

EASTMAN

Solutia Inc., A subsidiary of Eastman Chemical Company
575 Maryville Centre Drive, St. Louis, MO 63141 USA

Product: Lubricating Oil

Aircraft Turbine Engine

Synthetic Base

Specification: MIL-PRF-23699 HTS

SAE AS5780 HPC

CERTIFICATE OF ANALYSIS / CONFORMANCE EASTMAN TURBO OIL 2197

Date:

Order No.:

Destination

Cust. P.O. No.:

Quantity (Gallons)

Mfg. Date: 16-JUN-2015

Batch No. E0295

Tank No.: T0947

US DOD Qual.: 0-4U

AS5780 QRN.: BP02-1-7



This is to certify that a sample of the product from the above batch was tested and meets the requirements of the latest versions of the above specifications. The composition of this batch, within manufacturing tolerance, is identical to the product qualified as a result of the qualification test. The original of this certificate is on file at the Bayway Turbo Oil Plant, P.O. Box 94, Linden, NJ 07036.

Materials: Product contains no barium, polychlorinated biphenyls (PCBs), metalorganic compound of titanium and no more than 0.2% or no isomer in the tricresyl phosphate additive.

TEST

Appearance
Viscosity, cSt @:
100 Deg C (212F):
40 Deg C (104F):
-40 Deg C (-40F):
Flash Point, COC, Deg C
Pour Point, Deg C
TAN
TAN Basestock
Evap. Loss, 6.5 Hr @204 Deg C, %
Foaming, Foam Volume, ml/Vol. @ 1 Min Settling
Sequence I, 24 Deg C
Sequence II, 93.5 Deg C
Sequence III, 24 Deg C
Sediment - 1.2 micron, mg/l
Ash, mg/l

SPECIFICATION	RESULT	METHOD
Bright, Clear	B/C	Visual
4.90 to 5.40	5.15	ASTM D-445
23.0 Min.	26.27	ASTM D-445
13000 Max	11940	ASTM D-2532
246 Min.	260	ASTM D-92
-54 Max.	<-57	ASTM D-97
1.00 Max.	.39	SAE ARP 5088
0.1 Max.	0.02	SAE ARP 5088
10 Max.	2	ASTM D-972
		ASTM D-892
25/0 Max.	15/0	
25/0 Max.	10/0	
25/0 Max.	10/0	
10 Max	1	FTM 3010
1 Max	0	FTM 3010

29-Jun-2015

CERTIFICATE OF ANALYSIS / CONFORMANCE **EASTMAN TURBO OIL 2197**

TEST	SPECIFICATION	RESULT	METHOD
Visual Undissolved Water	None	Nil	Visual
Thermal Stability and Corrosivity, 96 Hrs @ 274 Deg C.			FTM 3411
Viscosity Change, 40 Deg C, %	5.0 Max.	-1.1	
TAN Change (SAE-ARP-5088)	6.0 Max.	1.3	
Metal Wgt Change, mg/sq. cm	4.0 Max.	-0.1	FTM 5308
Corr. and Ox. Stability, 72 Hrs. @ 204 Deg C.	0 to +22.5	18	
Viscosity Change, 40 Deg C, %	2.0 Max.	1.1	
TAN Change (SAE-ARP-5088)	25 Max.	0	
Sludge Content, mg/100 ml			
Metal Weight Change, mg/sq. cm	+/- 0.2	0.0	
Steel (Fe)	+/- 0.2	0.0	
Silver (Ag)	+/- 0.2	0.0	
Aluminum (Al)	+/- 0.2	0.0	
Magnesium (Mg)	+/- 0.4	-0.1	
Copper (Cu)			AES
Trace Metal Content, ppm (+)	2 Max.	0	
Aluminum (Al)	2 Max.	0	
Iron (Fe)	2 Max.	0	
Chromium (Cr)	1 Max.	0	
Silver (Ag)	1 Max.	0	
Copper (Cu)	11 Max.	2	
Tin (Sn)	2 Max.	0	
Magnesium (Mg)	2 Max.	0	
Nickel (Ni)	2 Max.	0	
Titanium (Ti)	10 Max.	2	
Silicon (Si)	2 Max.	0	
Zinc (Zn)	2 Max.	0	
Lead (Pb)	3 Max.	0	
Molybdenum (Mo)	Report	0.9969	ASTM D-4052
Specific Gravity @ 60F/60F	Report	0.9963	ASTM D-4052
Density @ 15 Deg C		Conforms	FTM 3500
Acid Assay++			

+ Test performed by Lab ONE Inc., Tempe AZ
 (++) Analysis completed at source
 Specifications reviewed 09/14

EAC



Alfred Leung, QM
 Batch No. E0295

29-Jun-2015