ASEALANTS & SEALANTS &





PUBLISHER'S PAGE

Welcome to the *Paint & Coatings Industry* and *Adhesives* & *Sealants Industry* CASE Buyers' Guide eBook

As the go-to sources of information for the paint and coatings, and adhesives and sealants industries, **PCI** and **ASI** continually strive to make it easy for you, our readers, to connect to suppliers and services that will help you and your companies grow and succeed.

And so, we have developed this new eBook version of our annual Buyers' Guides that fits right in with today's digital reality that you experience every day. While our format has changed a bit to keep up with the new "normal," the reliable, up-to-date information these Guides provide is the most relevant in our industries.

We have organized this CASE eBook into these categories for easy reference:

- Additives
- Computer Software (Enterprise Solutions and Digital Lab Software)
- Consulting Services
- Containers, Packaging, and Material Handling
- Distributors
- Environmental Equipment and Services

- Finished Adhesives and Sealants
- Manufacturing Equipment
- Oils and Fatty Acids
- Pigments/Dispersions
- Polymers/Resins
- Solvents
- Test/Measurement Instruments and Services

This comprehensive resource is here to serve you 24/7. It will save you and your company time, and it will help keep you up to date with the latest technologies. Our staffs on **ASI** and **PCI** actively work with the industries' suppliers to keep their information current, so connecting with them will be productive and straightforward.

It is our hope that this eBook and the online listings will make your jobs easier and more productive. Thank you for your ongoing support and loyalty to both *Paint & Coatings Industry* and *Adhesives & Sealants Industry*!



Tom FowlerGroup Publisher

Cover image designed by Clare Johnson. Photo credits:
Adhesive photo: undefined, iStock/Getty Images Plus, via Getty Images
Molecule photo: anusorn nakdee, iStock/Getty Images Plus, via Getty Images
Paint photo: Anna Kim, iStock/Getty Images Plus, via Getty Images



TABLE OF CONTENTS

ADDITIVES











COMPUTER SOFTWARE (ENTERPRISE SOLUTIONS AND DIGITAL LAB SOFTWARE)



CONSULTING SERVICES

CONTAINERS, PACKAGING, AND MATERIAL HANDLING

DISTRIBUTORS















ENVIRONMENTAL EQUIPMENT AND SERVICES

FINISHED ADHESIVES AND SEALANTS

MANUFACTURING EQUIPMENT









OILS AND FATTY ACIDS

PIGMENTS/DISPERSIONS





POLYMERS/RESINS





SOLVENTS

TEST/MEASUREMENT INSTRUMENTS AND SERVICES





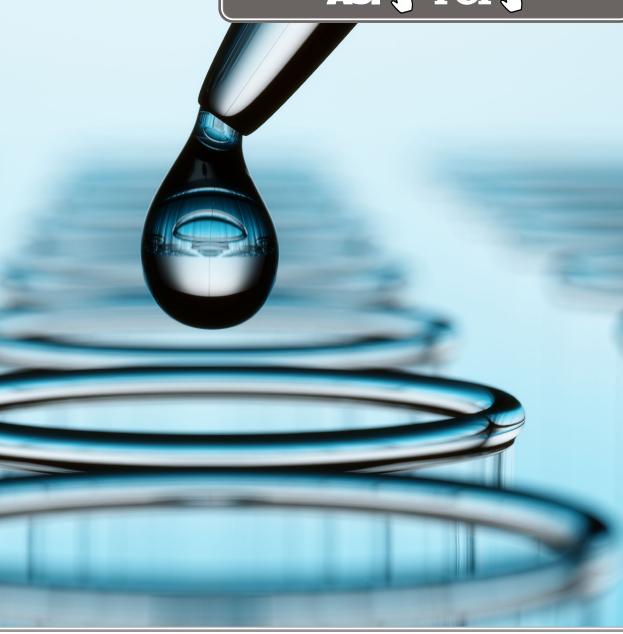


ASI PCI P

Though additives comprise a small percentage of a coating or adhesive formulation, their impact is significant. Additives contribute to ease of manufacture, stability of the coating or adhesive product in the package, ease of application, quality, and appearance.

Additive function is almost always specific in nature. In recent years, more multi-purpose additives have been developed, thus allowing the use of fewer additives in many formulations. Occasionally, the use of one additive will require the use of another to counter some undesirable effect of the first.

The focus on green technology, sustainability, nanotechnology, lower cost, and safer products has led to the introduction of newer additives and chemistries. With a larger number of additives available for a particular problem, formulators can find themselves in trouble if the wrong additive is used. Correct additive selection is important to success, and such selection is made through vendor assistance or years of experience.



(Source: J.V. Koleske, R. Springate, and D. Brezinski, "2013 Additives Handbook," Paint & Coatings Industry, June 2013.)

Credit: deliormanli, iStock/Getty Images Plus, via Getty Images

ADDITIVES



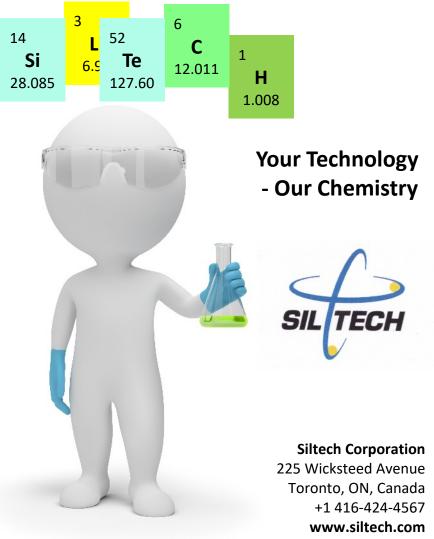
Using our proprietary technologies, Siltech develops, manufactures and markets a full line of unique organo-functional silicones. With over 30 years of experience, and two manufacturing facilities, we offer a broad portfolio of cationic, quaternary, alkyl and reactive silicones for many markets.

Our coating additives lower surface tension providing wetting, slip, release, and protection. We also offer Silmer® reactive silicones, functional polymers which react affecting flexibility over a broad temperature range, release, and other mechanical properties.

Recently, we have developed SH functional silicones and silicon resins to react with other polymers, monomers or surfaces. We have demonstrated this using the UV cured thiol-ene reaction providing materials with 200% elongation. The high MW and cross-link density of these materials results in very low vapor pressure or odor. Other functional DTQ resins are available.

Also new, Silmer TMS products offer alkoxy silane groups on the silicone polymer providing unique surface effects and cross-linking.

Heisenberg is Certain: Siltech Specialty Silicones Help You Break Today's Tougher Problems





ADDITIVES



MÜNZING is a global specialty additive supplier with highly experienced R&D and technical service personnel in Europe, the Americas and Asia.

