GLOBAL COVERAGE

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Fred Kopitzke and Kurtis Olson Celebrate Careers at SCS

Specialty Coating Systems is honored to celebrate two long-time employees who recently reached significant milestones in their careers - retirement. Congratulations to Fred Kopitzke and Kurtis Olson for your many years of service and achievement at SCS!

Fred Kopitzke joined the company in August 1989 as an equipment design engineer, a role in which he spent much time engineering SCS Parylene deposition systems, including the current model PDS 2060 that is used throughout SCS' coating facilities today. Fred moved on to manage the equipment engineering team before being certified as a Six Sigma Black Belt. By 2005, SCS' business had grown and additional, regionally-located applications engineering resources were required; Fred's experience and extensive Parylene knowledge were a perfect fit and, from that time on, he served as Senior Applications Engineer.

Fred Kopitzke

In addition to these key roles, Fred was part of numerous notable projects throughout his career, including the design and build of SCS' Cavex liquid coating machine, relocation of SCS Singapore in 2004 and the opening of SCS' Czech Republic facility in 2010. While Fred's drive and commitment to excellence will be missed, SCS is grateful for his nearly 30 years of service and the tremendous impact he has had on the company.

Kurtis Olson

In his retirement, Fred plans to spend time reading, playing disc golf, woodworking and traveling to see his children and favorite bands in concert.

In 1976, **Kurtis Olson** joined Nova Tran Corporation, a company located in Clear Lake, Wisconsin. His first role with the company involved the powder coating and imprinting of medical magnets. Very quickly, Kurtis began supervising the entire magnets operation, including working with customers and sourcing raw materials. In 1985, Kurtis's focus turned to the company's Parylene dimer product lines before transitioning into a marketing role in which he was responsible for the promotion of Nova Tran's Parylene coating services. In 1990, Kurtis published the first issue of this newsletter, formally known as *Parylene Press*.

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SCS Parylenes Provide IPX7, IPX8 Protection

According to the market research firm International Data Corporation (IDC), liquids are the second-leading cause of damage to smartphones. In 2016, the IDC estimated that more than 900,000 smartphones per day are compromised by exposure to liquids.

Traditional protective solutions such as seals, gaskets and special cases have been used to protect devices, but these add cost and weight. In addition, many devices require jacks and ports for sound, power, etc., which create points for moisture to access critical internal electronic circuitry, causing premature device failure. Unfortunately, many traditional 'waterproofing' solutions simply cannot adequately protect against moisture breaching these access points.

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SCS Delivers Quality and Compliance for Customer Products

As industries and markets continue to grow and evolve, manufacturers are subjected to an ever-increasing list of standards and qualifications to which they are expected to comply. These qualifications can stem from government entities, industry organizations or from manufacturers directly. In upcoming issues of this publication, we will look at the ways in which SCS serves and assists its customers across the compliance and quality spectrum by reviewing specifications related to process, product, testing and specification, and corporate compliance.

To begin the series, we will elaborate on the changing landscape of **European medical device regulation**.

Similar to how the United States Food and Drug Administration (FDA) regulates and grants clearance for companies to market and sell medical devices in the US, the European Union (EU) grants approval for marketing and sales in the EU based on safety and effectiveness requirements. Once EU requirements have been met, the device is granted a CE mark. The European Medical Device Directive (MDD) has been the legal framework that regulates the safety and marketing of medical devices in Europe since the 1990s. Approved groups called Notified Bodies act as the gatekeepers for CE approval.

Beginning in May 2017, a three-year phase-in process began for a more comprehensive regulatory framework to govern access to the EU medical device market. The Medical Device Regulation (MDR) will ultimately replace the MDD; while it has many elements in common with the MDD, additional requirements will be placed upon medical device manufacturers who wish to sell into the EU. Many SCS customers will be impacted by these new or expanded requirements,

which include the implementation of unique device identification, rigorous post-market oversight, reclassification of devices according to risk, contact duration and invasiveness, more rigorous clinical evidence for Class III and implantable medical devices as well as systematic clinical evaluation of other classes of medical devices.

