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FALL 2014

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A Hull of a Story

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A publication from



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A MESSAGE FROM

Daniel Koons

DISTRICT MANAGER – SOUTHEAST DISTRICT
NORTH AMERICAN COMPOSITES



WESTWARD HO

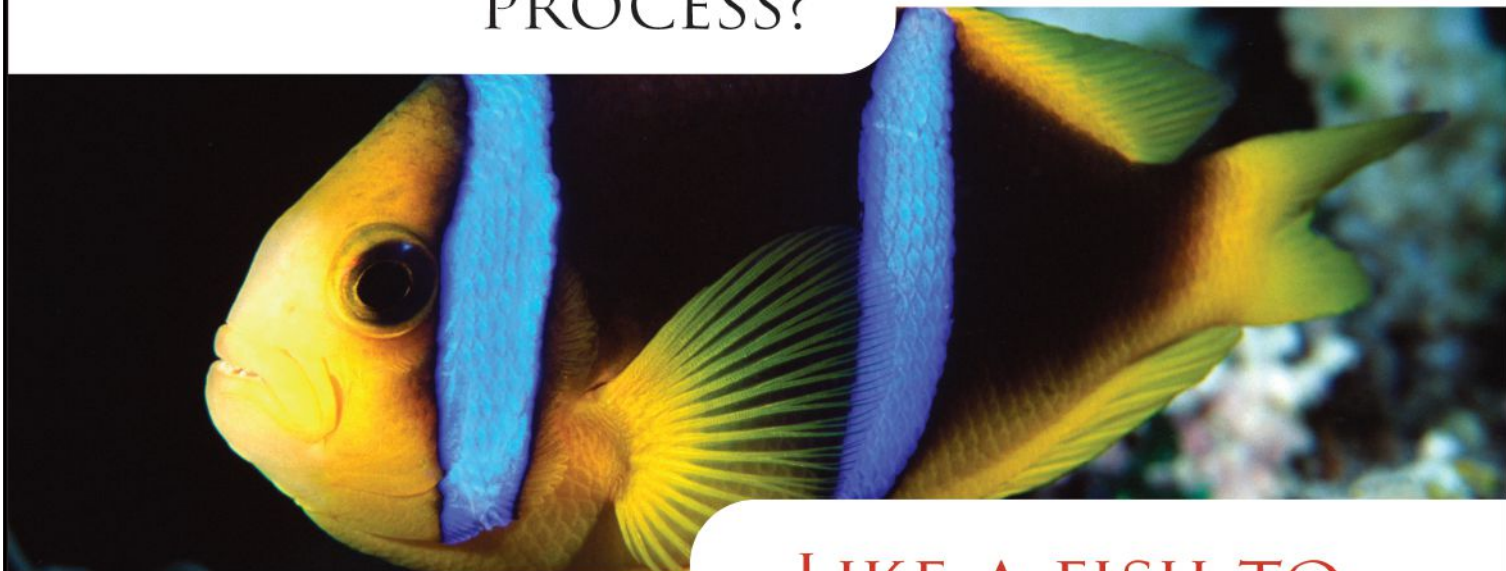
Living in the St. Louis area, I often pass the Gateway Arch. The “Gateway to the West” was a monument erected to signify expansion, new opportunities and plans for the future. How fitting it is that, in the presence of such a symbol, NAC has opened our next warehouse. The greater St. Louis area has been recently serviced from our Tulsa and Nashville locations, but to support the rapidly changing and growing demands of the composites business, we believe a “right-at-hand” location offers the best possible opportunity for excellent service over the longer distances often required. Dean Weaver, Southeast operations manager, is steeped in lean manufacturing and will provide oversight necessary for the day-to-day operations of the St. Louis facility.

Choosing a distribution channel is an important decision, and this decision must be based on a foundation of trust and expertise. In my past experience, whether as a composites manufacturer, a supplier or functioning in the distribution role, the value of trust cannot be overemphasized. At NAC, we value your trust above all else and will strive to earn and keep the trust that you extend to us. Contact us today and see the trust advantage NAC can provide to your operation. We take “Delivering Performance” seriously.

Thank you for your business.



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THE FACES OF

NORTH AMERICAN COMPOSITES

**DAVE MILLER**

Dave joined NAC as a sales representative in December 2013. Dave is responsible for managing sales in southern Illinois, southwest Indiana and eastern Missouri. Dave brings to NAC 18 years of cast polymer manufacturing and reinforced composites experience. Dave and his wife, Lisa, have three children and like to volunteer for Habitat for Humanity, golf and fish.

**MILLIE STEWART**

Millie joined the NAC team in March 2014 as a customer service representative in Nashville, Tennessee. Her previous employers include Georgia Pacific-Color Box, Pinnacle Foods Group and NATCO Business Furniture. Millie resides in Tennessee with her husband, Mark, and has five children and six grandchildren. Some of Millie's interests include writing songs with her husband, listening to music, traveling, walking and spending time with her family.

**AARON JOHNS**

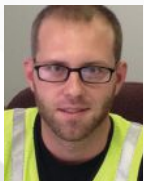
Aaron joined NAC as a sales representative in March 2014. Aaron will be covering northeast Oklahoma, southeast Kansas and Missouri (outside St. Louis). Aaron comes to NAC with 25 years of experience with companies such as Aim Supply, Federal Protection, Johnson Industrial Supply and Moeller Marine. Aaron and his wife, Patty, have two sons and enjoy jet skiing, camping and boating.

**CINDY FITZSIMONS**

Cindy joined the NAC team in May 2014 as a customer service representative for our facility in Mishawaka, Indiana. Cindy comes with vast experience at past companies that include: XPO Logistics, Hallmark, FDC Graphics and Midwest Energy. Cindy has two daughters and one grandchild. Outside of work, she enjoys reading and spending time with her family.

**ART NARANJO**

Art joined NAC in June 2014 as a sales representative. He is responsible for the NAC western Florida territory. Art has worked in the composites industry for many years, and he has worked for companies such as Composites One and Ashland. He started his career working for Bertram Yacht, and most recently he was the regional manager for Fici-Fiberlay. Art is married and has one son. Outside of work, he enjoys jogging and any activities involved with conditioning.

**DUSTIN CROCKETT**

Dustin joined NAC in June 2014 as a customer service representative and warehouse worker at our Lakeland, Florida, distribution center. Dustin served in the U.S. Army for five years, and currently he is in the reserves and will complete his service duty in October 2014. Dustin is married and has one son. Outside of work, he likes biking, being on the beach, movies and car shows.

**RICK WHITT**

Rick joined NAC in March 2014 as a sales representative. He will be responsible for managing sales in the Northern California district. Rick comes to NAC with 10 years of experience in distribution selling in the Northern California composites market. He has previously been with Composites One, where he was responsible for selling composite manufacturing products to over 160 companies. Rick is married and has four children ranging in age from 7 to 14. They are all involved in baseball and soccer, which keeps him busy. In his spare time, he enjoys a good game of golf.

THE PINNACLE AWARD

Frank Overton SALES REPRESENTATIVE



Christy Concrete is a decades-old polymer concrete, cast concrete, SMC and bulk-molding manufacturer of enclosures, utility boxes and lids for the construction industry.

The business had been a stand-alone business for years and was acquired by Oldcastle several years ago. Oldcastle had been expanding its polymer concrete business and, through the acquisition of Christy Concrete, solidified its position as a supplier of polymer concrete boxes to the construction and cable industry.

Frank began calling on Christy Concrete while it was still privately held, and while he consistently called on the account, he was turned down numerous times by management. Over time, he picked up small pieces

of business, including the company's internal mold release and chopped strands. It wasn't until the company was purchased by Oldcastle and management changed that Frank began to seriously have an opportunity for some of the resin business.

Even then, it took him almost three years to finally get the opportunity to trial resins for Christy Concrete's primary composite line: its bulk molding resins. After getting the trials started, Frank spent a year or more running trials, shepherding evaluation tests through the company's engineering group and providing follow-up formula changes based on those test results. During that time, he went through several more management changes and outright changes in personnel whom he had been working with at Christy Concrete. Despite the challenges, Frank never lost his focus or motivation.