Our complete range of specialty additives include:

- CERETAN® and LUBA-print® micronized and coated waxes and wax dispersions
- DEE FO® and AGITAN® Defoamers for printing inks, coatings, and adhesives
- EDAPLAN® Leveling and universal dispersing agents
- METOLAT® Wetting agents and dispersants for specific pigment groups
- SÜDRANOL® and WÜKONIL® Wax emulsions
- TAFIGEL® Rheology modifiers for printing ink and coatings formulations

MÜNZING offers technical service testing to focus on solving customer issues by duplicating the customer process and not by the generalization of formulation characteristics. We employ a wide range of test methods to reproduce the conditions that a coating experiences during manufacturing, packaging and application. MÜNZING's broad range of additive chemistries, our extensive knowledge of customer applications and our highly skilled lab resources, allow us to develop products that offer optimal performance.



CREATING ADDITIVE VALUE

A WIDE RANGE OF ADDITIVES FOR A
DIVERSE INDUSTRY

Universal Dispersants and Wetting Agents
Renewable Biobased Defoamer for Water-based Systems
Polymeric Dispersants for Aqueous Systems
Wax Additives



We're more than defoamer experts.

Let us help you find the perfect additive,
ask about our Project-Based approach

www.munzing.com info@munzing.us







AERODISP® WF 7620 – the Novel Rheology Modifier for Waterborne Coatings

Discover Our Newest Products, Designed to Revolutionize Your Systems!

Discover Evonik – The leading specialty chemicals supplier for Coatings & Adhesives

Outstanding New Defoamer for Water-Based Printing Inks – TEGO® Foamex 852



Adhesives for the Next Generation of Wind Turbine Blades



Meet Structural 1k Epoxy Adhesive Needs – **Sustainably!**



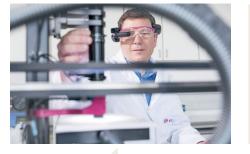
Novel Spherical Silica – SPHERILEX®
Technology Allows Formulators
to Boost Burnish Resistance



Stay Ahead of the Curve – SURFYNOL® 104 Z



Easy to Apply,
Self-Curing Clear Coats
for Professional and DIY use



Explore Even More at coatings-and-adhesives-journal .evonik.com



2k Adhesivesfor Modern Electric
Vehicles



COATINO® Glasses – Seeing Through the Customers' Eyes



ADDITIVES



Evonik offers a wealth of raw materials for the coatings and adhesives industries. Thanks to our broad knowledge of the market and close cooperation with our customers, we can help coatings manufacturers enhance their formulations and respond to their customers' needs. Environmental pressures, technological innovations, production and performance challenges are but a few of the drivers our products are designed to address.

Our world-famous brands – ACEMATT®, AEROSIL®, SURFYNOL®, TEGO®, and ZEOLEX®, among others – comprise an extensive coating additives portfolio that consists of traditional additives (defoamers, deaerators, dispersants, etc.), matting agents, rheology modifiers, extenders, co-binders, and resins (incl. silicone-based and nanotechnology). These novel products for a variety of coatings, such as decorative coatings, industrial coatings, automotive coatings, and printing inks deliver real value for our customers.



Additionally, our crosslinkers business offers a broad range of products and competences for coatings and adhesives. As a pioneer in isophorone chemistry, our products cover the entire value chain: isophorone, diamine, as well as di-isocyanate and polyisocyanate. The crosslinkers product portfolio also contains a full range of amine curing agents for ambient and heat cure applications. These products are mainly used in industrial applications due to the mechanical strength, durability, chemical resistance and excellent adhesion properties in coatings, adhesives, and civil engineering.



Technology Performance Service Sustainability Partnership VALUE

Go beyond what you expect from a partner. With advanced preservatives & additives backed by expert technical service, regulatory guidance, and reliable supply, Troy delivers value.



troycorp.com

info@troycorp.com



Preservatives | Performance Additives | Driers

ADDITIVES



Troy Corporation develops and manufactures performance materials for the coatings industry, as well as numerous additional markets. These materials are used in over 100 countries to produce high performing, cost-effective, and sustainable products. Troy's objective is to provide superior product technologies and services which satisfy customer needs and offer exceptional value.

Troy has one of the broadest portfolios for coatings manufacturers in the industry, enabling customers to achieve 360° Control of their coatings, from antimicrobial control to surface properties and application control. Troy produces over 400 preservatives, performance additives, and metal carboxylates at modern manufacturing facilities on 3 continents. Troy supports customers with worldwide sales offices, warehouses, and logistics facilities, as well as regulatory support and premier technical service.

Corporate Responsibility

Troy's policy is to manufacture, handle, and dispose of materials in an environmentally responsible manner. Troy is committed to being a responsible corporate citizen for the benefit of customers, employees, neighboring communities, and the environment. Troy has created an internal taskforce to identify areas for carbon footprint reduction throughout the company's operations globally.

Innovation

Troy is a company built on innovation. Troy invented IPBC, the leading dry-film preservative for efficacious, cost-effective, globally compliant, and environmentally responsible protection. Troy also introduced the first multi-active broad-spectrum dry-film preservative combining both anti-fungal and anti-algal performance. Troy is launching an expanding portfolio of advanced TIME controlled release dry-film preservatives, offering long-lasting coatings protection with additional environmental, handling, and stability benefits. Troy continues to develop and introduce numerous product technologies that have furthered the company's 360° Control concept.

Premier Services

Troy is a trusted resource for world-class services, enabling customers to Go Beyond what they expect from a supplier. Troy has field testing sites located around the world, as well as state-of-the-art technical service centers to provide a wide range of testing and support to customers, including microbiology, application services, and more. Additionally, Troy offers the unique TMMA microbial management program to assist customers to achieve contamination-free products and processes, and reduce total preservation cost.

Brands

Polyphase*	Dry-Film Preservatives
Troysan®	Dry-Film Preservatives
Fungitrol®	Dry-Film Preservatives
Mergal®	Wet-State Preservatives
Nuosept®	Wet-State Preservatives
Troykyd®	Defoamers
Troythix®	Rheology Modifiers
Troysol™	Substrate Wetting, Flow & Leveling Additives
Troysperse™	Dispersants
Troymax™ & Troycat™	Driers, Metal Carboxylates, & Anti-Skinning Agents
Powdermate®	Powder Coatings Additives



Why Gamble on Coating Quality?

Build a More Uniform Composite



The tried-and-true, consistent performance of Min-U-Gel 400° attapulgite provides the best performance value for:

Thixotropic Thickening

- Flow and Leveling
- Fast Recovery, No Fading

Suspension

- Stabilization
- Higher Solids / Low Viscosity

Syneresis Control

- Add-on-Top Fix
- Pigment Float & Flooding

Active Minerals, a trusted source of gellant attapulgite products, has a proven record of reliable supply for over 50 years. Our Min-U-Gel and Acti-Gel® additives ideally suspend and stabilize dispersed particles in liquids. That's a sure bet for instilling consistent quality in your products! Why gamble? Contact us now to learn how our tried-and-true products can make a difference.



Experience Outstanding Products, Quality, and Service!

info@activeminerals.com +1-410-825-2920

www.ActiveMinerals.com

ADDITIVES



Active Minerals International LLC (AMI) is a trusted source of gel-grade attapulgite and air-float kaolin clay-based mineral products. Our high customer satisfaction is founded in our intense focus on in-spec, on-time/every time that's supported by a robust QMS and world-class customer service.

Syneresis Control, Suspension, Rheology Modification and Much More...

