

Nolato Magasin

No 31 | December 2020

Welcome Nolato GW!

In September 2020 Nolato made its largest ever acquisition when North American group GW Plastics, with 1,100 employees and eight units in four countries, became part of the Nolato Group.

Designing for the environment

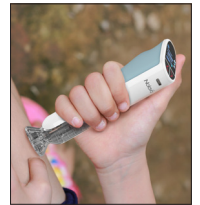
It's the development of a new product that determines whether or not it is environmentally sustainable. So we have to design for the environment.



➤ Find out more on pages 4 – 7

Collaboration cuts uncertainty

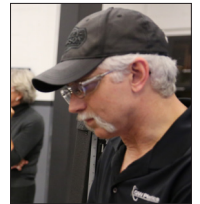
Cooperating on the development of new products allows us to get involved and create a strong basis for optimal product development.



➤ Find out more on pages 10 – 11

Holistic approach to training in Vermont

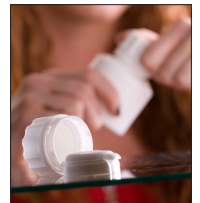
Nolato GW is investing in the future for local students and its own associates through a unique career development program.



➤ Find out more on pages 14 – 15

Lower carbon impact from plastic containers

A comparative analysis of pharma containers makes interesting findings about how to minimize our carbon footprint.



➤ Find out more on pages 16 – 17



Image above: Nolato GW in Bethel, Vermont, USA.

Cover image: Vermont, where Nolato GW hails from, is a picturesque rural state in the Northeastern United States. The green mountains are a feature of the landscape, becoming a blaze of color in the fall.

The magazine is produced for our customers, shareholders and employees, and anyone else with an interest in the Group.

Editor: Mats Håkanson | mats.hakanson@nolato.com | English translation by Oliver & Louise Dirs
Nolato AB, Torekov, Sweden | phone +46 431 442290 | info@nolato.com | www.nolato.com

Nolato GW Plastics



Major acquisition reflected in new brand identity

In September Nolato acquired North American group GW Plastics, the largest ever acquisition in Nolato's more than 80-year history. Following this, Nolato has a solid global position on the three key continents of Asia, Europe and North America.

"We want to demonstrate the symbolic significance of this moment with a new logo that has distinct elements of both companies," says Nolato President and CEO Christer Wahlquist.

"Over the past decade Nolato has developed from a components supplier with sales

of around SEK 3 billion 10 years ago into a global solutions provider with annual sales of more than SEK 10 billion. We have continually advanced our market positions by offering customers end-to-end solutions based on contributions from all three of our business areas."

It's not often that Nolato updates its brand identity. The outgoing logo had been used by Nolato for the past 25 years, since 1995.

The new brand identity will be rolled out gradually over the rest of the year to both digital and physical settings. ■

High rating for Nolato Cerbo's sustainability work

For the second time in a row Nolato Cerbo has been rated Gold under the criteria of EcoVadis' system for assessing companies' sustainability efforts. Nolato Cerbo received even more points than last time, placing it in the top two percent of the best companies globally. The company gained the best result of any company in the plastics sector.

EcoVadis' assessment is based on management system indicators and criteria on the environment, working conditions, human

rights, ethics and sustainable purchasing. EcoVadis is an internationally recognized organization working with sustainability and has developed an assessment methodology that's used by approximately 65,000 companies worldwide. The methodology is based on international principles and standards, including the UN Global Compact and the ISO 26000 social responsibility standard.

"Our sustainability work is a key part of our day-to-day operations and it's great to have our efforts recognized by external assessors," says Glenn Svedberg, Managing Director of Nolato Cerbo. "Issues such as carbon footprint, a circular economy and good business ethics have become increasingly important for our customers. High ratings from EcoVadis clearly strengthen our position and encourage further work in this area." ■



Acquisitions a key part of our growth strategy

Welcome to a new issue of Nolato Magasin. This edition provides more information about the group of companies we acquired in the fall and that are now called Nolato GW. We are delighted to have completed this major acquisition and are working hard on a range of plans to integrate their operations into Nolato.

Acquisitions have long been an important part of Nolato's growth strategy, so we are constantly looking to identify possible businesses to acquire.



Christer Wahlquist
President & CEO

Indicators of an attractive acquisition candidate include a strong market position, an opportunity to expand our customer offering geographically and technologically, and the ability to quickly contribute to the Group's good financial performance.

But we take a considered, long-term approach. We are meticulous in our preparation and keep in touch with companies that are of interest. Our objective is to avoid a bidding war, aiming instead to demonstrate to the seller that Nolato is the best buyer. This is particularly important when it's a family that is selling and that wants their business to continue in a way that benefits both the employees and the local area.

We have often been in contact with the sellers over a number of years, speaking with them occasionally. We get to know their business and allow them to get to know us. Because it's vital that their corporate culture is a good fit with our own.

The acquired company's management also has to fully share our values, as we don't intend to replace the management. They are the people who understand the business best and can be energized by a new owner looking to take the business forward.