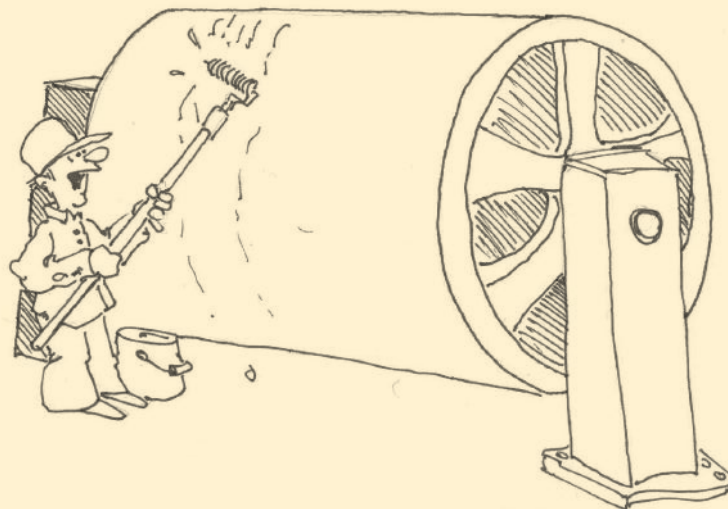
After working diligently at this long-standing target account for more than a year,

Frank finally received word this month that the resin he was qualifying, SIL 40 DA-2837, had been approved and shortly after received the first purchase order for a tanker of resin.

The customer uses approximately 750,000 pounds annually of this resin, which makes Christy Concrete the second-largest resin customer for NAC in the California district. In addition, it opens the door for Frank and NAC to pursue additional resin business at the parent company, Oldcastle, which operates another polymer concrete plant in nearby Madera, California.

Frank received the Pinnacle Award because he has shown tremendous tenacity in the pursuit of this business, and despite the many setbacks, personnel changes and fierce competition from the incumbent supplier, Frank prevailed and successfully won a major piece of business at this account.

MORRIS' WORLD



"WHEN THEY ADVERTISED FOR A HIGH ROLLER,
I SHOULD HAVE ASKED MORE QUESTIONS."

From Clothing to Composites

Composite Fabrics of America Brings Weaving Heritage to Composite Industry

by Erin Pinkerton

In 1916, Samuel Schneider began a small silk-weaving business in New Jersey called Schneider Mills. Nearly 100 years later, the company he founded operates more than 500 looms in Taylorsville, North Carolina, and produces more than 1 million yards of fabric each week, weaving fabrics for military uniforms and casual clothing, among other things. Schneider Mills, a debt-free, privately owned company, created Composite Fabrics of America (CFA) in 2010 as a wholly owned subsidiary as a way to expand into the composites industry. Schneider Mills and CFA are now being run by third- and fourth-generation weavers.

"One of the things that happened that brought CFA about was Albert Schneider, who saw that the future of survival in the weaving industry [was] getting involved with composites," said Jack Loudermilk, regional sales director for CFA. "They quickly learned that the typical weaving environment for the types of things that they do was not a good environment to do carbon in. Carbon is very conductive to electricity, and they quickly learned a hard lesson there that they didn't want to keep it all under one roof," he continued. "So instead of trying to build a special building and special operation of Schneider, they just formed an entirely new company — CFA."

CFA is a specialty composites weaver that weaves many advanced fibers, including carbon, aramid, e-glass, s-glass and high-molecular-weight polyethylene. CFA has been set up to be agile and responsive to customer needs; customization is its main strength.

"I would say that the niche that we serve is that we're a very customer-driven company. We specialize in custom width, custom

weight, custom construction — fully custom products for our customers at very low minimum orders, much lower than normal industry standards," said Matthew McPherson, president of CFA. "If you have a situation where you need a reinforcing product that is not an on-the-shelf or industry-standard product, most oftentimes,

"One thing that CFA did that nobody else has ever done is approached us and said, 'What would you like us to weave?'"

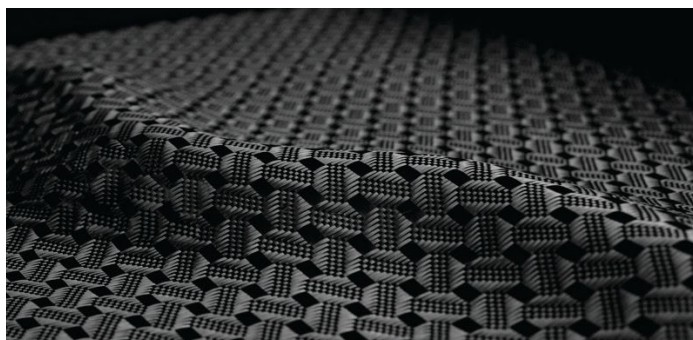
— Mike Standley, North Carolina sales representative for North American Composites

we can produce that with minimal lead time versus other options out in the industry."

With many custom weaving options available, CFA provides composite fabrics to myriad industries, including marine and sports, military, industrial, and automotive, to name a few. CFA strives to find new ways to serve each of these industries. For example, within the last few years, CFA received its AS9100 Revision C certification, which allows CFA to serve the aerospace industry. "A lot of companies are ISO-certified. The aerospace certification is a notch up," McPherson explained.

In addition to offering custom orders for industry-standard weaves, like plain weave and twill, CFA offers an exclusive line of custom-patterned carbon fiber fabrics called Textral™.

"It has a geometric pattern to it beyond just the weave of the cloths. ... It is a whole new idea about how carbon fiber can be used as a cosmetic appliance," said Mike Standley, North Carolina sales representative for North American Composites (NAC). "If a manufacturer wanted a repeating pattern of their company logo or the company name, that can be woven. And these patterns can still be structural



even though they are cosmetic. And they seem to have a depth or a texture that a normal weave does not."

In its Textral line, CFA offers more than 30 in-house patterns, some of which are engineered for strength or other specific applications, Loudermilk said. But Textral is not an entirely new invention. "Schneider Mills started in 1916, so we have many, many years of intellectual property to tap into, so that technology is not new, but it is new to the composite industry. One of the unique characteristics of CFA is that we brought it into the composites industry," Loudermilk explained. "We found we can take your name, for example, and actually weave it into the carbon. ... This is not stitching, and it's not 3-D weaving or anything like that. It's just clever manipulation of the reflective properties of the carbon."

Although CFA and NAC had known of each other for a while, the companies did not start working together in earnest until early in 2014, when Loudermilk was asked to attend one of NAC's district meetings. "When I walked in the room up there, I was pretty nervous. There were probably a dozen guys sitting around the table, and I'm going to have to give them a presentation, but they were just nice and personable," Loudermilk remembered. "I'm seeing more and more opportunity with them. It's going really good. And I'm actually very hopeful for the future business with them as well."

"One thing that CFA did that nobody else has ever done is approached us and said, 'What would you like us to weave? What

"I would say that the niche that we serve is that we're a very customer-driven company. We specialize in custom width, custom weight, custom construction — fully custom products for our customers at very low minimum orders, much lower than normal industry standards."

— Matthew McPherson, president of CFA

are the weaves that are most popular?" Standley said. "They are very anxious to be in the market. They are very much customer-centered," he added. "And that certainly makes them a standout when you're comparing them against other larger corporate entities, which move more slowly and aren't as reactive and responsive as a company like this."

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New Fire Regulations

to Change the Storage Classifications for Di-(4-tert-butylcyclohexyl) Peroxydicarbonate by 2016

by Anthony J. Bennett, Technical Development Manager, AkzoNobel Polymer Chemicals, LLC,
Thermoset Products, sBU Organic Peroxides

One of the most effective organic peroxides for elevated temperature applications is Di-(4-tert butylcyclohexyl) peroxydicarbonate (BCHPC), commonly known to the market as Perkadox 16. The National Fire Protection Association (NFPA) will issue its revised Code 400 in 2016 with the marked change of moving BCHPC from a Class III to a Class I Organic Peroxide based upon recommendation and input from the Organic Peroxide Producers Safety Division (OPPSD) of the Society of the Plastics Industry (SPI). The change in class will prove a challenge for storage, handling, flammability, and mixing in unsaturated polyester resin to manufacturers using the product and to distributors who store the product for the manufacturer. If you are a manufacturer of cured-in-place-pipe (CIPP) or a pultruder that has made use of this organic peroxide in your process, this news is for you and others that use this product.

Here you will see justification for the NFPA Code 400 change, and what changes will be needed to continue the use of this important organic peroxide are discussed here.

What Is Di-(4-tert-butylcyclohexyl) Peroxydicarbonate, and How Is It Important?

BCHPC is an organic peroxide that is a highly effective initiator for creating composite materials from polymers such as polyacrylates, polystyrene, polyvinylchloride and unsaturated polyesters. This peroxide is used in elevated temperature conditions to start the polymerization process. It is likely the most effective and widely used product for the creation of composites such as window lineals, door frames, chemical-resistant walkways, fishing poles, shovel handles, tomato stakes, concrete rebar reinforcements and sewer pipe rehabilitation. The list of end uses is much longer, but it is obviously an important chemical in everyday use.

