

TRULY UNINHIBITED TRANSFORMER OIL

Calumet Specialty Products Partners has over 25 years of experience producing highly-refined, clean, and stable electrical insulating fluids. Calumet participates in the annual DOBLE Survey of Electrical Insulating Mineral Oils. Developed in-house by Calumet's R&D group, CALTRAN™ 60-00 Group U is a superior naphthenic transformer oil that fully meets IEC 60296, ed. 4, 2012 general specifications for uninhibited oil and JIS C 2320 Electrical Insulating Oils (including Amendment 1, 2010).

The IEC 60296:2012 is a recognized international standard and applicable to specifications and test methods for unused mineral insulating oils. Transformer oil is categorized into three grades: Trace Inhibited (<0.08% inhibitor content), Inhibited (0.08% - 0.40% inhibitor content), and Uninhibited which contains no inhibitor or antioxidant additives such as DBPC or DBP.

Leading transformer equipment manufacturers prefer and/or require uninhibited naphthenic transformer oil grade as it provides superior oxidation stability; contributing to greater equipment stability, performance and longevity.

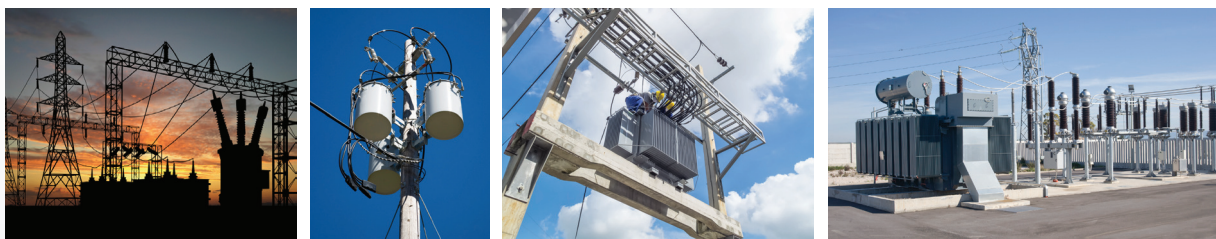
CALTRAN™ 60-00 GROUP U PROVIDES . . .

- **Compliance:** Fully meets IEC 60296, ed. 4, 2012 general specifications for uninhibited oil
Fully meets JIS C 2320 Electrical Insulating Oils (including Amendment 1, 2010)
- **Confidence:** Verified by an accredited independent laboratory
- **Safety:** Meets IP 346 and Modified Ames criteria for biological safety
- **Performance:** Outstanding oxidation stability under severe conditions, without the use of additives
- **Flexibility:** Fully miscible with insulating oils meeting IEC 60296: 2012 specifications
Fully miscible with insulating oils meeting JIS C 2320 specifications
- **Value:** Optimal protection against corrosion, longer oil life and greater efficiency
- **Choice:** Latest advancements in uninhibited transformer oil technology

TECHNICAL ASSISTANCE

For product or technical questions contact your Sales Representative or Calumet Product Support.

Product Support:
1-800-437-3188



CALTRAN™ 60-00 GROUP U

PRODUCT DATA SHEET

PHYSICAL PROPERTIES	UOM	METHOD	TYPICAL
VISCOSITY @ 40°C	mm ² /s	ISO 3104	8.21
VISCOSITY @ -30°C	mm ² /s	ISO 3104	878.4
POUR POINT	°C	ISO 3016	-51.0
WATER CONTENT	mg/kg	IEC 60814	16
BREAKDOWN VOLTAGE		IEC 60156	58
DENSITY @ 20°C	g/mL	ISO 3675	.8690
DDF @ 90°C (BEFORE OXIDATION)		IEC 60247	.002
APPEARANCE		VISUAL	B/C
ACIDITY	mg KOH/g	IEC 62021-1	<0.010
INTERFACIAL TENSION		ISO 6295	45.0
TOTAL SULFUR CONTENT	ppm	ISO 14596	9
CORROSIVE SULFUR		DIN 51353	NONCORROSIV
ANTIOXIDANT ADDITIVE	%	IEC 60666	N/D
FURFURAL CONTENT	mg/kg	IEC 61198	.004
OXIDATION STABILITY	hrs	IEC 61125C	164
TOTAL ACIDITY	mg KOH/g	IEC 61125C	.49
SLUDGE	%	IEC 61125C	.16
DDF @ 90°C (AFTER OXIDATION)		IEC 60247	.160
GASSING		IEC 60628A	13.0
FLASH POINT	°C	ISO 2719	148
PCA CONTENT	%	IP 346	0.7
PCB CONTENT		IEC 61619	ND
VOLUME RESISITIVITY	T-Ω m 80°C	JIS C 2101	0.5738 T Ω m

Additional information based on JIS C2320 methods is available upon request.
All properties are typical values, unless otherwise noted, and may vary.

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