



Decontamination of PCB contaminated equipment using INT patented technology for simultaneous dechlorination, desulphurization and regeneration of mineral insulating oils

PCB in electrical equipment

PCB decontamination process aligned with **National plan for the implementation of Stockholms Convention to eliminate PCB** in Republic of Serbia.

INT patent (RS 53510): PCB removal down to 1 ppm, oil regeneration and removal of corrosive sulphur, in accordance to IEC standards.

Stockholm convention

PCB limit - 50 mg/kg uin electrical equipment in service
New electrical equipment and oil – PCB free

Sources of PCB contamination

Treatments and oil change (common tanks, machines for oil treatment)

Transformer repair (workshops, factories, tanks)

Implementation period: 2015-2022

More than 2600 tons of equipment decontaminated

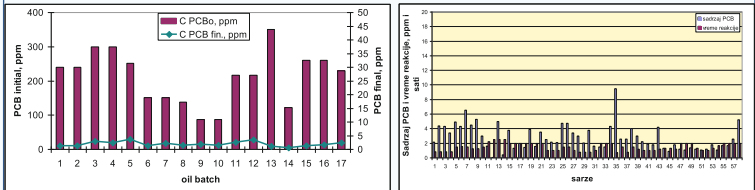
Location: Republic of Serbia, Power sector, Industry

Chemical reactions

Residues and oil free of PCB Otpad je bez PCBa

PCB conversion

PCB conversion and reaction time was optimized through continuous on-site measurements

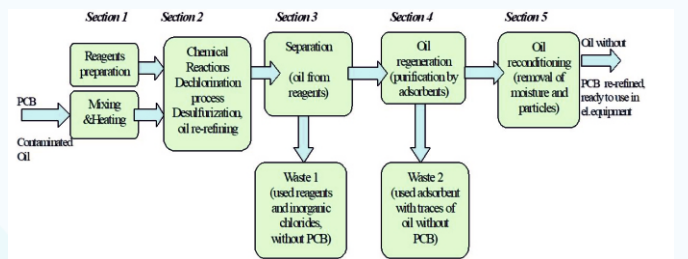


PCB on-site measurements

PCB test kit – Chlrine content in the oil LDX Analyzer

GC ECD - acc. to IEC 61619

Mobile unit for PCB decontamination and process flow diagram

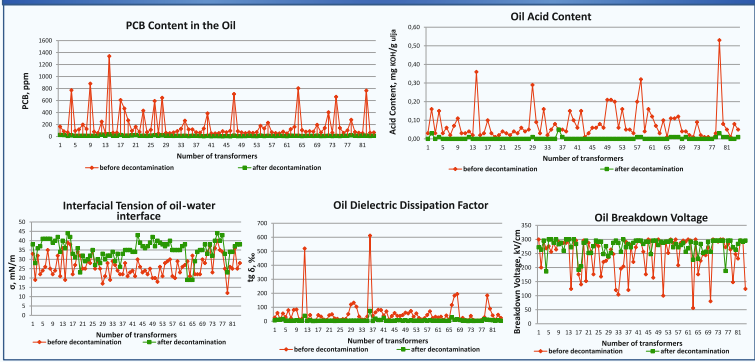


Sections
 Section 1: heating&reagent preparation
 Section 2: Chemical conversion
 Section 3: Separation
 Section 4: Regeneration with adsorbents
 Section 5: Final treatment (oil reconditioning) – drying, filtration, degassing



Removal of PCB, corrosive sulphur and oil ageing products
Improval of oil properties after treatment

PCB decontamination results



CONCLUSION

- INT process is efficient in the removal of PCB, corrosive sulphur and oil ageing products from mineral insulating oils and can be used for efficient decontamination of PCB contaminated equipment, aged oils oil regeneration and desulphurization, i.e. Removal of corrosive sulphur for the risk mitigation of power transformers
- After treatment power transformers have extended life
- INT process can be used for PCB contaminated waste oil and equipment treatment for final disposal