

C I T G O E P C O M P O U N D S

Date 1/09

- DESCRIPTION:** CITGO EP Compounds provide a complete range of gear oils designed for extra-duty service in a wide variety of industrial applications where extreme pressure conditions prevail.
- BENEFITS:** These lubricants are made from high quality, solvent-refined base stocks. Selected ashless additives assure extreme pressure properties and provide particularly effective anti-wear characteristics under all service conditions.
- These products contain an additive which enables mist application with directed delivery of the oil and control of stray mist.
- CITGO EP Compounds have a high viscosity index, excellent demulsibility, solution stability and thermal stability properties. They also provide excellent resistance to oxidation and foaming and are noncorrosive.
- APPLICATIONS:** CITGO EP Compounds have been formulated to meet recognized industrial gear oil requirements including U.S. Steel Requirement 224, AGMA EP (250.04) and DIN 51517 Part 3 (CLP). They are recommended for lubrication of plain and antifriction bearings and gear drives that operate under extra-heavy-duty conditions.
- These lubricants can be applied via misting systems and are suitable for use in bearing oil circulating systems.
- Typical applications are steel mills, rubber mills, and similar heavy industries where ambient conditions include water, dirt, and scale. Boundary lubrication regimes are successfully controlled by these lubricants.
- CITGO EP Compounds are formulated for the lubrication of industrial spiral bevel, helical, spur and herringbone gears. They are 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 overloads are encountered.

(Continued)



CITGO EP COMPOUNDS

Date 1/09 - (Continued)

TYPICAL PROPERTIES:		CITGO EP COMPOUNDS						
Grade	68	100	150	220	320	460	680	
Material Code	631110001	631120001	631130001	631140001	631150001	631170001	631180001	
Gravity, ASTM D 4052, °API	29.0	28.5	28.0	27.5	27.0	26.3	24.7	
Density, lb/gal at 60°F	7.34	7.36	7.39	7.41	7.43	7.47	7.54	
Flash Point, COC,								
ASTM D 92, °F (°C)	464 (240)	482 (250)	509 (265)	491 (255)	500 (260)	491 (255)	572 (300)	
Viscosity:								
ASTM D 445, cSt at 40°C	67.5	97	147.5	215	314	435	639	
cSt at 100°C	8.6	11.0	14.5	18.5	23.9	30.6	35.8	
ASTM D 2161, SUS at 100°F	347	506	690	1150	1530	2050	2970	
SUS at 210°F	55	64	78	94	118	149	175	
Viscosity Index, ASTM D 2270	99	97	95	94	96	96	90	
Pour Point, ASTM D 97, °F(°C)	5 (-15)	5 (-15)	5 (-15)	5 (-15)	5 (-15)	5 (-15)	15 (-9)	
Color, ASTM D 1500	3.5	L4.5	L5.0	L5.5	L6.0	L6.5	D8.0	
Copper (or Cu) Corrosion,								
ASTM D 130 ⁽¹⁾ , Max.	1 B	1 B	1 A	1 B	1 A	1 A	2 C	
Demulsibility, ASTM D 2711B								
Water in Oil, % Max.	1.0	1.0	1.0	1.0	1.0	1.0	2.0	
Total Free Water, ml., Min.	80	80	80	80	80	80	80	
Emulsion, ml. Max	1.0	1.0	1.0	1.0	1.0	2.0	2.0	
Oxidation Test ⁽²⁾	Pass	Pass	Pass	Pass	Pass	Pass	Pass	
Rust Test, ASTM D 665A & B	Pass	Pass	Pass	Pass	Pass	Pass	Pass	
Timken OK Load, ASTM D 2782, lbs.	65	70	85	65	70	75	70	
Four Ball EP Test, Weld,								
ASTM D 2783, kg.	250	250	250	250	250	250	315	
Four Ball Wear at 20 kg.,								
ASTM D 4172, mm	0.29	0.30	0.29	0.23	0.21	0.20	0.35	
Foam Test, ASTM D 892, Seq. I	0-0	0-0	0-0	0-0	0-0	0-0	0-0	
Seq. II	0-0	0-0	0-0	0-0	0-0	0-0	0-0	
Seq. III	0-0	0-0	0-0	0-0	0-0	0-0	0-0	
ISO VG No.	68	100	150	220	320	460	680	
AGMA Grade	2 EP	3 EP	4 EP	5 EP	6 EP	7 EP	8 EP	
ASTM Grade	315	-	700	1000	1500	-	-	
Cincinnati Lamb	P-63	P-76	P-77	P-74	P-59	P-35	-	
U.S. Steel Req. No. 224	Meets	Meets	Meets	Meets	Meets	Meets	-	

Notes: (1) Three hours at 212°F.

(2) Per U.S. Steel Requirement No. 224 (ASTM D 2893, 312 hrs. at 99°C).