For many decades **Min-U-Gel®** attapulgite thixotropic thickeners have been the best value for low-shear rheology control (flow & leveling, sag control, spatter resistance and more) in a wide range of liquid systems. They also suspend, control syneresis, reduce pigment floating and flooding, and improve tint strength, freezethaw and in-can stability. **Min-U-Gel 400** grade can partially replace and enhance cellulosic fibers and associative thickeners to lower cost and improve overall coating properties.

Acti-Gel® 208 purified magnesium aluminosilicate greatly improves stabilization and rheology of high solids systems. It allows an increase in solids, while improving flowability and maintaining viscosity and suspension. Its lower dosage and

easy dispersion is popular as a post-add ("add-on-top") fix for syneresis and pigment float and flooding problems, without changing rheology or making any formulary adjustments. In color concentrates, **Acti-Gel 208** provides improved flowability to aid droplet formation and improves long term stability. Its low dosage has no impact on color and 5-10% higher pigment loadings are possible without increasing viscosity.

Unlike other rheology modifiers, the viscosities generated by **Min-U-Gel** and **Acti-Gel** products do not fade or creep and are stable under extended shear, ionic and bacterial conditions, and all pH and temperatures.

Cost-Reducing Kaolin Extender Pigment

Air-float kaolins have long been used in a variety of coatings providing performance advantages in sheen & gloss control, enamel holdout, anti-settling, and sanding, but their low brightness restricted their use in light colored coatings.

Acti-Min® PG kaolin extender pigment, with its higher brightness and finer particle size, can successfully replace higher cost waterwashed kaolin products. It provides three distinct advantages: lower raw material cost, higher sheen & gloss control and greater TiO₂ replacement.

Industries Served

Water and solvent-based liquid system such as: coatings, adhesives, sealants, tape joint compounds, drilling muds, agricultural chemicals, fertilizers, plaster, concrete, ceramic glazes, refractories and more.





COMPUTER SOFTWARE

CLICK HERE TO VIEW ALL SUPPLIERS IN

ASI PCI



Enterprise software, also known as enterprise application software (EAS), is computer software used to satisfy the needs of an organization rather than individual users. Services provided by enterprise software are typically businessoriented tools, such as online shopping, online payment processing, interactive product catalogues, automated billing systems, security, business process management, enterprise content management, IT service management, customer relationship management, enterprise resource planning, business intelligence, project management, collaboration, human resource management, manufacturing, occupational health and safety, enterprise application integration, and enterprise forms automation.

Digital lab software enables materials science and specialty chemical companies to modernize how they work in order to accelerate the development, sale, and servicing of their formulations. Digitized data can be captured, managed, consolidated, and analyzed to accelerate innovation, expand lab capacity, enable predictive chemistry, reduce errors, and bring products to market faster.

(Sources: Wikipedia, https://en.wikipedia.org/wiki/Enterprise_software; and Alchemy Cloud, https://www.alchemy.cloud.)

Credit: metamorworks, iStock/Getty Images Plus, via Getty Images



The Software Collaboration Platform for Modern R&D Teams

Manage all of your laboratory and materials information in a single, shareable, secure, and structured environment.

www.uncountable.com



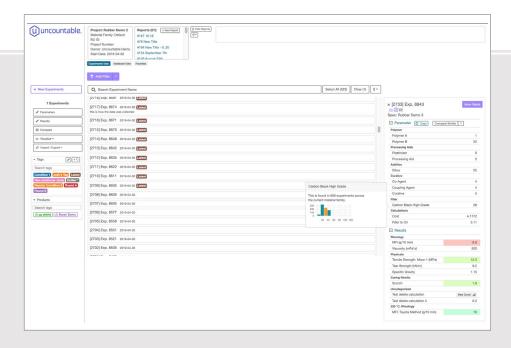
COMPUTER SOFTWARE



If you're looking for a better way to centralize R&D data within your lab, the Uncountable software platform is here to help. Uncountable acts as a replacement for traditional ELN and LIMS systems that often are either hard to use, or difficult to collaborate with. Uncountable's platform allows for collaboration across an entire organization, either within the same lab or across multiple labs.

Used by scientists at Behr Paint, Cooper Standard, Carbon, AGC, Cabot Corporation and many others, Uncountable enables you to manage all of your R&D work in a single, shared data repository in the cloud. All information is searchable, with visualizations available allowing you to discover which ingredients and process conditions lead to the output performance you're looking for.

In addition to its data repository, Uncountable also acts as a full featured ELN & LIMS combination, with a lab notebook with witnessing and signature capabilities, inventory modules, equipment tracking, and sample management. This information is tied together, enabling scientists to move seamlessly from entering their data, to visualizing it, to writing up reports for dissemination in their organization.



The biggest factor driving Uncountable is the success of its customers, which is reflected in what they say about the platform. Jean-Marc Veillé, Senior Global Materials Director at Cooper Standard writes that "Uncountable gives us a one-stop solution for all of the data our chemists need, from raw materials to recipes, properties, and production information." Mike Recchio, President and CEO of Zeon Chemical, writes "With the Uncountable platform, analysis and reporting that used to take hours or days now takes minutes." At Uncountable, we're proud of the work we've done, and will continue to do with these innovative teams.

For more information about Uncountable, including the ability to see a demo of the system. please visit our website at www. uncountable.com, or email info@uncountable.com.



CONSULTING SERVICES

CLICK HERE TO VIEW ALL SUPPLIERS IN

AS & PCI



(Sources: KTA-Tator, https://kta.com/paint-and-coating-consulting/; and The ChemQuest Group, https://chemquest.com/.)

Credit: metamorworks, iStock/Getty Images Plus, via Getty Images





CONTAINERS, PACKAGING, AND MATERIAL HANDLING



CLICK HERE TO VIEW ALL SUPPLIERS IN PCI

Various types of containers and packages are used to manufacture, transport, and apply adhesives and coatings. Depending on the material, the amount needed, and end use requirements, raw materials and finished coatings and adhesives are typically placed in bags, cans, pails, drums, bulk and intermediate bulk containers (IBCs), and tanks.

Finished coating and adhesive product packaging is a key factor, as it generally dictates the end users' dispensing or application method. Common types of packages include cartridges, chubs (also known as sausages), dual packs, syringes, and tubes.

Material handling is a broad term that encompasses activities related to material storage and the movement of materials and products throughout the manufacturing process (e.g., conveyors). Automation of some or all of these processes, depending on the size and complexity of the facility's operations, offers opportunities for efficiency improvements.

Credit: Cunaplus_M.Faba, iStock/Getty Images Plus, via Getty Images

ASI PCI

The relationship between chemical/raw material distributors and adhesives and coatings manufacturers is not just about product delivery. Today's distributors offer a broad range of services that continues to evolve to help players throughout the supply chain produce innovative products while addressing industry trends and various economic issues.

Distributors strive for collaborative relationships focused on mutual success. Some materials/ chemicals suppliers may not have the resources available for in-house testing and formulation capabilities, new product development efforts, or personnel who are experienced in regulatory and compliance issues. Others may have had to reduce these activities due to economic factors. Whatever the reason, many distributors have responded to these trends by expanding their own facilities and expertise in order to offer needed services.

