



We don't simply sell products...*we sell solutions.*™



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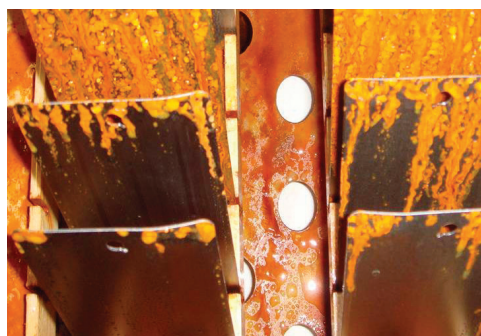
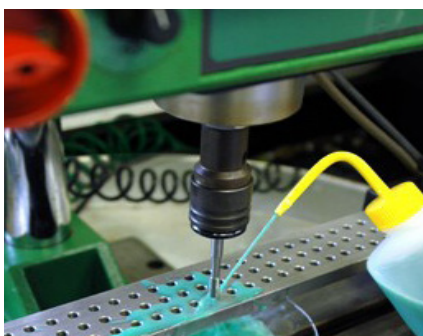
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Specialty Product Guide



Surmax® Alkaline Stable Surfactants

Hydromax Specialty Hydrotropes

Polymax® Plating Additives

Acid Inhibitors

www.pcc-chemax.com

Phone: 864-277-7000

SPECIALTY PRODUCT GUIDE

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COMPANY OVERVIEW

PCC Chemax was founded in 1973 to develop specialty surfactant additives for specific markets and individual customer needs. We specialize in servicing the industrial compounders in Metalworking, Metal Finishing, Plastics, and Oil Field Industries. Our products are used as processing aids, property enhancers, and chemical additives in the manufacture of a wide variety of industrial products. As a service oriented company, we focus on product development and cooperative research with our customers. The research, product development, and laboratory personnel of our customers become our partners in the development of unique surfactant additives to meet their specific and specialized needs.

CAPABILITIES

For over 30 years, PCC Chemax, Inc has recognized the challenges faced by our customers to thrive in a competitive environment. The development of specialty surfactants that fill that industry void has been the result of a dedication to problem solving and a comprehensive understanding of surfactant functionality.

The Surmax®CS and Hydromax series enable customers to produce highly concentrated cleaning solutions which minimize application rates while maximizing performance. These products accommodate a wide range of foam, temperature requirements, and builder packages that provide a unique competitive edge for the formulator.

Polymax® plating additives offer multi-functional attributes to electroless and electrolytic plating baths that result in fewer reworks saving time and money for the plating shops.

PCC Chemax, Inc is dedicated to providing technical support to even the most discerning customers under the most demanding of applications.

Located in Piedmont, SC, our research labs are comprised of synthesis and application capabilities for each industry we serve.

In 2006, Chemax was acquired by PCC SE, headquartered in Duisburg, Germany. The acquisition connected our company with PCC Rokita, in Brzeg Dolny, Poland, whose alkoxylation capabilities enhance our global synergies to supply our customers around the world.

This brochure is offered as a starting point. It presents some of the more standard commercial products, many of which are currently maintained in inventory. Additions to the product line and potential variations of listed products make the information presented only representative. We invite your inquiries for specific requirements of related homologues. Please see our website for the most complete list of products and corresponding information.



Piedmont, SC



Duisburg, Germany

SURMAX® materials add detergency and wetting attributes to highly alkaline systems over a wide temperature range. These materials find utility in formulating cleaners for the transportation, janitorial and metal cleaning industries. The SURMAX® series dissolves easily in high alkaline systems requiring no additional surfactants to enhance performance.

