Super S® Inhibited Transformer Oil

TECHNICAL PRODUCT INFORMATION

Super S Inhibited Transformer and Electrical Insulating Oil

Super S Inhibited Transformer Oil is an electrical insulating oil produced from severely hydrotreated naphthenic base oils to meet the specifications defined in ASTM D 3487. It is formulated with an oxidation inhibitor to minimize formation of acids and sludge in service to minimize oil deterioration and extend the operating life of the immersed components.

FEATURES/ BENEFITS

- **Excellent oxidation stability** - Formulated with oxidation inhibitors which minimize the formation of sludge, acids, esters, peroxides and moisture which are the major cause of deterioration of the insulating oil. This allows components to operate at higher temperatures for longer periods, increasing component life.
- **Low pour point and low viscosity** - Allows oil to penetrate solid insulation to help convey heat from core materials to reduce operating temperature and increase component life under a wide range of operating conditions.
  - High dielectric strength and low power factor provide excellent insulating properties.
  - Noncorrosive to copper and copper alloys
  - Does not contain any PCBs

APPLICATIONS

Oil-immersed transformers and electrical components
Circuit breakers and electrical fuses
Switches
Tap changers
Any application requiring a low viscosity, low pour point, high quality naphthenic base oil.

SUPER S INHIBITED TRANSFORMER OIL MEETS THE REQUIREMENTS OF:

ANSI/ ASTM D 3487 Type II Inhibited Oil
Federal VV-I-530A, Class II Specification
NATO symbol S-756, British Standard BS148:1972
GE A13A3A2 (10CA) Specification
IEC 296 Class IIA Specification
NEMA Type II TR-P8-1975
IEEE
IEC 60296
Westinghouse Specification PDS 55822AG

PHYSICAL PROPERTIES

property		MIN	MAX	Typical
Viscosity, SUS @ 37.8 °C	ASTM D 445		66	59.2
Viscosity, SUS @ 98.9 °C	ASTM D 445		36	34.0
Viscosity, cSt @ 0°C	ASTM D 445		76	64.2
Viscosity, cSt @ 40°C	ASTM D 341		12	9.3
Viscosity, cSt @ 100°C	ASTM D 341		3	2.3
Specific Gravity, 15.6°C	ASTM D 4052		0.91	0.8862
Flash Point, COC, °C	ASTM D 92	145		155
Color, ASTM	ASTM D 6045		0.5	L0.5
Pour Point, °C	ASTM D 5949		-40	-64
Interfacial Tension, 25°, dynes/cm	ASTM D 971	40		51
Visual Examination	ASTM D 1524	Clear & Bright		Clear & Bright

ELECTRICAL PROPERTIES

property		MIN	MAX	Typical
Dielectric Breakdown @ 60 Hz, Disk electrodes, kV	ASTM D 877	30		40
Dielectric Breakdown @ 60 Hz, VDE, kV (2.03-mm) gap	ASTM D 1816	35		47
Power Factor @ 60 Hz, 25°C, %	ASTM D 924		0.05	0.005
Power Factor @ 60 Hz, 100°C, %	ASTM D 924		0.3	0.075
Gassing Tendency, µL,/min	ASTM D 2300		30	12

CHEMICAL PROPERTIES

property		MIN	MAX	Typical
Oxidation Stability	ASTM D 2440			
72 hr: Sludge, % by mass			0.1	<0.01
Total Acid Number, mg KOH/g			0.3	<0.01
164 hr: Sludge, % by mass			0.2	<0.01
Total Acid Number, mg KOH/g			0.4	<0.01
Oxidation Stability (Rotating Bomb Test), minutes	ASTM D 2112	195		248
Oxidation Inhibitor Content, wt %	ASTM D 2668	0.15	0.3	0.26
Corrosive Sulfur	ASTM D 1275 (B)	Noncorrosive		Noncorrosive
Water Content, ppm	ASTM D 1533		35	9
Neutralization Number, mg KOH/g	ASTM D 974		0.03	<0.01
Aniline Point, °C	ASTM D 611	63	84	74.7
PCB Content, ppm	ASTM D 4059		Not detected	Not detected

HEALTH AND SAFETY PROPERTIES (not an ASTM D 3487 requirement)

property		MIN	MAX	Typical
Polycyclic Aromatic Compounds, wt%	IP 346		3	<3
Modified Ames Assay	ASTM E 1687	PASS		PASS
FDA Regulation	21 CFR 178.3620 (C)	PASS		PASS

SPECIAL HANDLING

Dielectric strength and Oxidation Stability will be compromised with dirt or even a small amount of water. Oil must be kept clean and dry. Store indoors, protect from dust and debris. Drums are sealed with a nitrogen blanket to protect against moisture.

PRODUCT NUMBER/ PACKAGING

SUS 235-55 55 gallon drum