



Castrol Braycote 601 EF

Grease, Rust Preventive, Rocket Propellant Compatible
Low Temperature

Description

Castrol Braycote 601 EF is a smooth, buttery, translucent, off-white, NLGI #2 grease. Its base oil (Castrol Brayco® 815Z) is a perfluorinated polyether, with exceptional chemical resistance, extremely low volatility, and a wide temperature service range. The grease is non-toxic, nonflammable, and does not use any chlorofluorocarbons (CFC's) during product manufacture. This product exhibits unusually high load-carrying capabilities as measured by the Four-Ball EP Test, and contains a rust and corrosion inhibitor for extra component protection. Castrol Fluoroclean™ X100 or Castrol Fluoroclean™ HE can be used to remove this lubricant. Refer to the data sheets for these products for information regarding these products.

Application

Braycote 601 EF is designed to operate in the presence of rocket fuels and oxidizers and high vacuum. It is frequently used in space applications including the Space Shuttle and satellites. It should also be considered in any application where a hostile chemical or extreme environmental conditions would preclude the use of an ordinary grease. Typical applications include ball and roller bearings, gears, and as an assembly lubricant for O-rings and elastomers. Perfluorinated greases, such as this product, exhibit excellent shelf life due to their intrinsic inertness.

Typical Characteristics

TEST METHOD	DESCRIPTION	RESULT
D 1403	Penetration @ 25°C (77°F), mm ⁻¹ Unworked	285
	Worked, 60 strokes	286
FTM 321	Oil Separation, 30 hrs, 204°C (400°F), % wt	11.1
	Evaporation Loss, % wt	0.62
D 1743	Rust Prevention	1,1,1,Pass
FTM 5309	Copper Strip Corrosion, 24 hrs, 100°C (212°F)	1b
D 2266	Four-Ball Wear-Test, AWSD, mm 1200 rpm, 40 kgf load, 1 hr, 75°C (167°F)	0.91
D 2265	Dropping Point, °F (°C)	213 (415)
D 2596	Four-Ball Extreme-Pressure Weld, kgf	800+
E 595 NASA SP-R-0022A	Vacuum Stability Test 24 hrs, 125°C (257°F), 10 ⁻⁶ torr	
	Total Weight Loss (TWL), % wt Volatile Condensable Material (VCM), % wt	0.36 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	RESULT
D 2512 (MSFC 106)	LOX Impact Sensitivity 100 mm, 20 drops	Pass
D 2595	Evaporation Loss, % wt, 22 hrs, 204°C (400°F)	0.87
FTM 3005 Particles	Micron Range 25 - 74 microns 75 microns or larger	116 None
1420	Pounds per gallon @ 16°C (60°F) Grams per milliliter @ 16°C (60°F)	16.7 1.948
Base Oil Characteristics		
D 287	Specific Gravity @ 16/16°C (60/60°F) Pounds per Gallon @ 16°C (60°F)	1.8531 15.43
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 601 EF is compatible with most commonly utilized materials, plastics, and elastomers. It 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 this product 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 601 EF is available in 2 oz and 4 oz (AVDP) disposable polypropylene syringes, 1 lb jars, and 1.75 lb cartridges. A specially prepared "micronic", ultra clean version is available upon request.

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Castrol Braycote 601 EF

Page 2 / 2

1 September 2009, Version 1