QUALITY ENDURES.

ORGANIC FRICTION MODIFIER
Motion.Mastered.

X Additin® RC 3502

QUALITY WORKS.
LANXESS HAS DEVELOPED A TRULY UNIQUE ORGANIC FRICTION MODIFIER LUBRICANT ADDITIVE WHICH CONTRIBUTES UP TO A 5%\(^1\) IMPROVEMENT IN FUEL ECONOMY FOR THE PASSenger CAR MOTOR OIL MARKET.

\(^1\) fuel economy benefit calculated from sequence VIE engine test FEI sum over SAE20W-30 baseline
Effective lubrication plays a critical role in fuel efficiency. The automotive industry’s increased attention to greater fuel economy and lower emissions, creates the need for lower viscosity engine oils and non metallic lubricant additives.

LANXESS’s new patented organic friction modifier lubricant additive Additin® RC 3502 delivers significantly enhanced friction reduction, performance retention and anti-wear protection.

Our new technology provides formulators the option to increase fuel economy while reducing the levels of metallic friction modifiers, without compromising fuel efficiency performance. Fully compatible with all synthetic engine oils and non corrosive, our additive delivers outstanding performance when needed the most.

‘ MAKE YOUR MOVE TOWARDS TRUE MOTION TODAY. ’
PRODUCT FEATURES

- Organic with zero sulfated ash, phosphorus and sulfur
- Non-corrosive, stable
- Clear, light amber liquid - compatible in a range of Group I – V formulations

BENEFITS

- Friction reduction performance is far greater than current organic friction modifiers
- Enhanced performance retention (GMO, molybdenum friction modifiers lacking in durability)
- Optimize molybdenum friction modifier concentrations without compromising friction reduction performance
- Fully compatible and safe with all oil and additive types
- Greater friction reduction with Mg sulfonate detergents (including Hybase® M-401)

KEY MARKETS & APPLICATIONS

- Passenger car engine oil
- High performance racing oil
- Heavy duty diesel oil
- Railroad oil
TRIBOLOGY DATA FRICTION REDUCTION WITH SPEED - STRIBECK CURVE

PASSENGER CAR MOTOR OIL

Boundary lubrication at lower speeds - responds

Lower viscosity oils have higher CoF at boundary

Organic friction modifier (Additin® RC 3502) does not need time to activate

This document contains important information and must be read in its entirety.
ENGINE DATA (SEQUENCE VIE) FUEL ECONOMY INCREASE PASSENGER CAR MOTOR OIL

- 5% FEI-Sum over SAE 20W-30 baseline ~1.2x proposed specifications for GF6
- FEI retention values 84% - 90%
- MoDTC, Additin® RC 3502 similar performance
- Strong performance of Additin® RC 3502 even at 0.5%

![Bar chart showing fuel economy increase for different treatments](chart.png)
This document contains important information and must be read in its entirety.

## TE-77 FRICTION MODIFIER PERFORMANCE RETENTION

### EXTENDED HOLD STUDY

- Isothermal (160°C) study of friction change over time
- Initially MoDTC has better friction performance than Additin® RC 3502 up to 12hrs
- After 12hrs there is a steady loss in friction performance up to 32hrs which is not observed in Additin® RC 3502
- Additin® RC 3502 remains constant up to 46hrs after which time MoDTC and Additin® RC 3502 are equivalent in friction reduction performance

![Graph showing Coefficient of friction (CoF) over time for 1% MoDTC, 1% Additin® RC 3502: Full formulated SAE 0W-20 durability testing 160°C](image-url)

- **End of standard Test CoF vs. 1**
- **Both approach CoF 0.7 Level Off**

This document contains important information and must be read in its entirety.
This information and our technical advice – whether verbal, in writing or by way of trials – is subject to change without notice and given in good faith but without warranty or guarantee, express or implied, and this also applies where proprietary rights of third parties are involved. Our advice does not release you from the obligation to verify the information currently provided - especially that contained in our safety data and technical information sheets - and to test our products as to their suitability for the intended processes and uses. The application, use and processing of our products and the products manufactured by you on the basis of our technical advice are beyond our control and, therefore, entirely your own responsibility. Our products are sold in accordance with the current version of our General Conditions of Sale and Delivery. Unless specified to the contrary, the values given have been established on standardized test specimens. The figures should be regarded as guide values only and not as binding minimum values. Kindly note that the results refer exclusively to the specimens tested. Under certain conditions, the test results established can be affected to a considerable extent by the processing conditions and manufacturing process.

©2019 LANXESS. Additin®, Hybase®, LANXESS and the LANXESS Logo are trademarks of LANXESS Deutschland GmbH or its affiliates. All trademarks are registered in many countries in the world.

This document contains important information and must be read in its entirety.