ERTELALSOP

THE FIRST NAME IN LIQUID FILTRATION

FILTER MEDIA

AQUA KV-PAK®

High Capacity Filter Cartridges

Designed and formulated for removal of damaging water, moisture and impurities from transformer oils, circuit breaker oils, voltage regulator, switch gear, steam turbine and arc-quenching oils in electric utility applications.

The AquaKv-Pak® solves the water, moisture and particulate removal problem in dielectric fluids with efficiency standards beyond any presently available.

The AquaKv-Pak® is the remarkable ErtelAlsop non-pleated Pak® Cartridge for the treatment and processing of insulating oils. The high capacity AquaKv-Pak® is the result of long consultation, development and testing in the Electric Utility field. ErtelAlsop believes the AquaKv-Pak® exceeds the highest requirements of the industry.

ErtelAlsop originated the Pak® concept over 70 years ago and it has been our aim since that time to improve the technology relating to the filtration and processing of dielectric fluids utilizing the proven Pak® concept.

AquaKv-Pak® Dielectric Oil Renewal Systems For a Wide Range of In-Field Processing

ErtelAlsop incorporates the AquaKv-Pak® in specially built systems to solve Utility Oil servicing problems. These range from dolly-mounted units for in-shop use to trailer systems containing all necessary components to meet individual in-field requirements.

The AquaKv-Pak® is also available to fit most standard housings. In such applications it is best to supply type and model of present equipment to prevent mismatch.

H_2O Absorption is Significantly Greater With The AquaKv-Pak®

The molecular action of the H_2O absorption process is extremely rapid in the AquaKv-Pak®. It is designed to remove both free and dissolved water, carbon particles and extraneous particulate matter that degrade windings, insulation, and dielectric oil. The ErtelAlsop closed cycle reconditioning system can produce dielectric fluid exceeding the standards of the original product.

Electric Utility Insulating Oil Processing Equipment

Performance and Value

Because ErtelAlsop has engineered the AquaKv-Pak® to process dielectric oils to such a high degree of purity, it is possible to dramatically improve the dielectric strength of brand new oils, and in most cases you can efficiently process used oils at a fraction of the cost of new oil.

One Grade Does It All

The introduction of the single formula ErtelAlsop AquaKv-Pak® for essentially all dielectric fluid processing eliminates the need to stock various grade cartridges and the resulting costly inventory.

Component Control

ErtelAlsop manufactures the filter media components used in the construction of the AquaKv-Pak® on our continuous production lines. This insures complete and precise control of the material formulation. All of our processing systems are also built in our modern plant.

Extended Pak® Life

Because of the large H_2O extraction efficiency you will find the AquaKv-Pak® will process a larger volume of dielectric oil before change, and thus prove to be a most cost effective investment.

Peak Operating Efficiency

At the point of its saturation capacity the system will shut down so that no water will be reintroduced down stream. No operator monitoring is

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necessary. Particulate removal does not affect the H_2O absorption capacity and particulate material will continue to be removed from the dielectric until the H_2O saturation point is reached.

No Effect On Oil Additives

The AquaKv-Pak® will not alter the characteristics of oil additives because the filter formulation is designed for water and moisture removal and particle retention.

Mechanical Shut-Off

The dielectric volume thru the AquaKv-Pak® is determined entirely by the amount of H_2O present in the fluid. The Pak® will continue to renew the dielectric oil until maximum H_2O absorption is reached. At this point the system will mechanically shutdown to prevent water from being reintroduced down stream.

Knowledgeable Engineering Help

Our engineers are available to help you with any filtration and oil renewal problem. These specialists are backed by over 75 years of service to the Utility field and by more than 92 years service to the chemical, food processing, electrical, metalworking and drug industries worldwide.

Transformer Oils

All transformers contain contamination in the form of industrial dandruff and cellulosic fibers. In transformer construction and repair, the pre-drying of transformer components in a vacuum system does not assure the complete removal of industrial dandruff accumulated during assembly. Furthermore, a certain amount of kraft paper insulating fibers will be liberated when a transformer is filled with oil and placed in service. The circulation of oils through the transformer when in service will pick up the contamination and distribute it throughout the unit.

