



POSITIVE REGULATIONS AND STANDARDS DEVELOPMENTS FOR NATURAL ESTER DIELECTRIC FLUIDS

Patrick McShane, Global Technology Manager, Fluids Products – Cooper Power Systems

Natural ester dielectric coolants, led by Envirotemp FR3 fluid, are migrating to the mainstream. This trend is further bolstered by the release of a new technical standard and an amendment to the U.S. Federal biobased procurement guideline.

New Industry Standard

A new Institute of Electrical and Electronic Engineers, Inc., (IEEE®) standard Guide for Acceptance and Maintenance of Natural Ester Fluids in Transformers—was approved by the Standards Association Board on May 9, 2008. This standard guide was published July 2008. Having an IEEE® Standard Guide is often a requirement by standards engineers for acceptance and approval of a new technology. The IEEE® guide's 28 pages provide practical information and recommendations for acceptance of new fluid, new fluid as received in new equipment, and limit values for continued service. It provides information on the differences and similarities of key properties between natural esters and mineral oil. The standard guide is the result of five years of collaboration and consensus among technical leaders representing end users, transformer manufacturers, suppliers of natural esters, and testing laboratories.

Federal BioPreferred ProgramSM

The U.S. Department of Agriculture (USDA) announced on May 14, 2008, that it is adding nine product categories (items) for designating biobased products for the federal program formerly known as

the Federal Biobased Products Preferred Procurement Program (FB4P). Included in the nine new product categories are fluid-filled transformers. A subcategory includes vegetable oil-based fluid-filled transformers, such as the Cooper Power Systems Envirotran transformers. Starting in May 2009, all federal agencies and their contractors are required to purchase biobased products listed in the program using Total Life-Cycle Cost as the criteria, provided the product meets their functional specifications.

The federal program requires that the biobased natural esters used in the transformers contain at least 95% bio-

federal agencies that have the responsibility for drafting or reviewing specifications for items to be procured shall ensure that the relevant specifications require the use of biobased vegetable oil-based fluid-filled transformers.

Looking Ahead

There is no question that more and more companies, institutions, and government agencies are incorporating “green” in their strategic goals. Reducing their environmental impact and increasing their supply sustainability are important components of their green goals. FR3 fluid has become increasingly recognized as a means of contributing to both goals.

The favorable results from the National Bureau of Standard's BEES life cycle includes substantiating FR3 fluid's lower overall environmental impact than petroleum-based dielectric coolants. The analysis substantiates the carbon-offsetting potential of FR3 fluid, allowing utilities, federal agencies, and large users of electricity to help mitigate and reduce their CO₂ emissions.

The inclusion of biobased dielectric fluid-filled transformers in the new federal preferred purchase program is solid evidence of the sustainability potential and recognition of FR3 fluid.

The pending issuance of the IEEE® guide for natural ester fluids is another giant step in the industry acceptance and recognition of the new, revolutionary technology for distribution and power transformers. ■

FR3 fluid is becoming widely recognized as a sustainable, carbon-friendly product that meets industry standards.

content and should have received an acceptable total life-cycle analysis, based on the National Institute of Standards and Technology's Building for Environmental and Economic Sustainability (BEES) evaluation. Envirotemp FR3 fluid meets these requirements.

Envirotemp FR3 fluid-filled transformers received the program's official designation for product eligibility under this expansion on June 10. The listing of FR3 fluid is now on the USDA BioPreferred web site. In accordance with this act, procuring agencies must give a preference for qualifying biobased vegetable oil-based fluid-filled transformers. By that date,