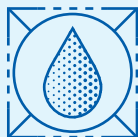




CITGO® EP Compounds

OVERVIEW



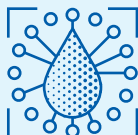
- Designed for extra-duty industrial gear lubrication service in a wide variety of applications where extreme pressure (EP) load conditions prevail.

FEATURES & BENEFITS



- Formulated with highly refined base stocks and select ashless additives to provide premium EP properties and effective lubrication under most service conditions.
- Can be used in mist lubrication systems for directed delivery of the oil and control of stray mist.
- High viscosity index, excellent demulsibility, solution stability, and thermal stability.
- Excellent resistance to oxidation and foaming and are noncorrosive.

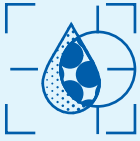
APPLICATIONS



- Recommended for lubrication of plain and antifriction bearings and gear drives that operate under extra-heavy duty conditions.
- Designed for use in steel mills, rubber mills, and similar heavy industries where ambient conditions include water, dirt, and scale.
- Formulated for the lubrication of industrial spiral bevel, helical, spur, and herringbone gears.
- Especially well-suited for use in multiple gear drives that operate at greatly increased pressure between the surfaces of the gear teeth, or where severe shock or heavy loads are encountered.
- Can be applied via misting systems.
- Suitable for use in bearing oil circulating systems.
- Formulated to meet recognized industrial gear oil requirements including:
 - DIN 51517 Part 3 CLP
 - US Steel 224
 - AGMA 9005-F16 AS
 - ISO 12925-1 CKC/CKD
 - David Brown S1.53.101 (E)
 - GM LS2 EP Gear Oil
 - Fives Group Machine Gear Oil
- Refer to equipment owner's manual for proper lubricant recommendation.

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PROPERTIES



Typical Properties for CITGO EP Compounds:

Grade	68	100	150	220	320	460	680	800
Material Code	631110001	631120001	631130001	631140001	631150001	631170001	631180001	631181001
Gravity, ASTM D4052, °API	30.6	30.2	28.0	27.5	27.0	26.3	26.8	24.0
Density, lb/gal at 60°F	7.27	7.29	7.39	7.41	7.43	7.47	7.49	7.6
Flash Point, COC, ASTM D92, °F (°C)	464 (240)	480 (250)	509 (265)	491 (255)	500 (260)	491 (255)	572 (300)	482 (250)
Viscosity, ASTM D445								
cSt at 40°C	67.5	97	147.5	215	314	435	639	805
cSt at 100°C	8.6	11.0	14.5	18.5	23.9	30.6	35.8	43.6
Viscosity Index ASTM D2270	99	97	95	94	96	96	90	95
Pour Point, ASTM D97, °F (°C)	5 (-15)	5 (-15)	5 (-15)	5 (-15)	5 (-15)	5 (-15)	5 (-15)	5 (-15)
Color, ASTM D1500	1.0	2.5	3.0	3.0	3.5	4.0	D8.0	4.5
Copper (Cu) Corrosion, ASTM D130 ⁽¹⁾	1B	1B	1A	1B	1A	1A	2C	2C
Demulsibility, ASTM D2711B								
Water in Oil, %	1.0	1.0	1.0	1.0	1.0	1.0	2.0	2.0
Total Free Water, mL	80	80	80	80	80	80	80	80
Emulsion, mL	1.0	1.0	1.0	1.0	2.0	2.0	2.0	2.0
Oxidation Test ⁽²⁾	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Rust Test ASTM D665A & B	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Timken OK Load, ASTM D2782, lbs.	65	70	85	65	70	75	70	70
Four Ball EP Test, Weld, ASTM D2783, kg	250	315	315	315	315	315	315	315
Four Ball Wear at 20 kg, ASTM D4172, mm	0.29	0.30	0.29	0.23	0.21	0.20	0.35	0.35
Foam Test, ASTM D892, Seq. I, II, III	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
ISO VG No.	68	100	150	220	320	460	680	Between 680-1000
AGMA Grade	2 EP	3 EP	4 EP	5 EP	6 EP	7 EP	8 EP	Between 8 & 8A EP
Fives Cincinnati	P-63	P-76	P-77	P-74	P-59	P-35	—	—
U.S. Steel Req. No. 224	Meets	Meets	Meets	Meets	Meets	Meets	—	—