In any transformer the inert gas blanket, cellulosic insulation, and petroleum dielectric are all in intimate contact, a state of equilibrium with the moisture content must exist in the three associated components. Thorough drying of any one of the three materials would influence the dryness levels of the other two. Recirculating and processing the transformer insulating oil, while the transformer is down for repair or while it is in operation, is one of the best methods for insuring dehydration of the entire internal system of the transformer.

The AquaKv-Pak® is also effective for removing water from synthetic, fire retardant oils.

Circuit Breaker Oils

Carbon formed in an oil-quenched circuit breaker during the quenching of the arc is too small to precipitate and is dispersed throughout the oil body. The volume and particle size of the carbon formed during this process is influenced principally by the physical condition of the oil in the arc area. Water is usually present in varying quantities in the lower voltage breakers, which are vented to atmosphere. Moisture is also developed in the high voltage breakers even though they are gas blanketed as a result of the burning of the quenched oil. The very fine carbon particles thus formed readily absorb and retain moisture to form particles large and heavy enough to precipitate. As the concentration of these water-wetted carbon particles increases, the electrical properties of the oil deteriorate rapidly and carbon formation is tremendously accelerated.

With ErtelAlsop AquaKv-Pak®, both carbon and moisture are rapidly removed from oil in any weather and without disturbing or dropping the oil tank. Such servicing minimizes the frequency of manual overhaul by reducing the frequency and magnitude of particle formation and its associated adverse effect on the equipment.

Voltage Regulator And Tap Changer Oils

Voltage regulators and tap changers, being similar in operation to oil filled circuit breakers and transformers, lend themselves readily to ErtelAlsop AquaKv-Pak® processing. A regulator ordinarily does not produce as great a volume of carbon and/or metal particles as a circuit breaker. The finely dispersed metal, carbon, fibers, and moisture described previously can become most troublesome in such electrical devices. Field information indicates that the AquaKv-Pak® gives very satisfactory results and that equipment cleanliness can be obtained quickly. Dielectric values of 40 KV (ASTM 0877) are also obtainable.

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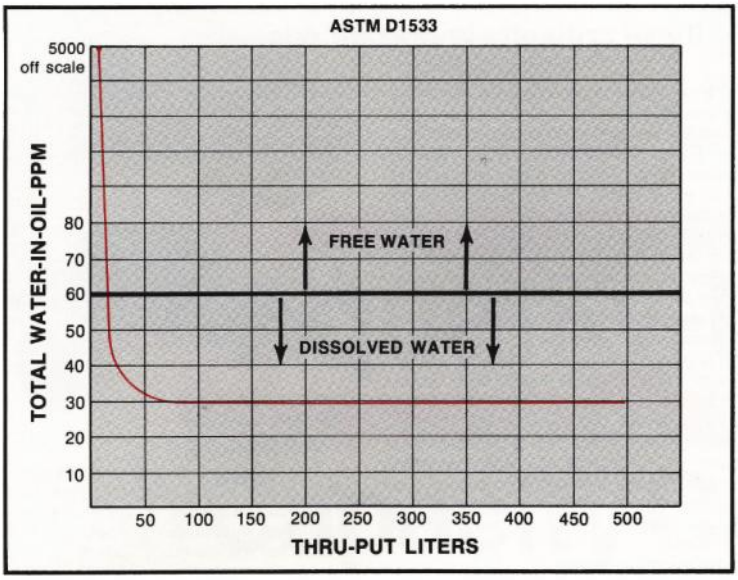

