Tire and Rubber Manufacturing

THE Water-Based SERIES

Developed By: APV ENGINEERED COATINGS

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APV History

APV Engineered Coatings was founded in 1878 by J. Martin Beck and Edward G. Kubler under the name of Akron Varnish Works. The company's product line consisted of wood varnishes and black enamels, and business steadily grew. In 1893, the safety bicycle was invented, and a bicycle boom occurred – everybody wanted one. The company reaped the benefits of this boom as more than half of the nation's bikes were finished with enamel from Akron Varnish Works.

In 1912, the factory was expanded to accommodate the fast-growing demands of the automobile industry. With black being the acceptable (and only) color choice for automobiles, Akron Varnish Works enjoyed outstanding prosperity. The company continued to grow and develop new products, which enabled it to survive The Great Depression. In 1935, reflecting this new line of paints and varnishes, its stockholders changed the firm's name to The Akron Paint & Varnish Company. The trade sales part of the business grew, and the company's expanding sales included the tire industry, airline industry, and products for government applications.

In 1982, David Venarge became president of Akron Paint & Varnish, Inc. The trade sales division was sold, and the company focused its technology and expertise on the engineered coatings market. In the 1990s, in recognition of this continued research, development, and engineering orientation, the company once again altered its name, to APV Engineered Coatings.

Today, the company's customer base is very diverse, providing products and services to all industry arenas and the armed forces. Its philosophy is simple: partnering with customers is mutually beneficial – APV's customers are its partners, and its partners are its customers. APV's long term commitment to engineering and manufacturing quality products is a legacy that will surely continue into the future.
Product Overview

THE Water-Based SERIES

APV offers an extensive and complete line of products engineered for the Rubber Manufacturing Industry. All products boast outstanding performance properties and are VOC/COV-free, low VOC/COV, and/or water-based to comply with environmental regulations.

APV also offers custom-formulated products to suit specific performance and production requirements.

THE Water-Based SERIES consists of the following:

- Inks
- Crayons/Ply Markers*
- Inspection Markers
- ZEVOC® Cements
- Whitslik™ Lubricants
- Pre-Cure Paints
- Post-Cure Repair Paints
- Decals*

*Not a water-based product, but contains zero VOCs/COVs.
Inks

Tread Striping Inks
TH and TC Series - Tread Striping Inks are typically used for coding and identification in tire and rubber manufacturing. The inks are co-curable and used externally. Typical applications include: uncured treads, tubes, hoses, etc. and are available in both high viscosity (TH-series) and low viscosity (TC-series) chemistries. TH-series inks are gravity fed through a Beugler Wheel System® and can be ordered in 8 oz. bead marker bottles, quarts, and gallon bottles. TC-series inks are applied with a pressurized syringe or capillary tube and can be ordered in gallon cans or five gallon pails.

Features:
Wide Range of Colors Available
Excellent Adhesion to Rubber
No Mold Fouling
High Solid Content
Non-Flammable
Non-Hazardous
Easy to Use
Limited Odor
Transitions Easily into Production
Contains No VOCs/COVs

Color Availability:

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Custom colors also available.
Inks

Tread Marking Inks
T-1406 and T-1172 – Tread Marking Inks are white inks typically used for identification purposes to mark alpha/numeric or ‘broadcast’ codes on tread or rubber surfaces, serving as a visible code for finished products. Tread Marking Inks are co-curable and used externally. Apply before curing using Offset or Direct printing.

Features:
Does Not Transfer to Molds

Stamping Ink
T-1771 - Stamping Ink is a white ink applied by a rubber stamper for coding sidewalls, and is used mainly for OEM or inventory recording purposes. The ink can be removed with a damp cloth.

Features:
Water-Removable
For External Use

Stencil Paint
T-1019 - Stencil Paint is used to enhance race tire sidewalls, hoses, golf grips and other cured rubber product surfaces requiring a logo or brand name. Specifically formulated for cured rubber compounds. Stencil Paint can be easily applied with HVLP or conventional spray equipment.