BCHPC is often used as the primary initiator in the creation of a polymer composite. Most times used in tandem with other organic peroxides, BCHPC is a key to providing a completely cured piece at the end of the production run. Just a small amount of energy is required to slightly elevate the resin temperature and activate this peroxide. As BCHPC reacts in a resin system, it generates heat and free radicals that start polymerizing the resin and the reactions of the other peroxides in the system. So for a small amount of energy input, this peroxide delivers the key to making simple and complex composites quickly and efficiently.

By itself, the BCHPC powder can also react by decomposition if exposed to just enough heat to bring the temperature to 104 degrees Fahrenheit (40 degrees Celsius). This temperature for BCHPC is called the self-accelerating decomposition temperature (SADT). When BCHPC is exposed to the SADT or higher temperature, the

BCHPC is an organic peroxide that is a highly effective initiator for creating composite materials from polymers such as polyacrylates, polystyrene, polyvinylchloride and unsaturated polyesters.

molecule decomposes, which produces more heat. As decomposition generates heat, it speeds up the rate of decomposition. The reactions continue until there is no organic peroxide left to react. For BCHPC, this reaction happens so fast that decomposition appears to happen nearly spontaneously. The heat emitted, along with the fast generation of decomposition products, can be so intense that a fire can result. The heat from a 20-watt light bulb held next to a box of BCHPC can be enough to start the decomposition of the peroxide.

BCHPC Storage Based on Fire Classification

It is the reactivity and thermal stability of Di-(4-tert-butylcyclohexyl) peroxydicarbonate that has the attention of the NFPA and, thus, many composite manufacturers today. The burn test conducted at the BAM facility in Germany using 200 kilograms of BCHPC was used for the recommendations. In the BAM test, BCHPC decomposed in 13 seconds, a rate of 924 kilograms per minute. These test findings have spurred global reclassification of BCHPC powder to a Class I organic peroxide for storage.

The reasoning for the proposed reclassification is spelled out in the following OPPSD statement from 2012:

The current classification of the products being changed was found to be incorrect and non-conservative based on the latest testing and other information on these materials. The incorrect classifications result in inconsistent ranking when compared with listings by other international code organizations resulting in confusion for the users. Since all changes are in the direction of higher hazard, improvements on individual sites may be required to safely store the affected materials.

Previously, the storage classification for organic peroxide formulations was based upon consideration of incidents involving said formulations, along with expert opinion of technically oriented individuals from the NFPA committee. The OPPSD now recommends a more objective and globally consistent method for such classification. The Dutch Code PG S8 (Organic peroxides: Storage, Guideline for the labour-safe, environment safe and fire-safe storage of organic peroxides, December 2011) and similar European classification systems are based on transport classification (United Nations Guideline) in addition to burning rate measured using either large or small scale burning tests.

With the Dutch PGS-8 standard issued in December 2011, the recommended Storage Group 1 for BCHPC powder was established. The National Fire Protection Association (NFPA) will change the sta-

tus of BCHPC powder officially on January 1, 2016, to Class I as part of the next revision of NFPA Code 400.

The NFPA Class I definition is “an unstable, reactive material.” “The material that in itself is normally stable, can become unstable at elevated temperature and pressure.” This storage classification would require BCHPC to be in refrigerated storage within a separate building, with limited quantity storage, independent of a manufacturing building. Other requirements will be cited in the current *NFPA 400 Hazardous Materials Code* (2013 edition) recommendations.

The New NFPA Code 400

The proposed change to the status of BCHPC in the NFPA Code 400 may require considerable changes for your product storage.

Listed below are many of the changes that will be needed to be compliant for NFPA Class I storage.*

- 1. No more than 3 pounds (1350 grams) of Class 1 peroxide is allowed to be stored inside a manufacturing control area. An approved, explosion-proof, safety refrigerator in an automatic sprinklered room is required.**
2. Larger quantities must be stored in a detached building with an Organic Peroxide diamond placard on each exterior wall.
- 3. Minimum outside detached storage requirements are:**
 - a. 50 feet (15.5 meters) from lot line or other buildings.
 - b. Redundant alarms and refrigeration.
 - c. Maximum Allowable Quantity (MAQ) for storage:
 - i. 1,000 pounds (454 kilograms) maximum allowed if unsprinklered.
 - ii. 2,000 pounds (907 kilograms) maximum allowed if sprinklered.
- 4. Maximum outside detached storage must be:**
 - a. 150 feet or more from lot line or other buildings
 - b. Maximum allowable quantity (MAQ) for storage:
 - i. 10,000 pounds (4540 kilograms) maximum allowed if unsprinklered.
 - ii. 175,000 pounds (79400 kilograms) maximum allowed if sprinklered.
 - c. Equipped with safety release door that opens with pressure.
5. “Flammable Storage — Keep Fire Away” and “No Smoking” placards on outside of building.
6. Explosion-proof electrical equipment is required (outside and inside).
7. Temperature recorder and temperature alarm system (visual and audio). Metal portions of building should be grounded.
8. Refrigeration units; main and emergency backup systems (fluorocarbon type) must be located outside or away from building.
9. Interior and exterior walls must be made of corrosion resistant design. Minimum insulation should be 3 inches of urethane for walls, ceiling and floor.
10. Weatherproof covering and sun-shield are required on top of building.
11. Inside evaporators, main and emergency backup systems.
12. Corrugated fiberglass on walls, pallets on floor and spacing between rows of cartons are required for air circulation.

**Consult the NFPA Code 400 for complete requirements, including usage levels in closed and open systems. The requirements stated above are used for illustration of the current code requirements for storage of Class I organic peroxides and does not represent the entire set of requirements.*

NFPA Compliance Will Force a Need for Alternatives

The manufacturers of various products that utilize BCHPC will find compliance to the NFPA Code 400 difficult. The reduction of product allowed inside the workplace and the cost for detached storage will be a challenge for many manufacturers. The pultrusion and CIPP industries will likely be the most affected by the change in NFPA classification. BCHPC powder is a gold standard for these manufacturers. Few already have detached external storage facilities for NFPA Class I product.

- What if the BCHPC could be provided in a form that did not have the rapid burning characteristics of the pure powder?
- What if this new form of BCHPC could have no loss in properties in the resulting composite?
- What if BCHPC containing products could retain the NFPA Class III storage status and avoid these new storage and handling requirements?

Introducing Perkadox 16-40XPS

Perkadox 16-40XPS is a dispersion of BCHPC in nonreactive diluent. The 40 percent "paste" can be dispersed directly into a resin without previously mixing with a reactive solvent, as currently done, adding convenience, limiting preparation of a pre-solution and improving safety. The initiating properties of Perkadox 16-40XPS are unaffected by the diluent used to make this paste. All the physical properties that can be obtained from pure BCHPC are possible with the paste. Perkadox 16-40XPS also disperses quicker in an unsaturated polyester resin compared to the neat powder of Perkadox 16.

Some of the benefits are noted here.

- The 40 percent Perkadox 16-40XPS paste is pourable and pumpable.
- Powder "clouds" are no longer possible with the use of a paste, so worker and equipment exposure to organic peroxide can be minimized.
- The Perkadox 16-40XPS paste does not need to be pre-dissolved in a reactive solvent, like styrene.
- Full dispersion of the paste is possible with minimal mixing into a resin.
- Perkadox 16-40XPS retains a NFPA Class III rating and does not require the new storage requirement noted above.
- The BCHPC is at full strength in the resin mixture until exposed to the activation temperature in manufacturing.
- Unlike premixing, equipment cannot seize up due to polymerized, reacted solvent.
- Reactive diluents, like styrene, are not needed for pre-mix, saving preparation time, improving safety, reducing employee exposure and potentially eliminating increased storage facility costs depending upon storage capacity for the 40 percent active product versus pure BCHPC.
- The Perkadox 16-40XPS paste is acceptable for corrosion applications.

There are other NFPA storage Class II organic peroxides and a storage Class III organic peroxide that can be used for the applications

Perkadox 16-40XPS is a dispersion of BCHPC in nonreactive diluent. The 40 percent "paste" can be dispersed directly into a resin without previously mixing with a reactive solvent, as currently done, adding convenience, limiting preparation of a pre-solution and improving safety.

discussed here. However, these organic peroxides are generally not as effective. Many of these alternatives require similar refrigerator storage conditions to BCHPC. Some even require freezer storage. One replacement, which has seen limited success, is a waxy flake at ambient temperature and must be dissolved at higher temperatures in diluent. The major difference with a storage Class II product is the offer of a higher maximum allowable quantity in storage. Again, consultation of the NFPA Code 400 is necessary to understand what is required.