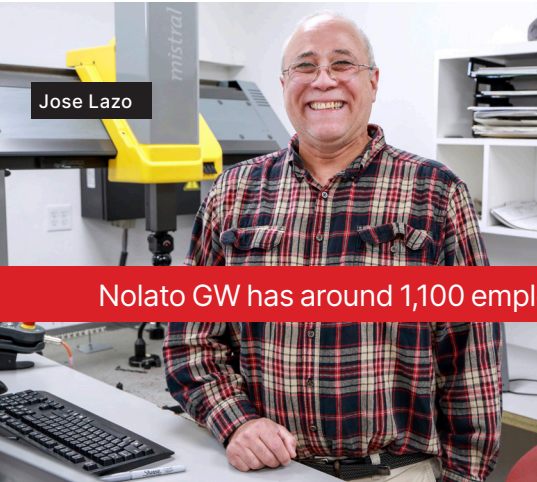
Sherry Hart



Tim Weeks



Wesley Barrows



Jose Lazo



Huiqin Song and Qing Mou



Paul Skinner



Andrew Green and Mike Ryon



Jonathan Leeser



Guadalupe Castañón



Joanna Colton



Alex Woods



Vanessa Varelas



Ashley Rawlston



Judith Canez



Federico Santin



Rebecca Murphy



Erik Valentine and Jeff Hazen

Nolato GW has around 1,100 employees in the US, China, Mexico and Ireland

GW Plastics becomes Nolato GW

Major acquisition benefits customers and provides solid geographic position

In September 2020 Nolato made the largest ever acquisition in its 82-year history, when North American GW Plastics became part of the Nolato Group.

GW Plastics, which has been renamed Nolato GW, provides Nolato with a strong position on the North American continent, with significant volumes and resources primarily in the Medical Solutions business area.

“This acquisition gives us excellent growth opportunities on that market, and it also strengthens existing core customer relations owing to the significant increase in Nolato’s resources as a result of this investment,” explains Nolato President and CEO Christer Wahlquist.

“Following this acquisition Nolato has a solid global position on what for us are the three key continents of Asia, Europe and North America.”