Product	Form @ 25°C	Activity	Maximum NaOH Compatibility	Application
SURMAX® CS-504	Liquid	80%	30%	Excellent for general purpose soak cleaners where some foam can be tolerated
SURMAX® CS-515	Liquid	80%	30%	Excellent for general purpose soak cleaners where some foam can be tolerated
SURMAX® CS-521	Liquid	80%	30%	Excellent for general purpose soak cleaners where some foam can be tolerated
SURMAX® CS-522	Liquid	80%	30%	Excellent for spray cleaners - used primarily with straight caustic builder formulations.
SURMAX® CS-555	Liquid	60%	30%	Lowest foaming product ideal for mixed builder systems. Excellent for highmetal fines content soils.
SURMAX® CS-586	Liquid	80%	30%	High foaming, soil emulsifying material for use in carwashes and other HI&I applications.
SURMAX® CS-634	Liquid	50%	30%	High foaming, soil emulsifying material for use in carwashes and other HI&I applications.
SURMAX® CS-684	Liquid	90%	30%	Lowest foaming product - ideal for mixed builder systems. Excellent for high metal fines content soils.
SURMAX® CS-704	Liquid	85%	40%	High foaming material with good degreasing and detergency attributes.
SURMAX® CS-727	Liquid	50%	50%	High temperature spray applications in 50% NaOH. Also used for electrocleaner formulations.
SURMAX® CS-727MA	Liquid	50%	50%	High temperature spray applications in 50% NaOH. Also used for electrocleaner formulations.
SURMAX® CS-772	Liquid	50%	30%	Excellent for spray cleaners - used primarily with straight caustic builder formulations.
SURMAX® CS-786	Liquid	50%	30%	Similar to CS-504 with enhanced wetting properties.

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Product	Sodium Metasilicate Compatibility	TKPP Compatibility	Foaming Tendency	Application Temperature
SURMAX® CS-504	20%	45%	Medium	>60°C
SURMAX® CS-515	20%	45%	Medium	<60°C
SURMAX® CS-521	20%	40%	Low	<60°C
SURMAX® CS-522	20%	45%	Low	>60°C
SURMAX® CS-555	20%	45%	Low	<60°C
SURMAX® CS-586	20%	45%	High	All Temperatures
SURMAX® CS-634	20%	45%	High	<60°C
SURMAX® CS-684	20%	45%	Low	>60°C
SURMAX® CS-704	20%	45%	High	All Temperatures
SURMAX® CS-727	10%	10%	Low	>60°C
SURMAX® CS-727MA	10%	10%	Low	>60°C
SURMAX® CS-772	20%	45%	Low	>60°C
SURMAX® CS-786	20%	45%	Medium	>60°C

The Hydromax series provides solubilizing attributes with wetting and detergency characteristics in low to medium levels of alkalinity.

- Hydromax 101** *Exceptional wetting capability. Passes OECD 301D European Biodegradability. Phosphorous, nitrogen, and sulfur free.*
- Hydromax 202** *Extremely effective wetting agent with moderate detergent properties. Nitrogen and sulfur free.*
- Hydromax 300** *Good detergency against oily soils. Particularly effective for hydrotropic low foam nonionics.*

PROCESS INFORMATION

Product	Activity	Foam Characteristic	% Required to Solubilize 5g Chemax NP-9 in NaOH	% Required to Solubilize 5g Chemax NP-9 in KOH
Hydromax 101	45%	Moderate	6.2 in 20% NaOH	6.0 in 25% KOH
Hydromax 202	50%	High	11.0 in 15% NaOH	9.9 in 20% KOH
Hydromax 300	40%	High	1.1 in 5% NaOH	2.4 in 10% KOH

Hydrotropic Performance with 5% Chemax NP-9

Product	5% NaOH		10% NaOH		15% NaOH		20% NaOH	
	% Required	Cloud Point	% Required	Cloud Point	% Required	Cloud Point	% Required	Cloud Point
Hydromax 101	1.3%	35°C	2.5%	32°C	4.1%	41°C	6.2%	59°C
Hydromax 202	1.5%	32°C	5.0%	30°C	11.0%	32°C	***	***
Hydromax 300	1.1%	33°C	***	***	***	***	***	***

Product	5% KOH		10% KOH		15% KOH		20% KOH	
	% Required	Cloud Point	% Required	Cloud Point	% Required	Cloud Point	% Required	Cloud Point
Hydromax 101	1.4%	30°C	2.4%	34°C	3.8%	38°C	6.0%	49°C
Hydromax 202	3.0%	31°C	5.6%	30°C	9.9%	31°C	***	***
Hydromax 300	1.1%	33°C	***	***	***	***	***	***

Procedure: 80 grams of alkaline solutions plus 5 grams of Chemax NP-9 with sufficient hydrotrope to clear and addition of water to 100 gr total. Solutions were heated above the cloud point and recorded upon return to clarity. Cloud points may be elevated by the addition of Hydromax materials.

