



## Braycote 600 EF

Grease, Rocket Propellant Compatible

### 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.

Temperature Range: -80°C to 204°C (-112°F to 400°F)

### Typical Characteristics

Name	Method	Units	600 EF
Unworked Penetration	ASTM D217 / IP 50	0.1 mm	288
Worked Penetration (60 strokes @ 25°C / 77°F)	ISO 2137 / ASTM D217	0.1 mm	288
Oil Separation (30 hrs @ 204°C / 400°F)	ASTM D6184 / FTM 321.2	% wt	11.83
Copper Corrosion (24 hrs, 100°C / 212°F)	ASTM D4048	Rating	1b
Dropping point	ASTM D2265	°C/°F	209 / 409
Four Ball Wear test - Wear Scar Diameter (40 kgf / 75°C / 1200 rpm / 1 hr)	ISO 51350 / ASTM D2266	mm	0.80
Four Ball Wear test - Wear Scar Diameter (40 kgf / 204°C / 1200 rpm / 1 hr)	ISO 51350 / ASTM D2266	mm	1.29
Four Ball Weld Load test - Weld Point	ISO 11008 / ASTM D2596	kgf	700+
Vacuum Stability	ASTM E595 / NASA SP-R-0022A	Total Weight Loss(% wt) / Volatiles (%wt)	0.20/0.03
Low temperature Torque @ -62°C / -80°F - starting torque	ASTM D1478	N/m	0.057
Low temperature Torque @ -62°C / -80°F - torque after 60 mins	ASTM D1478	N/m	0.022

Low temperature Torque @ -73°C / -100°F - starting torque	ASTM D1478	N/m	0.14
Low temperature Torque @ -73°C / -100°F - torque after 60 mins	ASTM D1478	N/m	0.062
LOX Impact Sensitivity (100 mm, 20 drops)	-	Pass	Pass
High Temperature Bearing Life test	ASTM D3336	hrs	586+
Outgassing Performance -Total Mass Loss under vacuum (48 hrs @ 150°C / 302°F)	ASTM E597-07	% wt	0.04
Outgassing Performance - Vapour Pressure @ 60°C / 140°F	ASTM E1559	Torr	7x10 <sup>-12</sup>
Outgassing Performance - Vapour Pressure @ 100°C / 212°F	ASTM E1559	Torr	6x10 <sup>-10</sup>
Outgassing Performance - Vapour Pressure @ 150°C / 302°F	ASTM E1559	Torr	4x10 <sup>-8</sup>
Density of finished grease @ 15°C / 59°F	In-house test	lb/gallon	15.70
Density of finished grease @ 16°C / 60°F	In-house test	g/ml	1.88
Specific Gravity @ 16°C / 60°F	ASTM D287	-	1.8531
Base Oil Density @ 15°C / 59°F	ISO 12185 / ASTM D4052	kg/m <sup>3</sup>	1848.9
Base Oil Viscosity @ 99°C / 210°F	ISO 3104 / ASTM D445	mm <sup>2</sup> /s	45
Base Oil Viscosity @ 38°C / 100°F	ISO 3104 / ASTM D445	mm <sup>2</sup> /s	148
Base Oil Viscosity @ -54°C / -65°F	ISO 3104 / ASTM D445	mm <sup>2</sup> /s	10,855
Viscosity Index	ISO 2909 / ASTM D2270	-	350
Pour Point	ISO 3016 / ASTM D97	°C/°F	-72 / -100
Knudsen Vapour Pressure @ 20°C / 68°F	-	Pa	0.000000000532
Knudsen Vapour Pressure @ 100°C / 212°F	-	Pa	0.00000266
Knudsen Vapour Pressure @ 200°C / 392°F	-	Pa	0.000266

## Additional Information

### 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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