Additional potential benefits of working with a distributor can include inventory flexibility, access to local inventory, supply security, market analysis and visibility, supply chain expertise, and digitalization.



Credit: industryview, iStock/Getty Images Plus, via Getty Images







Barentz.

The global life science & specialty ingredients distributor

Always a better solution.

At Barentz we have a passion to deliver better life science ingredients and specialty chemical solutions to our customers around the world in the Human Nutrition, Pharmaceutical, Personal Care, Specialty Industrial, and Animal Nutrition markets. Driven by the powerful blend of knowledge, entrepreneurship and partnership we anticipate and act on future challenges and developments.



Barentz.

About Barentz

Barentz is a leading global life science ingredients and specialty chemicals distributor for the Human Nutrition, Pharmaceutical, Personal Care, Specialty Industrial, and Animal Nutrition markets. Headquartered in the Netherlands, Barentz distributes ingredients for products to small- and medium-sized enterprises and large customers globally. The Group sources branded specialty ingredients from leading manufacturers worldwide and its ingredients experts provide value-added technical support (including pre-mixing, blending, customized formulation and

testing) from its state-of-the-art, customized formulation centers and application laboratories in EMEA, the Americas and Asia-Pacific.

Established in 1953, Barentz has operations in more than 60 countries with a strong presence in Europe and Asia, and a growing presence in North America and Latin America. With a turnover of 1.85 billion the company employs around 1,750+ people worldwide and serves over 21,000+ customers. For more information, please visit: www.barentz-na.com.







Dowd and Guild Inc. has been serving the paint and coatings, ink, building products, adhesives and sealants, composites and plastics markets with the highest quality products for over 30 years. We cover the 11 states west of the Rocky Mountains, the southwestern states of Texas, Oklahoma, Louisiana, Arkansas, and Western Canada.

Our company has grown significantly since 1986, but our dedication to providing the highest level of customer service and growing our suppliers' business has not changed. We continually strive to develop relationships with high quality manufacturers, that will not only allow us synergy with our existing suppliers and customers, but will also help us expand into related markets. We are your Partners in Performance.



Dowd & Guild understands that a perfect formula begins by fully understanding what you are trying to accomplish.

Offering in depth technical expertise and an extensive line of premium, high quality chemical products, Dowd & Guild works to ensure you get the results you expect – providing unprecedented confidence that you

get the products you need when you need them.

Your Trusted Partner In Performance.

Dowd & Guild is a proven partner beginning with our first interaction throughout the entire process. View us as an extension of your team with our highly responsive, technical, service-oriented approach.

Representing leading principals and thousands of products:

Allnex USA Inc. Burgess Pigment Company BYK USA, Inc. Cardolite Corporation Cathay Industries Chromaflo Technologies Eastman Chemical ECKART Effect Pigments Emerald Kalama Chemical Everlight USA, Inc. EverZinc FP-Pigments Invoted LLC KW Container LANXESS Biocides MinTech International Momentive Pioneer Solutions Americas PQ Corporation Sibelco Silver Hawk Stepan Company Sudarshan North America Synthomer Teckrez Tronox LLC Wanhua Chemical Group

dowdandguild.com





























Lintech International LLC is a leading national specialty chemical distributor of resins, monomers, additives, pigments and performance minerals. Since 1983, Lintech has partnered with world-class suppliers to meet the needs of customers in a wide variety of markets including agriculture, coatings, inks, plastics, rubber, adhesives, and composites. Lintech is ISO 9001:2015

certified, a Women's Business Enterprise National Certified company (WBENC), a proud member of NACD Responsible Distribution®, and C-TPAT verified through U.S. Customs for a secure international supply chain. With 12 regional warehouses and specializing in the paints and coatings indusry, Lintech provides excellent service to customers nationwide.



More solutions.
More capabilities.
More ways to
innovate and grow.

We're finding new ways to redefine chemical and ingredient distribution to keep our customers and suppliers ahead in their markets. We are investing in our value-added services, supply chain capabilities, next-generation digital tools, specialized market expertise, and deepening our technical assistance to solve your toughest challenges. With Univar Solutions, you've got an ally equipped with the capability and knowledge to help you innovate and grow.

Welcome to the new Univar Solutions.



+1 833.UNIVAR.C (+1 833.864.8282) | univarsolutions.com/CASE





Unmatched Expertise to Drive Your Solutions

Univar Solutions focuses on winning through dedication to our customers and suppliers and a commitment to helping keep our communities healthy, fed, clean and safe. We are a leading supplier of chemicals and raw materials for coating, adhesive, sealant, and elastomer (CASE) applications that serve markets such as aerospace, building and construction, furniture, industrial, marine, packaging, roads, and more. With a growing portfolio of value-added services and a focus on real-world solutions, we help our customers save time and effort while addressing the many complex needs related to market challenges.

Whether operating on a global or regional level, our dedicated CASE team can consistently provide the comprehensive technical, regulatory, market trend, and sourcing support that customers need in the adhesives market. No other chemical and ingredients distributor can match our depth of knowledge, premier product portfolio from leading global suppliers, experience and reach, allowing customers to rapidly enter the market with new, innovative products at scale.

Working with the Univar Solutions CASE team as an extension of your business, you'll find:

• Experienced sellers who understand your business challenges in the adhesives market, helping you tailor the right solutions to help you develop innovative and efficient products



- Logistics know-how, with warehouses networked to serve you locally and a private fleet of safe, equipped trucks, supporting your continuity of business
- A comprehensive and expansive range of next-generation chemicals and ingredients used in a myriad of adhesives applications
- Expertise in safety and regulatory issues, including environmental regulations (e.g., emissions of volatile organic compounds, or VOCs)
- Custom solutions to formulation challenges, supporting your sustainability journey
- Innovative product technology emanating from our industryleading Solution Centers. These laboratories accelerate product research and development and create cutting-edge formulations to improve quality and efficiency and meet the latest market trends, from standard to niche applications.

Visit UnivarSolutions.com and find out how our extensive distribution network, global reach, and unparalleled logistical expertise can provide you with a consistent and reliable source of supply, as well as the solutions you need to grow your business.





Acme-Hardesty has evolved into a leading distributor of biobased products and specialty ingredients for the CASE industry. At Acme-Hardesty, we've been supplying renewable, bio-based chemicals since our inception. We use the extensive reach of our global supply chain to meet the growing demand for high-quality products that are not only renewable - but that also offer long-term stability. Our approach includes partnering with manufacturers who implement the latest technologies, minimize their carbon footprint, and use sources that do not deplete limited resources.

Today, we've evolved into one of the largest distributors of castor and palm derivatives, specialty ingredients, and product options that are naturally and sustainably sourced. Our growing portfolio of bio-based ingredients to service the coatings, adhesives, sealants, and elastomers market has been developed to match our customers' needs and provide solutions based on their distinct challenges. We offer our customers high-quality, high-performing ingredients that add further functionality to their end products.







Brenntag Material Science makes every aspect of chemical distribution less complex for our customers and suppliers.