It should be noted that the packaging requirements for the Perkadox 16-40XPS, which is a 40 percent paste, will take more space for storage than pure BCHPC powder. But having an organic peroxide storage Class III-rated formulation of this key initiator offers distinct advantages!

The practice of dissolving Perkadox 16 in styrene will not be needed with Perkadox 16-40XPS. In fact, we discourage this practice, as styrene will still cause the decomposition of the Perkadox 16 paste before it is placed in a resin.

Perkadox 16-40XPS will be introduced in the second half of 2014. We strive to deliver the characteristic reactivity of BCHPC without the issues of a NFPA Class I organic peroxide storage requirement, but with added benefits of a safer and cleaner alternative product for the composites industry.

For more information, contact your AkzoNobel account representative or AkzoNobel customer service at 800.828.7929.

www.akzonobel.com

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Acknowledgements

Thanks to Rob van de Graaf, Ross Opsahl and Paul Iacobucci for their contributions in the presentation of this article. And to the AkzoNobel Organic Peroxides RD&I (Denter), thank you for the development of this important paste formulation.



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Stocking Up on Success

McMillan Fiberglass Stocks Celebrates More Than 40 Years in Business

by Erin Pinkerton

As the old saying goes, if you want a job done right, you'd better do it yourself. That's exactly what Gale McMillan did. While participating in benchrest shooting competitions, which require very precise rifles to shoot at targets at varying distances, Gale wasn't quite satisfied with his rifle stocks and started making his own stocks in 1973. Soon fellow competitors wanted Gale to make stocks for them, and McMillan Fiberglass Stocks was born.



Kelly McMillan

McMillan began making stocks for the U.S. Marine Corps in 1975, the same year Gale's son, Kelly McMillan, now director of operations at McMillan, joined the company. At the time, the staff included only Kelly, Gale and Kelly's mother. Almost a decade later, in 1984, McMillan procured its first original equipment manufacturer (OEM) account — a well-known American manufacturer.

More than 40 years later, McMillan has a staff of 60 employees and produces about 12,000 stocks per year, according to Kelly McMillan. The company, based in Phoenix, Arizona, continues to provide gunstocks to the military and OEMs, but 65 percent of stocks are sold to individual gun owners or gunsmiths, Kelly said. With its wide range of products, McMillan offers stocks

for every kind of gun owner, from the competitive shooter to the hunter to the military-weapons enthusiast.

About one-third of stocks sold to individuals are for hunting, but most stocks sold to individuals are within the tactical category.

"They're always pushing to make better parts, and they're innovative in their field."

— David Tierney, NAC sales representative

"The tactical is a name that they put on a particular type of firearm based on what it was originally used for," Kelly explained. "A lot of our individual gun owners [say] if the Navy SEALs had a particular rifle, they want

to own that same rifle. If the SEALs rifle had a McMillan stock on it, they want that same McMillan stock on their rifle.

"The A5® is absolutely the most popular stock that we've ever made," Kelly said. "The A5 was specifically designed to be the best all-around tactical stock ever made, and people recognize that."

Each McMillan gunstock is made of multiple layers of woven fiberglass cloth and laminated under pressure with epoxy resin, according to the company's website. Except for the ultralight stocks, McMillan gunstocks are filled with solid fiberglass, and epoxy and glass beads.

With all its gunstock categories, McMillan offers many different styles, options and colors, ranging from basic black to green camouflage to purple and white marble. In fact, with help from North American Composites (NAC), McMillan recently began adding new special pigments to its epoxy resin to give



“The fact that we have more models and can handle more different types of rifles than any of our competitors probably is our number-one asset. The second is that it’s the best stock on the market and has an unconditional lifetime guarantee.”

— Kelly McMillan, director of operations at McMillan

specific color to the finished gunstocks, said David Tierney, NAC sales representative.

“They’re always pushing to make better parts, and they’re innovative in their field,” Tierney said. “They continue to push the growth of their product line and grow their business to appeal to every market from the military, police to private gun owners.”

McMillan’s 20-plus-year partnership with NAC has been a key component in McMillan’s continual growth. “They provide the best quality products that fit our particular application,” Kelly said of NAC. “They stay on top of the latest trends in the industry. They bring us new products and samples any-time they’ve got something new they think

might improve our process or our product.” He continued, “It’s probably as good a relationship as we have with any vendor. They appreciate our business and let us know that by being responsive, managing prices and making sure they deliver what we need when we need it.”

Likewise, McMillan strives to meet the needs of its customers by producing the best-quality gunstocks, staying on the cutting edge in the markets it serves and standing behind its products. “The fact that we have more models and can handle more different types of rifles than any of our competitors probably is our number-one asset,” Kelly said. “The second is that it’s the best stock on the market and has an unconditional lifetime guaran-

tee. So if a customer buys one, they’ll never ever have to buy another one for that rifle. ... It doesn’t matter what happens to it, if it breaks, how it breaks, we’ll replace it.”

With the help of NAC, McMillan has continually expanded its available products and options in the decades since Gale McMillan first made his own gunstock, and this growth and success show no signs of stopping. “Because we’ve been in the industry for 40 years, people look up to McMillan as the ultimate authority when it comes to fiberglass gunstocks,” Kelly said. “And I think people need to know if they have any needs, check with us first.”

www.mcmillanusa.com

McMillan offers stocks for every kind of gun owner, from the competitive shooter to the hunter to the military-weapons enthusiast.



Ask NAC

by Bern Brody, District Manager, North American Composites



I have heard that an outside deck can be “coated” to make it water-resistant, stronger and more decorative. Is that true, and how do I do it?



This is a question I have been asked many times. It is certainly true, and there are two basic ways to do it. The first way is to call a professional contractor who would have all the equipment to do it safely and correctly. There are many fiberglass deck contractors who are willing to give a free estimate.

The second path is for the experienced do-it-yourselfer. The process is dependent upon whether you are working with new construction or recoating a previously “fiberglassed” deck. If you have decided to take on the task of doing it yourself, here is how you would start with new construction. First, make sure the deck surface is constructed on an exterior-grade plywood, not hardwood, pressure-treated, painted, stained or veneered wood. These other materials have oils in them that make it hard to adhere the fiberglass to the wood. The process is as follows.

1. Nail or screw the plywood to the deck joists.
2. Use a putty (filler) to fill in all the seams and holes, and then sand smooth with 24- to 36-grit sandpaper. A general-purpose putty is the most common to use. A milled-fiber putty can be used as well if more strength is needed. Automotive body filler can be used as well.
3. The plywood should then be sealed with a thin coat of polyester resin. This can be applied with a short nap or foam paint roller. A general-purpose resin is recommended with 1.25 percent initiator (catalyst) used. CADOX M-50A is a typical initiator. Working time for the resin is about 30 minutes.
4. Then one layer of fiberglass — chopped strand mat (1.5 ounces is the most common) — is applied with the proper amount of resin and rolled out with a Bodi roller to remove all the trapped air. A good estimate is that every gallon of resin (approximately 9 pounds) will cover 20 square feet. A Bodi roller is an aluminum roller that has fins in it to help push out the air bubbles in the resin.
5. After the laminate has hardened, the deck is fully sanded (24- to 36-grit sandpaper) to abrade the deck surface and smooth out any nonuniform spots.
6. Now comes the final coat; this is the gelcoat. This must have a wax solution in it to achieve a tack-free finish when cured.

The gelcoat can be made in multiple colors depending on your preferences. A lot of customers choose a color to match the siding on their home. The gelcoat can be applied with a short nap or foam paint roller. Use 2 percent based on weight of an initiator like CADOX L-50A to “catalyze” the gelcoat before applying it. A gallon of gelcoat will cover approximately 80 square feet. Working time for the gelcoat is approximately 30 minutes.

There is also a deck coating that can be added to the gelcoat to help achieve a better hide (this is like a thickener) if applying a light gelcoat over a dark-colored deck. A nonskid material can also be added to the gelcoat if desired; this is usually pumice. One quart of pumice is used per 5-gallon pail of gelcoat.

If you are doing a recoat of an existing fiberglass deck, the process would be:

1. Clean and sand the existing deck with 24- to 36-grit sandpaper.
2. Wipe it down with acetone to create a tacky surface to allow for a good bond.
3. Apply new gelcoat as described above.

