

# BA-CL RECLAMATION SYSTEMS

FE can be used to decolorize and neutralize many liquids, especially electrical insulating liquids. It excels in neutralizing traces of strong inorganic acid. Due to the relatively large pores in fullers earth, it is well adapted to the removal of high molecular weight sulfonates, resins, and asphaltenes.

**OXIDATION:** Transformer oil will discolor as oxidation of the oil takes place. Once transformer oil changes from the yellow color range into the orange and red color range, it has degraded to the point where the vital parts of the transformer are being seriously affected.

**OXIDATION PRODUCTS:** As the color of the oil changes, sludge is forming in solution with the insulating liquid due to oxidation. This causes a drop in interfacial tension and an increase in the acid (neutralization) number as well as a drift in power factor. When transformer oil deteriorates to the red color ranges, deposited sludge continues to oxidize and harden, blocking vents and insulating cooling fans, causing higher operating temperatures. Insulation shrinkage may take place, and premature failure is possible.

**BENEFITS OF FULLERS EARTH TREATMENT:** Maintaining oil quality with a Baron USA (HV) high vacuum fluid purification system helps increase oil life, improves equipment performance, reduces downtime and reduces oil disposal and replacement costs. In conjunction with the dehydration, degasification and filtration provided by a Baron HV purifier, Baron (CL) Fullers Earth systems are used to correct the additional challenges with oxidized dielectric liquids.

**SIZES AND CONFIGURATIONS:** The BA-CL family of fullers earth systems are available in a variety of sizes and types including stationary and mobile. They can be configured to pair with a Baron HV purifier or with pump and heaters to operate stand-alone. Single bulk filter systems are available with earth capacities of 250, 500, 850, 1000, 2000 pounds – sized to suit any flow rate and usage need.

**STANDARD COMPONENTS:** ASME designed Housing, Welded Pipe & Fittings, Vacuum Filling System and Hydraulic Dumping System.

**PERFORMANCE:** Typical performance in a single pass through the BA-CL Fullers Earth system is as follows (transformer oil):

Color No D1500	Acid No D974 mg/KOH/g	Interfacial Tension D971 Dynes/cm	Power Factor D924 % maximum	
			@ 25° C	@ 100° C
GOOD	0.03 to 0.05	45 to 30	0.05	0.3
PROP A	0.05 to 0.10	30 to 27	0.15	2.5
MARGINAL	0.10 to 0.15	27 to 24	0.3	5
BAD	0.15 to 0.40	24 to 18	0.5	7.5
VERY BAD	0.40 to 0.65	18 to 14	1	10
EXTREMELY BAD	0.65 to 1.50	14 to 9	1.5	12
>7	>1.5	<9	>2	>14

Note: Research shows that because there are a large number of polar contaminant types (not all are acidic), there is no consistent relationship between color, acid number, IFT and Power Factor. Some contaminants affect one or more properties and not the others.

<b>Neutralization Number:</b> Reduction from 0.3 to ≤ 0.03 mg KOH/gm (D974)
<b>Interfacial Tension:</b> ≤ 30 Dynes/Cm (D1861)
<b>Color:</b> 0.5 maximum (D1500)

