and rinse stages of multi-stage cleaning systems.

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AQUEOUS CLEANERS

METALNOX® M6093 (Safe Citric Acid Cleaner / Oxide Remover / SS Passivation)

METALNOX M6093 is a citric acid formulation designed to be effective on metal oxides, scale, rust, carbonaceous soils and other industrial soils. It can be used on a variety of metals including steel and aluminum.

METALNOX® M6094 (Heavy-Duty Citric Acid Cleaner / Oxide Remover)

METALNOX M6094 is a mild citric acid formulation designed to be effective in the removal of metal oxides from yellow metals. It can be used in both spray and immersion cleaning systems. It's safe and can be used on a variety of metals including steel, aluminum, brass, and copper.

METALNOX® M6314 (Mild Alkaline All-Metal Cleaner)

METALNOX M6314 is a safe, all-purpose aqueous cleaner, specifically designed to clean a broad range of both water soluble and insoluble oils. It is a very low solids product and is often used without a rinse, even prior to coating.

METALNOX® M6319 (Aqueous Alkaline Industrial Parts Cleaner)

METALNOX M6319 is a heavy-duty, low foaming mild alkaline chemistry designed to clean a wide range of machining oils and greases from metal parts for steel, ferrous, copper and many alloys.

METALNOX® M6321 (High Alkaline Cleaner for Carbonaceous Soils)

METALNOX M6321 is an aqueous blend specially designed for heavy-duty cleaning of carbonaceous soils resulting from deep draw, laser cutting, welding, brazing and other similar operations.

METALNOX® M6324R (Heavy-Duty Aqueous Alkaline Cleaner)

METALNOX M6324R is a high alkaline, aqueous cleaner specially designed for heavy-duty cleaning of oils, greases, oxides and carbon. M6324R is effective in high speed stamping and deep draw applications.

METALNOX® M6324US (Heavy-Duty Alkaline Immersion and Ultrasonic Cleaner)

METALNOX M6324US is a high strength, high alkaline, aqueous cleaning chemistry which contains chemical components designed for ultrasonic and other immersion cleaning systems.

METALNOX® M6432 (Neutral pH All-Metal Cleaner)

METALNOX M6432 is a neutral pH cleaning chemistry designed to be effective on a variety of industrial soils including oil, grease, light oxides and buffing compound.

METALNOX® M6440 (Neutral pH Ultrasonic Immersion Cleaner for Buffing / Lapping Compounds)

METALNOX M6440 is a safe, neutral pH cleaning chemistry designed for removal of buffing compounds and metal oxides. M6440 is safe for all of the metals commonly found in the medical implant and device industries.

AQUEOUS CLEANERS

AQUEOUS CLEANERS	PROCESS			SOIL TYPE				MATERIAL		
	SPRAY SYSTEMS	ULTRASONIC CLEANING	IMMERSION WITH AGITATION	OILS/COOLANTS (POLAR)	OILS (NON-POLAR)	CARBON/SMUT/OXIDES	LAPPING BUFFING COMPOUNDS	STEEL/MAGNESIUM/TITANIUM	ALUMINUM/ZINC/DIE CAST	BRASS/COPPER/BRONZE
METALNOX® M6093	•		•			•			•	
METALNOX® M6094	•	•	•	•	•	•			•	•
METALNOX® M6314	•	•	•	•	•			•	•	•
METALNOX® M6319	•		•	•	•			•		•
METALNOX® M6321	•		•	•	•	•		•		•
METALNOX® M6324R	•		•	•	•	•	•	•		•
METALNOX® M6324US		•	•	•	•	•	•	•		•
METALNOX® M6432	•	•	•	•	•			•	•	•
METALNOX® M6440		•	•	•	•		•	•	•	•



SPECIALTY APPLICATIONS

METALNOX® M6060 (Iron Phosphatizing Solution and Cleaner)

METALNOX M6060 is an effective, pre-coating treatment chemistry for both aluminum and steel. It is used prior to coating operations for cleaning and phosphatizing, or strictly phosphatizing.

