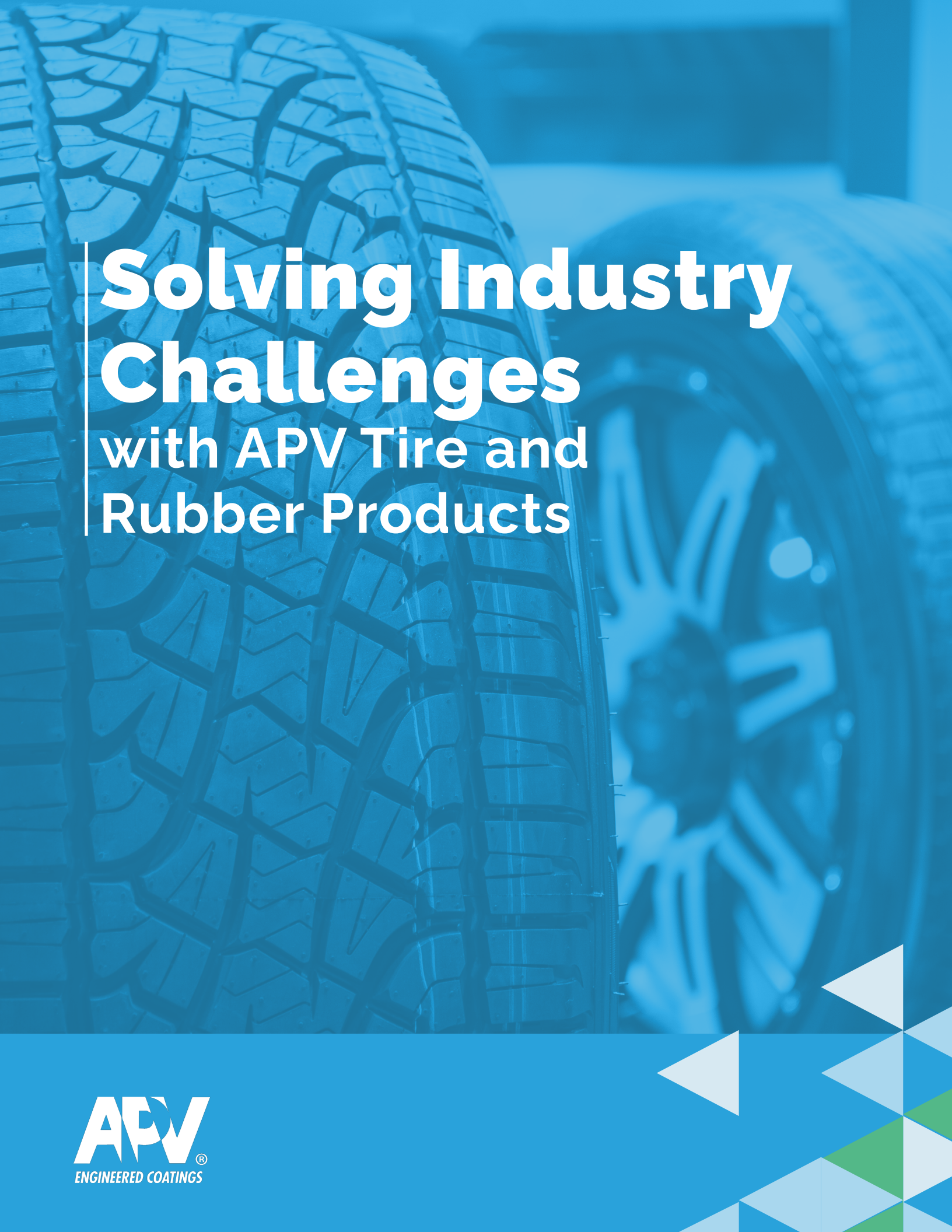




Solving Industry Challenges with APV Tire and Rubber Products

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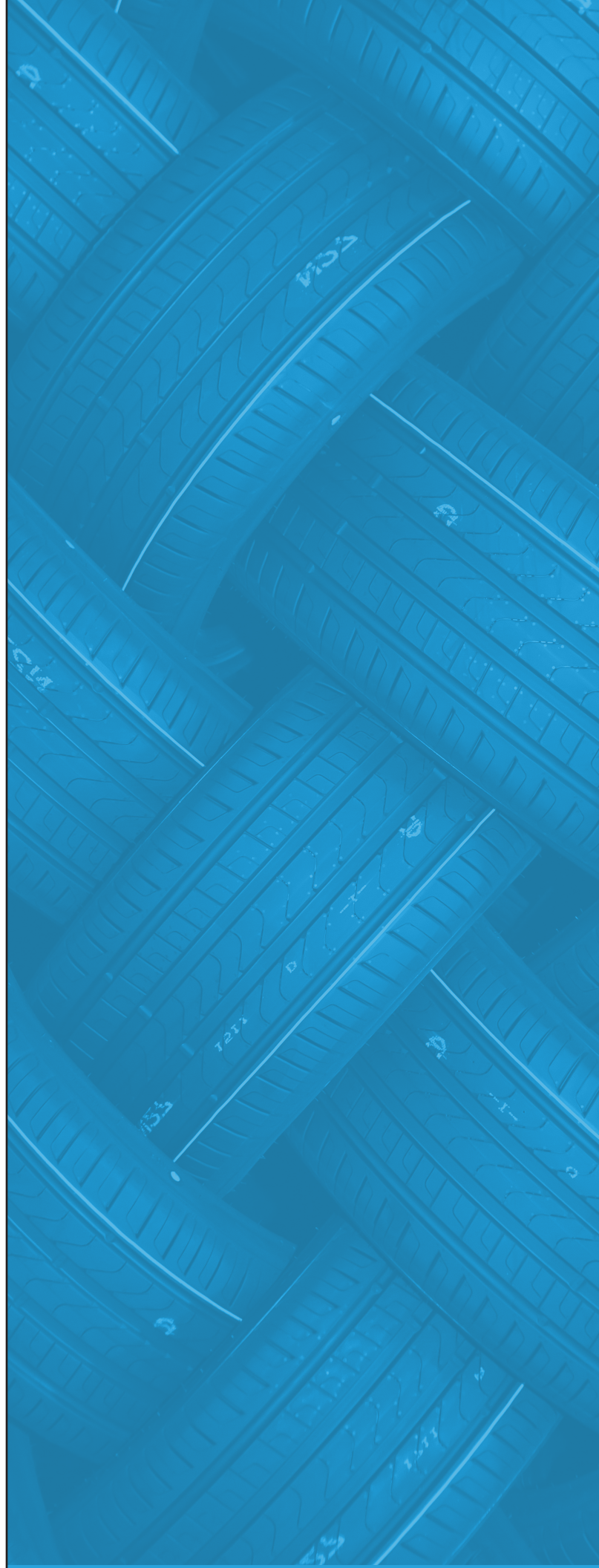
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The tire and rubber industry touches critical segments of the global manufacturing, transportation, and infrastructure industries including automotive, trucking, aerospace, industrial machinery, and consumer goods. Whether it's the tires that keep vehicles moving, the belts and hoses used in industry or the coatings that improve product longevity, rubber and its related technologies are indispensable to the modern world.



The rubber industry is currently facing challenges that threaten both its growth and its ability to meet evolving demands. Shifting raw material prices, increasing competition, economic instability, new technology and the constraints of legacy technology, and mounting environmental concerns are pressuring rubber manufacturers to adapt to meet demand for high-performance products that are cost-effective, efficient, and sustainable.

APV Engineered Coatings helps manufacturers address these hurdles. As a leader in the development of industrial coatings and advanced chemical products, APV brings a unique approach to the tire and rubber sector. Our portfolio of custom-engineered solutions—including tire and rubber inks, paints, and lubricants, and more—is designed to enhance performance, streamline production, and support sustainability goals.

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Tire and Rubber Industry Challenges

The tire and rubber industry stands at a crossroads. Manufacturers must address a variety of issues from raw material volatility, financial pressures, increased competition, new technology and the constraints of legacy technology, sustainability, regulatory demands, and more. What are some challenges hampering the industry?

Shifting Raw Material Costs

Variable raw material costs can significantly impact bottom-line profitability. The sector relies on natural and synthetic rubber, petroleum-based chemicals, carbon black, and specialized additives — all of which are subject to market fluctuations. Global supply chain interference, geopolitical events, and environmental regulations further complicate pricing, making it difficult for manufacturers to maintain consistent production costs.