Features:
Excellent Adhesion
Crack Resistant
Color Retention
No Bleed-Through
High Hiding
Easy to Apply
Minimal Drying Time
Contains Low VOCs
Curable, High Adhesion Bead Marking Inks

TA-series - Bead Marking Inks are curable, high adhesion inks typically used in the tire manufacturing process on internal surfaces to code and identify uncured bead rings. These inks can also be used for marking other uncured rubber products, including plies, and are available in a wide range of colors. Bead Marking Inks are packaged in 8 oz. bottles.

**Features:**
- Excellent Adhesion
- Fast Drying on Hot Surfaces
- Easy Application
- Non-Hazardous
- Industry Proven
- Non-Flammable
- Wide Range of Colors Available
- Contains No VOCs/COVs

**Color Availability:**
- TA-1120 White
- TA-2120 Red
- TA-2140 Dark Brown
- TA-3120 Orange
- TA-4120 Yellow
- TA-5120 Green
- TA-6104 Blue

*Custom colors also available.*
Ply Marker Crayons

Ply Marker Crayons, also known as Fugitive Crayons, are a valuable tool for marking uncured rubber surfaces such as calendered material, plies, and bead rings. Ply Markers are available in standard, jumbo, and triangular sizes and can be applied manually or by machine.

**Features:**
- Wide Range of Colors Available
- Excellent Adhesion
- Safe for Internal and External Use
- Not a Contaminant
- Does Not Cause Delamination
- Easy to Use
- Contains No VOCs/COVs

**Color Availability:**
- C-0300 Disappearing - disappears after cure
- C-0303 Ultraviolet - visible under UV Light
- C-1120 White (standard)
- C-2055 Pink (standard)
- C-2185 New Red
- C-2190 Red (standard)
- C-2225 Very Red
- C-2328 Brown (standard)
- C-3150 Orange (standard)
- C-3165 New Orange
- C-4320 Yellow (standard)
- C-5284 Light Green
- C-5400 Medium Green
- C-5520 Green (standard)
- C-6155 Light Blue
- C-6420 Blue (standard)
- C-6558 Dark Blue
- C-7491 Lavender (standard)
- C-8490 Gray (standard)

*Custom colors also available.*

*Not a water-based product, but contains zero VOCs/COVs.
Dot Markers
T-series - Dot Markers are water-removable inks generally used to denote high point, conicity, and pass/fail inspection marks. The circular dots vary in diameter: Small Size= 5-8 mm., Standard Size= 10-13mm., and Extra Large Size= 18-23mm. The typical number of dots produced from a standard size marker (10-13mm.) is approximately 7,000 ± 10%.

Features:
- Allows Effective Control of Dot Size
- Wide Range of Colors Available
- Pocket-Sized
- Easy to Use
- Aids Synchronization

Color and Size Availability:
- T-0290 UV readable - standard
- T-1608 White - standard/ small
- T-2587 Red - standard/ small/ XL
- T-2734 Pink - standard/ small
- T-2733 Light Brown - standard/ small
- T-3594 Orange - standard/ small
- T-4233 Yellow - XL
- T-4595 Yellow - standard/ small
- T-5736 Light Green - standard/ small
- T-5596 Green - standard/ small
- T-5865 Green - XL
- T-6612 Blue - standard/ small/ XL
- T-6735 Light Blue - standard/ small
- T-7732 Lavender - standard/ small
- T-8737 Gray - standard/ small
- T-9916 Black - standard/ small

Tire Writers
T-Series - Tire Writers are water-removable, ball-tipped writers, designed to mark tires for inspection/rectification in Final Finish areas in tire production. Easily removed with a damp cloth.

Features:
- Water-Removable - without the use of solvent
- Available in Custom Colors
- Environmentally Compliant
- Easy to Use
- Contains No VOCs/COVs

Color Availability:
- T- 1042-TW White
- T- 4033 -TW Yellow
- T-5206-TW Green
- T- 6031-TW Blue

Custom colors also available.
ZEVOC® Cements

(Cements are typically custom-formulated for each application.)