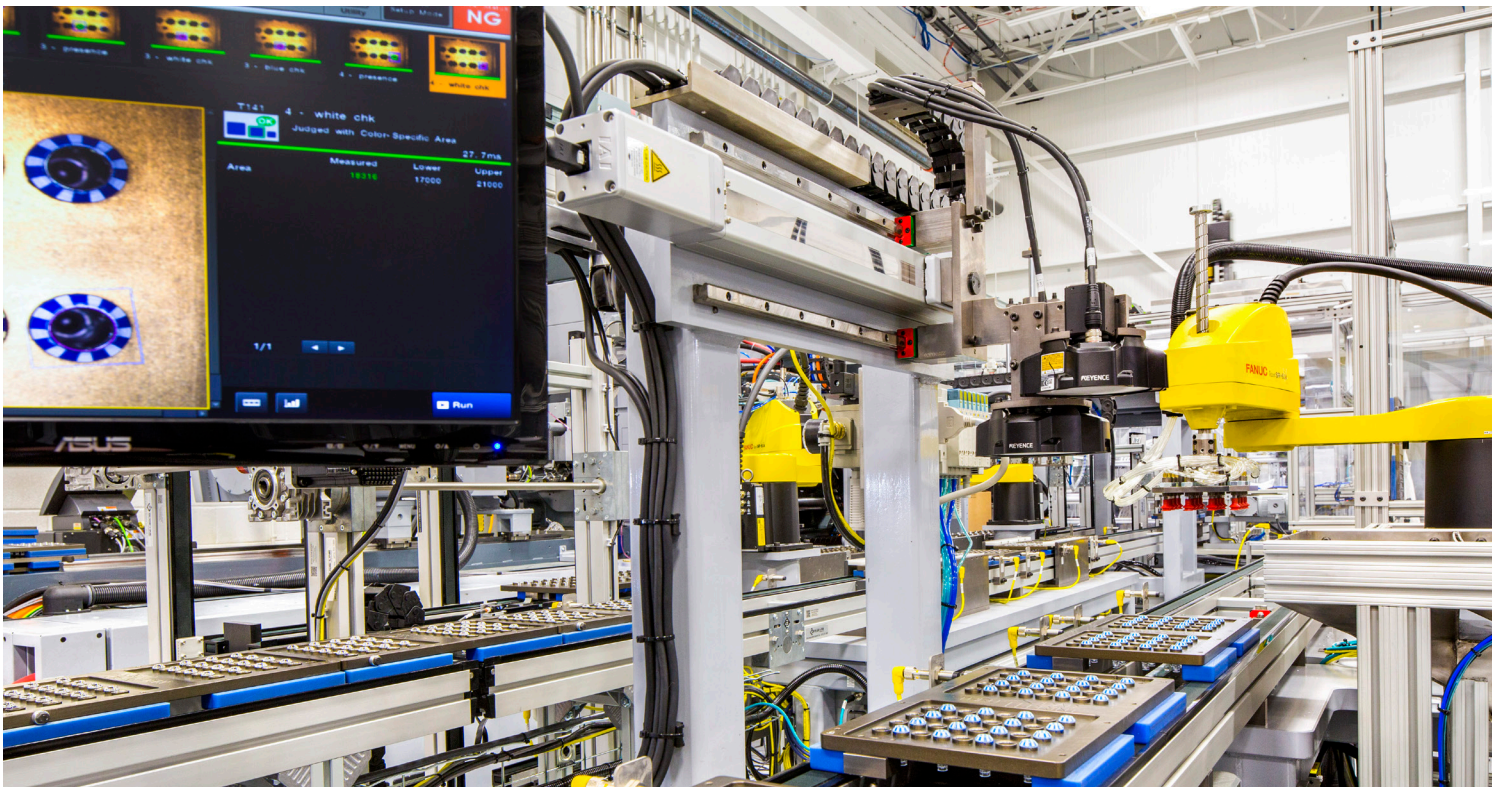
Headquartered in Vermont

GW Plastics was founded in 1955 and, through its own organic growth, has established a position as an industry leader specializing in complex injection-molded thermoplastic and silicone with a significant degree of innovation, cutting-edge engineering know-how and a high-tech

standardized global manufacturing platform. The company has operations in seven locations in the US, Mexico, China and Ireland. It is headquartered in Bethel, Vermont, in the Northeastern United States close to the border with Canada. The organization has around 1,100 employees.

The company has been under the same ownership since 1983 and its management remains unchanged after the takeover by Nolato.

Its customers include a raft of leading businesses, primarily in pharmaceuticals and



Nolato GW has a high-tech standardized manufacturing platform at its production units in the US, Mexico, China and Ireland.



medical technology, as well as automotive industry operators.

“GW Plastics is a well-managed, well-invested company that is a great fit with our corporate culture,” says Christer Wahlquist. “The company has cutting-edge engineering know-how, which together with its size and geographic presence is a perfect addition to Nolato’s business. The acquisition creates significant opportunities for market synergies over time.”

A lot in common with Nolato

“Our new addition, which we have renamed Nolato GW, has a lot in common with Nolato,” explains Christer Wahlquist. “It’s structured around small, independent units that come under a single umbrella, but with their own technical and commercial responsibility.

“They are currently being integrated into our organization at the same level as other Nolato units and, as part of One Nolato, they will be important elements of our combined customer offering.”

A lot of the production takes place in cleanrooms. Nolato GW has 11 cleanrooms in total, with 50,000 square meters of controlled-environment production space.

Like the rest of Nolato, Nolato GW offers a single-source solution, which means

customers have one point of contact for help with their product from the concept stage to high-volume production and often beyond. Nolato GW offers end-to-end solutions, from development support, production of molds, injection molding, assembly and post-processing.

Scientific injection molding

“Nolato GW is a world-leading specialist in scientific injection molding, which is a method to ensure consistent quality and precision regardless of when and where the injection molding takes place,” explains Johan Iveberg, President of the Medical Solutions business area.

“In very simple terms, you avoid variations in the production process by removing the ‘craftsmanship’ from injection molding and making it a science instead, based on data and physical conditions. This ensures repeatability in the process, enabling the same results to be achieved every time.”

A particular feature of scientific molding is that molds are validated in specially adapted departments rather than as part of production. These departments check that all new or transferred molds satisfy all the required parameters.

“All our units are highly automated, includ-



ing in lower-wage countries such as Mexico and China,” notes Brenan Riehl, Managing Director of Nolato GW. “Our aim to eliminate defects also includes minimizing manual work, which requires training of personnel, innovative solutions and smart investment.”

Caring for employees

Looking after personnel is consequently a strong feature of Nolato GW’s corporate culture, and efforts are made to foster close, long-term relationships with employees, including through extensive employee benefits such as health and dental care, insurance and good pension plans.

“Our production units are often in sparsely populated areas, which makes it really important to retain and care for the employees we train,” says Brenan Riehl. “So we also prioritize small but significant gestures such as recognizing the service of longstanding employees by placing notices in local newspapers and organizing get-togethers and small gifts, such as local gift vouchers.”

And employees stay with the company; the average period of service in management is 20 years, for office-based staff it’s 10 years, while for production personnel it’s 8 years. That final figure in particular is unusually long in an industry that operates 24 hours a day, seven days a week.

Environmental responsibility

And in keeping with the rest of Nolato, environmental considerations are an important area for Nolato GW and always has been.

“We take our environmental responsibility very seriously,” says Brenan Riehl. “The company started out in Vermont, which is often referred to as The Green Mountain State, and still has several units there. Since Vermont is such a picturesque state, it’s only natural that as people working in this environment we want to engage with all aspects of sustainability.”

Bolstered by the new resources in the US, China, Mexico and Ireland, Nolato is now forging ahead.

“The fact that GW in many ways has a similar corporate culture and values to us has been important for both sides of the acquisition,” notes Christer Wahlquist. “The acquisition is a game-changer for us that will play a major role in our continued development.” ■

Eight facilities in four countries



Nolato GW Bethel
Bethel, Vermont, USA



Nolato GW Royalton
Royalton, Vermont, USA



Nolato GW Silicones
Royalton, Vermont, USA



Nolato GW Tucson
Tucson, Arizona, USA



Nolato GW San Antonio
San Antonio, Texas, USA



Nolato GW Dongguan
Dongguan, China



Avenue
Sligo, Ireland



Nolato GW Querétaro
Querétaro, Mexico



It's the development of a new product that determines whether or not it is environmentally sustainable.