Increasing Competition

One of the main drivers of heightened competition is globalization. Manufacturers in countries with lower labor and operational costs can produce rubber goods at significantly reduced prices, making it difficult for U.S. based companies to compete on cost alone. Additionally, as modifications in international trade barriers continue, companies must navigate complex tariffs, export restrictions, and supply chain disruptions.

Economic Uncertainty

Like many manufacturing sectors, the tire and rubber industry is highly sensitive to economic downturns. During periods of recession, consumer spending declines, resulting in less demand for rubber products. In addition, businesses are forced to slow down production to cut costs. The automotive sector, among the largest consumers of rubber materials, often experiences drops in sales during times of economic uncertainty, which directly affects tire manufacturers and suppliers.

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Rapid Technological Advancements

The pace of technological advancement in the tire and rubber industry is accelerating, presenting both opportunities and trials for manufacturers. Innovations in automation, smart manufacturing, and material science are reshaping the sector, requiring companies to keep up.

Tire technology is also changing rapidly. The rise of electric vehicles (EVs) is driving demand for specialized tires that offer lower rolling resistance, better durability, and noise reduction.

One notable shift is the growing use of automation and artificial intelligence (AI) in rubber manufacturing. Automated production lines increase efficiency, reduce waste, and enhance quality control. However, they also require significant investment in new equipment and workforce training. Traditional tire manufacturers must adapt their infrastructure and products to meet these new requirements. Companies that are bound by the constraints of legacy technology will risk falling behind the companies that embrace and utilize advanced technology.

Economic Concerns

Sustainability has become a pressing issue in the tire and rubber industry. As governments, consumers, and regulatory bodies push for greener solutions, manufacturers must find ways to control their environmental impact without affecting product performance.

Post-consumer waste is a primary concern. The disposal of scrap tires is a massive dilemma worldwide, with millions of tires ending up in landfills or being incinerated each year. Retreading, recycling and repurposing initiatives, such as converting old tires into rubberized asphalt or playground surfaces, have gained traction. Still, the industry faces problems in achieving widespread sustainability.



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Raw material sourcing is another major environmental concern. The production of natural rubber leads to deforestation and biodiversity loss in regions where rubber tree plantations are expanding. At the same time, the petroleum-based components of synthetic rubber contribute to carbon emissions and reliance on fossil fuels. Companies must explore alternative materials and more sustainable sourcing methods to align with evolving environmental regulations.

Lastly, rubber industry manufacturing processes often involve chemicals that can be harmful to the environment. Solvent-based coatings, adhesives, and processing agents, along with the scrap or waste they generate, can release volatile organic compounds (VOCs) into the air or groundwater if not properly managed.



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The APV Philosophy

Innovation and sustainability define APV's approach to addressing the many challenges facing the tire and rubber industry. Established in 1878, APV was making varnishes and lacquers for bicycles and rail cars before the tire industry took hold in the late 1890s. As the tire and rubber industries developed, APV grew alongside them, expanding its offerings to include a wide range of products that supported early rubber manufacturing, including essential mold release agents.

Fast forward 100 years, and APV's continuing product innovation delivered more efficient, consistent, and dependable cement to the rubber industry—followed by the introduction of screen-printed decals that revolutionized both the appearance and branding of race tires. Over the decades, we've earned a reputation as a trusted partner to many of the world's leading tire and rubber product manufacturers. Our success is rooted in long-term partnerships and a shared vision: when our customers succeed, so do we. This belief continues to guide our growth and commitment to excellence.

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Innovation: Leading Through Research and Development

Innovation is at the core of everything we do at APV because staying ahead requires a relentless focus on research and development. Our team actively listens to our customers' needs and collaborates closely with them to create tailored solutions that not only meet their specific requirements but also improve their production efficiency and performance.

Our ability to tailor these solutions ensures that businesses get superior products and maintain their competitive edge, even in the face of economic uncertainty, rising market pressures, and intense competition. Regardless of the pace of technological change in our clients' industries, we are always prepared to explore new possibilities and implement innovative solutions.