Curable Undertread Cements
N-9526 and N-9921 - Undertread Cements are applied to the underside of extruded treads. These cements are an excellent substitute for liberally applied solvent-based cements. High performance is achieved with a minimal amount of product. Apply by Gravure roller or spray. When coated, leaving no air spaces/voids, the cured tread will show above average adhesion to most compounds.

**Features:**
- Exceptional Adhesion
- Curable
- Once Dried Will Not Re-Solvate in a Cooling Bath
- No Health, Environmental, or Fire Hazards
- Easy Cleanup Without the Use of Solvent
- Economic in Use
- Contains No VOCs/COVs

Tread Splice Cement
N-9921 - Splice (or skive) Cement is an excellent substitute for liberally-applied solvent-based splice cements. High performance is achieved with a minimal amount of product normally applied through a spray gun in a finely atomized spray. When coated, leaving no air spaces/voids, the cured splice will show above average adhesion to most compounds. Contains 20% solids.

**Features:**
- Excellent Adhesion
- Economic in Use
- No Health, Environmental, or Fire Hazards
- Easy Clean Up Without the Use of Solvent
- Will Not Stick to Tread Booking Trays
- Contains No VOCs/COVs

*Custom formulations also available.*
ZEVOC® Cements

(Cements are typically custom-formulated for each application.)

Retread Cements
N-9976 and N-9900 - Retread Cements meet or exceed the adhesion ability of solvent-based alternatives. It also complies with federal, state, and local regulations governing emissions from retread facilities. Retread Cements are typically packaged in 5 gallon pails. N-9900 contains higher tackifier content than N-9976.

Features:
- Excellent Adhesion
- Reduced Odor to Meet OSHA Requirements
- No Health Risks and No Fire Hazard
- Easy Cleanup
- High Solids Content Yields Lesser Product Usage
- Meets Environmental Regulations
- No Need for Special Storage or Sprinkler Systems
- Contains No VOCs/COVs

Curable Bead Dip Cements
N-9306 and N-9994 - Bead Dip Cements are applied as an even film of cement onto uncured bead rings. Rings are dipped into a ‘bath’ in a conventional manner, but without noxious fumes and emissions from the tank.

Cement is maintained by slowly agitating and checking pH balance daily. Preserve the cement in a plastic or stainless steel tank with stainless steel welds. If necessary, our L-400 solution can be used to maintain pH balance.

(N-9306 contains 48% solids and N-9994 contains 23% solids with additional tackifying resin.)

Features:
- No Health or Fire Hazards
- Environmentally Friendly
- Easy Clean Up
- Contains No VOCs/COVs

Custom formulations also available.
Lubricants and Release Agents

Lubricants and release agents are used in tire and rubber manufacturing to meet specific processing, application, and performance requirements in curing and final finish stages of production. These products primarily function as an aid to reduce scrap in production, while being ready-to-use, easy to apply, safe, and environmentally-friendly. Product types include: *Inside Tire Lubes, Bladder Coatings, Bead Mounting Lubes, Mold Releases, and Mandrel Releases.*

**APV Lubricants:**

- **Q-0960** - *Whitslik 15 Curable Inside Tire Lubricant* - Contains no mica, transfers onto bladders to maintain slip and release. Provides excellent air bleed, extends life of curing bladders, reduces uniformity issues, and does not flake after tire is cured.

- **Q-2000** - *Inside Tire Lubricant* - Contains no mica and provides excellent slip, release, and air bleed for tire curing. Also extends the life of the bladder, reduces uniformity issues, and does not flake after tire is cured.

- **Q-0410** - *Inside Tire Lubricant* - Contains 10% mica. The 10% mica enhances slip and release, promotes air bleed, and aids bladder positioning. This product extends the life of the bladder, reduces uniformity issues, and does not flake after tire is cured.