Design for the environment

Exciting challenges to design a product that's environmentally sustainable

Ensuring at the development phase that a new product is easily recyclable is one of the most effective ways of making it environmentally sustainable.

And if the product can also be made from recycled or bio-based plastic material as part of environmentally optimized production, then we've made significant progress on its environmental profile.

Here at Nolato, we take the view that a product's environmental impact should be a significant factor during development and manufacture. In simple terms, there are three key choices to be made at the very start of a product's life cycle, that determine whether or not it can be regarded as environmentally sustainable throughout its entire lifespan. There are important discussions to be had

with regard to the material, design and production process; discussions that Nolato always involves customers in when looking at a new product.

Eco-friendly materials

Choice of material is at the very core of a product's environmental profile. With the explosion in the use of eco-friendly materials

in recent years, Nolato makes a point of encouraging customers to use the highest possible proportion of recycled plastic. Where this is not practical due to regulatory requirements or specific elements of the product's functionality, the alternative is to use bio-based plastic materials.

Fossil-based plastic materials can only be used where it is impossible to use recycled

or bio-based material, for example in certain medical devices.

“Both recycled plastic material and material made from biological sources, such as sugarcane, have a much lower carbon footprint than plastic made from crude oil,” explains Patrik Ingvarsson, President of the Medical Solutions business area’s development unit in Europe.

“Nolato has carried out meticulous testing with ‘green’ plastic made from sugarcane, including in the production of pharmaceutical packaging, and found that it is not only kinder to the environment but for many types of products it also more than satisfies the requirements of both Nolato and the customer.”

Designing for the environment

“Designing new products so they are easy to recycle is extremely important. Even if you’ve chosen a material with a low carbon footprint, it can hardly be regarded as environmentally sustainable if it is difficult or even impossible to recycle,” notes Patrik Ingvarsson.

In principle it’s about ‘Designing for the Environment’, which means either making the product from a single plastic material – a monomaterial – or, where this isn’t possible, designing the product so it’s easy to dismantle.

“The best approach to take depends on the kind of product,” says Patrik Ingvarsson. Packaging or single-use products for health care can be made from a single material, to make recycling as easy as possible. Whereas a product with a longer lifespan that requires a combination of different materials to achieve the desired functionality can be designed so that the various materials are easily separable once the product has served its purpose and needs to be recycled.

“One possible solution may be to design the product so that two materials snap together instead of being welded or glued, making it much simpler to recycle.”

However, sometimes you have to opt for more complex solutions, for example when it comes to a medical device that has to be completely sealed.

“This poses interesting challenges for the designers,” observes Patrik Ingvarsson. “And in medtech we have the specific challenge of designing a product for recycling when it contains components that should

not be recycled due to the risk of spreading infection.

“In this situation we need to make sure we design the product so that the risk element can be safely managed, while the rest can be easily recycled without posing any risk.”

Environmentally sustainable production Efficiency has always been at the heart of the production process for Nolato, particularly since efficient production is often beneficial for the environment as well. The foundations are laid early on in the design phase of new products by ensuring that the production aspects – Design for Manufacturing – are continually in focus during development work.

“Nolato has an advantage here in that we support our customers both during the development phase and the manufacturing phase for new products,” explains Patrik Ingvarsson. “The product itself must be environmentally sustainable, but we also

make sure we minimize energy and water consumption during production. We choose renewable energy sources where possible, and always aim to make sure all transportation is low carbon, not just through the choice of logistics solution but also by optimizing the packaging of whatever is being transported to customers.”

Efficient production also involves using as little material as possible. This starts at the product design stage as well, but in production too we must make sure we work efficiently to reduce the amount of waste.

“There are interesting solutions available for this,” continues Patrik Ingvarsson. “For example, using a closed loop system to recover excess material immediately during the injection molding stage. But as always, you have to think it through properly first, so the process isn’t environmentally sustainable at the cost of the desired level of product quality.” ■





Early support for customer product development

Collaboration that reduces both uncertainty and time

While our customers are mainly focused on the design of the new product and its functionality, we can use our expertise and provide external support for the customer through a virtual design process. This combination provides a strong basis for optimal product development.

When Nolato receives a customer assignment, it often involves being on board and supporting them throughout the entire process from concept development to full-scale manufacture of the complete product.

“Nolato’s end-to-end concept is an important foundation for the company’s success,” comments Bill Torris, Director of Medical Solutions’ Technical Design Center in North America. “Although our main focus is on pro-

duction itself, supporting customers during the development phase is an extremely important and growing part of our business.”

Strong performance in the medical sector
Over the past 10 years, Nolato has developed significantly within systems for administering medication, including inhalers and autoinjectors.

“All around the world, we’re seeing a

greater focus on self-care in the home and patients being able to administer their own medication. This means the often vital devices they use need to be simple and reliable,” says Herbert Kaminski, Strategic Account Director at Medical Solutions.

Reducing uncertainty and risks
Nolato’s Technical Design Centers in Europe and North America support customers in

developing new products in the medical sector by reducing uncertainty, risks, cost, and in particular, time to market. This is achieved by means of advanced simulation tools.