Key things to remember:

- The ideal temperature for fiberglassing and gelcoating an outside deck is between 72 and 82 degrees Fahrenheit.
- Always keep your initiator (sometimes called catalyst) levels at the recommended amounts. Going below the recommended level will cause under-cure, and exceeding the recommended levels can cause cracking.
- There should be no rain or dew in sight for a minimum of 24 hours. Moisture will cause white spots to appear, and the entire process will need to be redone.
- Avoid doing the work in direct sunlight.
- Material cleanup and disposal should be in accordance with local regulations.



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Viking Yacht Company

A Hull of a Story

by Michael Adkins





The year was 1964. Two brothers, Bill and Bob Healey, bought Peterson-Viking Builders, which was a struggling manufacturer of wooden sportfishing and cruising boats in New Jersey.

Fifty years later, the company those two brothers built now boasts about 850 employees and is known and respected the world over for its high-end convertible yachts. Through the ups and downs in the industry, this family-owned and -operated business has remained true to the mantra declared by Bill Healey five decades and some 4,660 boats ago: “Build a better boat every day.”

Making Waves

Viking Yacht Company’s main factory is in New Gretna, New Jersey, with two service yards in Riviera Beach, Florida. According to Peter Frederiksen, Viking’s director of communications, the vertically integrated company designs and manufactures 90 percent of each of its yachts’ components, including fiberglass molds, fuel and water tanks, furniture, and more. “We also have our own electronics company, Atlantic Marine Electronics, and a tuna tower company, Palm Beach Towers,” Frederiksen said. A tuna tower is an elevated platform above the main deck of a boat, often with a second set of controls, used for spotting fish far in the distance. “These subsidiaries allow us to deliver a turnkey-ready boat to the customer,” Frederiksen added.

In 1972, the Viking 40-foot convertible yacht made its debut to tremendous acclaim. The company sold more than 600 40-foot and 41-foot models during the next 16 years. Perhaps more importantly, according to Frederiksen, every Viking model since then has shared this unit’s basic hull design, “with evolutionary refinements being made to accommodate steadily increasing available horsepower and speed,” he added.

Though Viking is world-renowned for its high-quality yachts today, there was a time when it looked as though the company might be

sinking. The onset of a national recession in 1990, coupled with the introduction of a federal 10 percent luxury tax in 1991, was crippling to Viking. The manufacturer went from having 1,500 employees in two plants to just 80 employees in a single facility.

But this was not to be the end for Viking. With the help of a grassroots campaign organized by Bob Healey, the luxury tax was repealed in 1993. Viking remained open during this time, focusing on creating new models, which allowed it to leapfrog over the competition when sales rebounded and quickly established Viking as the industry leader of its class.

Today, Viking continues to dominate the industry, thanks to its constant innovation in the models it offers. The company’s 92 Enclosed Bridge model sets a new standard, boasting an overall length of more than 93 feet and a gross weight of 205,000 pounds — the largest resin-infused sportfishing boat in the United States, Frederiksen noted.

Steady Hands

This history of success comes from having the same family at the helm for the company’s entire 50-year lifespan, Frederiksen said, with the second generation of the Healey clan now running Viking. “The boating industry can be in a state of flux for most companies,” he said. “But we’re steady on course — just building boats.”

Frederiksen attributed this to the company’s focus on hard work and perseverance. “It’s not rocket science,” he said. “It’s not that we’re better than anyone else. But we do work harder, and we strive to do things better each and every day.”

How to Build a Better Boat

Continuous improvement is as important to the boats Viking builds as the water they cruise on. Recalling his company's all-important mantra, Frederiksen explained, "Composites allow us to build a better boat every day."

Composites can be found at nearly every stage of a Viking yacht's construction, from the resins that form the hull to the gelcoat that makes it shine. "Composites give us better strength and durability and reduced weight for better efficiencies and propulsion," Frederiksen said. "I think of using composites like using good tools. You use the best tools to make the best product. That's what we want to achieve."

And that's just what Viking's partners at North American Composites (NAC) want to help the company achieve. NAC supplies Viking with a variety of essential materials, according to NAC District Manager Bern Brody, including:

- Fiberglass
- Initiators
- Kits
- Putty
- Core materials
- Acetone
- Gelcoats
- Mold preparation chemicals
- Adhesives
- Urethane foam

"Composites make [Viking] boats ... lighter, stronger and more durable," Brody said. "Composites provide design capabilities that just wouldn't be possible with other materials."

Viking has worked with NAC for approximately seven years, but Viking's relationship with Mahogany Company, a subsidiary of NAC located in Mays Landing, New Jersey, goes back some 43 years. "We're connected at the hip — no doubt about it," Frederiksen laughed.

"The longevity of [the relationship] is number one," Frederiksen added. "When you're comfortable with a supplier, you know they're looking out for you and your best interests."

Longevity is one crucial factor, but so is proximity. With NAC's Mays Landing facility located just 20 minutes from Viking's New Gretna factory, Viking can deal with critical issues quickly without having to wait long for materials. "Sometimes we have changes come up from nowhere," Frederiksen stated. "When that happens, NAC is right there, ready to help."

"We'll often deliver to Viking twice a day," Brody added. "We're able to provide the materials they need on a just-in-time basis. I think our level of service is another important part of our partnership."

"That product availability is crucial to our being able to get our boats done on time," Frederiksen confirmed. "NAC is a pivotal component of our success. ... We're able to say, 'Let's come out with

something new,' and we know NAC will have the products we need to do it.

"NAC is a leading-edge supplier," Frederiksen continued. "They're always keeping us up to speed on new products that are available. That goes a long way toward letting us do our job."

Navigating New Seas

With a strong partner like NAC, Viking is able to devote the resources it needs toward its ongoing mission of excellence in the industry. "Our number-one challenge is building the best boat that we can," Frederiksen said emphatically. "We have the materials we need to do that through our relationship with NAC."

As Brody pointed out, though, the materials are only part of the equation for success in the boating industry. "The challenge is to make a product that is completely discretionary spending interesting, attractive and desirable to the customer," he explained. "And Viking does that."

As the economy continues to recover from the Great Recession, creating boats that are worth customers' time and money continues to drive Viking forward, Frederiksen said. "What we're able to do is, by keeping our philosophy of building a better boat every day, we're able to build boats that are faster, provide better fishability and are overall better able to be used," he observed. "It's about taking things to the next level. How can we make that next boat appeal to the owner? How do we make that boat say to him or her, 'This is the boat you've been waiting for. This is the boat for you.'?"

"The customer today can be demanding," Frederiksen continued. "And we work hard to meet their demands. We're all about the 'Wow' factor, and we work hard to make that 'Wow' factor obvious."

Part of always appealing to new customers involves always having new models to appeal to them — a practice that goes back to the early days of Viking. The 2014 model year saw three new models, with four new models debuting for the 2013 model year — making Viking's yacht fleet the youngest in the industry, Frederiksen noted.

"We're always working on new boats," Frederiksen said. "For our 2015 models, we'll be rolling out a 92-foot Enclosed Bridge Convertible, a 75-foot Motor Yacht and a 52-foot Open/Sport Tower model, with more boats to follow."

And the innovations that are included in these newest models often make their way to Viking's older models as well. "This helps keep the entire product line fresh and exciting all the time," Frederiksen pointed out.

The now, the new, the innovative — these are the frontiers Viking Yacht Company seeks from each new boat that it crafts. "Our challenge is to never lose sight of our mission," Frederiksen said. "All of us, as a company, are always looking for the next big thing."

www.vikingyachts.com

"The boating industry can be in a state of flux for most companies. But we're steady on course — just building boats."

— Peter Frederiksen, Viking's director of communications





Like the Phoenix

Firebird Rebuilds Its Legacy

by Deanna Strange

According to Greek mythology, the phoenix was a great bird that, at the end of its life, would be consumed in flames. After its death, the phoenix would rise from the ashes to start a new life. Death for the phoenix was really just a means to be reborn or to start over. Much like the phoenix, Firebird Fiberglass Products has risen from the ashes of its former self better than ever, with new ownership and a strong direction.

Rising from the Ashes

Firebird was founded in 1989, but it went bankrupt in 2012. The previous management had accrued a massive debt and could no longer pay its employees. By October of that year, the owners decided they could no longer keep it open. That could have been the end of a company — which was home to an excellent team of employees and an equally great product line — that fell victim to poor management. “Originally, my associate came to me and told me what was happening and said, ‘With the right management, we could build a successful operation,’” explained Keith Robinson, co-owner of Firebird.

Robinson’s background in international business and manufacturing of fiberglass raised concern as to whether Firebird could remain a U.S.-based company or whether it should shift work to Mexico. “The question to me was, ‘Is this an opportunity worth fighting for?’ and ‘Is there a possibility of leaving it within the United States?’ At the time, the company had been nonoperational for almost a month.”