- **Q-8580** - *Inside Tire Lubricant* - Contains 10% mica with a gray tint. The gray tint blends with color of tire innerliner and aids halographic inspection. Provides excellent air bleed, extends the life of the bladder, reduces uniformity issues, and does not flake after tire is cured.

- **Q-0035** - *Whitslik 20NH Bladder Coating* - Conditions new bladders and refreshes bladders while in use in tire curing. Air dries, does not release hydrogen. Also extends the life of the bladder.

- **Q-0133** - *Mounting Lubricant* - Silicone-Free lube for uniformity machines in final finish. Contains a rust inhibitor to prevent corrosion. Also prevents against rim slip, has very low odor and reduces uniformity issues.


**APV Release Agents:**

- **Q-0020** - *Whitslik 4 Curable Mold Release Agent* - Forms a semi-permanent release coating that provides multiple releases, has excellent anti-stick properties, and improves rubber flow.

- **Q-0080** - *Non-curable Mold Release Agent* - Provides multiple releases, keeps vents open and helps prevent lights or non-fills. Also improves rubber flow and has excellent anti-stick properties.

- **Q-0024/Q-0043** - *Mandrel Releases* - Used on mandrels in hose manufacturing. Improves rubber flow and has excellent anti-stick properties. Formulas can be tailored to meet specific end-use requirements.

*Available for sale in North America only. Custom formulations also available.*
Pre-Cure Paints

Pre-Cure/Outside Tire Paints
Pre-cure or Outside Tire Paint, also known as anti-blemish paint, is spray-applied to uncured or green rubber surfaces. Pre-cure paint provides a positive release from the mold/curing press. It also promotes rubber flow and air release, which eliminates lights, cracks, non-fills and blisters. Outside Tire Paint improves overall appearance and creates a smooth finish on the rubber surface.

P-9990 - provides a smooth, uniform sidewall finish - ideal for decals
P-9992 – a lower solids version of the P-9990
P-9346 – a higher adhesion version of P-9990

**Features:**
- Easy to Apply
- Fast Drying
- Eliminates Lights, Cracks and Non-Fills
- Improves Rubber Flow
- Industry Proven
- Creates a Uniform Surface Finish
- Reduces Waste/Scrap and Repair
- Blemish-Free
- Two Solids Levels Available
- Contains No VOCs/COVs
Repair Paints
P-9562, P-9217, P-9547 P-9319, P-9382, and P-9383 - Repair Paints are commonly used in final finish/inspection areas for the repair of new tires as well as in the retread industry. Repair Paints cosmetically hide imperfections on a tire sidewall or tread surface, eliminating blemishes, scratches, chalk, crayon marks, etc. Can be applied by air spray to any cured rubber material.

Features:
Can Reduce Scrap
Economic in Use- only a small amount is necessary
Emulates a Cured Finish
Provides Excellent Hiding
Durable Finish

Sidewall Protective Paints
P-6922 and P-6004 – Protective Paints are sprayable, blue-colored paints typically used on cured white lettering and white sidewall panels to enhance the tire’s appearance. These products protect white rubber from staining caused by stacking tires during storage, shipping and handling.

Features:
Scuff Resistant
Stain Resistant
Excellent Appearance
Excellent Flexibility- will not flake
Excellent Abrasion Resistance
Water-Removable
Decals

Decals are applied by transferring the lettering/logo onto a rubber surface or tire sidewall using a post-cure heat transfer method (time, temperature, and pressure). The result is a decal that projects brand awareness with a high-end aesthetic.

APV assists with finalizing the design, color, and location of the decal, as well as the design and procurement of the application equipment. Originally designed for race tires, decals can also be used for various tire types and finished rubber products including: lawn and garden equipment tires, ATVs, and golf cart tires.

Features:
Sharp and Crisp Letters/Images
Highly Resistant to Abrasion and Scuffing
Better Appearance than Stencils
Can Be Applied to a Variety of Substrates
Easy to Use
Replaces Hand-Spray Booths and Stencils
Supports and Builds Brand Awareness

*Not a water-based product, but contains zero VOCs/COVs