

“Sea Marconi Solutions” vs “Replacement of Oil”

Benchmarking between 2 options for Life Cycle Management of Oils & Transformers

Key Factors	Sea Marconi Closed loop treatment*	Replacement of Oil
On-Load Operation	Yes ✓	✗ No Off-Load for Draining and Refilling
Requirement of Unused Oil	No ✓	✗ Yes 125%/150% of original mass of oil**
Compatibility of Unused Oil vs original	Safety ✓	⚠ Warning base Oil, additives, others**
Recovery: Physical Properties KV, DGA, H ₂ O	Yes ✓	⚠ Warning*** only after reconditioning of Unused Oil in closed loop §11.2.3 (IEC 60422 Ed. 4 2013)
Recovery: Chemical Properties TAN, DF, IFT	Yes ✓	⚠ Warning*** only after reconditioning + reclamation treatments of Unused oil in closed loop §11.3 (IEC 60422 Ed. 4 2013)
Removal: DBDS & Corrosive Sulfur	Yes ✓	⚠ Warning*** only if initial DBDS is < 80 mg/Kg or reclamation with special adsorbent
Desludging & Dehydration Solid Insulation	Yes ✓	⚠ Warning*** only after reconditioning + reclamation of Unused oil in closed loop §11.3 (IEC 60422 Ed. 4 2013)
Decontamination: Dissolved Metals	Yes ✓	⚠ Warning*** only after reclamation with special adsorbent if initial value is 8/10 times higher than the target limit
Dehalogenation: PCBs/POPs in Oils	Yes ✓	⚠ Warning*** only if initial PCBs is 8/10 times higher than the target limit
Self-cleaning unit from: DBDS, PCBs/POPs	Yes ✓	✗ No cross contamination***
Cross contamination by DBDS, PCBs/POPs	Safety ✓	⚠ Warning depending upon the used oil impregnated mainly in the solid insulation
Partial Discharges: bubble air & moisture inlet	Safety ✓	⚠ Warning especially for wet insulation
Environmental Risks for Oil handling	Safety ✓	⚠ Warning high logistical impact
Oil & PCBs Waste disposal	No ✓	✗ Yes especially if PCBs is higher than limit

* Integrated treatments with DMU (Decontamination Mobile Unit) using closed loop process patented by Sea Marconi

** In compliance with IEC 60296 Ed. 4 2012

*** Depending upon the used oil impregnated mainly in the solid insulation

Sustainable Solutions by Sea Marconi - Added Value for Customers, Holders & Partners:



Laboratory & Diagnosis

45 years of Innovation for Life Cycle Management of Oils & Transformers; Solutions based on Global and Integrated Approach, Case histories, **State of the Art**, IEC Standards, CIGRE Guidelines, Stockholm Convention on POPs (Persistent Organic Pollutants); **Opportunity** for prevention and/or mitigation of losses and risks for the asset, workers, public health and environment; Focus on hot topics and priorities for strategic electrical equipment filled with insulating fluids; **Diagnosis** (> 150,000 cases) and Integrated Treatments (> 700 Power Transfos -



DMU & Treatments

2012) with DMU (25 Decontamination Mobile Units), guarantee **independent expertise, reliability, quality control (ISO 9001-2008, ACCREDIA ISO 17025), traceability, economic benefits, environmental protection**, social, stakeholders and **insurance** relationship.



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