Sustainability: Engineering a Greener Future

As the need for sustainable manufacturing practices intensifies, APV remains at the forefront of environmental responsibility. We help our customers meet their sustainability values and environmental goals by staying ahead of industry regulations and trends.

Being proactive allows us to create products that meet and exceed sustainability standards.

Innovation and sustainability are two of the foundational building blocks of APV. Our philosophy hinges on the belief that responsible manufacturing and cutting-edge technology must go hand in hand. We are stewards of our clients and the planet, and every decision we make pushes the tire and rubber industry forward.

One of our most noteworthy contributions to sustainable manufacturing is Zevoc®, our patented water-based and VOC-free cement used to bond tire components. As the first company to develop this groundbreaking technology, APV has provided the sector with a safer, eco-friendly alternative to traditional solvent-based adhesives.



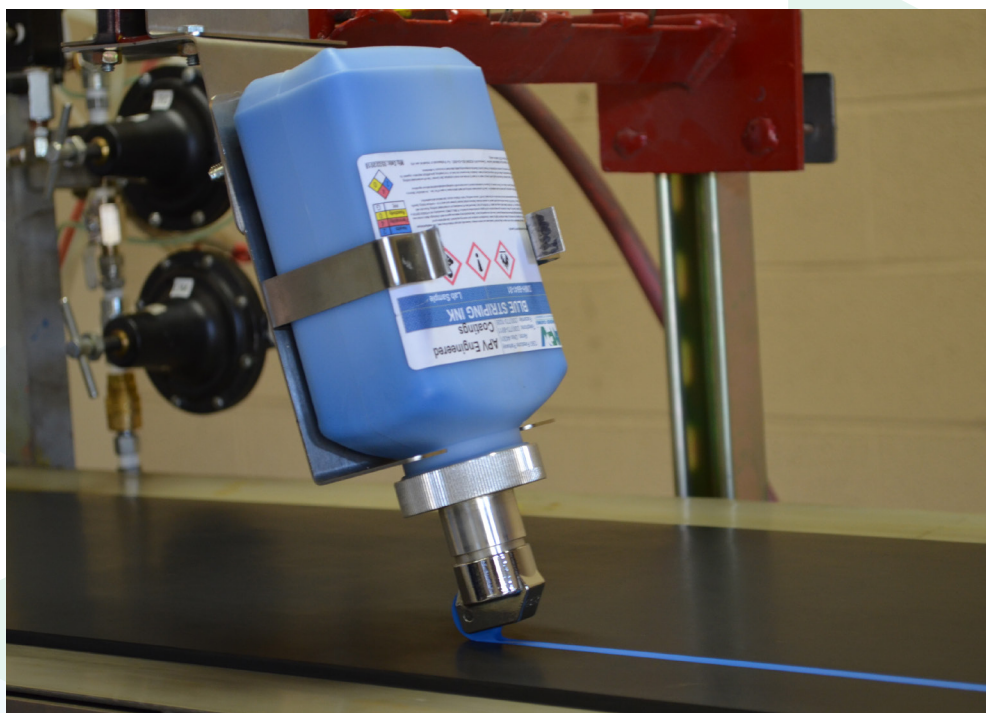
Our Top-of-the-Line Tire and Rubber Products

APV provides a comprehensive range of inks, markers, crayons, coatings, cements, paints, and decals and graphics for tire and rubber manufacturers. We are compliance experts, and our products make it easy for tire producers to trust us.

We expertly formulate our tire and rubber inks to deliver vibrant colors, unmatched adhesion, durability, and resistance to abrasion, weathering, and harsh chemicals. They bring long-lasting performance in demanding environments. Our lubricants are engineered to lessen friction and enhance efficiency across various applications through advanced chemistries that promote smooth operation and minimize wear and tear.

Lastly, APV's durable, high-performance tire and rubber paint improves appearance with our advanced formulations that provide exceptional adhesion and protection against UV exposure, moisture, and abrasion.

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Striping Inks

Our line of striping inks are used for coding and identification and are easily read by vision systems. Available in high-viscosity, mid-viscosity, and low-viscosity chemistries, the inks are used for applications including cured and uncured treads, tubes, hoses and other rubber products. These chemistries include both high adhesion curable inks for use between plies along with non-curable inks for external use.

