

Castrol Braycote 600 EF

Grease, Rocket Propellant Compatible
Low Temperature

Description

Castrol Braycote 600 EF is a smooth, buttery, translucent off-white colored, NLGI #2 grease. Braycote 600 EF uses Castrol Brayco 815Z as the base fluid and a tetrafluoroethylene telomer as the gelling agent. This grease is nonflammable, chemically inert, and thermally stable and does not use any chlorofluorocarbons (CFC's) during product manufacture. It has exceptionally low volatility and has little tendency to form deposits. It has excellent lubricating properties, good shear stability, and low acute toxicity. Castrol Fluoroclean™ X100 or Castrol Fluoroclean™ HE can be used to remove this lubricant. Refer to the data sheets for Fluoroclean™ X100 and Fluoroclean™ HE for information regarding these products.

Application

Braycote 600 EF is designed to operate in the presence of fuels, oxidizers, and in applications of deep space vacuum. It is used in gears, ball and roller bearings, electrical contacts, and "O" rings. This grease is highly recommended for applications where temperature extremes and/or low vacuums are routine, such as cryogenic coolers, FLIR, laser optical systems, or hostile chemical environments. Perfluorinated greases, such as, Braycote 600 EF exhibit excellent shelf life due to their intrinsic inertness.

Typical Characteristics

Test	Method	Description
D 1403	Penetration @ 25°C (77°F), mm ⁻¹ Unworked	288
	Worked, 60 strokes	288
FTM 321	Oil Separation, 30 hrs, 204°C (400°F), % wt	11.83
	Evaporation Loss, % wt	0.2
FTM 5309	Copper Strip Corrosion, 24 hrs, 100°C (212°F)	1b
D 2265	Dropping Point, °F (°C)	209 (409)
D 2266	Four-Ball Wear-Test, AWSD, mm 1200 rpm, 40 kgf, 1 hr, 75°C (167°F)	0.80
	1200 rpm, 40 kgf, 1 hr, 204°C (400°F)	1.29
D 2596	Four-Ball Extreme-Pressure Weld, kgf	700+
E 595 NASA SP-R-0022A	Vacuum Stability Test 24 hrs, 125°C (257°F), 10-6, torr	
	Total Weight Loss (TWL), % wt	0.20
	Volatile Condensable Material (VCM), % w	0.03
D 1478	Low-Temperature Torque, g.cm @ -62°C (-80°F) Starting	585
	Running, 1 hr	228
	@ -73°C (-100°F) Starting	1430
	Running, 1 hr	637

Test	Method	Description
D 2512 (MSFC 106)	LOX Impact Sensitivity 100 mm, 20 drops	Pass
D 3336	High Temperature Bearing Performance, hrs	586+
	Outgassing test total mass loss, 48 hours @ 150°C, ~10-9 torr, % wt.	0.04
E 1559	Extrapolated Vapor Pressure, torr, Derived from ASTM vapor pressure versus temperature plot. Refer to the attached plot. Samples preconditioned at 150°C for 4 hours. @ 60°C (140°F) @ 100°C (212°F) @ 150°C (302°F)	7×10^{-12} 6×10^{-10} 4×10^{-8}
1420	Pounds per gallon @ 16°C (60°F) Grams per milliliter @ 16°C (60°F)	15.70 1.88
Base Oil Characteristics		
D 287	Specific Gravity @ 16/16°C (60/60°F) Pounds per Gallon @ 16°C (60°F)	1.8531 15.430
D 445	Kinematic Viscosity, cSt @ 99°C (210°F) @ 38°C (100°F) @ -54°C (-65°F)	45 148 10,855
D 2270	Viscosity Index	350
D 97	Pour Point, °C (°F)	-72 (-100)
Knudsen	Vapor Pressure, torr @ 20°C (68°F) @ 100°C (212°F) @ 200°C (392°F)	4×10^{-13} 2×10^{-9} 2×10^{-6}

Additional Information

Temperature Range

-80°C to 204°C (-112°F to 400°F)

Limitations

Braycote 600 EF is compatible with most commonly utilized materials, plastics, and elastomers. Braycote 600 EF may be adversely affected by Lewis Acid Catalysts such as aluminum chloride, at elevated temperatures. Newly exposed rubbing surfaces of aluminum, magnesium and titanium alloys may react with Braycote 600 EF under certain conditions. Such systems should be thoroughly evaluated. Surfaces must be well cleaned of organic rust inhibitors prior to grease application to insure proper lubrication. This product is not recommended for use in applications under high vacuum with loads exceeding 100,000 psi for extended periods of time.

Packaging

Braycote 600 EF is packaged in 2 oz (AVDP) disposable polypropylene syringes and 1 pound jars. A specially prepared "micronic", ultra clean version is available upon request.

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