METALNOX® M6091 (Strong Mineral Acid Rust / Scale Remover and Tank Neutralizer)

METALNOX M6091 is a strong aqueous acid blend with a pH of 1. M6091 has a specially selected blend of organic and mineral acids, inhibitors and surfactants designed to be effective on metal oxides, scale, lime deposits, particulates, and other inorganic soils.

METALNOX® M6093 (Safe Citric Acid Cleaner / Oxide Remover / SS Passivation)

METALNOX M6093 is a citric acid formulation designed to be effective on metal oxides, scale, rust, carbonaceous soils and other industrial soils. M6093 can also be used on a variety of metals including steel and aluminum.

METALNOX® M6095 (Safe, Non-Acid / Thermal Deburr Oxide Remover)

METALNOX M6095 is a specialty formulation designed to be effective at removal of metal oxide after thermal deburring processes. M6095 contains no phosphoric or sulfuric acids and instead utilizes neutral pH, chelating and sequestering agents to remove and dissolve iron oxide from thermally deburred steel parts.

METALNOX® M6318* (Mil-Specification Compliant Alkaline Precision Cleaner)

METALNOX M6318 is designed to clean aluminum, titanium and other materials commonly used in the military and aerospace industries. M6318 was tested and conforms to many ASM and ASTM specifications including ASTM F-1110 (Sandwich Corrosion).

METALNOX® M6353 (Aqueous Cleaner for Remanufacturing)

METALNOX M6353 is a heavy-duty cleaning chemistry designed to meet the stringent demands of automotive remanufacturing operations. M6353 effectively removes heavily burned-on oils and carbon from aluminum and steel parts without damaging or discoloring. M6353 is highly concentrated and provides for an exceptionally long bath life.

METALNOX® M6355 (Multi-Metal Safe Aqueous Cleaner)

METALNOX M6355 is a heavy-duty cleaning chemistry designed to meet the stringent demands of precision stamping operations. M6355 effectively removes oils and carbon from aluminum and steel parts without damaging or discoloring. M6355 is designed for spray-in-air and rotary basket cleaning systems. M6355 is highly concentrated and provides for an exceptionally long bath life.

*Approvals by one or more of the following: NASA, IMDS, ASTM as well as various Aerospace and Automotive OEMs. Please contact your KYZEN representative for more details.

SPECIALTY APPLICATIONS

SPECIALTY APPLICATIONS

	PROCESS TREATMENT						SOIL TYPE			MATERIAL		
	SS PASSIVATION	PHOSPHATING	AEROSPACE / MIL-SPEC	RUST / SCALE REMOVER	REMANUFACTURING	THERMAL DEBURRING	OILS/COOLANTS (POLAR)	CARBON/SMUT/OXIDES	ABRASIVE COMPOUNDS	STEEL/MAGNESIUM/TITANIUM	ALUMINUM/ZINC/DIE CAST	BRASS/COPPER/BRONZE
METALNOX® M6060		•					•	•		•	•	
METALNOX® M6091				•	•	•		•		•		
METALNOX® M6093	•			•				•		•	•	
METALNOX® M6095				•		•		•		•		
METALNOX® M6318*			•				•		•	•	•	
METALNOX® M6353					•	•	•	•		•	•	•
METALNOX® M6355					•	•	•	•		•	•	•



Science guides our innovative solutions.
And care guides our science.



SOLVENTS / MODIFIED ALCOHOLS

METALNOX® M6900 (Engineered Vapor Cleaning Solvent)

METALNOX M6900 is an engineered vapor cleaning solvent designed to clean a variety of oils, wax, pitch, greases and additional soils common to aerospace and other precision optical and metal manufacturing applications. M6900 is a safe alternative drop in replacement for nPB, TCE and other similar solvents in many cleaning applications.

METALNOX® M6920* (VOC Free – Green and Clean – Solvent)

METALNOX M6920 is a VOC-Free, highly effective and nonflammable cleaning solution, with low global warming potential of 1. With these exceptional environmental properties and good solvency, this is an excellent choice for a variety of cleaning applications.

