Schroeder INDUSTRIES
Advanced Fluid Conditioning Solutions®

VARNISH ELIMINATION SOLUTIONS

Product Overview

L-5136

An ISO 9001:2015 Certified Company

SCHROEDER INDUSTRIES VARN

Harmful Varnish is On The Rise

As hydraulic or lubricating oil oxidizes and degrades, sticky substances called **varnish** are deposited throughout the system. Changing oil chemistry in modern hydraulic systems and the high pressure & temperatures achieved during equipment operation are leading to increased varnish deposits.

The term varnish encompasses several different oil degradation products, including lacquers, sludges, gels, and solids

Influence of Oil Type

Due to changing environmental and safety standards, the chemistry of oil commonly used in hydraulic and lube applications has evolved. Group II and III oils are increasingly displacing traditional Group I oils, which affects varnish buildup, electrostatic discharge, and other chemical dynamics in the system.

Group I Oils:

- More Toxic
- High Conductivity
- **Less** Electrostatic Discharge (ESD)
- **Higher** Varnish Solubility (Less Buildup)

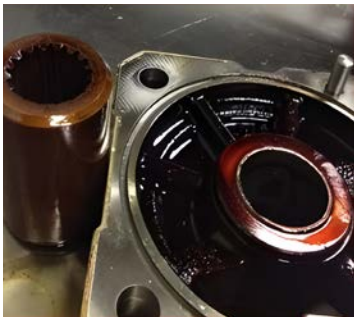
Group II-III Oils:

- More Eco-Friendly
- Low Conductivity
- **More** Electrostatic Discharge (ESD)
- **Lower** Varnish Solubility (More Buildup)

Varnish accumulation in a hydraulic system causes a variety of potentially serious equipment issues:

- Varnish deposits on hydraulic valves and other components can cause the components to stick, or even become fully jammed.
- The operating temperature of the machine may increase as the machine tries to compensate for its reduced efficiency, which can accelerate oil degradation and cause overheating.
- Machines can malfunction as components lose efficiency or fail entirely, leading to lost productivity and safety hazards.
- Hydraulic filters and filter elements may become prematurely blocked due to varnish buildup.
- Lost productivity and frequent repairs or part replacements due to varnish buildup can become very costly.

Varnish buildup on a filter element



Varnish on housing cover of hydraulic pump

Varnish layer on hydraulic valve component

Varnish layer on reservoir interior walls

ISH ELIMINATION SOLUTIONS

Bust Varnish Before It Can Tarnish Your Equipment!

Schroeder Industries offers a series of filtration solutions specifically targeting varnish and varnish precursors.

VEU Compact

A highly efficient, compact unit with world-class varnish elimination capabilities.

- For reservoirs < 300 gallons
- High-efficiency, dual-layer media prevents varnish formation
- Improves system reliability and performance
- Reduces deposits on hydraulic valves
- Increases fluid life

VEU – Varnish Elimination Unit

The service-friendly Varnish Elimination Unit (VEU) is used to prepare mineral oils and is particularly effective at removing varnish.

- Removes solid and gel-like oil aging products/varnish for reservoirs < 2,000 gallons
- Increased operating reliability of the system by decreasing deposits in hydraulic valves
- Increased oil service life
- Available for existing and for new systems

VMU – Varnish Mitigation Unit

Available as both a complete service unit and modular system for retrofits, the VMU traps varnish particulates on the surface of an active filter element via adsorption.

- Effective for phosphate ester-based oils
- Uses Ion-Exchange technology to remove acidic decomposition products
- Increases oil service life

Laboratory Testing for Varnish

Unlike particulate contamination, varnish can be challenging to identify in a fluid sample due to the submicronic particles, chemical composition, and other factors. Schroeder Industries can provide the specialized testing required to assess the varnish content in your fluid, providing a foundation for effective fluid monitoring and conditioning.

Ask about our testing services!

SCHROEDER SUCCESSES: VARNISH ELIMINATION IN ACTION

VEU Compact Provides Injection Molding Valve Protection

When an injection molding company reached out to Schroeder Industries for a solution to protect their machine valves from varnish, Schroeder's VEU Compact rapidly improved their oil condition.

Oil Quality Improved in 9 Days → **Decreased ISO and MPC (Varnish) Values** → **Valve Replacement Frequency Decreased**

Rollercoaster Uptime Increased by VEU

When a rollercoaster struggled to launch and brake due to varnish-caked components, Schroeder Industries' VEU got the ride back on track.

Critical MPC Values More Than Halved in 4 Weeks → **Rollercoaster Downtime Decreased** → **Improved Park Customer Satisfaction**

VMU-4 Filtration Improves Turbine Safety Valve Function

Schroeder's VMU-4 was deployed to improve the performance of a steam turbine lubrication system, reducing blockages and malfunctions in the safety valves.

Turbine Lubrication Oil Quality Improved → **Safety Valve Malfunctions Decreased** → **$60k Fluid Replacement Cost Savings**

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Discover Schroeder's complete selection of varnish-busting filtration products and technology!

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