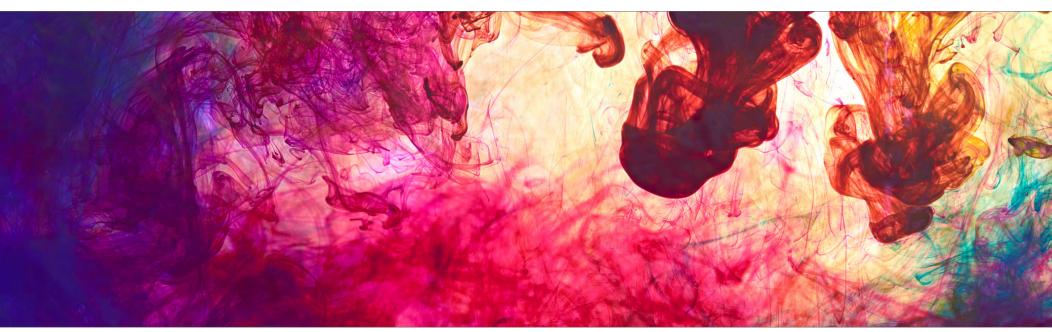
Through proof of concept formulation support, innovative supply chain solutions, and access to raw materials from world-class suppliers, we provide our customers improved commercialization time for new products. Providing innovative industry expertise across an assortment of specific applications is what we do best. Our raw material product offering categories include:

- Additives
- Crosslinkers & Catalysts
- Minerals & Extenders
- Pigments
- Resins

- Resin Modifiers
- Solvents
- Thixotrope/Rheology Modifiers
- Other Specialties

To learn more about our raw material product offering, visit www.brenntag.com.







Brenntag Material Science (Coatings & Construction, Polymers, & Rubber) is intimately acquainted with your business needs. From providing advice on improving formulations to devising innovative supply-chain solutions, we deliver products and services which put you a step ahead of the competition.

Our team focuses on developing industry formulations for customers while bringing significant product development and application knowledge to the table. Brenntag's Coatings & Construction Technology & Innovation Center is run by an experienced team of industry experts and chemists who are fully equipped to handle the latest formulation challenges and new application development. The center also provides raw material evaluations, product performance testing, and physical, subjective, and visual testing.

Safety is a priority for Brenntag. Our experts will ensure that your company is fully compliant with the industry's most stringent regulations and quality standards. We work intensively with our suppliers to ensure that our supply-chain is safe and reliable at every step. Moreover, our team will share its product and market expertise to keep you ahead of the curve on market trends and technical know-how, allowing you to focus on your core business.

To learn more about our full raw material product offering, visit www.brenntag.com.











CHICAGO, IL CLEVELAND, OH DALLAS, TX CHARLOTTE, NC VALDOSTA, GA

TOLL FREE 1-800-585-0808

EMAIL: CSR@CHEM-MATERIALS.COM WEB: WWW.CHEM-MATERIALS.COM

Acrylic and Styrene Acrylic Emulsions • Biocides • Calcium carbonate • Defoamers • Dispersing Agents Flame Retardants • Hollow Microspheres • Light Stabilizers • Nanoparticles • Non Phthalate Plasticizers Organic & Inorganic Pigments • Photoinitiators • Organic Peroxides • Pigment Dispersions • Resins Rheology Additives • Specialty Polymers • Starches • Stearates • Tin Catalysts • UV Oligomers UV Absorbers • Waxes

REPRESENTING:

ARAKAWA CHEMICALS
ASK CHEMICAL
DYMAX/BOMAR SPECIALTIES
EMERALD PERFORMANCE MATERIALS
EVONIK I & P
EVONIK COATING ADDITIVES
EXILVA/BORREGAARD
FERRO

GENERAL CARBON
HONEYWELL
NORAC
NOURYON
PIQUA MATERIALS
PROM-CHEM
REAXIS, INC.
SHANDONG BROTHER

SONGWON
STI POLYMER
SUDARSHAN
TATE & LYLE
UNITED INITIATORS
US POLYMERS-ACCUREZ

ENVIRONMENTAL EQUIPMENT AND SERVICES



(Sources: Control Instruments Corp., www.controlinstruments.com; The CMM Group LLC, www.thecmmgroup.com; and Tradebe Environmental Services LLC, https://www.tradebeusa.com/.)

Credit: Dmytro Kuznietsov, iStock/Getty Images Plus, via Getty Images

FINISHED ADHESIVES AND SEALANTS

Finished adhesives and sealants are used in industries such as automotive, construction, packaging, aerospace, electronics, and medical to bond and protect product components. The choice of adhesive or sealant depends on numerous considerations related to the finished product's production method and required specifications.

In automotive applications, for example: "For adhesive suppliers and users, the selection of products and chemistries is based on multiple factors, including the materials to be joined, joint design assembly method (automated or manual, room temperature or heated dispense), and curing process (heated or cold curing). Further, the performance requirements of the adhesive/substrate interface (i.e., the joint) must be determined. Is the function bonding or sealing, rigid or flexible, crash or non-crash, or general assembly? Performance requirements must also be accounted for, whether the adhesive is located in the body structural assembly or in visible panels and hang-on parts where class A surfaces exist that cannot exhibit bond line read through (BLRT)."*

The properties of finished adhesives can be tailored through base chemistry selection and the incorporation of various additives. Common adhesive chemistries include acrylic, epoxy, rubber, methyl methacrylate, cyanoacrylate, polyurethane, silicone, and others.

CLICK HERE TO VIEW ALL SUPPLIERS IN

(*Source: G. Moran, "Adhesives in Automotive Assembly," Adhesives & Sealants Industry, October 2020.)

DCIMAC CO

Credit: Bogdanhoda, iStock/Getty Images Plus, via Getty Images

CLICK HERE TO VIEW ALL SUPPLIERS IN PCI COM



Numerous types of equipment are used throughout the production and application of adhesives and coatings. For example, mixers are commonly used to process raw materials during the manufacturing process. The objectives of mixing are to produce a mixture with a composition and/or particle size distribution that approaches the uniform state on a scale of size appropriate to the use of the mixture, in a manner that suits the subsequent processing operations.

Application equipment such as melters, meter/mix/dispensers (for two-component products), static mixers, guns, and syringes are used to apply adhesives. Equipment can often be designed for manual or automated processes.

Coating equipment is used to precisely apply adhesives, sealants, and coatings. The equipment needed depends on the specific coating method, such as: slot die; bar; coil; Meyer rod (also known as wire-wound rod); direct or reverse roll; reverse, direct, or offset gravure; knife-over-roll; curtain; calendaring; and more.

Many adhesives, sealants, and coatings require a curing step in order to achieve their final desired characteristics. The specific equipment needed (e.g., lamps, conveyors, ovens) depends on the material to be cured and the curing method, such as electron beam, LED, ultraviolet, infrared, or spot.

Additional types of equipment can facilitate blending, dispersing, filling, metering, converting, and more.

(Source: "Equipment Handbook," Adhesives & Sealants Industry, June 2021.)

