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PCB inventories, as part of the PCB management:

UNITAR Chemicals and Waste Management Programme (CWMP)

Chemicals and Waste Management Training workshop - Serbia

Geneva, 12 September 2023

What is PCBs Inventory?

It is the methodical, precise, reliable, and documented record of the detection of sources containing PCBs, indicating its technical characteristics, location, operating conditions, and concentration of its contamination, identifying its components or type of Aroclores.

Objective

The aim of the inventory is to identify, quantify and maintain records of PCB oils, equipment and the materials prone to containing or being contaminated with PCBs. This information is indispensable when preparing a plan for PCB management, which should encompass the entire lifecycle of these products.

Scope of the PCB Inventory

We need evaluate:

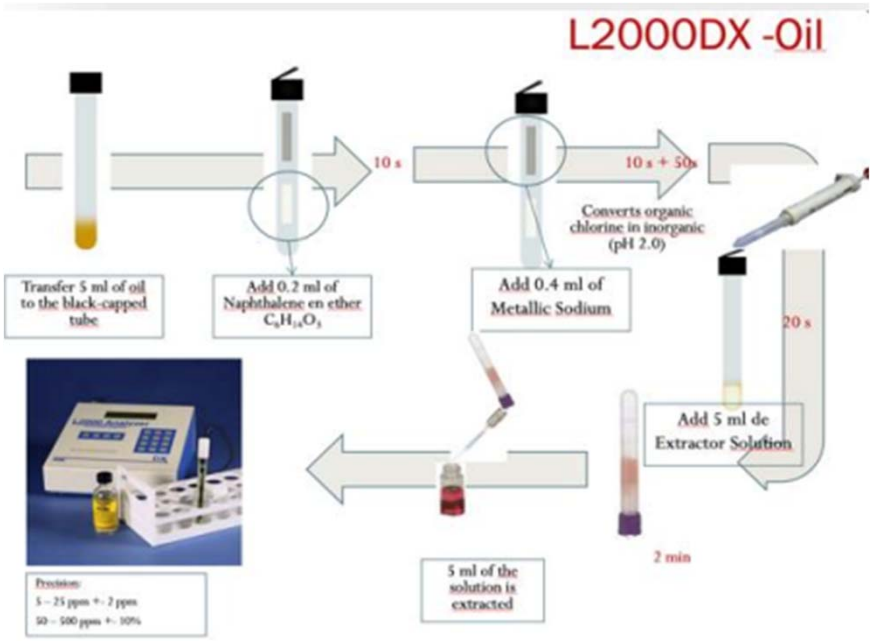
- First the main closed sources of PCB (Transformers, Switches and capacitors)
- Also, others equipment as Heat transfer fluids, Hydraulic fluid in lifting equipment, trucks and high-pressure pumps, Vacuum Pumps, Voltage Regulators, Cables etc.
- Then, other sources of PCB – open applications (Paints, Lubricating fluid in oils and grease, Laminating agent in paper production, Additives, Carrier for insecticides etc.).

Why we need PCB Inventory?

We need to know …

- How much of PCB we have in the country?
- Where there are the PCB stocks?
- What is the concentration of our PCB stocks?

Keeping in track the evolution of the PCB Management Plan (How much of PCB we are eliminating and register new equipment which could be contaminated by cross-contamination.



How may we make the inventory?

- PCB Screening (field screening methods)
- PCB Analysis (GC methods)

Many countries already demonstrated the effective integration of field screening methods with laboratory analysis into the inventory because it can result in substantial cost savings.

So, the idea is: that as soon, as reliable information becomes available, the sooner contamination can be stopped.

Steps to development the PCB Inventory

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1. Adopt an appropriate legal framework. Develop a guideline or manual for PCB management, including the identification of PCB equipment, and all issues related to the identification process (sampling, screening and analysis).
2. Carry out physical inventory of the equipment or waste which could contain PCBs. (kilovolt-ampere, brand name, fluid quantity, type of fluid, location of the device, serial number, PCB concentration, year of manufacture, and weight)
3. Sample the equipment
4. PCB Screening of the oil samples. There are non-specific methods as preliminary PCB field screening tests like CLOR-N-OIL and CLOR-N-SOIL test kits, as well as the L2000 DXT field analyzer.
5. Verify the results in the laboratory (GC analysis)
6. Label the equipment Once the PCB content has been determined, the PCB-containing or contaminated equipment must be labelled appropriately.
7. Develop a databas.
8. Update the database.

Carry out physical inventory of the equipment or waste

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Equipment Inventory (Database)

This database includes all information about equipment (transformers, capacitors, switches, etc.) which could be source of PCBs contamination.

