

Daewoo TRAN DL

DESCRIPTION



Daewoo TRAN DL Uninhibited Transformer oil is severely refined hydro-cracked / hydrotreated virgin mineral insulating oils with highest degree of purity and stability. **DAEWOO TRAN DL** oils are manufactured from judiciously selected blend of latest technology feed stocks.

DAEWOO TRAN DL Uninhibited Transformer oil has superior oxidation stability – meeting the requirements as specified in IEC 60296:2012, high dielectric strength and are used in equipment requiring operations at high elevated temperatures & greater oxidation resistance.

CHARACTERISTICS

DAEWOO TRAN DL oils offer special advantages over 'conventional' transformer oils, such as:

- **Very low Sulphur and no DBDS.**
- Non corrosive as tested by all present and proposed methods, i.e. standard DIN tests and also new IEC 62535:08.
- Higher Flash point, resulting on Low evaporation losses and better safety
- Remarkably low sludge and acidity formation, in both ageing and
- oxidation tests, results in longer life of oil and equipment
- Low viscosity oils offering excellent and fast heat transfer

APPLICATIONS

DAEWOO TRAN DL oils are highly suitable for all grades of

- **Power Transformers**
- **Distribution Transformers**
- **Circuit Breakers**
- Oil filled switches
- **X-ray equipment**

QUALITY/APPROVALS

DAEWOO TRAN DL Uninhibited oil conforms to and exceeds the requirements of IEC 60296:2012

STORAGE PRECAUTIONS

Extreme care is taken while packing these products, including filling of drums in inert atmosphere, as **Electrical Insulating oils / Transformer oils are very sensitive to very minute concentrations of contaminants**, such as moisture, particulate matter, fibers, etc. Hence, care should be taken to store **DAEWOO TRAN DL** oils in a clean and dry condition. It is strongly recommended that all storage tanks / drums be maintained such that oil is not in contact with atmospheric air. Also, oils should always be **stored indoors in climate controlled environments**

DAEWOO HOT - UNINHIBITED TRANSFORMER INSULATING OIL

TYPICAL PROPERTIES

Test Parameters	Test Method	Specification Limits
FUNCTION		
Kinematic Viscosity, mm ² /s (Max) at 40 °C	ISO 3104	12.0
Kinematic Viscosity, mm ² /s (Max) at -30 °C	ISO 3104	1800
Pour Point °C	ISO 3016	-40
Water Content, Max mg/kg (Bulk)	IEC 60814	30
Water Content, Max mg/kg (Drum)	IEC 60814	40
Break Down Voltage, Min. As Delivered (kv)	IEC 60156	30
Break Down Voltage, Min. After treatment (kv)	IEC 60156	70
Density kg/dm ³ , @ 20 °C, Max	ISO 3675	0.895
DDF at 90 °C, Max	IEC 60247	0.005
REFINING/STABILITY		
Appearance	Visual	Clear, odorless liquid free from suspended impurities
Neutralization Value / Acidity, mg KOH/g, Max	IEC 2-62021 /1-62021	0.01
Interfacial tension, mN/m, Min	ISO 6295	40
Total Sulphur Content, %, Max	IP 373 / ISO14596	No General Requirement
Corrosive Sulphur, silver strip, 1000C, 18 hrs	DIN 51353	Non Corrosive
Cu strip & Kraft Paper 1500C, 72 hrs	IEC 62535	Non Corrosive
DBDS, mg/kg, Max	IEC 1-62697 (in preparation)	Not Detectable (< 5)
Anti-Oxidant Additives	IEC 60666	Not Detectable
Metal Passivators, mg/kg, Max	IEC 60666	Not Detectable (< 5)
2-Furfural content, mg/kg, Max	IEC 61198	Not Detectable (< 0.05)
PERFORMANCE		
Oxidation Stability, 164 hrs - Total acidity, mg KOH/g, Max	IEC 61125 METHOD- C	1.2
Oxidation Stability, 164 hrs - Sludge, %, Max	IEC 61125 METHOD- C	0.8
Oxidation Stability, 164 hrs - DDF @ 900C, Max	IEC 60247	0.5
Gassing Tendency	IEC 1985 : 60628, Method A	No General Requirement
ECT	CIGRE	No General Requirement
HEALTH, SAFETY AND ENVIRONMENT (HSE)		
Flash Point oC, PMCC, Min	ISO 2719	135
Polycyclic Aromatics % mass, Max	IP: 346	3.00
Total PCB content mg/Kg	IEC 61619	Not Detectable (< 2)
CONFORMS TO STANDARDS		
IEC 60296:2012 (U)		ü

Daewoo Heat Transfer Fluid SG 46

Daewoo Heat Transfer Fluid SG 46 is a Synthetic based heat transfer fluid with inhibitors.



PROPERTIES

This lubricant assures:

- **A good resistance to thermal cracking.**
- An excellent resistance to oxidation in contact with the air thanks to special additives.
- An excellent thermal stability
- **Low deposits • good ageing resistance**

APPLICATIONS

- Heating in a liquid bath and all applications where air is present.
- Heating of domestic and industrial premises.
- Production of steam and hot water.
- **Air conditioning.**
- Keeping storage tanks at the requisite temperature.
- Heating by exchange systems (counter flow heat exchangers).
- Heating of thermal baths, autoclaves, reactors, furnaces, molding systems, drying tunnels and presses.



TYPICAL PROPERTIES

Test Parameters	ASTM Method	Typical Value
Density @ 15 °C, kg/l	ASTM D1298	0.87
Viscosity @ 100 °C, cSt	ASTM D445	7.1
Viscosity @ 40 °C, cSt	ASTM D445	46
Viscosity Index	ASTM D2270	112
Flash Point, °C	ASTM D92	≥ 220
Pour Point, °C	ASTM D97	-15
Bulk Temperature limit, °C		300
Film Temperature limit, °C		330