PCB series – PCB Dechlorination System

REDRAGON

Polychlorinated biphenyls (PCBs) are man-made chemicals that were first synthesized in the 1880s. They have excellent properties (fire-resistant, highly stable, insulating, low volatility) that define them to be ideal for use in electrical transformers. Generically known as Askarel, they were found to be toxic and their by-products can be fatal. However, the very properties that make them so desirable as a medium in electrical transformer and capacitors make their disposal very difficult*. Production of PCBs was banned in North America in 1977 and most of the approximately 650,000 ton manufactured has been accounted for.

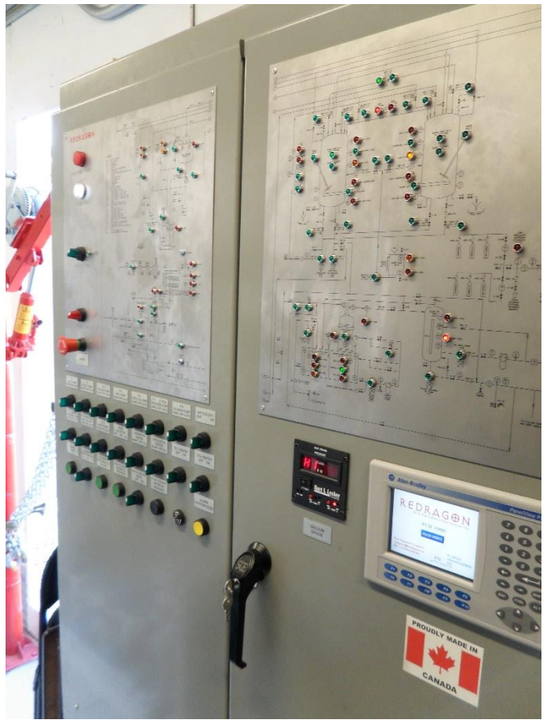
Many countries have a maximum allowable limit of 50 PPM for equipment to be classified as ‘non-PCB’. It is possible to recover low level PCB contaminated oil and restore it to use by essentially reversing the process that created the PCB originally. By means of a chemical reaction, using a Group 1 alkali metal such as potassium or sodium, it is possible to strip the chlorine atom (hence the term ‘dechlorination’).

Such a process reduces the level of PCBs in oil to below the detectable limit for current instrumentation and, if combined with a post-treatment operation, allows the oil to be restored to an ‘as new’ condition permitting them to be re-used as genuinely non-PCB oils.

The Redragon PCB Dechlorination System has been demonstrated both to the US and Australian Environmental Protection Agencies to remove PCB from concentrations in excess of

2000 PPM to less than 1 PPM in a single pass through the system. Oil recovery rates are typically in excess of 99% and when combined with a TORS transformer oil regeneration system, the oil produced is as good as a virgin, non-pcb transformer oil.

The system options include semi- or full-automation or manually operated systems only. Remote from site monitoring of the PLC or SCADA is available allowing asset managers to ensure optimum use of the Redragon.



Sample system specification

- Voltage – 220V, 460V, 380V, 575V, 50/60 Hz
- Maximum recommended PCB contamination level – 5000 PPM
- Batch size – 600 US gallons or 2000 litres
- Vertical disk-stack centrifuge for faster post-treatment processing
- Can be used on energized transformers[1]
- Skid-mount or semi-trailer mounted
- Consumables required:-
    - Nitrogen gas
    - Activated carbon
    - Water
    - Sodium dispersion
    - Particulate filter

[1] Requires additional components

“Polychlorinated biphenyls, commonly known as PCBs, are a group of halogenated aromatic hydrocarbons (arenes) characterized by the biphenyl structure (two phenyl rings (C6H5)2) and at least one chlorine atom substituted for hydrogen. The chlorine atoms can be attached at any of the ten available sites. In theory there are 209 congeners but only approximately 130 congeners have actually been used in chemical formulations (Holoubek, 2000). Typically 40-60% of the 10 possible substitution sites are occupied with chlorine atoms (four to six chlorine atoms) (Environment Canada, 1988). Some regulatory agencies only regulate those congeners that have at least two chlorine atoms attached. They are virtually insoluble in water and very resistant to thermal and biological degradation. “

Source: Basel Convention, September 2002

For more information or to request a quotation, please contact Redragon

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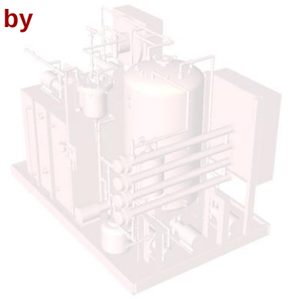

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