After further investigation, Robinson was impressed with what he discovered about the company. “I found that the company had been shut down, but there were two or three employees keeping the skeleton alive without pay. But these people had a good deal of pride in the company,” he said. “The individuals moved me. They had been with the company for a minimum of 17 years and some as many 30 years. They were the epitome of loyalty, hard work and honesty. It had good bones as a company and a good product line but bad management.” Robinson and his partner purchased the business in November 2012, and Firebird has been rising ever since.

Taking Flight

Although Robinson found Firebird on the brink of failure, he understood that the company had true potential for success. Firebird stands apart from competitors by its approach to composite production as well as its product line. “A lot of composite producers in this market are catering to customers as a contract manufacturer. They look to fill in for someone else’s





manufacturing process gaps,” Robinson pointed out. “What Firebird provides is a wholly complete product line, which adds value. Companies are coming to us and looking for us to provide services of not just fiberglass. We also work with steel manufacturing because of our roots in the business. It’s a combination of having our own branded products and being a one-stop shop for these material processes and engineering.”

Firebird has evolved since the buyout, but it still provides customers with an excellent

variety of products. Some of the surviving products include tractor canopies, which are distributed across North America. “Additionally, there was an original product line that was started up making Americana products, like 1920s gas pumps — things you would find off of Route 66 that you would want in a ‘man cave.’” Robinson said. These nostalgia items included replicas for Texaco and Mobile and also decorative pieces like gas-pump gumball machines or bar display tanks. “They play off that cultural phenomena of America’s heyday in the auto industry.”

While Firebird still offers these exceptional items, it has added to its offerings and expanded the market. “We make branded product lines for dealerships. My partner and I brought some existing product lines from the company in Mexico,” he said, listing seating options, food-court items, high-volume items, yacht parts and items for military training that are helping to stabilize the company.

North American Composites (NAC) has been partnering with Firebird for 12 years, standing by the company through the chal-

lenging times. David Tierney from NAC discussed some of the products NAC provides Firebird. "We supply them a marine-grade gelcoat for the various parts they build," he said, adding that this product is used in the production of fiberglass umbrellas for one of the leading fast-food restaurants in the

"A lot of composite producers in this market are catering to customers as a contract manufacturer. They look to fill in for someone else's manufacturing process gaps. What Firebird provides is a wholly complete product line, which adds value. Companies are coming to us and looking for us to provide services of not just fiberglass."

— Keith Robinson, co-owner of Firebird

West as well as for tables and benches for a big-box retailer.

Robinson said of this partnership, "The prior management had burned a lot of relationships, and that included NAC. The previous management had not fulfilled its obligations with NAC. We let them know our background and what we wanted to do. We told them we understood we needed a supplier to be a success in the United States and that it required a leap of faith for them." He continued, "They've quickly come to be our biggest supplier in both quality of material as well as in consistency of service. In this industry, you need quality and a company that can provide the technical support. They were able to answer the question in the air of 'Can we keep this company in the United States?' and they have provided the means for doing so."

Flying into the Future

With trust being earned back through hard work and proven results, Firebird will continue to rise to success. "They're great people, and we've enjoyed working with them," Tierney stated. "Through ups and downs, it's always been good. We've continued selling to them, and as things have changed, it's only improved. Our business has never been better with them." Robinson added, "NAC has been an excellent partner in the process of creating stability." This stability and success will no doubt usher in a new era for Firebird and open countless doors for new products, markets and clientele. "The vision is to expand. We want to incorporate higher skill sets

for manufacturing and operations and take advantage of the expanding need for the more technology-based needs of the United States," Robinson explained. With a history of soaring over barriers, customers, potential customers and competitors alike should keep an eye out for Firebird.

www.firebirdfiberglass.com



FIBER-REINFORCED POLYMER BRIDGE DECK PANELS

The Missouri Department of Transportation completed a research study on a novel FRP bridge deck panel that incorporates a polyurethane foam infill, aiming to replace the honeycomb construction currently used.

A final report was prepared and can be found here: <http://library.modot.mo.gov/RDT/reports/TRyy1203/cmr14-016.pdf>.



NEW PRODUCT FROM COMPOSITE PANEL SYSTEMS

Composite Panel Systems has introduced Epitome™ quality foundation walls to replace vertically installed concrete walls and help homebuilders be more efficient. The composite technology is designed to withstand six times a sand backfill load and can be installed in any soil type suitable

for backfilling. The system solution combines strength, integrated stud cavities for mechanicals, insulation, the top plate and a vapor barrier all in a single step.

www.epitomewalls.com

INTERPLASTIC CORPORATION OFFERS A NEW SILMAR® SURFBOARD RESIN



Interplastic Corporation is offering a new acrylic modified polyester surfboard resin. The new product, SIL66BE-2880, has been tested by professional team riders in international competitions, and a first place was won on a board using the new product. It has been reported that the product is tougher, with

less compression dimples than the top-selling surfboard resin and has improved impact resistance to reduce stress and deck cracks.

www.interplastic.com

COMPOSITES MANUFACTURING LAUNCHES NEW WEBSITE

Composites Manufacturing has a new website! The brand-new site offers:

- Editorial content from current and past issues of *Composites Manufacturing*
- The latest news from Industry Digest
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- Timely columns and industry expertise in business and policy
- Exclusive online content

Responsive design provides you with a user-friendly experience no matter what type of device you use to access our site. Read the latest composites industry news and in-depth features on your mobile device or tablet. Check it out today!

www.compositesmanufacturingmagazine.com

NATIONAL ACADEMY OF SCIENCES STYRENE REVIEW PANEL FINDINGS

The National Research Council of the National Academies (NRC) published a review of the listing of styrene in the June 2011 National Toxicology Program's (NTP) 12th Report on Carcinogens. The report, which was prepared by a panel of scientists selected by NRC, stated: "compelling evidence exists to support a listing of styrene as, at a minimum, reasonably anticipated to be a human carcinogen."

The NRC report reviews an existing assessment by a scientific panel of the potential for styrene to cause cancer. It does not provide an

estimate of actual health risk, and it is not a regulatory decision. However, this report could inform future regulatory action. In light of the NRC findings, the American Composites Manufacturers Association (ACMA) will move quickly to evaluate the many technologies and practices our industry already uses to protect health and safety and, if appropriate, recommend the adoption of additional protective measures.

Read the full NAS report here: www.nap.edu/catalog.php?record_id=18725.



UNITED INITIATORS

DRIVING SUCCESS FOR MORE THAN A CENTURY

by Michael Adkins



Initiator (noun):

A person or thing that sets an event into motion; a substance that starts a chain reaction (Collins English Dictionary, 10th Edition)

For more than a century, United Initiators and its products have been fulfilling both of these roles for its customers. United Initiators provides both the expertise clients rely on to get started on their most important composites projects and the chemicals its clients need to get the job done in a variety of applications.

Fame and Acclaim

The company known today as United Initiators can trace its lineage back to 1911, when the firm Elektrochemische Werke Adolph & Pietzsch was founded. In the years since, the company's name and ownership have changed several times. In 2008, the company's name was changed to United Initiators after being acquired by investment firm Speyside Equity. In 2011, international investment

group Vision Capital acquired a majority stake in United Initiators. In 2012, United Initiators purchased Syrgis Performance Initiators, which had been purchased from Norac Inc. in 2007.

Today, United Initiators has approximately 600 employees worldwide, according to Rod Brecht, commercial sales director for United Initiators' North American operations. The company has manufacturing sites in Pullach, Germany; Elyria, Ohio; Helena, Arkansas; Mobile, Alabama; Köpmanholmen, Sweden; Heifei, China; and Banksmeadow, New South Wales, Australia. Having so many facilities worldwide helps alleviate the concerns of some manufacturers, Brecht said, "who are wary of long lead times for overseas material, or questionable consistency and quality with offshore goods."

United Initiators provides both the expertise clients rely on to get started on their most important composites projects and the chemicals its clients need to get the job done in a variety of applications.



Getting the Job Done

In addition to the organic peroxides and persulfates that make up United Initiators' core product lines, Brecht noted that the company also provides specialty chemicals like metallocenes, carbon-carbon initiators, organic intermediates and special oxidants. United Initiators serves customers in Europe, North America, Asia and Australia.

"UI has strong positions in many markets and market segments," Brecht said. "In North America and Europe, we are [a] market leader in the composite and thermoset market for peroxides. Our very high service level, combined with the complete product range, makes us the partner of choice for the industry."