Credit: WEzekial, iStock/Getty Images Plus, via Getty Images







The world's finest High Speed Dispersers are also the most business-friendly dispersers you can buy. They're made right here in the USA. And with a large inventory of dispersers in stock, Ross can guarantee fast delivery. Thanks to the efficiency of our vast manufacturing resources, they're also easy on your budget.

Learn more. Visit Dispersers.com. Call 1-800-243-ROSS.

Or try our free online Knowledge Base

& Product Selector web app at Mixers.com/web-app.





ROSS



With 175+ years of innovation and worldwide leadership, ROSS is here to help make your business more competitive.

Serving all the process industries across the globe, ROSS offers experience and production capacity that no other manufacturer of **specialty mixing and blending equipment** can match.

In the US alone, ROSS operates five plants dedicated to engineering, R&D, manufacturing, and process testing. Overseas, ROSS equipment is manufactured in four of our own plants.

At the **ROSS Test & Development Center**, customers have an opportunity to optimize their processes and confirm their equipment selections prior to purchase.

ROSS In-Plant Trial and Rental equipment is available in many sizes and configurations. Put more capacity on-line to meet short-term demand, pilot-test new products, or test new equipment in your process.

ROSS Control Systems provide complete, customized automation and PLC-based recipe solutions for the mixing and blending process.

ROSS Storage Tanks and Pressure Vessels are custom-built to exacting standards at competitive prices. Build to ASME, USFDA, BISSC, API and UL code requirements, in capacities from 1 to 80,000 gallons.

With expertise in a broad spectrum of industries and applications, ROSS is uniquely equipped to improve production and product quality on your process line.





Charles Ross & Son Company 710 Old Willets Path Hauppauge, NY 11788 800-243-ROSS

www.mixers.com mail@mixers.com



Blue M is recognized as an industry leader in the design, engineering, manufacturing, and after-market support of industrial and laboratory ovens. Known for their reliability and dependability, Blue M ovens are available in standard or engineered to order (ETO) designs including inert gas, Class A / solvent-venting and explosion proof (XP) ovens. Oven models are available in bench top, stacked, and cabinet style configurations that provide you with the flexibility to arrange them within your facility footprint. Blue M ovens have maximum temperature ratings up to 1300°F and are commonly used for ASTM testing, annealing, curing, drying, and burn in applications. Blue M equipment is supported by a full line of aftermarket services from installation and preventative maintenance to replacement parts and technical support to ensure your equipment operates at peak performance.





Leap into the future of UV Curing

The OmniCure® S2000 Elite is a new generation lamp-based UV spot curing system designed for demanding manufacturing applications. Offering the highest reliability and quality for light-curing adhesive processes, the S2000 Elite improves productivity, enhances precision, upgrades security, and refines usability.

The innovative system features proprietary Closed-Loop Feedback technology, which automatically monitors and maintains its optical output for a repeatable curing process. A new 30 ms high-speed shutter ensures the most precise dose delivery. A wide range of compatibilities between the original S2000 and the S2000 Elite facilitates system upgrades.

The 4.3" LCD touch screen enables advanced process control and intuitive navigation and monitoring of all curing-related statuses. Remote management is available from any device through the WEB UI.

Combining the tried-and-tested Close-Loop Feedback with the latest communication technologies and PLC automation capability, the S2000 Elite can tackle the most demanding UV curing applications in the era of Industry 4.0. Omnicure®
UV Curing • In Control

Outperform All Others in Your UV Curing Process



High-Performance OmniCure® UV Curing Solutions







- Maximize throughput and yield
- Achieve repeatable curing results
- Streamline integration
- Enhance cure capabilities

www.excelitas.com







OILS AND FATTY ACIDS

CLICK HERE TO VIEW ALL SUPPLIERS IN

Oils have various functions depending on their ability to form films or alter various properties. Drying oils from vegetable oil or animal sources have been used as sole binders and modifiers for other resins (linseed, tung, and fish oils). Semi-drying vegetable oils are used primarily in the manufacture of other oxidizing resins (soya bean and safflower oils). Non-drying oils are used in plasticizing alkyds and in blends with other resins in baking systems (raw castor, coconut, and cottonseed oils). Mineral oils are used as basic building blocks in defoamers for latex paints or as a VOC-free non-volatile portion of water repellants. Silicone oils are used in surface lubricants, anti-blocking additives, and scratch/ mar resistant additives.*

Synthetic or modified oils are manufactured to achieve certain properties. As such, they can offer optimized structural uniformity and reduced impurities. Oils produced from natural resources (e.g., coconut oil, castor oil, linseed oil, soybean oil, sunflower oil, tall oil) provide bio-based alternatives to traditional petroleum-derived oils.

A fatty acid is a carboxylic acid with a long unbranched aliphatic tail (saturated or unsaturated). Fatty acids (as well as their esters and blends) can be used as lubricants, surfactants, emulsifiers, texturizing agents, wetting agents, defoamers, anti-static agents, or stabilizing agents.



(*Source: J.V. Koleske, R. Springate, and D. Brezinski, "2013 Additives Handbook," Paint & Coatings Industry, June 2013.)

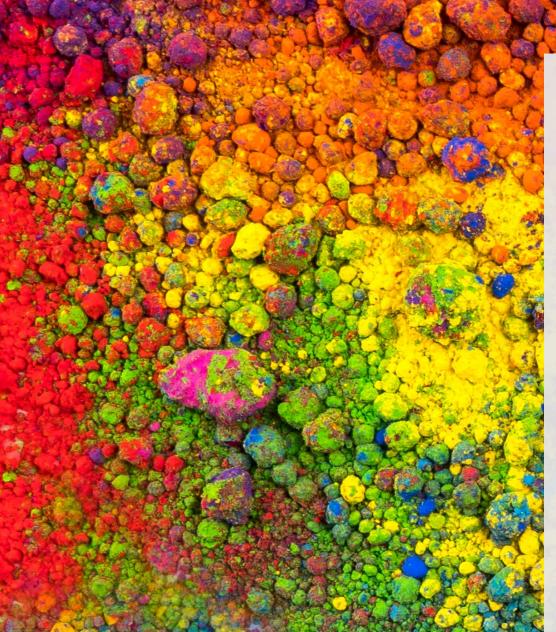
Credit: anusorn nakdee, iStock/Getty Images Plus, via Getty Images

ADHESIVESMAG.COM/DIRECTORIES

PIGMENTS/DISPERSIONS

CLICK HERE TO VIEW ALL SUPPLIERS IN

AS PCI



Pigments provide several properties to coatings and adhesives, including a solid base for binder reactions; resistance to ultraviolet light; and added color, texture, and physical properties. Pigments narrow down to organic and inorganic types. Organic pigments include carbon compounds and are responsible for a broad number of colors across commercial products. Common organic pigments from animal and vegetable origins include:

- Alizarin: Yellow, orange and red shades;
- Phthalocyanine: Blue and green shades;
- Quinacridone: Violet shades.

