

ECLIPSE VR *Varnish Resistant Hydraulic Fluid*



***Reduce Varnish Problems in
Your Hydraulic Systems...***

Because Varnish Can Be Costly



REDUCE DOWNTIME & EQUIPMENT FAILURE



REDUCE CYCLE TIME



REDUCE HYDRAULIC OIL USAGE



ECLIPSE VR

Varnish Resistant Hydraulic Fluid

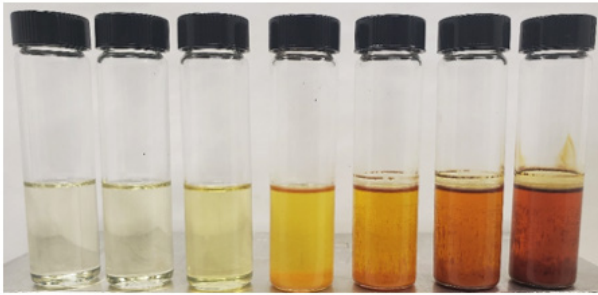
Product Development Insights

Varnish formation is known to add cost and create problems that can lead to failure in high heat hydraulic systems, e.g., plastic injection molding. The ability of a hydraulic fluid to minimize thermal degradation, oxidation, and varnish formation is key to the effective operation of these hydraulic systems.

We listened to our customers trying to manage varnish problems and developed new technology to minimize varnish in high heat hydraulic systems. This new technology has been instrumental in the development of **ECLIPSE VR**.

A FULLY FUNCTIONAL HYDRAULIC SYSTEM IS KEY TO EFFECTIVE AND EFFICIENT INJECTION MOLDING

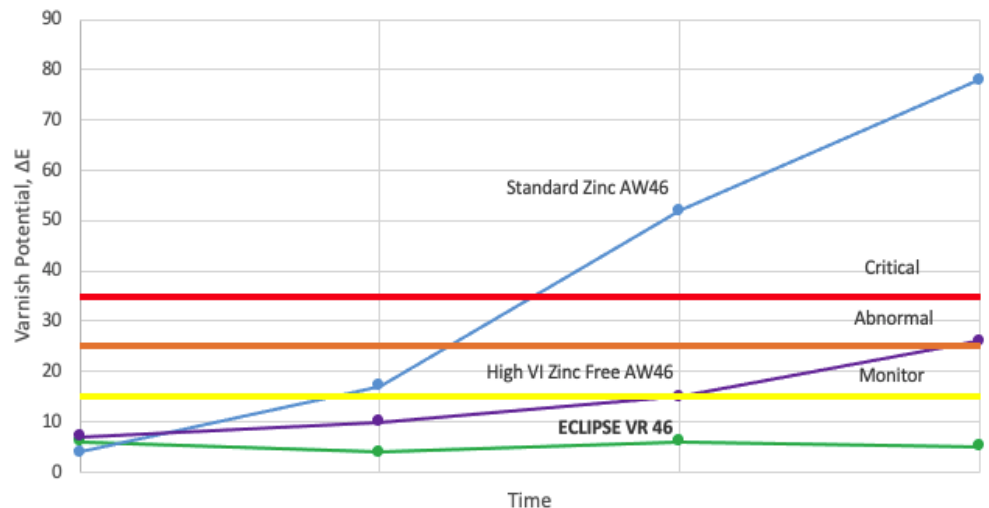
Sticky varnish deposits increase friction, cause valve failure, reduce machine efficiency, and lead to mechanical failure. Increased temperatures accelerate oil oxidation, but it is difficult to predict when the adverse consequences will compromise machine operations. While the presence of oxidation can be linked to varnish formation, Benz research has shown that some fluids varnish heavily with very little oxidation, while other fluids may be heavily oxidized but produce little or no varnish.



Oxidative Effect on Mineral Oil Over Time

By degrading oils in a precise and predictive environment, the Benz technology team has learned how to modify hydraulic oil chemistry to minimize varnish formation as measured via Membrane Patch Colorimetry (MPC). The Benz **ECLIPSE VR** series is the result of this exciting breakthrough.

