

# CERAKOTE®

## Friction and Wear Properties of Cerakote Elite™ Midnight vs Chemours' Teflon®

Coefficient of friction (COF,  $\mu$ ) is used to measure a material's 'slickness' or how well it slides against another material. The lower the COF number, the 'slicker' the material is. In general, the frictional properties of tight-tolerance, high wear parts can be improved by using a low COF coating. These low COF coatings can reduce wear, increase longevity and reduce heat generated from friction. When comparing coatings' COF, it is important to measure them the same way, and also in a way that makes sense based on their intended use. For example, you wouldn't test a frying pan the same way you would test a gear or sprocket, even if they had the same coating. Frying pans don't grind against other parts under high pressure, and gears aren't used to cook eggs.

Cerakote Elite™ Midnight (E-110) was compared to Teflon® (954G-303T), a well-known industry-leading low COF coating, using a high-frequency reciprocating wear test known as TE-77. This method of testing most closely replicates the real-world environment of reciprocating high-performance parts such as firearms, pumps, valves and other moving mechanical components in highly demanding environments. Tribologix, an independent surface engineering laboratory, performed three separate test cycles comparing Cerakote Elite™ Midnight (E-110) to Teflon® (954G-303T) at a reciprocating speed of 120mm/sec, 30 times per second with 130,000psi contact pressure for 400,000+ cycles. The result averages are shown in table 1 below.

COATING	COF $\mu$ Avg.
CERAKOTE ELITE™ MIDNIGHT .....	0.107 ✓
TEFLON® (954G-303T) .....	0.110

Table 1

Cerakote Elite™ showed an average COF of 0.107, while Teflon® showed an average COF of 0.110. While the results show that Cerakote Elite™ has a slight advantage, the results are within the margin of error.

**The conclusion is that under reciprocating wear conditions, Cerakote Elite™ has a COF that rivals Teflon™.**

Moreover, the testing shows that Cerakote Elite™ is over *8 times* more abrasion and corrosion resistant than Teflon®! This makes Cerakote Elite™ the perfect coating for low tolerance, high wear, low friction applications.

Coating with Cerakote Elite™ can extend the life of parts that have a tendency to wear or gall. However, the benefits of this coating extend far past just a low COF; Cerakote Elite™ coatings also provide unmatched corrosion protection, extremely high abrasion and chemical resistance, and are available in several modern colors. For a complete data sheet visit [Cerakote.com](https://cerakote.com)

Teflon® is a registered trademark and a brand name owned by Chemours.

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