METALNOX® M6922 (VOC Compliant – Green and Clean – Solvent)

METALNOX M6922 is a highly effective cleaning solution that is non-flammable, has favorable toxicity properties and has low global warming potential. M6922 effectively solubilizes ionic contaminants in hydrocarbon-based oils and water soluble soils. It is an azeotropic mixture that provides superior cleaning performance with environmental and safety attributes. In addition it has low VOC content of <25 grams per liter.

Honeywell Solstice® PF-HP* (Environmentally Safe HFO Solvent Cleaner)

Honeywell's Solstice PF-HP (High Performance) is an ultra-clean (very low non-volatile residue content (<2 ppm NVR), highly-effective, nonflammable cleaning solution, with a favorable toxicity profile and low environmental impact. Solstice PF-HP is a pure component solvent that contains no stabilizers or additives. NASA approved (SPEC-3709) as a "preferred replacement solvent" for cleaning and non-volatile residue (NVR) verification sampling of NASA propulsion oxygen systems hardware.

METALNOX M6381 (Precision Hydrocarbon Solvent Cleaner)

METALNOX M6381 is an aliphatic hydrocarbon blend specially designed for heavy-duty cleaning of oils, waxes, grease and shop dirt while being safe on ferrous, copper alloys, magnesium, aluminum, plastics rubbers, glass and ceramics.

PROCESS SUPPORT PRODUCTS AVAILABLE: KYZEN Booster 81 is designed to be added to the wash solution to stop the formation of and neutralize acidic materials that may form in degreasing systems as needed based on acid acceptance values measured via the **KYZEN Acid Stabilizer Kit 81**.

METALNOX M6385 (Modified Alcohol Solvent for Polar and Non-Polar Soils)

METALNOX M6385 is a modified alcohol solvent formulation, designed for use in vacuum degreasing systems, which incorporate cleaning and re-distillation. M6385 is effective over an exceptionally wide range of polar and non-polar contaminants, and is safe for all metals.

PROCESS SUPPORT PRODUCTS AVAILABLE: KYZEN Booster 85 is designed to be added to the wash solution to stop the formation of and neutralize acidic materials that may form in degreasing systems as needed based on acid acceptance values measured via the **KYZEN Acid Stabilizer Kit 85**.

METALNOX M6386* (Modified Alcohol Solvent for Polar and Non-Polar Soils)

METALNOX M6386 is a modified alcohol based solvent cleaning blend designed to clean a wide range of polar and non-polar oils and coolants, from steel, brass, aluminum and all other metals.

PROCESS SUPPORT PRODUCTS AVAILABLE: KYZEN Booster 86 is designed to be added to the wash solution to stop the formation of and neutralize acidic materials that may form in degreasing systems as needed based on acid acceptance values measured via the **KYZEN Acid Stabilizer Kit 86**.

*Approvals by one or more of the following: NASA, IMDS, ASTM as well as various Aerospace and Automotive OEMs. Please contact your KYZEN representative for more details.

SOLVENTS / MODIFIED ALCOHOLS

SOLVENTS / MODIFIED ALCOHOLS	PROCESS			SOIL TYPE		MATERIAL		
	VACUUM DEGREASING	IMMERSION (AGITATION / ULTRASONIC)	VAPOR DEGREASING	OILS/COOLANTS (POLAR)	OILS (NON-POLAR)	MAGNESIUM/STEEL/TITANIUM	ALUMINUM/ZINC/DIE CAST	BRASS/COPPER/BRONZE
METALNOX® M6900		•	•		•	•	•	•
METALNOX® M6920*		•		•	•	•	•	•
METALNOX® M6922		•		•	•	•	•	•
HONEYWELL SOLSTICE® PF-HP*		•		•	•	•	•	•
METALNOX® M6381 ★	•			•	•	•	•	•
METALNOX® M6385 ★	•			•	•	•	•	•
METALNOX® M6386* ★	•			•	•	•	•	•

★ Acid Stabilizer Kit and Booster available for these products

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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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