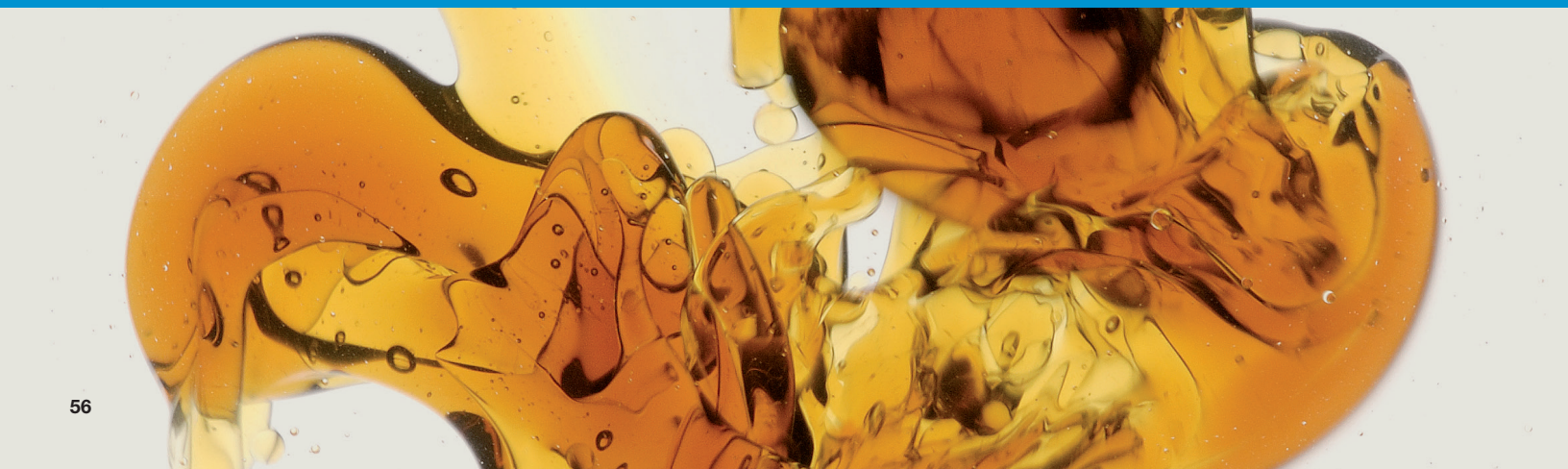
ELEMENTS

For more than 75 years, Kaydon Filtration has been an expert at providing state-of-the-art filtration technology for lube oil, hydraulic oil, diesel fuel, and other hydrocarbon fluids. The multi-layered design of our filter elements delivers exceptional particle retention and extended element life. Our filtration, coalescer, and water-absorbing elements are designed to help meet the expected fuel life while combining performance and cost effectiveness.

Take a look at Kaydon's elements to learn how they can work in your application:

- TURBO-TOC® turbine oil conditioning systems utilize a unique set of filter elements to treat particulate and water contamination.
- KAYMAX® filtration elements use an inert, fixed pore, impregnated fiber matrix media for maximum strength and increased dirt capacity.
- KAYFLO™ (KF) filter elements are used for general purpose and Model KB filter elements are used for basic purpose industrial oil and fuel applications.
- KAYDRI® (KQD) water removal filter elements are designed to remove water, by using absorption, from lube oil, hydraulic oil, and diesel fuel.
- *PulseShield™* Hydraulic Fluid Filters provide increased dirt-holding capacity by as much as 30% in comparison to conventional filter elements.
- The Model KM 7500 filter elements are used for critical industrial oil and fuel applications.
- The Model CI coalescer elements are used with HF-FC series portable oil filtration carts for water separation and filtration of diesel fuels.
- Kaydon Fuel Filter Element Separators are designed and constructed with special hydrophobic materials to provide a barrier to water coalesced with Kaydon Filtration CI coalescer elements.



