



Non-Sparking Elements

Hy-Pro G8 element and media technology optimized to prevent spark discharge and minimize potential energy in bearing lubrication and hydraulic control systems.

Prevent oil degradation caused by thermal events associated with element spark discharge.

Prevent anti-oxidant additive depletion and extend useful fluid life.

Hy-Pro NSD elements eliminate sparking without sacrificing fluid cleanliness.

Filter Element Spark Discharge

As fluid passes through the typical tortuous filter media fiber matrix turbulence increases resulting in thermal events as the fluid layers shear creating static accumulation on elements that can lead to high voltage spark discharge from media to support tube. Photos 1 and 2 show evidence of sparking on the filter element support tube (pitting and burning), and photo 3 shows filter media and support mesh from a lube filter element with spark discharge burn damage.

The change from Group I to Group II has enhanced the effect of spark discharge. Group I base stock oils could conduct low levels of static charge out of the system to ground. The changes in resistivity with Group II base stocks mean that static charges stay in the system and can yield higher levels of static charge on filter elements. If the element cannot minimize and dissipate the charge, static on the element will build until it eventually arcs to a nearby surface.

Hy-Pro NSD Elements, Cleaner Fluid Without Sparking

For some the answer to preventing element sparking and high potential energy is to use coarse strainer type filters (Stat-Free) in the main bearing lube filter duplex. Although this may prevent sparking it renders the main bearing lube filter assembly useless in preventing catastrophic bearing failure due to contamination. Independent lab analysis proves that even Hy-Pro high efficiency 3 micron absolute (b5[c] > 1000) NSD elements are resistant to spark discharge.

The degree to which element spark discharge contributes to overall varnish problems is variable. Varnish can result from any combination of oxidation, anti-oxidant additive depletion, increased fluid stress from high turbine output, micro-dieseling, new oil formulations and spark discharge. With Hy-Pro NSD elements, any reduction in thermal sparking events and tribo-electric effect will have a positive impact by decelerating anti-oxidant additive depletion and extending useful fluid life. Field test data has shown that Hy-Pro NSD elements may even reduce or stabilize varnish potential values by preventing further degradation from sparking and collecting some insoluble oxidation by-products.

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