“Over the past five years, the applications for computer-aided design, simulation and testing have become much more precise as a result of the meshed models generated during production simulations,” explains Bill Torris. “This has made it possible to develop new products at a faster pace, as you don’t have to develop physical prototypes to test the robustness of the designs.”

Creating an optimal product

“While our customers are mainly focusing on the design of the new product and its functionality, we can use our expertise and provide external support for the customer through a virtual process of establishing the design’s robustness, cost effectiveness and environmental sustainability,” adds Herbert Kaminski. “I would say that it’s this combination of the customer’s own development and our support that creates a firm foundation for an optimal product.”

“For example, we can take the customers’ own 3D drawings and carry out simulations to examine how the design would function in practice in our production,” says Bill Torris. “And once we have simulated production of the individual components, we can then also simulate their assembly into a complete product. We can then use the results of these simulations to virtually test the design as a whole.”

Shorter development time

These tests can look at scenarios such as what happens when a patient drops the autoinjector on the floor for the fifth time, without actually destroying a physical prototype. And it’s easy to test different solutions to work out how it should be designed to cope with such situations without getting damaged.

You can even virtually test the exact strength that a spring in the same autoinjector needs to be to deliver no more than the promised number of injections.

“Just imagine what this means in terms of shorter development time, reduced costs and the right level of quality when it comes to new components and products,”

comments Bill Torris. “The earlier on in the process we come on board, the more time and money that customer can save.”

Bill Torris goes on to explain that this virtual technology makes it easier for Nolato to support customers by proposing changes to designs.

“It’s easy to demonstrate to the customer that if we make certain changes to the design, the product will be less complicated to make, which in turn saves money for the customer.”

And since no physical product has actually been made yet, it’s simply a case of going

back to the customer’s 3D files and adjusting them to the point that the design is optimal from every angle.

However, as both Bill Torris and Herbert Kaminski emphasize, without close collaboration between TDCs and the production units, all this might have remained just theoretical. Nolato’s extensive experience of working with efficient production, coupled with considerable knowledge of the customer’s market and a strong client-oriented culture, means it’s only a short step from theory to practice, which is highly beneficial for customers’ projects. ■



“ This computer-based approach allows us to virtually drop this insulin autoinjector on the floor until it breaks and see exactly what happens, without needing to build physical prototypes and destroy them. It also allows us to quickly alter the design and test it again. Just imagine what this means in terms of shorter development time, reduced costs and the right level of quality for new components and products.



Silicone components can be injection-molded as extremely small details weighing as little as 0.001 grams.

Silicone – an amazing material

With 40 years' experience of injection-molding silicone and production operations in both Europe and North America, Nolato is a world-leading manufacturer of a range of silicone components, both for use in the human body and to improve medtech devices.

Silicone is an amazing material for use in medtech applications. It has a variety of useful properties that offer a wealth of opportunities.

Silicone can, for instance, be used to create complex components with greater detail and more precise dimensions than many other materials. Components can be injection-molded with walls as thin as 0.1 mm or as

extremely small details weighing as little as 0.001 grams. But also as larger components with complex geometric shapes or to create special effects together with different types of plastic.

A versatile material

"This makes silicone incredibly versatile," explains Kristian Larsson, Head of Sales at

Nolato MediTech. "Silicone is most familiar as a soft material, but it exists in everything from gel form to a material that's as hard as a thermoplastic.

"If a non-slip surface is needed to ensure a surgeon has a firm grip of their instruments, we can create this by injection-molding plastic overmolded with silicone on specific parts," says Kristian Larsson. "Or if a smooth

surface is needed instead, that's possible too. The silicone can also be self-lubricating to facilitate assembly and use in special applications."

Optically transparent

"These days silicone can even be optically completely transparent and used for optical sensors, medical lasers, endoscopes and other medically related systems," explains Kristian Larsson.

Coating the surface of a medtech device with this type of transparent silicone imparts a purely cosmetic effect, making the device always appear new. This optical silicone does not lose its transparency, is not discolored by UV light, for example from the sun, and is tear-resistant. The device consequently appears new to both the doctor and patient, even if it has been used many times before. "As I mentioned, it's a material that offers a wide range of possibilities. And we're only just scratching the surface of those possibilities."

40 years' experience

Nolato has been injection-molding for over 40 years, giving us extensive experience and expertise, which is particularly important when working with silicone.

"The advantages of silicone, such as its viscosity, also make it really challenging to master," explains Kristian Larsson. "So you really need a lot of experience and know-how for silicone injection-molding to work as intended."

These days Nolato injection-molds silicone in cleanrooms for medical device companies in Sweden at Nolato MediTech in and Nolato MediTor in Sweden, as well as in the US at Nolato Contour in Wisconsin, and Nolato GW Silicones in Vermont. ■

A variety of useful properties

- Chemically inert, odorless and tasteless
- Resistant to bacteria and can be sterilized
- Biocompatible
- Tolerates extreme temperatures
- Flexible and elastic; it reverts to its shape after being subject to pressure or stretching
- Chemically resistant
- Dielectric (does not conduct electricity)
- UV-resistant
- Not water-soluble

Transparent silicone is clear choice for surgeons

For surgeons, it is undeniably important to see exactly what they are doing. With the help of a small hand-held medical suture pen, a doctor can apply a line of surgical glue to the edges of a wound and seal it, replacing the need for traditional stitches.