PulseShield™ Hydraulic Fluid Filters with e-protect Technology

KAYDON FILTRATION
Filtration Group®

The FGC e-protect filter element made by Filtration Group, has been designed for use with low conductive hydraulic and lubricating oils (e.g. turbine lubricating oil in power plant technology). The filter element is distinguished by reliable conductivity, which has been registered for patent approval, as well as an element design that is optimized to suit electrostatic properties. The special element design prevents damage in the filter layers caused by electrostatic discharge.

Applications

Turbine Lube Oil

Power Plant

Features

- Reduces electrostatic discharge
- Direct compatibility with conventional filter elements
- Reliable filtration

Benefits

- Reliable filtration in electrostatically critical applications
- No additional maintenance requirements needed
- Increased service life

PulseShield™ Hydraulic Fluid Filters with e-protect Technology

Electrostatically Conductive

Charge separation in fluid systems is a well-known phenomenon in high-performance filters (filter fineness < 10 µm).
Charge separation occurs during perfusion of the filter's fine pores due to the viscous friction between the oil molecules and the surface of the fiber. Electron transfer takes place as a result of the close contact between the friction partners.

The intensity and direction of the electron transfer depends on the material properties of the friction partners (triboelectric series). Depending on the electric properties of the filter material and of the oil, there is a subsequent charge equalization or charge accumulation (after charge separation).

With the fluids that have dominated the market so far, the charge separation is equalized again depending on the so-called relaxation time so that there are no noticeable effects in the fluid components including the filter elements or in the fluids (TRBS 2153).

A significant increase of electrostatic charge within the fluid systems can have many causes:

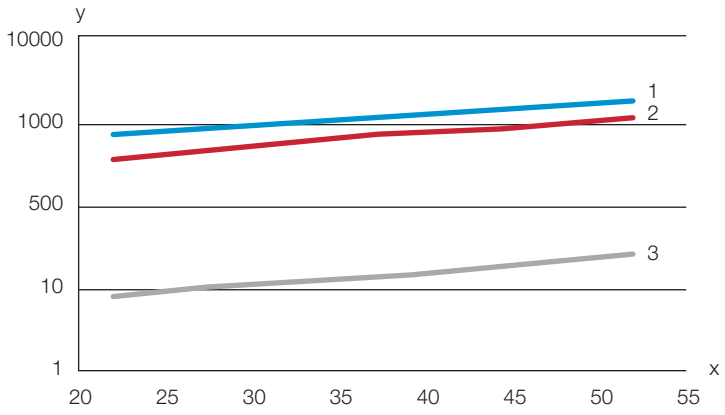
- Low retention time due to increasingly compact systems with low oil volumes
- Increasing filtration requirements, even in lubrication applications
- Increased application of environmentally friendly zinc and ash-free oils

Practical Consequences

If these requirements are satisfied, electrostatic charges can occur in the filter element and in the fluid, which are equalized through local discharge with a higher energy. Indicators of intense discharge processes range from audible crackling to detectable damage in the filter layers and components. Effects on oil ageing and the appearance of "varnish" plus the malfunction of electronic components cannot be excluded. However, these depend on additional limiting conditions in the respective system. Filters that prevent electrostatic discharge must be used when high viscosity lubricating oils are utilized with fine filters as well as in the field of power plant technology.

To prevent electrostatic charges, the conductivity of the fluid should be at least 500 pS/m.

With the new zinc and ash-free hydraulic oils however, there are fluids on the market that are far below the minimum conductivity mentioned above, which can lead to increased electrostatic charges.



x = Oil temperature °C
y = Conductivity pS/m

1 = High-alloy hydraulic oil, contains Zn
2 = Synthetic ester (HEES)
3 = Low-alloy hydraulic oil, Zn-free

Prevention of Damaging Discharge

We generally recommend the application of FGC e-protect filter elements or hydraulic and lubricating oils with conductivity < 500 pS/m (e.g. zinc and ash-free oils) or when electrostatic effects occur in the system (e.g. discharge sounds).

The FGC e-protect design is available as an additional feature with PS, SM-x and MB elements. The e-protect design is marked with the addition "EP" in the element description.

Designation examples:	
Pi 3105 PS 10	Standard design
Pi 3105 PS 10 EP	e-protect design