Possibly one of the most time-consuming efforts for a device manufacturer is the need to recertify CE-approved devices under the new requirements. Grandfathering provisions under the new MDR are limited, and the vast majority of devices will need to be recertified to the MDR by Notified Bodies prior to the May 2020 deadline. While the European Commission and EU Member States have made some progress in qualifying Notified Bodies to the new directive, uncertainty exists as to the likelihood of fully meeting the 2020 target. This has resulted in a change in strategy for some device manufacturers, who now appear to be targeting new medical device rollouts for the United States, China and other countries. Regardless of regulatory

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SCS Material Application Valves: Engineered for Performance

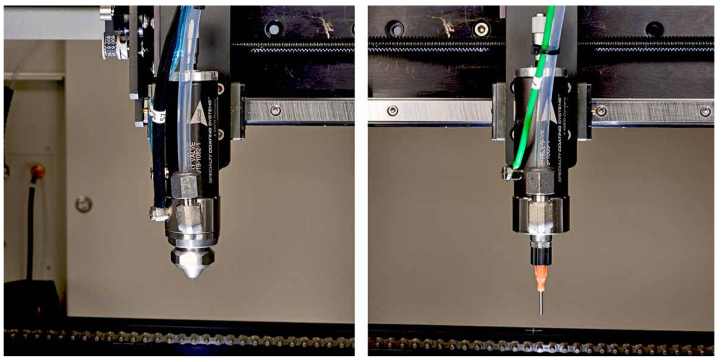
As an industry leader in the design and manufacturing of conformal coating systems, SCS continues to develop coating solutions that are highly reliable and focused on improving accuracy, repeatability, efficiency and productivity.

SCS is pleased to introduce a new family of material application valves for the PrecisionCoat line of spray coating and dispense systems. The valves deliver exceptional material handling in a modular configuration that brings flexibility to any project, without sacrificing quality or performance.

For added control, SCS' new spray valve design goes above and beyond traditional designs by integrating optional custom spacers to "micro" adjust the space between the air cap and material nozzle. Spacers can be placed between the air cap and valve body to increase or decrease the gap between the air cap and nozzle for greater variation and control of the spray pattern and edge definition.

When it comes to valve maintenance and care, SCS' material application valves are designed to eliminate unnecessary parts and the complexity associated with routine valve maintenance and cleaning. With fewer parts, disassembling and reassembling processes are now easier and more efficient.

In addition to the new family of valves, SCS has also improved valve mounting. Instead of securing a valve in place with two screws and



verifying the valve is level, the valve mounting grips and locks the valve in place with only one screw, ensuring the valve is mounted square in position.

SCS' new material application valves provide manufacturers with the latest in innovative conformal coating valve design and efficiency. To receive more information on the PrecisionCoat V, PrecisionCoat BT and SCS' new material application valves, or to request a quotation, contact Hans Bok at 508.997.4136 or **hbok@scscoatings.com**.

Parylene and Smart Technology in Agriculture

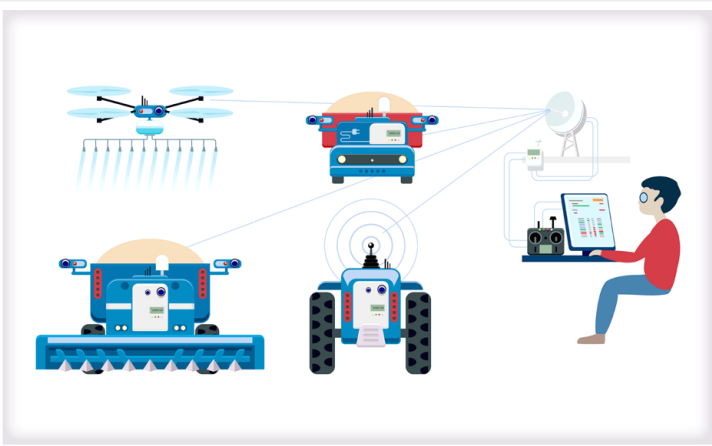
In today's ever-changing world of technological advancements, smart technology is revolutionizing the way we work. The availability of real-time data at our fingertips allows us to make better-informed decisions. One of the many industries capitalizing on these innovations is agriculture.

Many tractors now utilize autonomous technology for the tilling, planting, fertilizing and harvesting of crops. A tractor's GPS system, sensors, radar, camera technology and LiDAR operate in tandem. With the use of autonomous technology controls and data streams, one person can now operate and review the analytics from numerous tractors on a single tablet, resulting in significant labor savings.

The sensors found on tractors, harvesting machinery and in the soil monitor the performance levels, condition and status of various fluids and fuels, pressures and other operating systems. These sensors provide real-time data that allows operators to identify and fix potential issues before they turn into costly errors, downtime and the loss of production.

On harvesting equipment, for example, sensors gather the data from the current year's crop yield compared to prior seasons. As a result of sensors being placed in the ground and information being gathered, operators can evaluate whether the yield was impacted by the crop's location in the field, insects, water and fertilizer. Decisions can then be made based on these data points, and specific areas of the field can be tended to instead of treating the entire field, resulting in better utilization of limited resources, controlling costs and materials.