Striping Inks can be applied using a gravity or pressure-fed Beugler Wheel System, or a pressurized syringe system.

Water-Based Striping Inks

Product Code: TH, TB, TD, TDB and TC Series

Our water-based ink line is for coding and identification on external rubber surfaces and the inks are easily read by vision systems. TH, TB and TD Inks are high-viscosity, TDB is mid-viscosity and the TC inks are low-viscosity.

Water-based striping inks provide vibrant colors and *dry quickly* with excellent adhesion to rubber. They are easy to use and do not foul molds. Water-based striping inks are HAPS free and clean up with water.

Solvent-Based Striping Inks

Product Code: DH, DMH, and DL Series

Our solvent-based ink line is also for coding and identification on external rubber surfaces. DH Inks are high-viscosity and co-curable. DMH are mid-viscosity inks, and the DL Series are low-viscosity, co-curable inks.

Solvent-based inks provide vibrant color options, with excellent adhesion to rubber. The HAPS-free inks are easy to use and do not foul molds.



Marking Inks

We offer a wide range of marking inks, including water-based inks for tire striping, defect and bead marking, solvent-based stamping ink, cure indicator ink, offset and jet printing inks available in both water- and solvent-based formulations. These marking inks can be used for harmonic and conicity markings during tire uniformity testing, coding and identifying uncured bead rings, cure indication for green rubber, inventory recording and labeling, and alpha-numeric identification.

Water-Based Defect Marking Ink

Product Code: TC, TA Series

Defect Marking Ink is specially formulated for use on both internal and external rubber surfaces of tire components. It is used to highlight areas that require inspection or repair due to manufacturing defects. Additionally, this ink is suitable for making harmonic and conicity markings during tire uniformity testing, ensuring precise identification and quality control throughout the production process

Water-Based Bead Marking Ink

Product Code: TA Series

This water-based ink line identifies and codes uncured bead rings during the bead assembly process. Our Bead Marking Inks are co-curable and offer excellent adhesion to internal surfaces. Additionally, manufacturers can use these inks to mark plies or other green rubber components. Bead Marking Inks are packed in 8oz bottles and can be applied using an applicator nozzle which is sold separately.

The industry-proven TA and TC Series of inks are non-flammable, contain no VOCs, provide excellent adhesion and are available in a variety of vibrant colors.



Solvent-Based Cure Indicator Ink

Product Code: D-2624

Cure Indicator Ink is a solvent-based, temperature-sensitive chemistry for use on green rubber parts to indicate when a component is fully cured. The red colored ink is applied directly to an uncured, extruded rubber hose or tube. After the uncured material is wound onto spools and steam-cured in an autoclave, the color of the ink changes from red to white. This indicates that the marked rubber has reached the desired cure time and temperature.

Cure Indicator Ink is applied through a gravity-fed Beugler striping wheel or offset printer. It can be custom-formulated for specific equipment, application and performance requirements.

Solvent-Based Stamping Ink

Product Code: D-1091

Stamping Ink is a white ink applied on external surfaces, such as sidewalls, for inventory tracking and identification. It is applied using a rubber stamper and is easily removed with a solvent-dampened cloth.

Jet Printing Inks

Product Code: Solvent-Based D-Series, Water-Based T-Series

Jet Printing and offset inks are available in water-based and solvent-based formulations. These inks are used for real-time coding, identification and inventory labeling on both internal and external rubber components. Apply the inks using DOD (drop-on-demand) printers. Specifically engineered for use with the REA JET® Large Character Ink Jet Printer System, Jet Printing Inks are available in a variety of colors, and integrate seamlessly into various stages of the tire production process, including compound mixing, calendering, tread extrusion, and final finishing.



Dot Markers

Dot Markers are an inspection tool used to denote highpoint and pass/fail marks during tire uniformity inspection. They are available in water and solvent-based formulas. Fast drying with excellent adhesion, Dot Markers may be applied by hand or automatically applied using a balancing and uniformity machine.

Water-Based Dot Markers

Product Code: T Series (Sm=5-8mm, Std=10-13mm, XL=18-23mm)

Water-based Dot Markers are available in a variety of colors, are HAPS-free and contain no VOCs. Water-based Dot Markers are available in small, standard and XL diameter dots with a standard-size marker typically producing approximately 5000 dots with a +/- 10% variance.

