



YOUR PARTNER IN VACUUM
TECHNOLOGY



PCB-RS[®] Series PCB Removal System

Hering - VPT GmbH
www.hering-vpt.com

HERING – Vacuum Process Technology

Invaluable experience and customized solutions powered by German Engineering

HERING VPT has specialized in oil processing equipment for used lube oils and transformer oils. Already in 1909 the first HERING oil purification plant was built. This was the starting point for a number of inventions leading to a broad range of products for the oil processing and transformer industries. With this **experience collected in over 100 years of successful operation**, continuous efficiency improvements of our plants were made. Today, we offer specialized oil treatment plants to produce good as new oils from all kinds of used oils including lube & transformer oils.

HERING Systems are remarkable for their efficient and robust design, as well as their ease of operation and maintenance. We install **only high quality components from Germany**, respected Western European & Northern American brand manufacturers. Our systems are designed for **long lifetime, reliability** and effective operation. Each plant is **custom-made** and delivered with all required aggregates to leave nothing to be desired.

Together, we will develop the perfect solution for you and your company. We are looking forward to serving you!



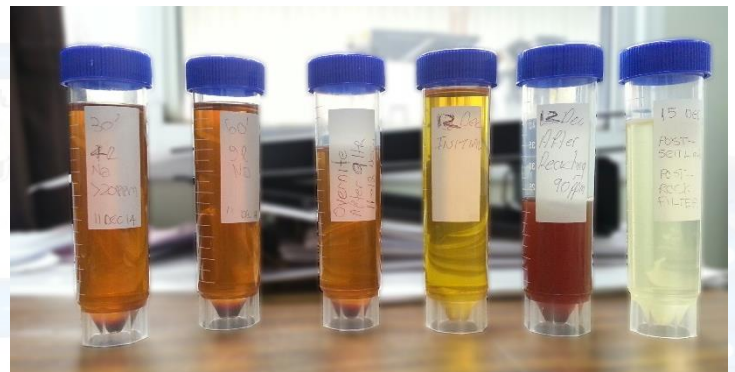
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HERING – Vacuum Process Technology

PCB-RS® completely removes PCB contamination and restores transformer oil

Our HERING PCB-RS® PCB Removal System helps you to restore and recommission any PCB contaminated transformer oil. The combination of the initial dehalogenation stage of the HERING PCB-RS® system with the successive regenerating stage leads to a PCB-free transformer oil of the highest quality.



The HERING PCB-RS® PCB Dechlorination System uses our HERING DEHALO® alkali dispersion to chemically strip the chlorine atoms from the other molecules to form PCB-free transformer oil and an easily separable PCB-free sludge which can be disposed as regular non-PCB industrial waste.

The resulting transformer oil is free from contaminants and ready to be used as the insulating fluid of your transformers. An added benefit of the PCB-RS® PCB Dechlorination System from HERING VPT is its low operating cost.

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PCB must be fully removed due to dangers to human health and the environment

“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. [...] Typically 40 – 60% of the 10 possible substitution sites are occupied with chlorine atoms (four to six chlorine atoms) (Environment Canada, 1988).”

PCB's, or Polychlorinated Biphenyls, are a man-made substance first synthesized over a century ago and found to have desirable properties that led to their widespread use. They are **fire-resistant, highly stable, have low volatility and are electrically insulating** – thus impossible to remove with conventional methods.

PCBs are persistent in the human body and likely **carcinogenic**. They are **dangerous to lower lifeforms** such as fish and that pathway increases the **danger to humans**.



The negative aspects of PCB were identified decades ago and commercial production was halted, starting in the 1970s. Despite the aim of the Basel Convention of 1989 to minimize the creation of hazardous waste, PCB contaminated transformer oil can still be found in large parts of the world. **Hundreds of millions of litres of transformer oil is still in use today with PCB levels of between 50 and 500 PPM, with countless hundreds of millions of litres in use between 2 and 49 PPM.**

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PCB-RS[®] results in as good as virgin, often even better than new transformer oil



Our PCB-RS PCB Dechlorination System from HERING VPT relies on a **low temperature chemical process** which uses our **HERING DEHALO alkali dispersion** for the chemical decomposition of PCB. The main chemical reaction strips the chlorine atoms from the PCB and forms a PCB-free, dioxin-free, furan-free sludge that is easily separated from the PCB-free oil by high-speed centrifuge.

This allows the oil to be post-processed with a HERING EOK-TORS or HERING TORS system stage for full regeneration. After **regenerating the processed oil**, the resulting transformer oil is as good as virgin, non-PCB transformer oil and often even **exceeds the initial specifications of the input transformer oil**. The system is able to remove PCB from concentrations in excess of **2000 PPM to less than 1 PPM in a single circulation** through the system. The fully processed oil is **free of PCB contamination down to the detection limits** of the laboratory equipment testing the oil.



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Economic and operational benefits make HERING PCB-RS® Series the perfect choice

Restoring your PCB contaminated oil with the PCB-RS® Series provides you with:

- **Low operating costs and fast amortization** – Costs as low as 0.15 EUR per liter lead to short payback period
- **Independently approved process** – PCB dechlorination process of the HERING PCB-RS has been demonstrated to the United States (USA) and Australian Environmental Protection Agencies
- **Resulting, fully processed oil quality comparable to new transformer oil**
- **Modular system** ensures flexible layouts & application scenarios while all modules can be shipped inside a typical container
- **Full client involvement** during the manufacture, from engineering approval through to start-up
- **All global voltages and frequencies available**
- **High oil recovery rates** of more than 99%
- **All waste** created by PCB-RS® is rated as standard PCB-free industrial waste
- **Usable on online transformer with TOLMS**



Trailer mounted mobile HERING PCB-RS®



Stationary HERING PCB-RS® plant layout for highest capacities and maximum flow rates

HERING – Vacuum Process Technology

Provides complementary training services for your benefit

HERING VPT offers its costumers in the context of the order fulfillment **free training, commissioning, start-up and custom process optimization** with each HERING RCPS® Series system to help you get the maximum out of your system.

To ensure a proper operation of your system HERING VPT recommends an **on-site service**. This will be coordinated directly by HERING VPT and partly carried out with qualified partners.

Plants older than 30 years fall naturally under the plant service.



We are available for you **24 hours** a day, **7 days a week** in order to help you with your plant problems.

HERING – Vacuum Process Technology

The standard in oil purification and insulation treatment solutions



- ◆ Vacuum Oil Purifying Plants
- ◆ Transformer Oil Regeneration Systems
- ◆ PCB Removal Systems
- ◆ Vacuum Drying Plants
- ◆ Waste/Lube Oil Re-refining Plants (Front-end & Back-end Solutions)
- ◆ Base Oil/Recycled Oil Polishing Systems
- ◆ Vacuum Pumping Stations
- ◆ Bushing Dryers
- ◆ Oil Storing and Filling Plants
- ◆ Hot Oil Spraying Systems
- ◆ Vacuum Pressure Impregnation Plants



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