Another example of the role of smart technology in agriculture is the use of robots for fertilizer and seed processing as well as in the assembly of agricultural equipment. Robots can be used during the growing season to remove unwanted plants, weeds and parasites that live in fields and on plants. These robots utilize a drive system for movement in the crop rows and a vision system with LED lighting to



differentiate weeds from crops. Robots provide a solution to offset the chronic labor shortage for this type of work.

These are only a few of the ways in which smart technology is impacting agriculture. As a Parylene conformal coatings supplier, SCS is leading the way in protecting these types of sensors and many other products used in agricultural environments. SCS Parylenes offer superior barrier properties to protect components from exposure to chemicals, moisture, corrosive gases and other fluids. In addition, the Parylenes' low dissipation factors and dielectric constants enable the transfer of electrical signal without any loss. Parylene HT® provides superior UV resistance and is thermally stable up to 350°C long-term (450°C short-term), making it an ideal protective solution for harsh environment electronics and other systems that must survive difficult conditions. To learn more about Parylene conformal coatings and the protection they offer, contact Alan Hardy at 317.244.1200, ext. 0261, or **ahardy@scscoatings.com**.

SCS Receives Award at SMTA China East

SCS is pleased to announce that Surface Mount Technology Association (SMTA) China awarded Vice President of Technology Dr. Rakesh Kumar with "The Best Presentation of Technology" award for his presentation at the SMTA China East Vendor Conference in April.

Dr. Kumar presented "A New Halogen-Free Parylene for Robust Performance of Flexible, Rigid and High-Density Electronics in Water and Other Corrosive Environments" at the conference, which was co-located with NEPCON China at the Shanghai World Expo Exhibition and Convention Center.

At NEPCON China, SCS exhibited Parylene coating services and technologies, including the company's new halogen-free variant, ParyFree®. Like other commercially-available Parylene variants, ParyFree is applied through a vapor deposition process that results in an ultra-thin, uniform, pinhole-free conformal coating. The thin film forms at a molecular level to fully encapsulate components and devices, offering complete protection and increased reliability of intricate, complex electronic devices.

To learn more about Parylene conformal coatings, including SCS' new halogen-free variant, contact Alan Hardy at 317.244.1200, ext. 0261, or **ahardy@scscoatings.com**.

Fred Kopitzke and Kurtis Olson Celebrate Careers at SCS (continued)

With the creation of Specialty Coating Systems, Inc. in August 1991, Kurtis and his family relocated to Indianapolis, Indiana. In addition to Parylene, the new company manufactured and sold liquid coating equipment, curing systems and chemicals, and Kurtis played a role in both the sales and marketing of these lines. In 1998, Kurtis transitioned into a full-time sales role where he served SCS customers until his retirement. Known for providing excellent customer service, including quick assistance with technical questions and quotations, Kurtis has talked with nearly every customer who has shown interest in or purchased one of SCS' spin coaters, dip coaters, ionic contamination test systems and Parylene Labcoters® over the last two decades.

When asked what he will miss the most about SCS, Kurtis said he will miss the people, both co-workers and customers. He said, "It has been an incredible experience to communicate with people from all around the world." Though Kurtis' work ethic and extensive knowledge will be missed, SCS is grateful for his nearly 42 years of service and commitment to the company.

In his retirement, Kurtis looks forward to volunteering more, traveling and spending time with his grandchildren.

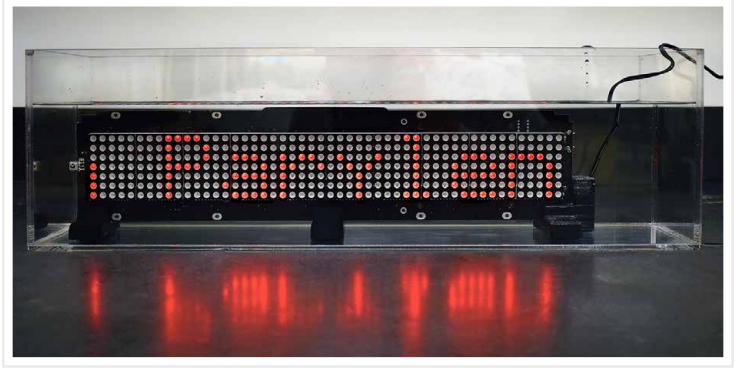
Congratulations to both Fred Kopitkze and Kurtis Olson for reaching these outstanding milestones!

SCS Parylenes Provide IPX7, IPX8 Protection (continued)

While industry-standard solutions often advertise a product as possessing waterproof or water-resistant features, these vague terms do not quantify the exact measure of their effectiveness. In recent years, leading consumer electronics manufacturers have begun to use Ingress Protection (IP) ratings to differentiate their products. Although IP ratings have been used in industrial electronics for decades, they are relatively new in the consumer world.

