



## Product Data

# Castrol Braycote® Micronic 600 EF

Grease, Rocket Propellant Cooler  
Low Temperature

## Description

Castrol Braycote Micronic 600 EF is a smooth, buttery, translucent off-white colored, NLGI #2 grease. This product 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 (CFCs) 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 information regarding these products.

## Application

Braycote Micronic 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 this product, 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	284 286
FTM 321	Oil Separation, 30 hrs, 204°C (400°F), % wt Evaporation Loss, % wt	12.14 0.18
FTM 5309	Copper Strip Corrosion 24 hrs, 100°C (212°F)	1b
D 2265	Dropping Point, °C (°F)	214 (417)
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)	0.91 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	586+
FTM 3005	Particulate Contamination Level 25-74 Microns 75 or larger	286 None
	Outgassing test total mass loss, 48 hours @ 150°C, ~10 <sup>-6</sup> torr, % wt.	0.04
K 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)	$7 \times 10^{-12}$ $6 \times 10^{-10}$ $4 \times 10^{-8}$
	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 Micronic 600 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 or 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 Micronic 600 EF is packaged in 2 oz (AVDP) disposable polypropylene syringes and 1 pound jars.

Castrol Braycote Micronic 600EF  
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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.

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