

**CITGO PACEMAKER® T OILS**

Date 01/10

- DESCRIPTION:** CITGO Pacemaker T Oils cover a range of extra inhibited lubricants of the very highest quality designed specifically as turbine oils.
- QUALITIES:** These oils are made from selected paraffinic base stocks that are processed by the most modern hydrotreating methods.
- Their high viscosity index imparts superior temperature-viscosity characteristics. Long service life in closed circulating systems is assured by low carbon content, high flash point and excellent resistance to oxidation, rusting and foaming.
- Each grade of CITGO Pacemaker T Oil is designed to pass both procedures of the ASTM Turbine Oil Rust Text and, in addition, will provide extended oxidation life as measured in the ASTM D 943 Turbine Oil Oxidation Test.
- APPLICATIONS:** CITGO Pacemaker T Oils in proper viscosity grade are recommended for pressure-circulation systems of direct-connected steam turbines and for the bearings of turbo-generators.
- They are also recommended for the lubrication of steam turbines with single-reduction gear units, as found in marine service.
- CITGO Pacemaker T Oils are suitable for the lubrication of industrial gas turbines and gear units.
- CITGO Pacemaker T Oils are also highly recommended for use in hydraulic and compressor equipment, air lines, circulating oil systems of all types of industrial machinery, and gears where R and O (Rust and Oxidation inhibited) type oil is specified.
- Pacemaker T-32 meets the performance recommendations of General Electric's GEK 32568 (Frame 7 Service) specification, Lubricating Oil for 7001 and 9001 gas turbines. Grades T-32 and T-46 exceed the performance requirements of Solar ES9-244L grades C32 (S-150) and C46 (S-215) respectively as lubricants for gas fired turbines.
- Pacemaker T-68 is suitable for mist applications as evidenced by the Alemite test.

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TYPICAL PROPERTIES:

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Grade	T-32	T-46	T-68	T-115	T-150
Material Code	633715001	633720001	633730001	633745001	633750001
Gravity, ASTM D 4052, °API	32.7	31.4	30.9	29.0	27.9
Pounds Per Gallon	7.18	7.24	7.26	7.34	7.39
Flash Point, COC, ASTM D 92, °F (°C)	442 (228)	446 (230)	489 (254)	536 (280)	514 (268)
Viscosity, ASTM D 445, cSt at 40°C	32.0	44.7	66.7	109	153.1
cSt at 100°C	5.5	6.8	8.8	12.2	14.6
Viscosity Index, ASTM D 2270	107	104	105	102	94
Pour Point, ASTM D 97, °F (°C)	-38 (-39)	-38 (-39)	-38 (-39)	0 (-18)	+10 (-12)
Color, ASTM D 1500	L1.0	L1.0	L1.5	1.5	4.0
Foam Test, ASTM D 892 ⁽¹⁾ , Seq. I, II, III	Pass	Pass	Pass	Pass	Pass
Aniline Point, ASTM D 611, °F (°C)	219 (104)	223 (106)	230 (110)	244 (118)	248 (120)
Neutralization No., ASTM D 664	0.1	0.1	0.1	0.1	0.1
Corrosion, ASTM D 130, 3 hours at 212°F	1 A	1 A	1 A	1 A	1A
Oxidation, ASTM 943 ⁽²⁾ , hours	7000	7500	5200	3500	3000
Water Separation, Dist. Water, ASTM D 1401, at 130°F (54°C)	40-40-0 (15)	40-40-0 (15)	40-40-0 (20)	—	—
180°F (82°C)	—	—	—	40-40-0 (20)	40-40-0 (30)
Turbine Oil Rust Test, ASTM D 665 ⁽³⁾	Pass	Pass	Pass	Pass	Pass
RPVOT, ASTM D 2272, minutes	740	660	600	530	456
ISO VG No.	32	46	68	—	150
AGMA Grade	0	1	2	—	4

Note:

- (1) 50 ml. max. at end of blowing period. No foam after 10 minutes setting.
- (2) Hours to reach acid number of 2.0 mg. of KOH per gram of oil.
- (3) Procedures A (distilled water) and B (synthetic sea water) – 24 hours.