Solvent-Based Dot Markers

Product Code: D Series (Sm=5-8mm, Std=10-13mm, XL=18-23mm)

Solvent-based Dot Markers are easy to use and available in a variety of colors. They are available in small, standard and XL diameter dots with a standard-size marker typically producing approximately 5000 dots with a +/- 10% variance.

Dot Markers are an inspection tool used to denote highpoint and pass/fail marks during tire uniformity inspection.



Ply Marking Crayons

Ply Marking Crayons

Product Code: C Series

Trusted across the tire industry, these versatile Ply Marking Crayons support every stage of production, including marking raw material bales, conicity, fabric cord calendering, tread and sidewall extrusion, linear calendering, tire building, inspection and more.

Ply Marking Crayons can be used on cured and uncured rubber, are available in a variety of vibrant colors, provide excellent adhesion and are HAPS & VOC-free. Their reliable performance on a variety of surfaces makes them ideal for marking and identification tasks. Available in standard and XL sizes.



UV Marking/Disappearing Crayons

Product Code: C-0303, C-0300

APV's UV Marking Crayon (C-0303) is specifically designed to mark a rubber surface with a mark that is visible only under UV identification and inspection cameras.

UV marking crayon is compatible with uncured rubber surfaces and disappears after curing. This crayon fluoresces under 365 nm ultraviolet light, making it a valuable tool for identification and quality control procedures in rubber manufacturing.

APV's Disappearing Crayon (C-0300) marks uncured rubber for identification purposes. The markings vanish after curing.

Lubricants

APV manufactures a comprehensive range of specialty lubricants and release agents. Our Whitslik™ brand of lubricant coatings is specifically formulated for targeted applications, including inside tire lubrication, bladder coatings, mounting lubricants, and mold release agents. Each product is engineered to enhance performance and efficiency and help reduce scrap.

Whitslik™

Product Code: Q Series

WHITSLIK™ lubricants and release agents are specifically formulated to meet processing, application and performance standards in the curing and final finishing stages of production. These products primarily function to help reduce scrap by allowing a clean release from the mold. Additionally, our mounting lubricant prevents bead slippage, air leaks and uneven seating ensuring a secure and balanced fit.



Cements

ZEVOC® Water-Based Undertread, Retread, and Splice Cement

Product Code: N-9935

ZEVOC® is a revolutionary rubber cement engineered for superior adhesion in tread and splice applications. As the first patented water-based, zero VOC rubber cement, ZEVOC® delivers high-performance bonding without the environmental and health concerns associated with traditional solvent-based adhesives.

ZEVOC® is also more economical, achieving strong adhesion with significantly less material. This reduces waste, maximizes efficiency, and reinforces its proven track record of long-term success and cost savings.

Used by retread manufacturers, ZEVOC® bonds exceptionally well to most compounds, eliminating air spaces and voids ensuring a durable, long-lasting retread. The HAPS-free ZEVOC® is easily applied with a finely atomized air/fluid spray gun.

Water-Based Bead Dip Cement

Product Code: N-9994

Water-based bead dip cement is specifically formulated for uncured bead rings used in new tire production. During the manufacturing process, the cement is poured into a plastic or stainless-steel tank, where the beads are dipped into the cement bath for complete and uniform coverage. This consistent coating helps secure the bead into place prior to the curing process.

The water-based, zero-VOC formulation offers a safer and more environmentally friendly alternative to traditional solvent-based products. It significantly reduces odors and harmful emissions, improving air quality and creating a safer workspace for production personnel.

For optimal application, use slow agitation in the tank and monitor pH levels.



Tire Paints

Water-Based, Pre-Cure Outside Tire Paint

Product Code: P-9990, P-9991, P-9346, P-9572

Our Outside Tire paint, also known as anti-blemish paint, is sprayed on uncured or green rubber surfaces to enhance aesthetics and guarantee a clean release from the mold or curing press. These paints also improve rubber flow and air release, helping to prevent defects such as lights, cracks, non-fills, and blisters.