Formulated Product Varnish Potential



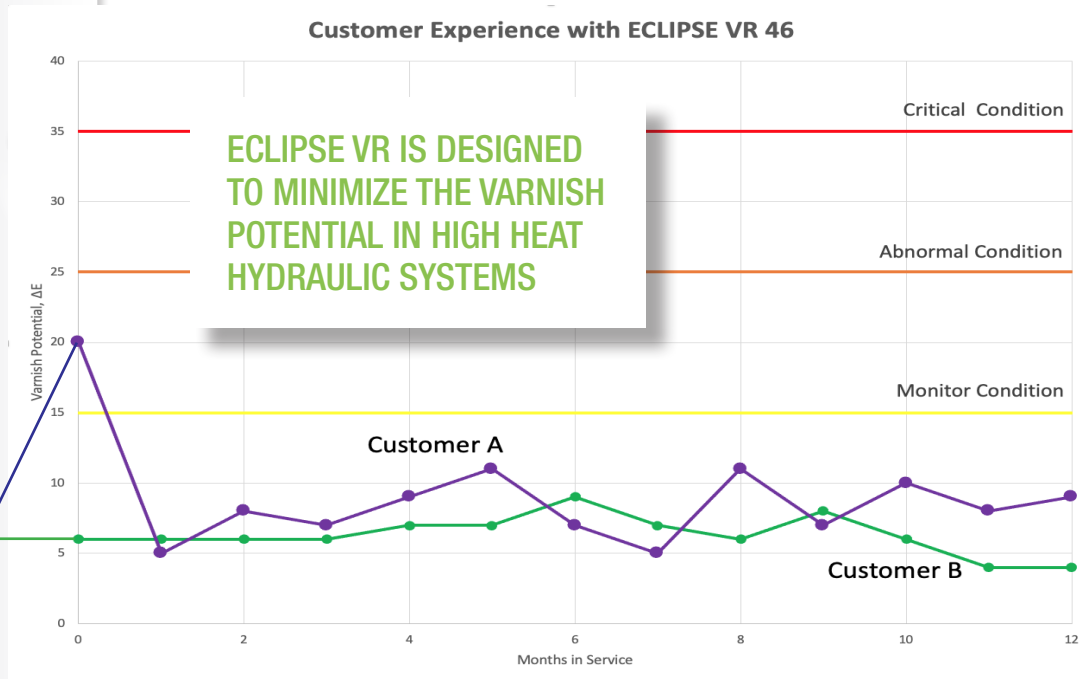
Varnish Levels of Various Types of Hydraulic Fluids Over Time

ECLIPSE VR

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Customer Experience

ECLIPSE VR was tested at two customer locations for over 12 months, both showing very low varnish potential levels via MPC testing. Customers were pleased with the results that were obtained during the testing period – no varnish occurred in their machines.



→ **Customer A** – Decrease in varnish deposit reduced machine downtime by 40 hours -less time required to clean machines and change oil – valve issues reduced, machine speeds optimized, and oil usage decreased by 50% - \$160,000 in annual operational savings is expected.

→ **Customer B** – Time between oil changes increased 2x resulting in \$3000 annual savings per machine. Reduced valve repair, labor, and lost production time across the facility produced \$60,000 annual savings.

Utilizing ECLIPSE VR will enable a proactive maintenance philosophy. Benz has the personnel, product technology, and the experience to help solve your hydraulic issues, including varnish formation. All allowing you to focus on the important activity of manufacturing parts.

MARTIN®

Contact your Martin Sales Rep today or call 800.828.8116.

the BENZ story



120 YEARS OF ADVANCING LUBRICATION

Founded in 1898, Benz has been a leader in supporting manufacturers by developing industrial fluids and lubrication technology for over 120 years. Technology has been in a constant state of change and Benz has had over a century of success adapting and understanding how carefully formulated products, working with the right people, and understanding customer operations, can meet the challenges of a global industrial market.

Benz has the capabilities to develop a product from a manufacturing need, through the R&D process, into production and to the customer - providing unparalleled value. With one of the largest on-site storage facilities for raw materials in the Midwest and unmatched technical resources, Benz is a proven leader in grinding fluid technology that allows collaboration to find the best product to meet needs and reduce overall costs for customers.

Customer focused service, expert handling, and laboratory excellence supports the products Benz delivers manufacturers. These products are the result of Benz's high level of interest in solving customer's unique requirements and the technical ability to deliver desired results.

Benz creates innovative and unique products that go beyond equipment manufacturer specifications to meet customer needs. Benz has the people, the laboratory, and technical competence to help customers identify and implement positive change. Benz customers know the difference and see the benefits in their performance.

