

The following guides from the Insulating Fluids Subcommittee were reviewed to find definitions to add to the standard.

C57.104

C57.106

C57.139

C57.146

C57.147

C57.155

C57.637

~~PC57.166 (did not have)~~

~~C57.111 (did not have)~~

~~C57.121 (did not have)~~

~~C57.130 (did not have)~~

New definitions to add to C57.12.80

electrical equipment: For purposes of this guide, electrical equipment refers to transformers, load tap changers (LTCs), voltage regulators, and reactors.

percent relative saturation: The ratio, expressed as a percentage between the actual moisture in oil concentration and the saturation value (also called the solubility limit) of moisture in oil at a given temperature.

solubility limit: A quantity expressing the maximum concentration of water than can exist in insulating liquid at specified temperature.

gas concentrations: The concentration of a gas dissolved in insulating liquid is expressed in microliters per liter ($\mu\text{L/L}$), also referred to as parts per million by volume (ppm v/v), both expressed at standard temperature and pressure (STP) conditions (0 C and 101.325 kPa).

dissolved-gas analysis (DGA): The identification, measurement and interpretation of gases dissolved in the insulation liquid of electrical equipment.

failure: A transformer is considered to have failed when, due to defect, damage, or deterioration, it becomes incapable of remaining in its intended service and either ceases to function (for example by catastrophic failure) or must be taken out of service for repair or replacement.

fault: A fault is an unplanned occurrence or defect in a transformer that allows an abnormal internal diversion of energy, which could cause damage and lead to failure or increased risk of failure.

- a) **partial discharge fault:** An electric discharge that only partially bridges the insulation between conductors, and that could occur adjacent to a conductor.
- b) **electrical discharge fault:** Arcing or sparking between conductive components at different potential.

polychlorinated bi-phenyl (PCB): A group of chemical compounds characterized by two phenyl (6 carbon) rings with two or more chlorine atoms. When mixed with solvents, PCB fluids were generically called askarel fluids. PCB fluids were widely used as nonflammable dielectric liquids from the 1930s through the 1970s. Most countries had forbidden their manufacture and use by the early 1980s because of bioaccumulation and health concerns.

coking: The formation of a hard, carbonized deposit on the contacts of a tap changer. This process occurs due to the breakdown of oil from heat and arcing across the tap changer contacts that are immersed in oil.

Total combustible gas (TCG): The sum (in percent) of all combustible gases including carbon monoxide and excluding oxygen reported as a percent of the transformer gas space.

Total dissolved combustible gas (TDGC): The sum of all combustible gases that are dissolved in the insulating liquid.

Modify existing definitions in C57.12.80

askarel: A generic term for a group of synthetic, fire-resistant, chlorinated, aromatic hydrocarbons used as electrical insulating liquids. They have a property under arcing conditions such that any gases produced will consist predominantly of noncombustible hydrogen chloride with lesser amounts of combustible gases. There have been many trade names used for askarel fluids, from different manufacturers. Most countries have prohibited their manufacture and restricted their use by the early 1980s because of bioaccumulation and health concerns.

oxidation inhibitor: Any substance added to an insulating liquid to improve its resistance to oxidation. Inhibitors such as 2,6-ditertiary-butyl para-cresol (DBPC) or 2,6-ditertiary-butyl phenol (DPC), are sometimes added to mineral insulating oil to improve their stability. This may include any substance added to an insulating liquid to improve its resistance to deleterious attack in an oxidizing environment.

mineral oil: A specially refined oil of petroleum origin for use as an insulating liquid and coolant in transformers and other electrical equipment. Generally conforms to ASTM D3487 when new.