Water-Based, Post-Cure Repair Paint

Product Code: P-9562, P-9217, P-9382, P-9383

Our Repair Paints are applied to cured rubber during the final finish and inspection stages of tire and retread production. These paints conceal imperfections on the sidewall or tread, effectively covering blemishes, scratches, chalk, and crayon marks. For smooth and even coverage, use an atomized spray gun to apply the product.

Water-Based, Post-Cure Sidewall Protective Paints

Product Code: P-6922, P-6004

Protective Paints are applied during the final finish stage to preserve the appearance of cured white lettering. This paint safeguards against staining and helps maintain a clean, bright finish. It has been proven to reduce discoloration caused by tire stacking during storage, shipping, and handling.

Graphics and Decals

Decal

Product Code: CUSTOM

APV screen-printed Decals are a high-resolution, long-lasting alternative to traditional spray applications and are widely used in race and specialty tire production. Designed for application on cured rubber surfaces, these decals are applied using a post-cure heat transfer process that utilizes time, temperature, and pressure to ensure optimal adhesion and durability.

Originally developed for race tires, APV decals are also ideal for tires on lawn and garden equipment, ATVs, golf carts, and any application where clear, professional brand recognition is essential.

Collaborate with our Technical Service team on decal design, color, placement, and application equipment procurement for seamless integration into the production process.

Water-Based Stencil Ink

Product Code: T-1019

Our water-based Stencil Ink enhances the appearance of race tire sidewalls, hoses, golf grips, and other cured rubber products that require logos or branding. Specifically formulated for cured rubber compounds, Stencil Ink applies easily using HVLP or conventional spray equipment for a sharp and lasting finish.



Customized Ink Dispensing & Application Equipment Solutions

APV specializes in the custom design and manufacturing of application equipment tailored to your specific ink dispensing needs. Our comprehensive products include spray and dispensing equipment, pumps, pressure tanks, agitators, and more—each engineered to meet the unique requirements of your application.

In addition to our high-performance equipment, we provide expert installation services and rapid turnaround on replacement parts to help minimize downtime and keep your operations running smoothly.

Whether you're working with a capillary system or a pressurized Beugler wheel system, our striping solutions include both inks and equipment, fully customizable to your exact specifications.

- **Developed to Your Specifications:** Our team works closely with you to understand your needs, goals, and priorities. We then design a system tailored to your specifications, ensuring the delivery equipment and ink are optimized for performance and efficiency within your facility.
- **High Efficiency** - Our solvent- and water-based inks are specifically formulated to suit the delivery system and can be adjusted to align with your line speed and application method, ensuring consistent and efficient performance.
- **Reduce Material Waste** - Custom-designed systems from APV enable precise control of ink flow, minimizing excess use and material waste.
- **Customizable Stripe Width and Pattern** - The Beugler wheel system allows for easy adjustment of stripe widths and patterns, making it versatile for different types of rubber markings



Why Partner With APV?

Choosing APV means partnering with a leader. Our customers trust us for:

- **Customized Solutions:** No two manufacturing processes are identical; we create customized solutions tailored to specific production needs. Whether unique formulations or an application-specific adjustment, our technical experts can generate them. Demo equipment and technician available for on-site trials to evaluate performance in your environment.
- **High Standards:** We uphold the highest quality standards, meticulously engineering our products to bring optimal functionality across various applications. We also continuously refine our formulations according to advancements and customer needs.
- **Commitment to Sustainability:** APV strives to minimize environmental impact by developing water-based, low-VOC, and eco-friendly products. Through our methods, we support our clients in building safe workplaces and implementing environmentally conscious practices.
- **Certifications and Industry Memberships:** APV maintains certifications and affiliations with leading industry organizations. These credentials prove that our customers can be confident in using our tested and approved products.
- **Awards:** Our dedication has earned us recognition and prestigious awards. These accolades reflect our commitment to the clients we serve and the sectors they represent. Count on us to constantly improve our products and services.



In Summary

APV Engineered Coatings is dedicated to solving the tire and rubber industry's most pressing challenges. Our high standards, commitment to innovation, award-winning product offerings, industry certifications and memberships, customized formulations, and sustainability initiatives promise you not just products but a strategic partner that sets you up for success. If you're looking for a partner to support your production needs and help you achieve new levels of performance, contact APV Engineered Coatings today, and let us drive the future of the tire and rubber industry together.