A top medical device OEM came to Nolato GW with the need to create a delivery system for their new suture glue. Nolato GW started developing this with a polypropylene body in a thermoplastic urethane bulb, as the bulb's requirement was for the surgeon to break the ampule to start the flow of the glue, and then allow the tip of bulb to apply the glue to the wound site.

Tactile and visual requirements were key, and after many design iterations, the solid thermoplastic urethane did not allow any visualization of glue in the bulb, and it was much too stiff for the surgeon's preference. This was discovered at the end of the development and tooling cycle, and the program was about to be canceled.

As a potential solution, Nolato GW Silicones offered a more flexible Liquid Silicone Rubber (LSR) replacement to the solid thermoplastic urethane for the bulb. Several iterations were prototyped to find the perfect shape and tactile feel.

"Our LSR engineers began questioning the design and material choices," says Mark Hammond, General Manager of Nolato GW Silicones. "We developed a new version of the device with an optical-grade silicone to increase the surgeon's control over the application of the glue during operations."

GW then recreated the transparent silicone component in a GW-built 16 cavity LSR mold at a cost comparable to the thermoplastic mold, and the manufacturing process was re-validated according to medical requirements. The project was then successfully launched.

The silicone bulb design has been so successful that the volumes have escalated beyond any original expectations. Today, Nolato GW is making both the silicone bulbs



and the thermoplastic bodies in their Royalton, Vermont Manufacturing and Technology Center, where the combination of technologies in one location have been ideal for the customer.

"Our customer was extremely pleased that from one facility, we have delivered a high-quality medical device made of two completely different thermoplastic and silicone materials, and at a very competitive price," comments Hammond. "Today, we have manufactured several millions of this product, with both a satisfied customer and satisfied surgeons as a result." ■



Vermont, USA

Holistic approach to training

Rural Vermont is not where anyone expects to find one of the world's most advanced injection-molding companies. Nestled in the beautiful Green Mountains, Nolato GW is investing in the future of local students and its own associates with a career development program like no other.

With the workforce challenges inherent in a rural location such as Vermont, Nolato GW decided to make a conscientious effort toward increasing local awareness about manufacturing careers and creating a sustainable pipeline of technical associates. Nolato GW has now built a holistic workforce development program starting with high school students and continuing up through tenured employ.

The School of Tech

In 2015, Nolato GW launched the School of Tech, a curriculum exposing high school students to advanced manufacturing through a semester-long, for-credit course. Students are bused to Nolato GW's state-of-the-art facilities and instructed by their tooling, automation, and molding professionals.

A highlight of each School of Tech semester includes a visit to nearby Gifford Medical Center, where the students see Nolato GW's healthcare products used in real life, and learn about the ramifications of a device not being manufactured to the highest quality.

"Our students get the kind of real-world experience you just can't find in the classroom. Most of these students have never been in a manufacturing environment before, and it is a real eye-opener for them," says Cathy Tempesta, Nolato GW VP of Human Resources.

"They are suddenly exposed to a possible career path that they never imagined. I have seen students leave here with a whole new perspective on what they want to do with their lives. It is a great program and a win-win for everyone involved."

A paid apprenticeship

For those who choose to start their careers right after high school, and in some cases right after School of Tech graduation, Nolato GW offers a paid 18-month apprenticeship program in molding, mold-building, and automation.

Scholarship/internship opportunity

For those pursuing higher education after high school, Nolato GW offers a combination



Students are bused

scholarship/internship opportunity in partnership with Vermont Technical College.

Nolato GW awards generous scholarships each year to students pursuing an Associate's Degree in Mechanical Engineering Technology.

Over the summer, scholarship winners participate in a rigorous 12-week internship that exposes them to all engineering disciplines in the organization.

Nolato GW recognizes the importance of creating highly skilled engineers both for the



to Nolato GW's state-of-the-art facilities and instructed by their tooling, automation, and molding professionals like Rick Hart.

future of the manufacturing industry and for the careers of local students. Because of this, the internship program was built to provide students with employable skills that will prepare them for their goals after graduation.

Life-changing support

With the help of the Nolato GW scholarship/paid internship program, it is possible for a student to completely cover the tuition cost of their degree. For students who may not have thought higher education and a rewar-

ding career path were financially attainable, this can be life-changing.

Funding engineering degrees

Once an associate is hired at Nolato GW, there are numerous opportunities to continue their technical education such as the Manufacturing Technology Leadership Program (MTLP). After completing the MTLP, participants can utilize Nolato GW's employee tuition reimbursement program to finish their degree at no cost. Through the

MTLP program, Nolato GW has now funded nine engineering degrees over the past eight years.

"Investing in our associates helps our company stay ahead of the curve. It increases their skills, brings new ideas and innovations, and boosts our productivity," says Brenan Riehl, Nolato GW President and CEO.

"We are committed to the development of our associates and local students, many of whom will be tomorrow's leaders of our organization." ■



A life cycle analysis shows that replacing glass with plastic containers can significantly cut the carbon footprint.