Carry out physical inventory of the equipment or waste

The general Data Base must contain the information of all equipment of the company from where we will make the screening.

Sample the equipment

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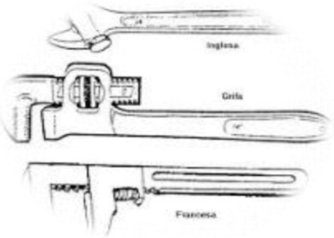
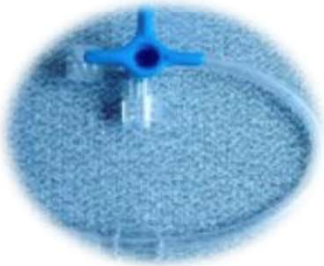
Sample the equipment





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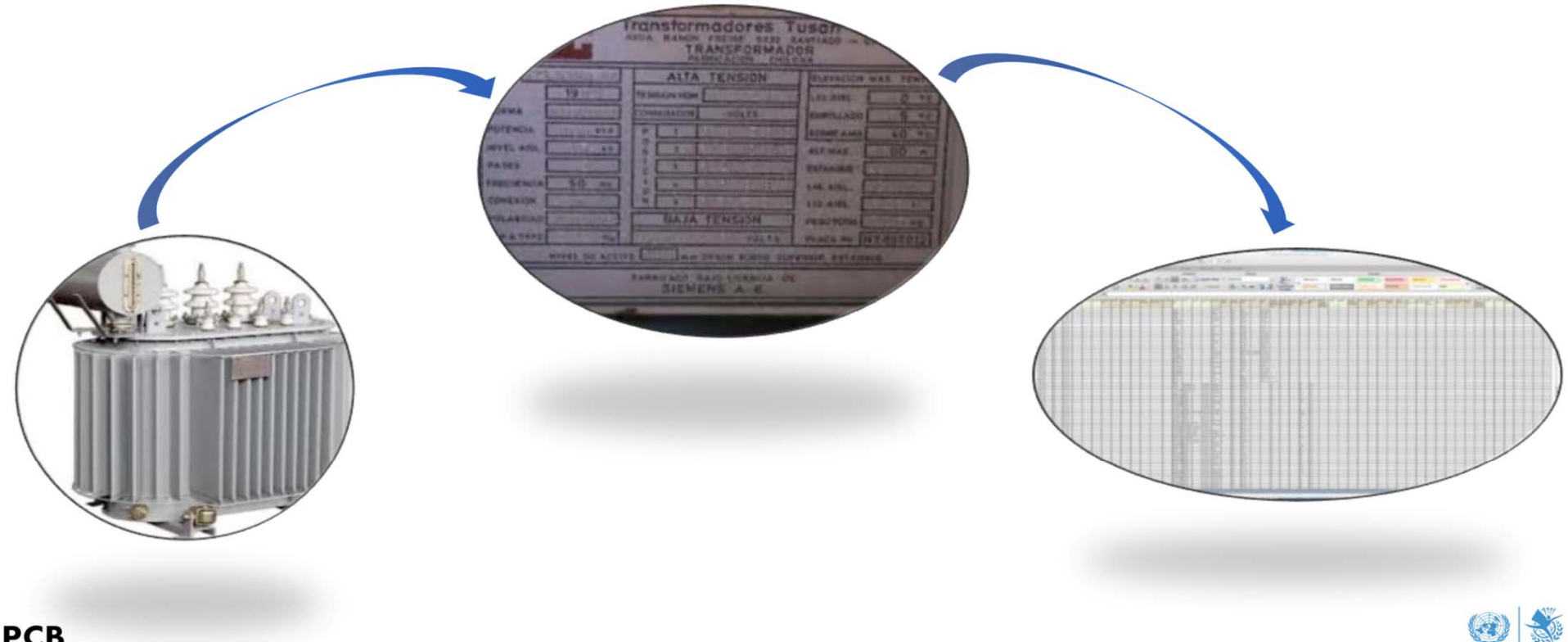
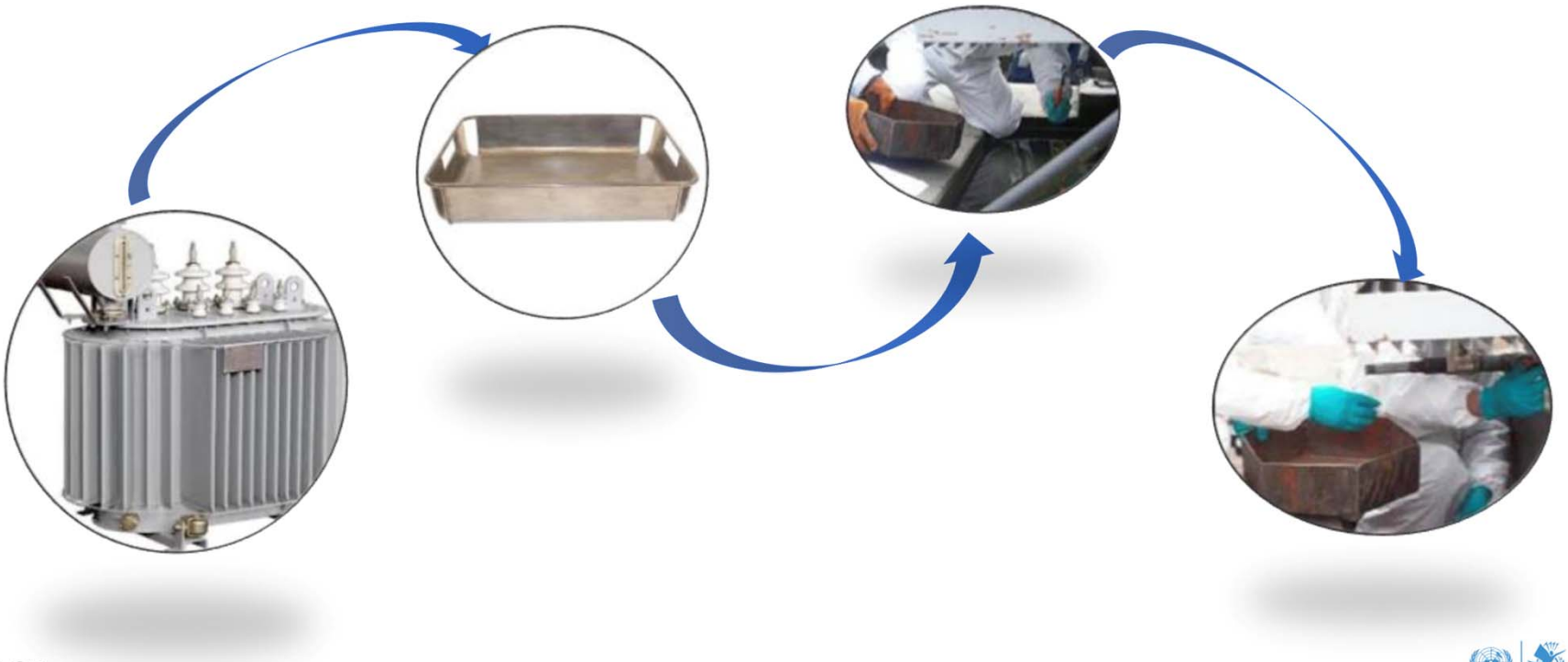
Sample the equipment