Inorganic pigments derive from mineral origins and are considered metal compounds. These pigments are siennas, umbers, and ochres that form within clays in the Earth. They can be synthetically created to produce signature colors such as "cobalt blue" and "titanium white."*

Pigment dispersions are dry pigments dispersed in liquid material that are stabilized using resins or surfactants/ additives to minimize reagglomeration, a phenomenon where the pigments come back together to form "lumps." They can contain water or solvent, or they can be based on a resin that is liquid at room temperature. Pigment dispersions often have relatively high pigment concentrations and are used in additive quantities to impart color in a variety of products. The term "pigment dispersions" is often used synonymously with colorants, color concentrates, and pigment preparations.**

(Sources: *Brenntag, https://www.brenntag.com/en-us/industries/coatings-construction/paint-pigments/; and **Chromaflo Technologies, https://chromaflo.com/pigment-dispersion-fags/.)

Credit: Sergio Delle Vedove, iStock/Getty Images Plus, via Getty Images



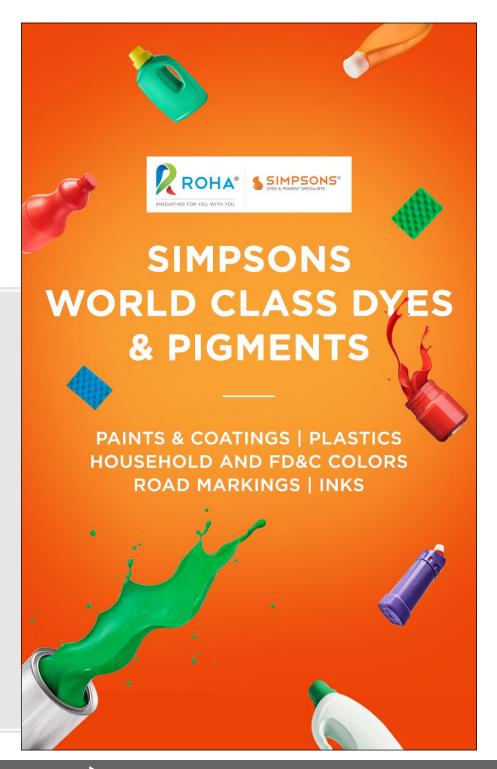


PIGMENTS/DISPERSIONS



INNOVATING FOR YOU. WITH YOU.

A ROHA Group company, Simpsons specializes in dyes, pigments and dispersions. Trusted in over 22 countries on 6 continents, the name Simpsons is synonymous with world class quality, an extensive range and competitive pricing. At Simpsons, customer delight is of utmost importance. From meeting all local and international regulatory and legislative compliances, to streamlining processes to reduce lead times, to closely collaborating with partners to achieve the targets set within the deadlines — Simpsons has forged an enviable legacy through its never-ending quest for perfection. To read more about the company, or to explore its product range, visit www.roha.com/ simpsons.



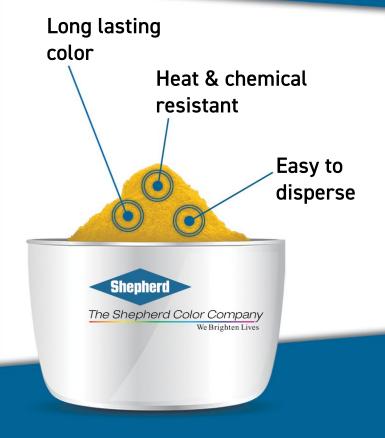
PIGMENTS/DISPERSIONS



The Shepherd Color Company is a leading global producer of complex inorganic color pigments. Our products are an extraordinary class of inorganic pigments that offer stable, long-lasting color for many applications. They have unbeatable weatherability, heat and chemical resistance, are non-warping and easy to disperse. Our highly engineered products include the Arctic® line, that mitigates solar induced heat build-up; Dynamix®, with 'just stir it in' technology creating 100% pure color dispersions; and Starlight®, a special effect pigment creating brilliant sparkle and luster.

Headquartered in Cincinnati, Ohio with sales offices in Belgium, Australia, Japan, and China, along with our global distributors, we supply millions of pounds annually of our high-quality pigments and support our customers around the world. Our success has been built upon the fundamental belief that promoting people of exemplary character, doing quality work, and offering differentiated products allows us to brighten the lives of those we serve.

Looking for an experienced complex inorganic color pigment supplier?



More Expertise. Better Performance. Best Value.

That's Shepherd Color.

Find your color at shepherdcolor.com.



POLYMERS/RESINS

The term resin comes from resinous, a description of materials that are amorphous and brittle, yet soft and tacky. In some cases, resins provide tackiness and an increase in specific adhesion; in other cases, they provide film forming and a reduction in viscosity. When mixed with a polymer, a compatible resin will increase the glass transition temperature (T_g) and reduce viscosity or hardness.

The most common way to group resins is by the feedstock used to produce them: hydrocarbon resins, rosin resins, and terpene resins. Basic criteria narrow down the choice of resin for a particular application, and then a number of secondary filters are applied. Resin suppliers really sell two basic properties: compatibility and stability.

In most formulations, the polymer is the starting point of the mixture. This means that the resin must have a known and understood compatibility with the polymer and with other ingredients. Viscosity, color, and oxidative stability are important criteria. Not understanding these aspects can affect application and end-use properties, resulting in blocked nozzles, poor coatings, and failed or discolored adhesives and coatings. With the basic criteria of compatibility and stability in place, secondary filters come into play, including FDA clearances, odor, color, and cost.



CLICK HERE TO VIEW ALL SUPPLIERS IN

(Source: "Raw Materials, Chemicals, Polymers and Additives Handbook," Adhesives & Sealants Industry, March 2021.)

Credit: Adrian Pacurariu, iStock/Getty Images Plus, via Getty Images



WE SUPPLY THE BUILDING BLOCKS FOR YOU TO FORMULATE COATINGS

Before you develop your final coating, our experts at Engineered Polymer Solutions work hard to provide the high-performance resins and polymers you need to formulate innovative products. By continuously improving and developing next-generation products, we help manufacturers around the world create highly successful solutions for the architectural, construction and industrial coatings industries. At EPS, we build our partnerships by ensuring we deliver on what we promise – direct access to high-quality sustainable solutions, innovative technical service and dedicated customer support.



POLYMERS/RESINS



INNOVATIVE RESINS FOR THE COATINGS INDUSTRY

EPS produces high-value and highly differentiated resins and polymers, specifically designed for our customers who develop innovative construction, industrial and architectural coatings products.

CONSTRUCTION COATINGS

All-acrylic polymers for roofing and concrete applications that offer exceptional adhesion and resistance to asphalt bleedthrough

EPS® 2252

High solids acrylic emulsion designed to adhere to low energy substrates commonly used in roofing. Basecoats and primers based on EPS 2252 offer outstanding adhesion to thermoplastic olefin (TPO) and ethylene propylene diene monomer (EPDM) rubber. EPS 2252 provides the capability to formulate coatings at <50g/L VOC.

INDUSTRIAL COATINGS

Acrylic emulsions for industrial metal and industrial wood applications



EPS® 2580

Self-crosslinking, styrenated acrylic emulsion offering excellent gloss, corrosion, and chemical resistance, as well as early water resistance and rapid hardness development. EPS 2580 provides the capability to formulate coatings at <50g/L VOC.