Comparative life cycle analysis

Smaller carbon footprint from plastic pharma containers

In the public debate about how to reduce the carbon footprint of packaging, it's often said that glass would be a significantly more eco-friendly material than plastic in pharma packaging, for example. However, a comparative life cycle analysis of containers made from glass, aluminum and plastic gives a different result.

How does a plastic pharmaceutical container fare in comparison with an equivalent container made from glass or aluminum in terms of its carbon footprint? To get some clarity on this issue, Nolato Cerbo in Trollhättan commissioned an independent party to conduct a comparative life cycle analysis.

A cradle-to-grave analysis

The cradle-to-grave analysis examined a 200 ml container with an annual production of 5 million in glass, aluminum and three

different types of plastic, also factoring in the environmental impact of a 800 km journey from Nolato's plant to the customer. The analysis found that the glass containers contributed 930 tons of CO₂ per year, aluminum containers 575 tons of CO₂, plastic containers made from fossil raw materials 447 tons of CO₂, the plastic containers made from bio-based raw materials 337 tons CO₂ and the plastic containers made from recycled plastic 300 tons of CO₂.

So a plastic container made from recycled

plastic had a carbon footprint that was just 30% of that of the glass container.

Halving the carbon footprint

The results of the analysis were then used to simulate the environmental impact of replacing the annual production of 40 million units of a 30 ml glass container with an equivalent plastic container. The simulation showed that changing from a glass container to a plastic one made from fossil raw materials would halve the carbon footprint. If the container

were instead made of bio-based material, such as plastic made from sugarcane residue, the carbon footprint would shrink by an additional one-third of that of the glass container.

By using green electricity, which Nolato does wherever possible, including in Sweden, it would avoid an additional 180 tons of carbon dioxide.

So all in all, there's the potential to cut the carbon footprint by over 1,600 tons of CO₂ a year!

"This is really interesting," says Glenn Svedberg, Managing Director of Nolato Cerbo. "These analyses show that we already have the opportunity to opt for environmentally sustainable alternatives that would significantly reduce our carbon footprint." ■



Bio-based plastic already available
Nolato can already supply pharmaceutical packaging made from food-grade, bio-based raw material from sugarcane residue, but unfortunately as yet, for regulatory traceability reasons, we are not permitted to use recycled plastic in the containers.

"The thing that mainly differentiates pharmaceutical-grade from food-grade plastic is the extent of regulatory documentation and testing, and a two-year guarantee that the composition will remain the same," says Glenn Svedberg. "Currently, the version of our most popular standard packaging that has been validated for bioplastic has 100% bioplastic in the container and around 80% in the lid. We're in the process of carrying out tests to achieve an even higher percentage of bio-based material in the lid as well." ■



Meet Guido Vollrath, Managing Director of Switzerland-based Nolato Treff.

Nolato Treff has been really busy during the pandemic, hasn't it?

"Yes, we've seen a real surge in demand for our laboratory products, particularly for medtech sector products. We're currently manufacturing 24 hours a day, 7 days a week.

At present we're able to sell three times our normal production capacity of some items. These are mainly single-use items used in testing for viral infections such as Covid-19, including pipettes and PCR plates.

In March, when Covid-19 began to increase in Europe, a number of large Swiss and German customers wanted to ensure they wouldn't have any interruptions to deliveries from us and asked us to increase production as much as we could.

But because it's a complex cleanroom-based process with stringent requirements on microbiologically controlled production, we were unable to rapidly build up additional resources. But with an extra shift and employees who really stepped up to the mark, including during weekends and vacations, we ensured our customers received their deliveries.

Although the demand is positive for our company, we sincerely hope the fight against Covid-19 will soon be won so the world can return to normal." ■



The PCR plates are manufactured to stringent microbiological requirements.



Compashield Pad is mounted on a circuit board to create an electrical contact between the board and castings in a vehicle.

Compashield Pad

Automotive industry success for grounding contact that stays in place on circuit boards

A proprietary grounding component with a soft silicone rubber core and a shell of conductive silicon rubber for surface mounting on circuit boards has been a success for Nolato Silikonteknik.

The component, which came about following a visit to a global automotive industry supplier, is mainly used as a grounding contact, but also for shielding from electromagnetic interference.

It was on a client visit in Germany that Jonas Carlsson, Global Business Manager Automotive at Nolato Silikonteknik, returned home to Hallsberg with a real challenge to grapple with. The customer was already using a surface-mounted grounding component, or SMT pad, from another supplier in its infotainment system for cars. But they weren't entirely satisfied, because the component they were using was at risk of coming away from the circuit board, and it was also unnecessarily expensive. So they were looking for an alternative solution that would stay in position, and preferably cost a bit less.

"We had a real challenge on our hands," explains Jonas Carlsson. "Not just to create a better and less expensive solution, but also for the component to be supplied in tape form for automated assembly in the customer's surface-mount line."

Testing for tough environments

"We developed a few alternative solutions and came up with prototypes, which we subjected to ageing, vibration and solderability tests in our lab. We also carried out tests that involved bending the circuit boards, and we could see that our components remained in place even in challenging conditions."

"So after a while we were able to present our prototypes to the customer, and they then began extensive testing in their environment. These tests went on for a whole year. In early 2019 Nolato Silikonteknik's solution was approved and mass production began on grounding components for the infotainment systems of two major German car manufacturers."

