

## OIL FILTRATION SYSTEMS, INC.

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## VARNISH REMOVAL SYSTEMS

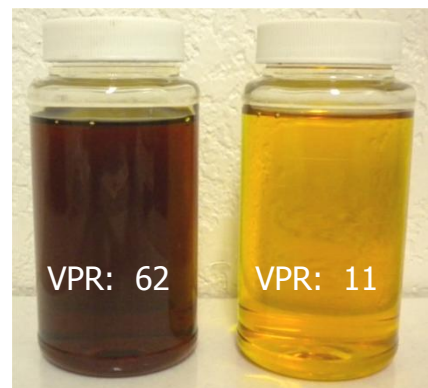
Our Varnish Removal Systems (VRS) were developed to address the need to properly remove varnish (also known as lacquer, sludge, or tar) commonly found in various lubrication and hydraulic systems. Our process utilizes a technology by Fluitec® called Electrophysical Separation Process™ (ESP), which is a patent-pending technology that absorbs dissolved and suspended oil degradation products – the cause of varnish. Varnish removal is accomplished with an oxidatively stable filter media, engineered to selectively remove only the varnish-causing contaminants without disturbing the fluid's additive system.

### Why be concerned about varnish?

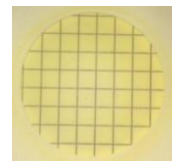
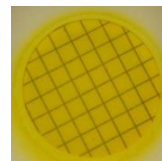
Lubricant varnish has become a significant maintenance problem in many critical hydraulic and lubrication oil applications, such as gas turbines, paper machines and compressors. Turbine oil varnish has been a particularly high profile issue over the last decade. A very small amount of varnish that settles in a susceptible zone, such as a GT's fuel control or IGV valve, can prevent the system from starting properly, resulting in a fail-to-start condition or in some cases a unit trip.

### What can varnish do to my system?

- Decrease the effectiveness of heat exchangers, making it more difficult to control fluid temperature.
- Increase the wear rates of valve components, load gears, and in some cases, bearing surfaces.
- Shorten the lubricant's life by reacting with the anti-oxidant system
- Cause premature filter change-outs and oil flow restrictions
- Reduce seal life and increase oil leakage



Varnish Potential Rating  
(Before & After)





**TOP LEFT:** 5 GPM System with one slip stream housing @ 1.0 GPM for Varnish Removal, followed by one full-flow housing @ 5 GPM for Particulate Removal. Suitable for reservoirs up to 2500 gallons.

**TOP RIGHT:** 10 GPM System with one slip stream housing @ 2 GPM to accept two Varnish Removal Elements and one full-flow housing @ 10 GPM flow for Particulate Removal. Suitable for reservoirs up to 5000 gallons.

**Many different models to choose from:**

We have single & multiple housing configurations available. We also have single housings to accept stacked ion exchange elements. In addition, we have options to accept Depth Media Cartridges, Acid Removal Cartridges such as Fuller's Earth, Activated Alumina, Selexorb™, and Ion Exchange Filter Elements.

**Custom Options:**

- NEMA 4 Standard or NEMA 7 Explosion Proof Electrical
- Optional Voltages: 110 / 220 Volt Single Phase
- 230 / 460 or 380 to 580 3-Phase Options
- Skid Mounted with Casters for Portability
- Custom Housings to Accept Depth Media Elements, Acid Neutralization Elements and other Ion Exchange Elements

For other custom options not listed, consult with our Technical Sales Department at (830) 816-3332.



**Ion Exchange Elements:**

Our standard elements measure approximately 7" Diameter X 32" Length and do not require any special lifting mechanism. One person can easily remove and install a new element.