ARCHITECTURAL COATINGS

Acrylic resins offering exceptional dirt-pickup resistance (DPUR) and exterior durability

EPS 2799

Self-crosslinking all-acrylic film-forming polymer for high-performance gloss interior and exterior architectural DIY or professional paints. EPS 2799 is a versatile polymer that offers exceptional hardness and tack resistance. Ideal for institutional, commercial, or other high traffic areas wall coatings. Learn more https://www.epscca.com.

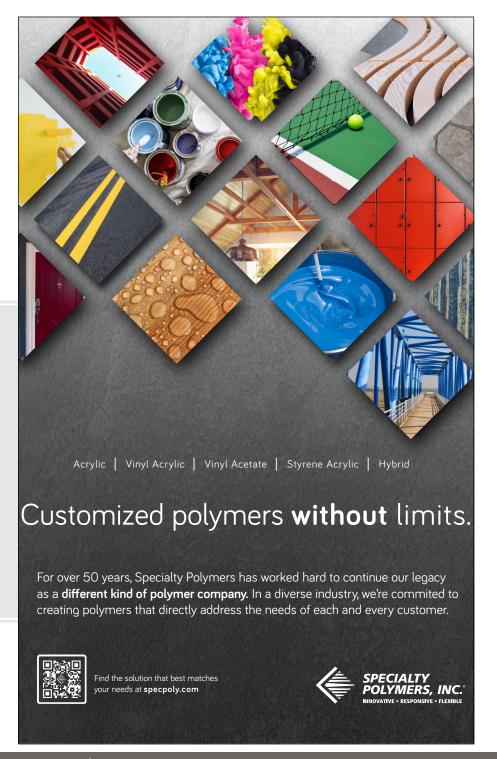


POLYMERS/RESINS



Specialty Polymers is a manufacturer of water-based polymers and adhesives. Our products are customized to meet the most demanding needs from customers, and our employees are committed to providing the best customer service in the industry. We pride ourselves on being an innovative, responsive, and flexible supplier of high-quality products.

We are A different kind of polymer company. Our experienced chemists and dedicated sales team recognize that each customer is unique. Creating a customized polymer to fit the exact performance and formulation needs is what we do best at Specialty Polymers, and it may take less time than you think. Contact us today to learn how we can give you the best resin for your unique product formulation.



ASI & PCI &



In paint, solvents dissolve or disperse the components used in the formulation to achieve the desired consistency for application and to avoid clumps or globs. Solvents also facilitate drying and the formation of a durable paint film. Traditionally, solvents are organic compounds or oils that have high levels of VOC emissions.

In adhesives, organic solvents are used to dissolve or extract materials. The drying time of the adhesive tends to be far quicker than that of a water-based solvent, as the faster evaporation of the solvent allows the adhesive and any additives to be concentrated and exposed to set. As in paints, organic solvents can be much more effective in an adhesive formulation than a water solvent, but they have been the subject of concern given their toxicity and association with environmental issues like global warming.

Solvents are subject to a variety of federal and state regulations, including those that govern the industrial storage and disposal of hazardous wastes; workplace exposure limits; requirements for safe transport of chemical substances; and regulations pertaining to release of chemicals to air, land, and water.

(Sources: ChemicalSafetyFacts, https://www.chemicalsafetyfacts.org/solvents/; and Chemoxy International Ltd., https://www.chemoxy.com/about-2/knowledge-hub/a-guide-to-solvent-based-

Credit: Ivan-balvan, iStock/Getty Images Plus, via Getty Images

ADHESIVESMAG.COM/DIRECTORIES





TEST/MEASUREMENT INSTRUMENTS AND SERVICES



(Source: "Equipment Handbook," Adhesives & Sealants Industry, June 2021.)

ADHESIVESMAG.COM/DIRECTORIES

Credit: DarioEgidi, E+, via Getty Images







TEST/MEASUREMENT INSTRUMENTS AND SERVICES





MEASUREMENT, COMMUNICATIONS & TESTING

Ci4400 Weather-Ometer® Unmatched Repeatability and Reproducibility

The Atlas Ci4400 Weather-Ometer® is our most advanced instrument yet providing easy and effortless operation, unmatched uniformity, increased capacity and a sleeker design, delivering unparalleled value and performance. With its user-friendly touch screen interface and ergonomic features, the best-in-class just got even better.

Design and engineering innovations in the airflow, irradiance and control systems have dramatically reduced variability in critical test parameters. As a result, the Ci4400 achieves new levels of temperature, humidity and light exposure uniformity.

Simplified Control Navigation

The larger user interface makes operating the Weather-Ometer easier than ever. The Ci4400 delivers exceptionally precise and reliable control of all test parameters for repeatable, reproducible and reliable results.



Commitment to Quality

Producing the very best instruments is not something we take lightly. Every instrument must pass customer specified test parameters. We inspect all xenon lamps and optical filter glass to strict quality specifications. The Ci4400 meets relevant CE, UL, CSA, ISO and EN safety and electrical standards for both machinery and laboratory test equipment.





WHO WE ARE

PUBLISHING/SALES STAFF

Tom Fowler

Group Publisher Tel: 248-786-1717

Email: fowlert@bnpmedia.com

Patrick Connolly

ASI International Sales Manager

Tel: 44-1702-477341 Email: patco44uk@aol.com

Lisa Guldan

PCI National Account Manager

Tel: 248-786-1271

Email: guldanl@bnpmedia.com

AnnaMarie McCann

Inside Sales Manager Tel: 248-833-7359

Email: mccanna@bnpmedia.com

Uwe Riemeyer

PCI Europe Regional Manager

Tel: 49 (0) 202-271690

Email: riemeyer@intermediapartners.de

Amy Vallance

ASI Associate Publisher/National Sales Manager

Tel: 281-928-3520

Email: vallancea@bnpmedia.com

Chris Yin

PCI China Media Rep.

Email: chris-yin@pcimagcn.com

PRODUCTION STAFF

Kristin Johansson

PCI Editor-in-Chief Tel: 248-786-1253

Email: johanssonk@bnpmedia.com

Karen Parker

PCI Associate Editor & E-News Editor

Tel: 248-229-2681

Email: parkerpcimag@gmail.com

Susan Sutton

ASI Editor-in-Chief, Integrated Media

Tel: 248-786-1704

Email: suttons@bnpmedia.com

Clare L. Johnson

PCI Art Director

Lindsay Leusby

ASI Art Director

Brian Biddle

PCI Production Manager

Tel: 847-405-4104

Email: biddleb@bnpmedia.com

Kelly Southard-Mitchell

ASI Production Manager

Tel: 248-244-6409

Email: southardk@bnpmedia.com

CORPORATE

CEO: Tagg Henderson

Chief Experience Officer: Darrell Dal Pozzo

Human Resources & Information

Technology Director: Rita M. Foumia **Production Director:** Vincent M. Miconi

Finance Director: Lisa L. Paulus **Creative Director:** Michael T. Powell

Clear Seas Research Director: Beth A. Surowiec

Chief Event Officer: Scott Wolters

For subscription information or service, please contact Customer Service at:

Tel: 800-952-6643

Email: asi@omeda.com or pci@omeda.com