The components, which are sold under the Compashield Pad brand, consist of a soft silicone core with a hollow profile for low compression and an outer shell of electrically conductive silicone for grounding and EMC shielding. Underneath is a metal strip,

enabling the component to be soldered to a circuit board.

“A key success factor is the way the metal strip is attached to the silicone,” explains Jonas Carlsson. “We have opted for full bonding throughout instead of bending the metal strip upwards so it attaches to the component’s hollow profile.”

“Our unique design and connection between the metal strip and the electrically conductive silicone means the component is

firmly attached to the circuit board after soldering, providing a more vibration-resistant solution.

Effective and secure adhesion

The adhesion is extremely effective and secure, which means our customers avoid the risk of the component falling out of position on the circuit board after soldering.

“Combine that with a competitive price and this has led to Compashield Pad being

very popular with our other customers too,” notes Jonas Carlsson. “We now have three standard variants of SMT pads, and more sizes and material combinations are due.”

Nolato Silikonteknik has therefore invested in a number of fully automated production cells with 100% vision control in Hallsberg, and has also launched production in Suzhou in China to respond to the increase in volumes. ■

New method for measuring shielding effect on circuit boards

While developing Nolato Silikonteknik’s grounding component, the company’s in-house lab carried out several tests on the prototypes to ensure the effectiveness. One of the tests was to evaluate the component’s electromagnetic shielding capabilities.

“Shielding of electromagnetic interference between the components on a circuit board is a significant problem in the electronics industry,” explains Sandra Poulus, Director of R&D at Nolato Silikonteknik. “When we developed the Compashield Pad, we realized that

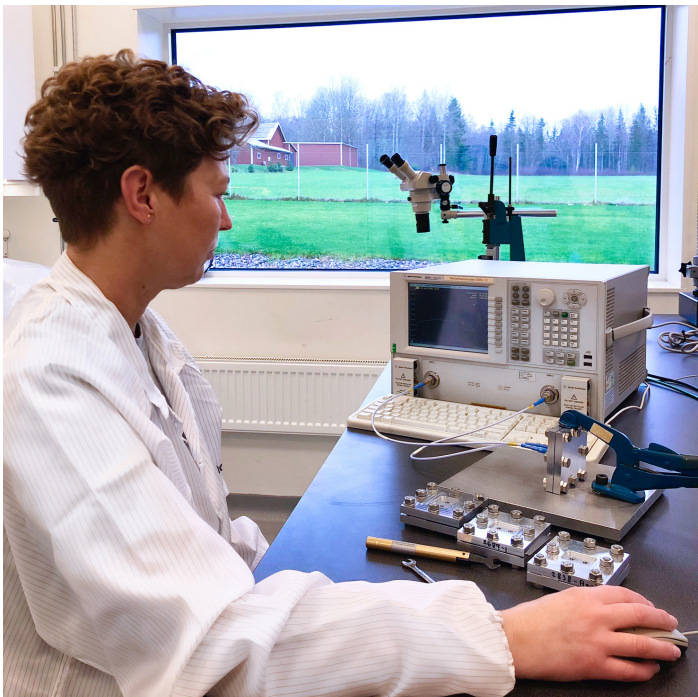
besides grounding it could also be used to create protective walls to provide shielding between the various components on a circuit board.

“But then we encountered a problem: there was no international standard for measuring this protective effect. So we had to come up with a new test to measure the effect between different cavities on a board.”

The new testing method makes it possible to evaluate shielding in a frequency range from 0.3 up to 50 GHz. It’s simple to carry out

and features high measurement dynamics and repeatability.

“This measuring method enables us to compare the effectiveness of different component materials and designs, which is essential in the process of arriving at the best solution when developing new variants of Compashield Pad,” explains Sandra Poulus. “But also to allow us to ascertain how well our solutions measure up to other solutions on the market.” ■



Karin Sundberg, Development Engineer at Nolato Silikonteknik, testing EMC shielding.

A quarter of a million healthcare visors

Halt in automotive industry leads to PPE production

What do you do when customers suspend production and loan their purchasing staff to the healthcare sector during the coronavirus crisis? Have such good customer relations that you receive orders for the healthcare sector, of course.

When the coronavirus crisis intensified in spring 2020, large parts of the automotive industry halted production and furloughed workers.

But some businesses knew their personnel could apply their experience in other

areas. For instance, truckmaker Scania loaned around 20 purchasing and logistics personnel to Karolinska University Hospital in Stockholm to help procure protective equipment.

One of the suppliers they asked for help was Nolato Lövepac, which just a day after receiving the request came up with a prototype face visor for healthcare workers.

Two days later the prototype was approved, with the first order for a large-volume delivery of the visors received just a few days later.

Nolato Lövepac produced around a quarter of a million visors for Karolinska University Hospital.

"Although die-cutting is part of our core business, I don't think visors are something we'll be specifically focusing on in the future," says Jesper Johansson, Head of Marketing at Nolato Lövepac.

"But we'd be happy to help out if the need arises again and we're asked, as it was great to be able to make a rapid, positive contribution when it was really needed in health care." ■