Many of the products customers rely on from United Initiators carry the Norox brand. UI SPI has additional recognized brands, including Benox, CUROX and Caroat. United Initiators lists 53 products on its website that are sold under the Norox banner — from methyl ethyl ketone peroxides (MEKP) to peroxide dye concentrates and everything in between. Norox products cross-link resins, or bind one polymer chain to another, in the process of composites manufacturing.

As Brecht explained, the Norox brand name dates back to the 1950s. "The product line includes easily the most extensive range of MEKP products and blends for the thermoset market, which allows an end user to adjust and refine both the quality and efficiency of their manufacturing process. Plastics used in the composite manufacturing process are either thermoplastic, meaning a product that can be shaped and/or reshaped using heat; or thermoset, meaning that an initially fluid or nonsolid plastic is chemically cured or set into a final form, which cannot then be reshaped with heat. Thermosets include polyesters, vinylesters and epoxy, and peroxides such as those in the Norox line are used as chemical initiators for the cure of polyester and vinylester.



"Norox stands for a full range product line of peroxides offering a complete tool set to cover all possible requirements for producing composites," Brecht continued. "Norox peroxides are a small but indispensable part for the production of composites. It is the key ingredient to initiate and to complete the curing process. Norox offers for each application the right product to achieve maximum performance."

Showing Initiative

United Initiators' focus on the initiators marketplace, along with its multiple manufacturing sites in North America, allows it to meet customers' needs quickly and efficiently. As Brecht pointed out, "...United Initiators is a pure play initiator company; UI SPI focuses solely on initiators, making us more responsive and allowing us to concentrate all our resources on the market."

As United Initiators has grown and prospered throughout the years, the company has had to adjust to new requirements in the composites industry. Some of the biggest challenges United Initiators has encountered in the modern era involve increased regulation in the realms of safety and the environment, as well as the challenges of a recovering economy.

"Two ongoing and critical needs are to develop and market products that are sustainable and 'green' and to work within the market to help composites manufacturers remain profitable and grow," Brecht said. "The composite market is becoming constantly more competitive. This drives the need for innovative solutions helping our customers to optimize their processes and to enhance the performance of their products."

Because of United Initiators' technological expertise, the company is able to invest in those solutions. "We work hand in hand with resin and coatings vendors to constantly create products and processes that are more environmentally friendly or offer production efficiencies that benefit the composites manufacturers," Brecht explained. "Also, by having a technical sales group in the field, and by working closely with end users and the distributor, we have the ability to assess market conditions rapidly and to respond as needed with products and services."

NAC: A Friend Indeed

With both companies having grown through mergers and acquisitions, the relationship that exists between United Initiators and North American Composites (NAC) dates back before either company went by the name it has today. "Our relationship with NAC goes back decades and, in many cases, began with the individual regional distributors that predate and over the years have come together to make up what is now NAC," Brecht said. "Companies such as Fiberchem were strong partners with Norac, and as United Initiators and North American Composites have grown and evolved through acquisition and investment, the partnership has continued to thrive. The sales force and management of NAC are invaluable partners in the field, as both a sales and marketing group to help spread the United Initiators brands and as a critical source of market information and guidance regarding activity and movement within the composites industry."

And the partners continue to refine and improve their relationship. "By jointly using our expertise to respond to our end users, and by teaming to develop new applications and opportunities, we can share technical and marketing resources in a way that synergistically benefits both companies," Brecht explained. "By inviting UI SPI to meet with, travel with and help train NAC sales and customer-service staffs, NAC helps ensure that they are a sort of extension to our sales and technical group throughout the market."

Onward, Upward and Around the World

With United Initiators focused on a strategy of growth, both organically and through strategic acquisitions, the manufacturer aims to find new and expanding markets for its products. "Expansion outside our core markets, North America and Europe, is a key element of our strategy," Brecht said. "This helps to follow and support our internationally operating customers and will strengthen and accelerate our growth path."

"There will be focused concentration on China as well as Asian neighbor states, which are the most dynamic markets in the industry," Brecht continued. "New UI manufacturing facilities have come online around the world, and ongoing improvements at existing facilities have increased the quality and efficiency of our current production. With the steady improvement in the world economy, and the increased use of composites in numerous energy and infrastructure applications, we see opportunities to grow significantly over the next few years and onward."

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A FAMILY APPROACH

Three Generations of Success for Hydro Systems

by Deanna Strange

If you have ever visited a chain restaurant and asked a question about the menu, you have probably received a vague answer from a puzzled server that sounds a bit like “No.” However, if you’ve ever eaten in a mom-and-pop restaurant and asked a question, you probably received a much more detailed answer, some interesting tidbits about the background of the establishment and a “Yes.” A similar dynamic applies to manufacturers. Ownership in a brand goes a long way toward customer satisfaction, and three generations working toward the same goals have helped propel Hydro Systems to success.

Founded by Alan Steinhardt in 1978, Hydro has thrived because of its approach to client care. Kevin Steinhardt, vice president and Alan's grandson, said, "We're a made-to-order manufacturer. Our motto is 'We're the "yes" company.'" That concept has helped Hydro provide its clients with custom-made bath products for more than 30 years. Hydro approaches custom products with the philosophy that if customers can dream it, Hydro can build it.

Hydro offers customers a wide range of bathtubs, whirlpool systems, lavatories, freestanding bath sinks, full shower enclosures and more. "I believe we're unique in our ability to move very fast with custom molds," Steinhardt pointed out. "We're a family, so there's not a lot of red tape. We have a family atmosphere from the office to the factory. The majority of people on our line have been here at least 10 years and some as many as 25 years. We have a good culture here where people stick around."

With a close family-oriented atmosphere, Hydro has been able to keep sight of long-term visions and was able to expand on those ideas as the company passed from father to son, Scott Steinhardt, the current president. Beginning with the desire to produce high-quality whirlpool bathtubs at an affordable price, the company maintains

that dedication to meeting client needs and has grown its product line vastly. In addition to great products, Hydro holds its resolve to provide environmentally responsible products and processes — being "green" decades before it became a buzzword.

Carl Weidman of North American Composites discussed some of the products NAC provides for Hydro. "NAC supplies a wide variety of key raw materials for Hydro Systems," he said. "Some of the key materials we provide Hydro include an array of specialty fillers carefully selected and used to provide unique performance characteristics, resulting in lighter-weight tubs with superior strengths." This partnership has helped Hydro build durable and long-lasting products.

NAC assists Hydro with the selection of its raw materials. "Once this is complete, we stock all of the products in our Ontario warehouse and release them as needed, as we have trucks in their area multiple times per week," Weidman said. "This allows Hydro to implement a 'just-in-time' system of ordering and frees up its factory space to use for more critical needs."

After a 20-year history with NAC, 10 of which Weidman has worked with Hydro, the two companies will continue to grow together in the future. "Long-term-wise, we have been in a constant growth rate of about 30 to 40 percent a year," Steinhardt said. "We try to be on the cutting edge of electronics and trends. We're always working on something."

Weidman added to that: "NAC is very happy to be partnered with a leading manufacturer of custom whirlpools and bathtubs. We envision working very closely with them on all of their raw material needs as they continue to lead and innovate the industry for years to come." With a strong philosophy, excellent partnerships and a family atmosphere, the industry and customers can expect to see more great products and services from Hydro in the future.

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Pairing Up in Prepreg

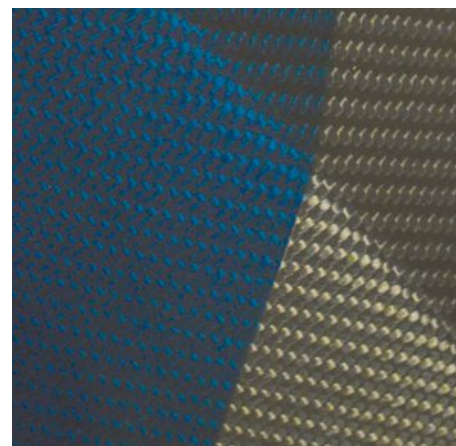
Gurit Partners with NAC to Grow Business in Prepreg Market

by Erin Pinkerton

Two good things are even better when paired together. Sand and sunshine. Milk and cookies. Cloth and resin. This idea is something that global advanced composites industry player Gurit understands as it expands its prepreg market and looks to grow its footprint in North America.

Gurit was founded by Georg Philipp Heberlein in Switzerland in 1835 and originally established itself as a textile finisher and printer. Today, Gurit has offices and production facilities in Switzerland, Germany, the United Kingdom, Canada, Spain, Australia, New Zealand, the United States, Ecuador, Brazil, India and China, according to Gurit's website. In 2006, Gurit began offering prepreg products — reinforcement fibers or fabrics preimpregnated with a resin by a machine.

