ExxonMobil

# Univolt™ TO(S)

## Hydrocarbon Fluid

| General | |
|---|---|
| Specification Region | ▪ Asia Pacific |

| Function | Minimum | Maximum | Unit | Test Method |
|---|---|---|---|---|
| Viscosity | | | | ASTM D7042<br>ISO 3104 |
| 40°C | -- | 12 | $mm^2/s$ | |
| -30°C [1] | -- | 1800 | $mm^2/s$ | |
| Pour Point | -- | -40 | °C | ISO 3016 |
| Water | -- | 30 | mg/kg | IEC 60814 |
| Breakdown Voltage, before Treatment | 30 | -- | kV | IEC 60156 |
| Breakdown Voltage, after Treatment | 70 | -- | kV | IEC 60156 |
| Density (20°C) | -- | 0.8950 | g/ml | ASTM D7042<br>ISO 12185<br>ISO 3675 |
| Dielectric Dissipation Factor | | | | IEC 60247 |
| 90°C | -- | 0.005 | | IEC 61620 |

| Refining/Stability | Minimum | Maximum | Unit | Test Method |
|---|---|---|---|---|
| Color | -- | 0.5 | | ASTM D1500<br>ISO 2049 |
| Appearance | Clear, Free of Sediment or Suspended Matter | -- | | IEC 60296 |
| Acidity [1] | -- | 0.01 | mg K/g | IEC 62021-1<br>IEC 62021-2 |
| Interfacial Tension | 43 | -- | mN/m | ASTM D971<br>IEC 62961 |
| Total Sulfur Content [1] | -- | 0.05 | % | ISO 14596<br>ISO 8754 |
| Sulfur, Corrosive [1] | Non-corrosive | -- | | DIN 51353 |
| Sulfur, Potentially Corrosive [1] | Non-corrosive | -- | | IEC 62535 |
| DBDS or Dibenzyl Disulfide [2] | Not Detectable | -- | | IEC 62697-1 |
| Oxidation Inhibitor | 0.08 | 0.40 | % | IEC 60666 |
| Additives, Metal Passivators [3] | Not Detectable | -- | | IEC 60666 |
| 2-Furfural & Related Compounds [4] | Not Detectable | -- | | IEC 61198 |
| Stray Gassing [5] | Not Detectable | -- | | IEC 60296-PROA4 |

| Performance | Minimum | Maximum | Unit | Test Method |
|---|---|---|---|---|
| Oxidation Stability, Acidity [6] | -- | 0.3 | mg K/g | IEC 61125 |
| Oxidation Stability, DDF @ 90°C [7] | -- | 0.05 | | IEC 61125 |
| Oxidation Stability, Sludge [7] | -- | 0.05 | wt% | IEC 61125 |
| RPVOT [8] (With AO) | Report Only | -- | | ASTM D2112 |

| Health, Safety and Environment (HSE) | Minimum | Maximum | Unit | Test Method |
|---|---|---|---|---|
| Flash Point | 135 | -- | °C | ISO 2719 |
| Polycyclic Aromatics [1] | -- | 3 | % | IP 346 |
| Polychlorinated Biphenyl Content [9] | Not Detectable | -- | | IEC 61619 |

## Notes

Univolt™ TO(S) meets the requirements of IEC 60296 as a Type A (fully inhibited high-grade oils).

ExxonMobil's sampling and testing procedures in effect at the time of production will be used for certification testing. Results may be based on tank certification, manufacturing data, periodic testing and/or most recent product restock. ExxonMobil reserves the right to use other equivalent test methods in certifying this product.

The values indicated in this document may deviate from the test method requirements by the number of significant figures shown.

Product contains an alkylated polystyrene pour point depressant in the range of 0.01 - 0.03 wt%.

[1] Test will be conducted on a periodic interval. Value reported will be the last tested figure

[2] Not detectable (< 5 mg/kg)
Test will be conducted on a periodic interval. Value reported will be the last tested figure

[3] Not detectable (< 5mg/kg), or as agreed upon with the purchaser
Test will be conducted on a periodic interval. Value reported will be the last tested figure

[4] Not detectable (< 0.05 mg/kg) for each individual compound
Test will be conducted on a periodic interval. Value reported will be the last tested figure

[5] Non stray gassing: < 50ul/l hydrogen (H2) and < 50 ul/l methane (CH4) and <50ul/l ethane (C2H6)
IEC 60296,Procedure in clause A.4(oil saturated with air) in the presence of copper
Test will be conducted on a periodic interval. Value reported will be the last tested figure

[6] Oxidation stability @120 C, 500h

[7] Oxidation stability @120 C, 500h
Test will be conducted on a periodic interval. Value reported will be the last tested figure

[8] Oxidation Stability of Inhibited Mineral Insulating Oil by Pressure Vessel
Test will be conducted on a periodic interval. Value reported will be the last tested figure

[9] Not detectable (< 2 mg/kg)
Test will be conducted on a periodic interval. Value reported will be the last tested figure

For additional technical, sales and order assistance: www.exxonmobilchemical.com/ContactUs



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