

Retrofill with FR3[®]

BETTER FOR YOUR FACILITY, THE COMMUNITY, AND THE PLANET

Choosing FR3 natural ester fluid for your distribution and power transformers has long-term safety, reliability, and environmental benefits. As an Authorized Service Partner of FR3 fluids from Cargill, SDMyers is equipped to help you see up to 10 years of additional life for your transformers from a retrofill process.



Although mineral oil has long been the standard transformer oil, it simply isn't the optimal dielectric fluid. Cargill's natural ester fluid FR3 could be the better option for your transformer.

Immediate and long-term benefits of FR3*

SUPERIOR FIRE SAFETY

0 Reported fires in 25+ years
2x Mineral oil's flash and fire points

IMPROVED RELIABILITY

10x Higher moisture content by comparison

ASSET LIFE EXTENSION

50% Maximum anticipated asset life extension
+10 Years of life added to the transformer

BETTER FOR THE ENVIRONMENT

10 Minimum number of days for biodegradation
0 Carbon neutral

INCREASED LOAD CAPACITY

15% Additional loading or load capacity

* Cargill, <https://www.cargill.com/bioindustrial/dielectric-fluids/fr3-fluid>

TESTING AND ANALYTICS FOR FR3

Just like sampling and testing for mineral oil, testing and analytics on natural ester fluids will reveal critical information about your transformer’s health.

From a technical and analytical standpoint, you will find that testing on natural esters is very similar to testing mineral oil, with only a few minor differences in the parameters of laboratory test methods (e.g., DGA and Furan testing).

SDMyers tests more than 22,000 transformers with FR3 regularly, which continues to rise each year as more transformer owners switch to natural esters.

With the world’s largest oil testing laboratory, we recommend annual testing to gather diagnostic information that can identify potential problems and help to maximize the reliable life of your transformer.



STANDARDS FOR NATURAL ESTERS

Topic	IEEE	IEC
New Unused Fluid	ASTM D6871	IEC 62770
Maintenance Limits	IEEE C57.147	IEC 62975
DGA Interpretation	IEEE C57.155	In Process
High Temperature Insulation	IEEE C57.154	IEC 60076-14
High Temperature Loading Guide	IEEE Std. 1276	IEC 60076-14
Transportation and Commissioning	IEEE C.57.93 (MO and NE)	WG A2.58 In Process
Fire Safety	FM LPDS 5-4/ IEEE Std 979	IEC 61936-1

RETROFILLS BY THE NUMBERS WITH SDMYERS

22,000

Transformers that SDMyers tests regularly with FR3 natural ester fluid. Each year the percentage of total units increases!

150,000

Gallons of fluid used in retrofills over the past three years by SDMyers.

100

Transformers that SDMyers performed retrofills on in the last three years.

58

Years of industry-leading experience in testing, diagnostics, and maintenance.

CONSIDERATIONS FOR TRANSFORMER OWNERS

Vacuum Rating

FR3 is recommended for non-free breathing transformers. Free breathing units can be filled with synthetic esters.

Voltage Class

FR3 can be used in transformers of most voltage classes, including high voltage.

Age and Condition

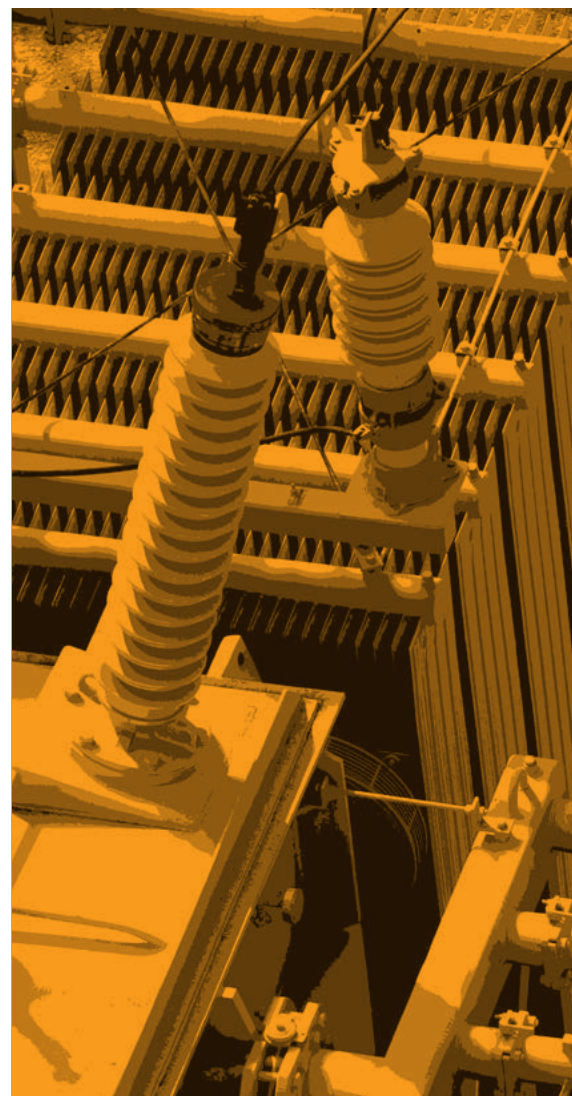
To ensure return on investment, assess all transformers for their existing condition and any technical issues prior to refilling with FR3.

Bushings and LTC

Bushings and Load-Tap Changers can operate normally in FR3. Consult the unit manufacturer for safety standards and other requirements.

THE SDMYERS RETROFILL PROCESS

- 1 Perform electrical pre-testing
- 2 Drain the original mineral oil
- 3 Allow drip after draining
- 4 Perform optional regasketing
- 5 Flush the active part with hot FR3
- 6 Allow drip after flushing
- 7 Remove dregs from the bottom of the transformer
- 8 Fill the transformer with or without a vacuum
- 9 Perform electrical post-testing



GET IN TOUCH WITH A RETROFILLING SPECIALIST

Scheduling an FR3 retrofilling with SDMyers is easy. Our industry-leading team of highly trained field technicians follows clearly defined safety and quality control protocols supported by the liquid manufacturers and IEEE standards.

Contact a transformer specialist today at info@sdmyers.com

SDMyers^{ACTS 4:12}

Safe, reliable substations