The Polymax® materials offer a variety of functions in both electroless and electrolytic plating baths. Low treat rates and diversity of chemistries offer economic and formulating options in numerous types of plating baths.

Product	Chemical Description	Plating Bath Application	Function	Treat rates
Polymax® APA-840	Sodium 2-ethylhexyl Sulfate	Chloride Zinc Electrolytic Nickel	Wetting Anti-pitting	5.0 - 10.5 g/l
Polymax® BD-13	Ethoxylated Butynediol	Electrolytic Nickel	Class II Brightener Leveling	0.02 - 2.0 g/l
Polymax® ENA-5530	Proprietary	Electroless Nickel	Eliminate Pitting Uniform Brightener	2.0 - 5.0 g/l
Polymax® ED-P4	Propoxylated ethylene diamine	Copper	Chelant / Stabilizer	5.0 - 13.0 g/l
Polymax® MAS-80	Sodium dihexyl Sulfosuccinate mixture	Electrolytic Nickel	Wetting Anti-pitting	3.0 - 6.25 g/l
Polymax® NPA-15	Polyoxyethylated Nonyl Phenol	Acid Zinc	Grain Refinement/ Brightener Solubilization Leveling	2.5 - 5.0 g/l
Polymax® NPA-307	Polyoxyethylated Nonyl Phenol	Acid Zinc	Grain Refinement/ Brightener Solubilization/Leveling	2.8 - 7.2 g/l
Polymax® PA-671	Proprietary	Acid Zinc	Wetting Preparation of OCB and Benzylidene Acetone brightener concentrates	2.0 - 5.0 g/l
Polymax® PA-170	Polyoxyalkylene glycol	Acid Zinc Electroless Copper	Grain Refinement Auxiliary Brightener	2.5 - 7.5 g/l
Polymax® PA-260	Polyoxyalkylene glycol	Acid Zinc Electroless Copper	Grain Refinement Auxiliary Brightener	2.5 - 7.5 g/l
Polymax® PA-660	Polyoxyalkylene glycol	Acid Zinc Electroless Copper	Grain Refinement Auxiliary Brightener	2.7 - 7.5 g/l

Chemax ASR-343

A moderate foaming acid inhibitor ideally suited for batch pickling operations utilizing hydrochloric or sulfuric acid. It contains all the desired properties of strong acid inhibitor including: high efficiency on carbon steels, enhanced rinseability and high temperature and acid stability. Because it imparts a densely packed foam cover on the surface of pickle baths, Chemax ASR-343 effectively minimizes heat losses and holds corrosive hydrochloric and sulfuric acid fumes in the bath. Pickling with the addition of Chemax ASR-343 yields a lightly etched, highly active surface making it excellent for pickling prior to plating.