Sample the equipment



Sample the equipment

Lable the 50 mL glass bottle with the main information of the transformer and unique ID

Transport the samples in an adequate and safe box.

Sample the equipment

Sample the equipment

Sample the equipment

PCB Screening

- Low cost
- They are portable
- Instant Results
- Does not require special infrastructure
- Versatility Sample selection
- Low waste generation
- Only positives require CG
- Does not require a specialized technician

Clor-N-Oil tests
or L2000DXT analyzer

- Less accurate
- Less reliable
- False negatives
- False positives

PCB PLATFORM

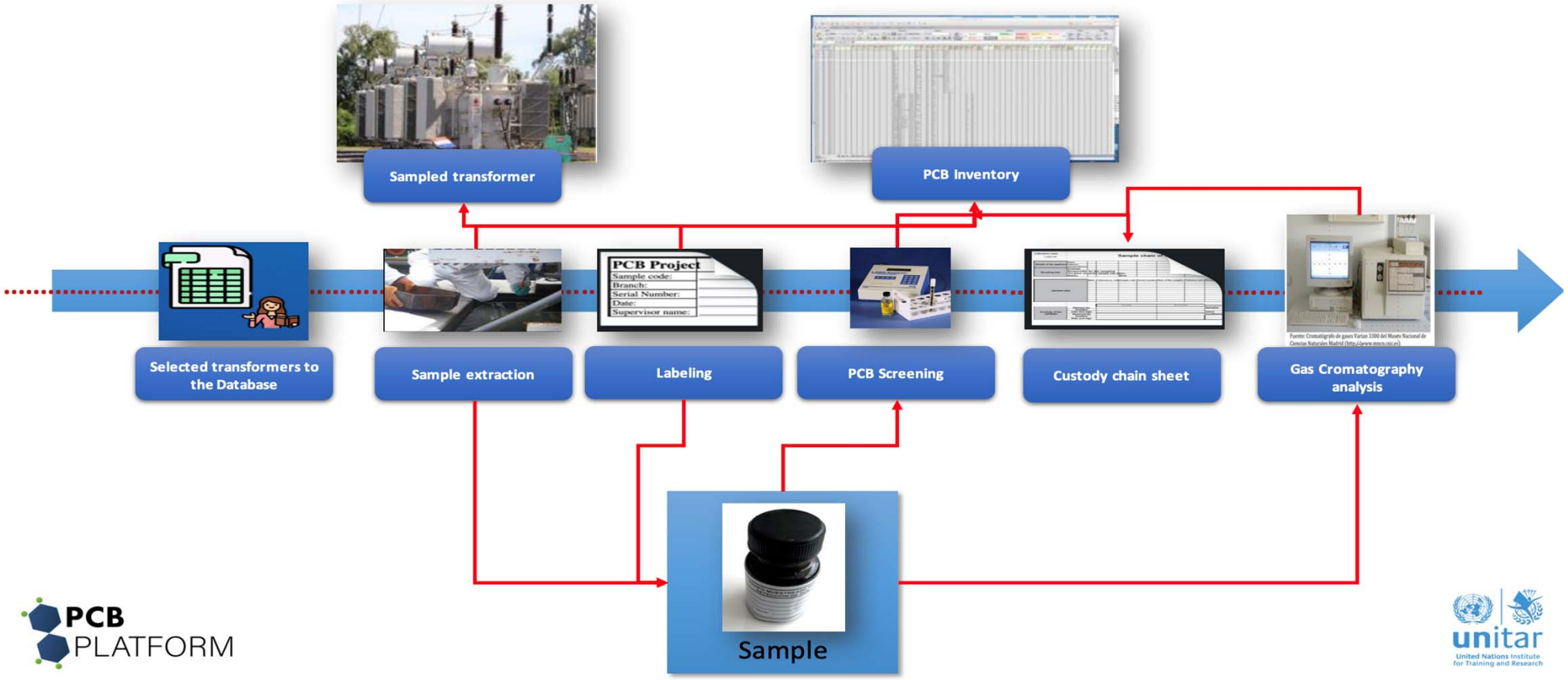
Verify the results in the laboratory

Gas Chromatography

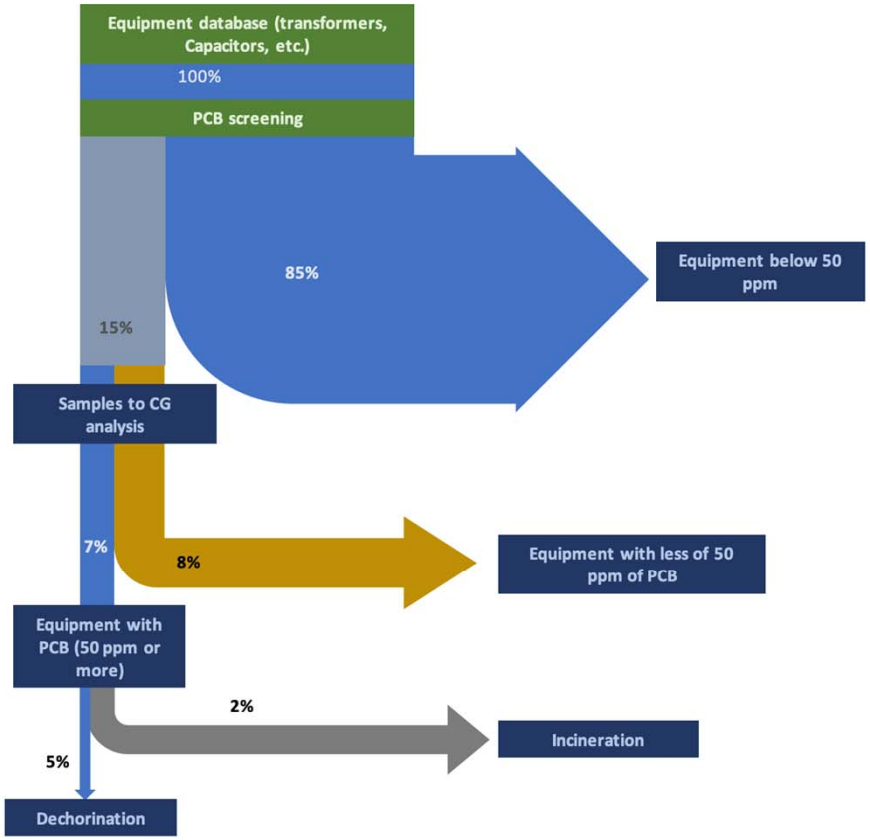
- More accurate
- More reliable

- More expensive
- They are not portable
- More analysis time
- Requires special infrastructure

PCB Inventory flow



PCB Inventory sankey flow



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Thanks for listening

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