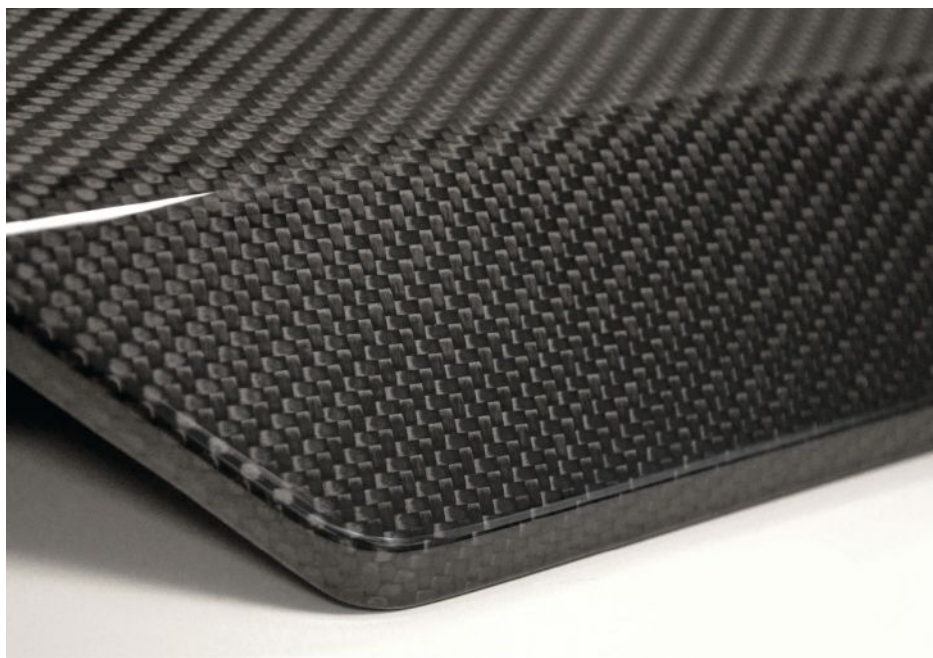
"Prepreg is simple. Really, it's two things put together," said Scott Schuster, national sales manager for Gurit's prepreg materials. "It's the combination of a fiber reinforcement, either fiberglass, carbon [or] Kevlar (woven, stitched or unidirectional). It doesn't really matter what form it's in. And basically, you take that dry cloth and combine it with either a film or wet resin. You then take those together under tight manufacturing control, and you roll it and freeze it to hold the cure in a 'B' stage."



At room temperature, the resin systems in these materials react very slowly. If the material is kept frozen, it can last for several years, Schuster noted. Prepreg resins can only be cured by heating them to the prescribed temperatures, along with prescribed pressures. According to Gurit's website, its prepreg offerings come in two main categories: performance prepreps, which are high-performance prepreg technology for the most demanding applications, and structural prepreps, which offer products for faster and easier large-scale composite components, as well as for high-temperature applications.

"The advantage of a prepreg, like any composite, is a high-strength-to-low-weight ratio," said Robert Martineau, NAC district manager. Prepreg materials also save time during manufacturing because the resin or epoxy has already been added to the fabric or fiber.

One of Gurit's most popular offerings is a twill woven product, Schuster said. "That's what you see most commonly on visual carbon parts [because] people like to see



the carbon. Gurit has superior clarity and manufacturability of visual carbon parts," he explained. "Second to that in popularity would be the unidirectional fiber because it's a more structurally efficient form of composites, so all the fibers are basically laid in one direction and held together by the resin, thus providing highly engineered and efficient design of structures."

While Gurit serves many markets, it's hoping to make the most progress in an industry where it already has experience and proven global leadership on other continents in the world. "We see our current entry in the market being mostly related to the automotive industry and motorsports," Schuster said. "It is a natural fit for us right now. We're leaders in the automotive prepreg industry throughout the world. That makes it easier

to penetrate North American markets because we have that experience."

Gurit's experience, as well as its composites engineering and design expertise, are what set Gurit apart from its competitors, Schuster said. "We have vast international experience in designing structures with advanced composites," he added, noting Gurit's more than 60 composites design engineers located around the globe. "Our competitors don't have that." Gurit has also worked with teams from Formula One World Championship car racing and the America's Cup.

Another composites market where Gurit plans to expand its market share is aerospace, Schuster mentioned. According to Gurit's website, the company has developed a wide range of products that are both light and fire-retardant — ideal for aerospace. Gurit's prepreg materials can be made to suit almost any part of a plane: interior or structural components such as passenger and cargo floor panels, cabin linings, ceiling panels, air ducts, plenums, overhead compartments, lavatories, galleys, bars, wardrobes, partitions, seats, flap track and belly fairings, winglets and fins, landing gear doors, trailing edges, and brackets. These aerospace products are already qualified for use by several airframe manufacturers.

As global leaders in the prepreg market, Gurit knows that combining two already-good things leads to synergy, and Gurit recently paired up with NAC. This partnership provides what Martineau called the "force multiplier effect." Gurit's own sales force is rather small, but Gurit can expand its distribution significantly with the help of NAC. This partnership, which started in early 2014, is already off to a good start. "They're good to work with and very supportive of our efforts," Martineau said.

"We're just getting started and trying to figure out where NAC's relationships with prepreg users may benefit from our offerings in prepreg. That's the goal," Schuster stated. "We're looking forward to long-term advanced composites projects with them. Good optimistic outlook, good people and good products should make it pretty easy."

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Cornerstone of Success

Lametti's CIPP Process

by Deanna Strange



Building a successful brand requires not just an excellent product but also a strong foundation. Shared vision and goals form the basis for creating a successful team, but finding employees who share the same passion for a company and its future can be a challenge. One of the best ways to ensure company pride is through a family atmosphere — more specifically for Lametti & Sons, multiple generations of ownership. In 1953, Geremia Lametti started the company alongside his son, and the company has been thriving ever since.

Lametti may be built on family, but it is the products offered that truly make the company a success. A cornerstone for Lametti is its cured-in-place pipe (CIPP) sewer line repair process. "CIPP is mainly a rehabilitation process — it's called trenchless technology," explained Ross Larson, project manager with Lametti. He detailed the process, saying, "We impregnate the liner in our wetout facility with resin and catalyst. The liner is then delivered to the jobsite for installation into the existing pipe that is to be rehabilitated. The inverted liner is then heated using hot water or steam to harden the liner. Once the liner is hardened, the process is complete, and the liner is cooled, and the rehabilitated pipe is put back into service."

While Larson may make the process sound simple, the CIPP process is a very complex combination of chemistry and physics. This process is more than just impressive, however. It's built to last. Industry



experts estimate the lifespan of the CIPP-rehabilitated pipe to be in excess of 50 years.

An expert knowledge of its product and the ability to simplify the process for clients give Lametti an edge on its competitors. "What makes us unique is that we are one of the few contractors in our area that perform the CIPP lining and the civil work as well. We can bid these jobs, and we don't have a lot of subcontractors involved, so we are more able to control our projects."

Simplifying the process by eliminating a need for subcontractors has helped Lametti to gain a strong foothold in its market. "The majority of our clients are municipalities and government agencies," Larson stated.

Lametti's success depends on a strong product and understanding of its market. It also relies on a strong partnership with supplier

North American Composites (NAC). "We provide unsaturated polyester resin, or CIPP-designed resins, vinyl resin, initiators and sundry items," said Tim Loes of NAC.

Larson added, "Lametti's relationship with NAC spans over 15 years. It's a very good relationship, and they provide very good service. When we have had resin-related issues, they're right there helping us figure out what's going on."

Lametti's more than 50 years of experience combined with Loes' experience makes for a great combination. Loes has been with NAC for 30 years and has worked with Lametti for 18 years. "It's a very good relationship; every relationship is unique in its own way," he said. "[The long-term relationship] helps accelerate things that need to get done. I know where to go to get tech support; I know where to go to get laboratory testing. When you spend that much time with a customer, it develops a learning curve."

This long-standing relationship is one that Loes sees continuing well into the future. "I expect continued support and most definitely continued growth," he said.

Larson believes that Lametti's business can only continue to improve. "There's plenty of work to go around in this industry, and we will continue to expand our CIPP operation."

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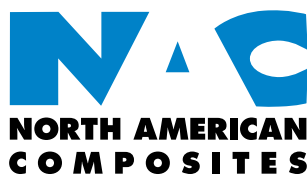


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