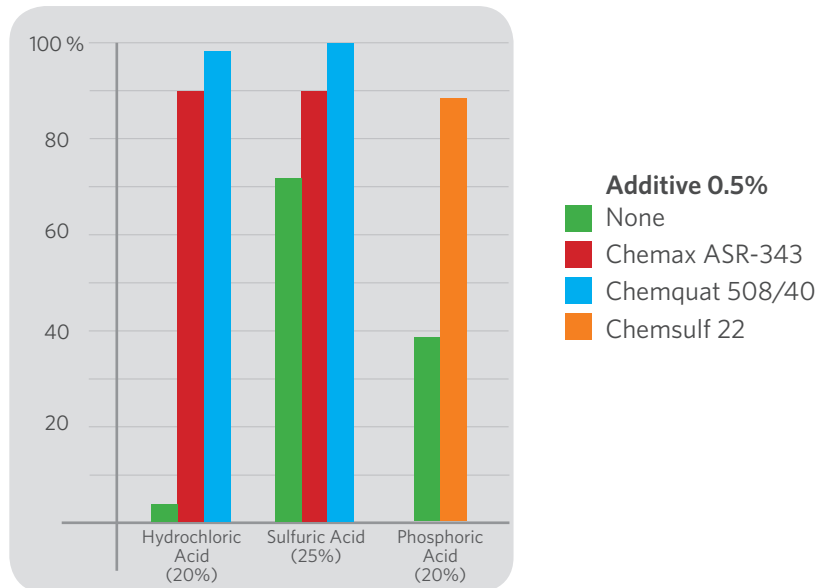
Chemquat 508/40

A low foaming acid inhibitor that offers the utmost protection against base metal loss in hydrochloric and sulfuric acid pickling operations. Highly durable in batch or continuous strip pickling; Chemquat 508/40 prevents over pickling and provides acid savings by prolonging pickle tank life. The "wetting" and detergency properties of Chemquat 508/40 provide a brighter, more uniformly pickled steel surface.

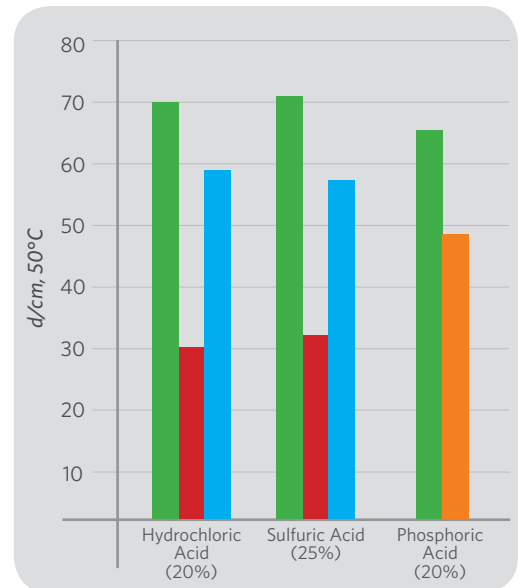
Chemsulf 22

A low foaming acid inhibitor for pickling operations utilizing phosphoric acid. Due to its high-performance "wetting" characteristics, Chemsulf 22 effectively enhances rinseability and yields a bright, uniformly pickled steel surface. An eco-friendly inhibitor, Chemsulf 22 meets all the requirements of OECD Test Method 301B and is classified as "Ultimately Biodegradable".

Weight Retention Percentage



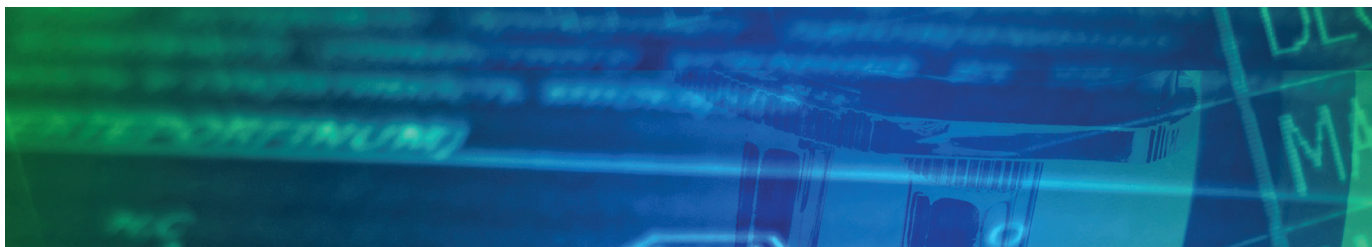
Surface Tension Reduction



Please see our website's Products tab for the most complete list of products and corresponding information.

PCC Chemax, Inc. offers specialty chemicals for the Metalworking, Metal Plating, Metal Cleaning, Polymer Additives, and Oilfield Industries. Industry specific guides outlining our products' chemistries are available upon request. More detailed information regarding specific product data or MSDS can be found via our website under the Literature tab.

Contact our Piedmont, SC office us with other questions or sample requests.



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