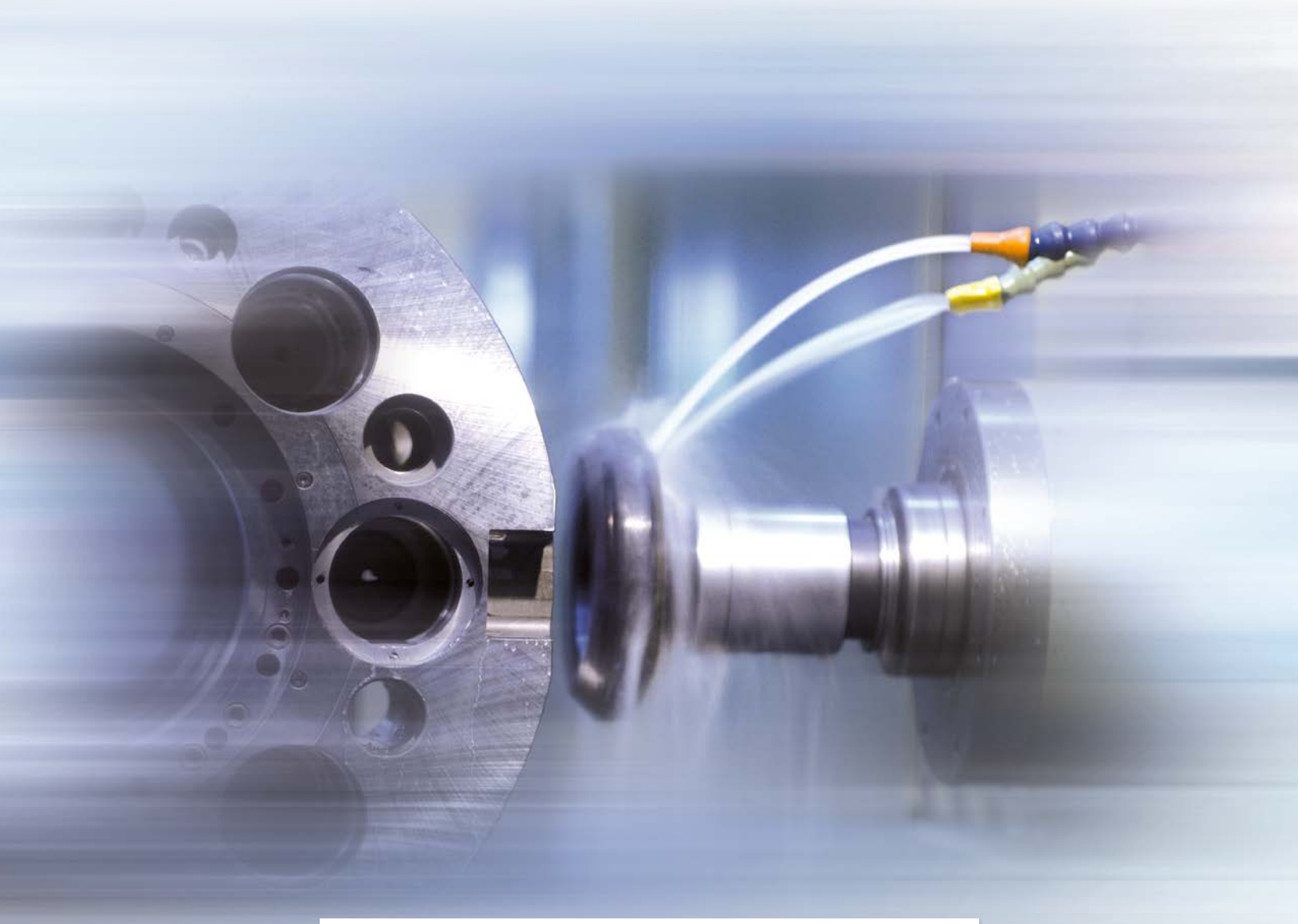


QUALITY PERFORMS.