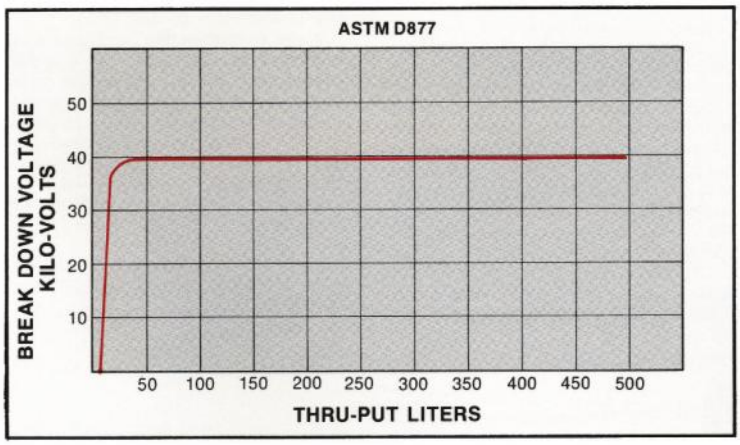

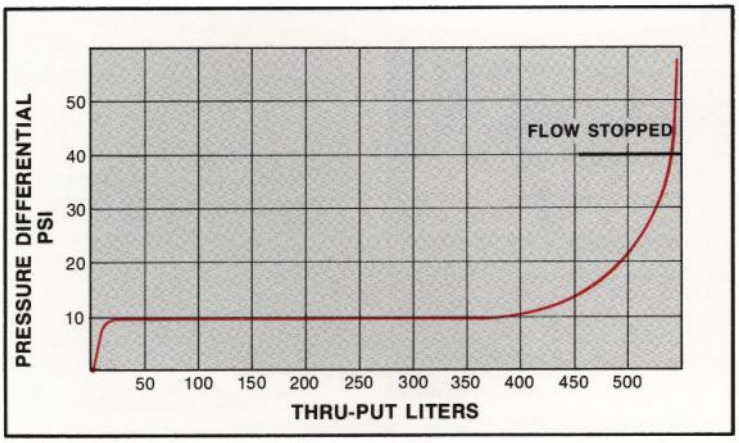

Test conducted at 6½ GPM
Test cartridge - AquaKv-Pak®
Total water removed - 84 ounces
Temperature: 74°F.
Test fluid: Transformer insulating oil

Steam Turbine Lubricating Oils

The lubricant servicing the steam turbine is one of the most important components of the system. A failure of the lubricating oil will result in a power plant that is down for maintenance. Basically, the lubricating oil is subjected to four detrimental influences: Heat, oxidation, solid contaminants, and water contamination.

Water contamination, probably the most common, usually comes from a leaking gasket seal on the turbine, leaking auxiliary pump seals, condensation, and leaks in the oil coolers. The solid contaminant usually comes from pulverized coal, fly ash, dirt, dust, pipe seals, industrial dandruff, and rust. The products of oxidation are, of course, present because of the reaction of the air and turbine lubricating oil.

AquaKv-Pak® processing of turbine lubricating oils will remove the solid contaminants, the water contaminants, and the insoluble products of oxidation and clean oils equal to new. ErtelAlsop can also supply a permanent processor to clean such oils on a continuous basis.

Filter Media

ErtelAlsop filter media is available for any application and/or operating condition, and is chosen based on your specific operating conditions, the performance required by the filtering media, and criteria given to us by you and/or by sample processing we do in our lab.

ErtelAlsop offers the widest varieties of filter media including 100% cellulose pads, cellulose and diatomaceous earth pads, cellulose and Celpure® diatomaceous earth pads, cellulose and perlite pads, and cellulose and activated carbon pads.

All filter pads are manufactured to very high standards for a wide range of applications in the pharmaceutical, chemical, cosmetic, electric utility and food and beverage markets. ErtelAlsop also offers a Validation Guide to assist in the validation of its filter pads in your process. The Validation Guide contains information regarding raw materials, extractables, and general information about the product. The combination of ErtelAlsop "P" grade filter pads and ErtelAlsop's BioClean™ plate and frame filter press design, can help to simplify your depth filtration validation now more than ever.

For additional product information visit **ErtelAlsop.com**

Technical Bulletin AKV-11

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