



## Product Data

# Castrol Braycote<sup>®</sup> 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<sup>®</sup> 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<sup>™</sup> X100 or Castrol Fluoroclean<sup>™</sup> HE can be used to remove this lubricant. Refer to the data sheets for Fluoroclean<sup>™</sup> X100 and Fluoroclean<sup>™</sup> 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.

## Characteristics

TEST METHOD	DESCRIPTION	RESULT
D 1403	Penetration @ 25°C (77°F), mm <sup>-1</sup> Unworked Worked, 60 strokes	288 288
FTM 321	Oil Separation, 30 hrs, 204°C (400°F), % wt Evaporation Loss, % wt	11.83 0.20
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) 1200 rpm, 40 kgf, 1 hr, 204°C (400°F)	0.80 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 <sup>-6</sup> torr Total Weight Loss (TWL), % wt Volatile Condensable Material (VCM), % wt	0.20 0.03
D 1478	Low-Temperature Torque, g.cm @ -62°C (-80°F) Starting Running, 1 hr @ -73°C (-100°F) Starting Running, 1 hr	585 228 1430 637
D 2512 (MSFC 106)	LOX Impact Sensitivity 100 mm, 20 drops	Pass
D 3336	High Temperature Bearing Performance, hrs Outgassing test total mass loss, 48 hours @ 150°C, ~10 <sup>-9</sup> torr, % wt.	586+ 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 48 hours. @ 60°C (140°F) @ 100°C (212°F) @ 150°C (302°F)	7 x 10 <sup>-12</sup> 6x 10 <sup>-10</sup> 4 x 10 <sup>-8</sup>

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)	$4 \times 10^{-13}$ $2 \times 10^{-9}$ $2 \times 10^{-6}$

Health, safety and environmental information are provided for this product in the Materials Safety Data Sheet. This gives details of potential hazards, precautions and First Aid measures, together with environmental effects and disposal of used products. Castrol will not accept liability if the product is used other than in the manner or with the precautions or for the purpose(s) specified. Before using the product other than directed, please contact Castrol for consultation.

## 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.

Castrol Braycote 600 EF  
07.15.2005, Version Number 2.0  
Braycote 600 EF and the Castrol logo are trademarks of Castrol Limited.

All reasonable care has been taken to ensure that the information contained in this publication is accurate as of the date of printing. However, such information may, nevertheless, be affected by changes in the blend formulation occurring subsequent to the date of printing. Material Safety Data Sheets are available for all Castrol Ltd products. The MSDS must be consulted for appropriate information regarding storage, safe handling and disposal of a product.

Castrol Industrial North America Inc. 150 West Warrenville Road, 605 3E Naperville, IL 60563  
Tel: (877) 641 1600 Fax: (877) 648 9801

[www.castrol.com/industrial](http://www.castrol.com/industrial)