

South Carolina Department of Labor, Licensing and Regulation
Division of Labor
Office of Occupational Safety and Health
Columbia, South Carolina 29211

OSH Program Directive Number 81-1910.Subpart S-1

Subject: Article VI, Subpart S – Fluids Used as Coolants in Electrical Transformers.

Standard: Article VI, Rules and Regulations, Commissioner of Labor, State of South Carolina.

Cross Reference to Federal Standards: 29 CFR 1910.Subpart S.

Background:

- a. Program Directive 78-1910.309-7 (REVISED) dated March 3, 1978, is hereby rescinded and this program directive substituted therefore.
- b. At the time the 1971 National Electrical Code (NEC) was written, only askarels and mineral oil were used as coolants in transformers. Therefore, these are the only substances addresses in this edition of the NEC (See Article 450). However, the NEC does not prohibit the use of other materials as coolants if they are approved [See NEC Article 100 and OSH standard Section 1910.399 (a) (7)].
- c. Since the publication of the 1971 NEC, new liquid coolants which have a high fire point and which do not spread a flame from the source of ignition have been introduced as liquid coolants for transformers. When these liquids have been approved and properly installed, they have been found suitable for indoor or outdoor use.

Interpretation: The following guidelines shall be followed when transformers with the new liquid coolants are encountered:

- a. Transformers insulated with a nonpropagating liquid approved for the purpose (See Article VI, Section 1910.399 (a) (7) for definition of “approved”), and having a fire point of not less than 300° C may be installed indoors or outdoors. However, when such transformers are installed indoors and are rated over 35,000 volts, they shall be installed in a vault meeting the requirements of NEC Article 450-C. No citation shall be issued when these conditions are met.

NOTE: A nonpropagating liquid is one which may burn when subjected to a source of ignition, but the flame will not spread from the source of ignition.

- b. There are transformer fluids that have health hazards and require special precautions in their use. These health hazards may include irritation to the skin, eye, and mucous membranes, as well as being toxic by inhalation or ingestion during the filing, draining, or servicing of transformers. Such inquiries shall be handled by State OSH industrial hygienists.

Effective Date: This instruction is effective upon receipt and will remain in effect until cancelled or superseded by amendment to the Rules and Regulations.

William M. Lybrand, Director
June 12, 1981