

# Eskom Polychlorinated Biphenyl (PCB) Management Factsheet

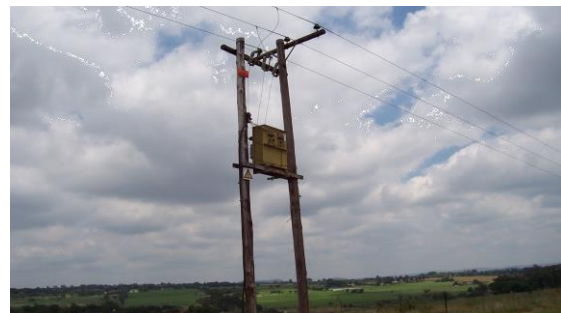
### What is PCB?

Polychlorinated biphenyl (PCB) is a class of synthetic organic chemicals that are fire resistant and have high resistance to thermal breakdown. PCB was used as an insulating material in electric equipment, such as transformers and capacitors, and also in heat transfer fluids and in lubricants. It has been banned since 1976.



### Does Eskom have to register as PCB holder?

In accordance with legislation, all holders of PCB are required to register with the Department of Environmental Affairs. Eskom registered as a PCB holder in accordance with the PCB regulations. The registration number is [14/11/11/PCB/021](#).



### What are health and environmental impacts of PCB?

Food is the main source of exposure to PCB for the general population. Exposure occurs primarily by ingesting high-fat foods such as dairy products, eggs, and animal fats and some fish. Occupational exposure to PCB occurs mainly via the inhalation and dermal routes. Infants can be exposed to PCB contained in human breast milk. International regulation mandates tolerances of 0.2–3.0 ppm PCB for all foods, with a tolerance level in fish of 2 ppm. PCB is limited to 10 ppm in paper food-packaging materials. In animals, exposure to one large dose of PCB can cause diarrhoea, breathing difficulties, dehydration, decreased response to pain, and coma. On the basis of sufficient evidence of carcinogenicity in humans and experimental animals, PCB has been classified as carcinogenic to humans (Group 1) since February 2013. The classification is based on consistent association between exposure to PCB and increased risk of melanoma in humans.

### What are applicable legal requirements?

The Republic of South Africa agreed to the Stockholm Convention regarding Persistent Organic Pollutants (POPs). The main objective of the convention is to protect human health and the environment from POPs by controlling POPs or phasing them out. South Africa became a party to the Convention on 4 September 2002, and the Department of Environmental Affairs (DEA) is the focal point and designated national authority. The DEA developed the National Environmental Management Act (107/1998): Regulations to phase out the use of Polychlorinated Biphenyls ([Regulation number 10232](#)) in July 2014. Eskom developed a Phase-out Standard for Polychlorinated Biphenyls ([Ref.: 240-84908008](#)). The management, handling, and disposal of PCB is done in accordance with [SANS 0290:2016](#).

### Does Eskom have a PCB inventory?

All Eskom business units have declared their PCB status in Eskom's PCB inventory, which records the location and PCB contamination level of all Eskom plant containing oil.



**IT IS A REQUIREMENT OF SOUTH AFRICAN LEGISLATION THAT ALL PCB MUST BE PHASED OUT TO BELOW 50 PPM BY 2023.**

### Is there a PCB phase-out plan in place?

Each Eskom division with PCB more than 50 ppm developed a comprehensive PCB management and phase-out plan. Eskom's phase-out plan was submitted to the Department of Environmental Affairs for approval. Equipment and material that contain PCB, which pose an exposure risk to food or feed while in use or stored, shall be visually inspected at least once a week. Eskom is required to submit a biennial audit report prepared by an independent auditor to the Director-General. Progress on divisional phase-out plans is reported to Waste CoE with a six-monthly frequency.

### Eskom's commitment to the phasing out of PCB

Since the late '90's Eskom started to regulate the use of PCB, New oil had to be PCB-free, regenerated oil had to be less than 20 ppm and started with the phase out of electrical equipment such as transformers with PCB levels above 50 ppm. The remainder of the equipment containing PCB greater than 50 ppm are registered with the Department of Environmental Affairs as part of Eskom's phase out plan to be completed by the year 2022, which is a year ahead of the legislative deadline.



### PCB level classification of material

It is important to note that although oil and equipment at Level 3 (< 50 ppm) and below are considered non-PCB materials in accordance with the Stockholm Convention on Persistent Organic Pollutants, the strategy in Eskom is to ultimately work towards achieving Level 0.

PCB content levels mg/kg	PCB level	PCB levels, common names
< 1	0	PCB-free material
1 – 10	1	Non-PCB material
11 – 20	2	Non-PCB material
21 – 50	3	Non-PCB material
51 – 500	4	PCB-contaminated material
> 500	5	PCB material

### PCB documentation control

In compliance with regulations, all documentation pertaining to PCB and especially PCB disposal manifests must be kept for audit purposes. To curb further ingress of PCB or PCB contamination, all insulating oil equipment need to have a label as per regulation indicating the level of PCB. All incoming and out-going insulating oil must be tested by Eskom to ensure compliance, with particular attention to be given to maintenance activities where insulating oil is involved.

### References

- 1) USA agency for toxic substances and disease registry. Case studies in environmental medicine. Polychlorinated Biphenyl (PCB) Toxicity. Course: WB 2460. 14 May 2014.2).
- 2) Government Gazette Regulation No. 10232 Volume 589, 10 July 2014 No 37818

### For more information:

1. Warren Funston (Waste Centre of Excellence Middle Manager)  
Work: +27 11 800 4309  
E-mail: [FunstoWG@eskom.co.za](mailto:FunstoWG@eskom.co.za)
2. Humbulani Ndou (Waste Centre of Excellence Environmental Officer)  
Work: +27 11 516 7100  
E-mail: [NdouHV@eskom.co.za](mailto:NdouHV@eskom.co.za)