IP Ratings Defined

The International Electrotechnical Commission (IEC) created the standard known as IP. It serves as a unified system of designating how resistant electrical devices are to freshwater and common materials like dirt, dust and sand.



IP ratings follow a simple structure. The first number denotes the dust ingress rating on a scale of 0-6. If a product has not been tested for dust ingress, an "X" is used as a placeholder. The second number indicates water protection on a scale of 0-8. (There are some higher degrees of IP protection for liquids, but they are not typically used on consumer products.) Using these guidelines, if a product is listed as IP56, for example, it means that the dust ingress protection is rated at 5, and the water ingress protection is rated at 6. Many consumer products have recently been promoted as having a rating of IPX6 or IPX7, indicating water protection at a level 6 or 7, respectively. It is important to note that the numbers do not necessarily correspond to an incremental system. A higher number generally means a higher level of protection; however, each number also indicates a different, very specific degree of protection. IPX5, for instance, means that the product is protected from water projected from a certain-sized nozzle, while IPX7 means the product can withstand being submerged in a meter of water for 30 minutes.

IPX Testing of New SCS Halogen-Free Parylene

In response to the growing demand for IP-rated products, many of the world's leading consumer electronics manufacturers are turning to Parylene coatings. In order to support manufacturers, SCS engaged a third party to conduct ingress protection testing on electronics coated with its new halogen-free Parylene, ParyFree®. Following the guidelines of IEC 60529 14.2.7 and 14.2.8, tests involved submerging exposed LED boards in 1 meter of water for 30 minutes (meeting the requirements of IPX 7) and 1.5 meters of water for 30 minutes (meeting the requirements of IPX 8). While the uncoated control boards stopped functioning during the tests, the ParyFree-coated boards continued to function properly, meeting the requirements of IPX7 and IPX8, respectively. It is important to note that for an IPX8 rating, the IEC does not specify an exact depth or time. Rather, it states "The test conditions are subject to an agreement between the manufacturer and the user, but they shall be more severe than those prescribed in the 14.2.7 (IPX7)."

Although manufacturers must test their own final products, they can be confident in the protection that SCS Parylene coatings provide in the design of their IP-rated electronic devices. To learn more about IPX ratings, ParyFree and how SCS Parylenes can add value to your electronics applications, contact Alan Hardy at 317.244.1200, ext. 0261, or **ahardy@scscoatings.com**.

Connect with SCS

Specialty Coating Systems welcomes you to connect with us on social media. Be one of the first to explore new advances in Parylene technology, upcoming educational opportunities, trade show appearances and much more! Find us on Facebook, LinkedIn and Twitter.

Free Seminar:
Parylene Coatings Provide Advanced Protection

The following seminars are currently being offered:

- **October 14, 2019:** Pilsen, Czech Republic
- **October 17, 2019:** Weingarten, Germany

REGISTER TODAY!

Seating at the seminars is limited, so do not delay. Registrations close October 7, 2019.
To register, visit www.SCSseminars.com.

For a full list of trade shows and events, visit **scscoatings.com/shows**.

SCS Delivers Quality and Compliance for Customer Products (continued)

pathways chosen, SCS remains ready to assist our coating service customers on all Parylene-related matters. As quality and compliance regulations are modified and advanced, SCS will continue to stay at the forefront.

For a comprehensive list of standards and specifications to which SCS and/or SCS Parylenes comply, please visit **SCScomplies.com**. If you would like to discuss how SCS can achieve your quality and compliance goals at one of our worldwide locations, contact Dick Molin at 317.244.1200, ext. 0271, or **dmolin@scscoatings.com**.

Personnel Highlights

As Operations Manager, **Ian Bottwood** manages production activities at SCS' Woking coating facility. Ian began his career as a production engineer, specializing in mechanical assembly and then expanding into electronic assembly. He worked for two years in California, managing product assembly and testing at an OEM subcontract manufacturer, before returning to work in the UK as production manager for an electronics manufacturer. Ian has primarily worked in production or operations and has vast knowledge of a wide range of products, including satellites, watches, lighters, computers, TV standards converters, test equipment and various electro/mechanical products.

Ian attended Merton and Kingston College and more recently earned a manufacturing management diploma from Open University. He is married with one daughter and enjoys watching and participating in sports, particularly golf.

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*The **Global Coverage** exists to promote a better understanding of Parylene and the capabilities of Specialty Coating Systems. For previous issues, visit **scscoatings.com**.*

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