WATER-MISCIBLE ADDITIVE PACKAGES

High-Performance Solutions for Metalworking Fluids

QUALITY WORKS.

LANXESS
Energizing Chemistry

ADDITIN® RC 5550 A, RC 5560 A, RC 5570 A

High-performance packages for synthetic metalworking fluids

Our new Additin® WM synthetic packages are balanced formulations designed for further dilution in water to provide a market-ready metalworking fluid concentrate. These high-quality packages offer a simple and straightforward blending process and help to reduce inventory requirements for multiple components. Depending on specific product features and end-use applications, supplemental additives may or may not be incorporated in the final formulation.

Product appearance (synthetic)



Additin® WM packages for synthetic base oils

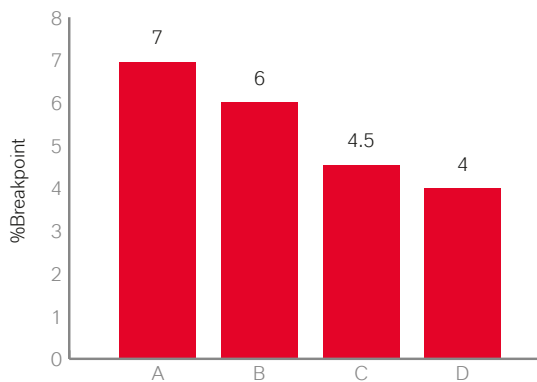
Additin®	Features and expected benefits
RC 5550 A	■ Ultra-low foaming, corrosion protection, simplified blending
RC 5560 A	■ Reduced cobalt leaching during metal carbide applications, excellent corrosion protection, low foaming
RC 5570 A	■ Corrosion protection, low odor, outstanding tramp oil rejection

Additin®	Applications
RC 5550 A	■ Designed for general grinding applications such as surface, cylindrical and centerless grinding
RC 5560 A	■ Designed to prevent cobalt leaching during metal carbide applications
RC 5570 A	■ Suitable for most water-extendable lubricant applications, including drilling, reaming and thread cutting

As with any product, the use of the products mentioned in this publication in a given application must be tested (including field testing, etc.) by the user in advance to determine suitability.

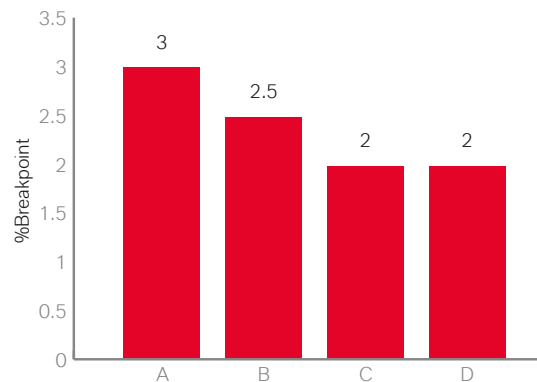
Corrosion testing - Performance of Additin® water-miscible packages

IP 287 Breakpoint



A – 40% package, 60% water **C** – 60% package, 40% water
B – 50% package, 50% water **D** – 70% package, 30% water

FIG.1 Additin RC 5570 A, Synthetic package



A – 50% package, 40% base fluid, 10% water
B – 60% package, 30% base fluid, 10% water
C – 70% package, 20% base fluid, 10% water
D – 45% package, 5% Additin RC 5402, 40% base fluid, 10% water

FIG.2 Additin RC 5661 A, Semi-synthetic package

ADDITIN® RC 5611 A, RC 5650 A, RC 5661 A, RC 5666 A High-performance packages for semi-synthetic metalworking fluids

Our new Additin® Water-Miscible (WM) semi-synthetic packages are balanced formulations designed for further dilution in water and/or oil to provide a market-ready metalworking fluid concentrate. These high-quality packages offer a simple and straightforward blending process and help to reduce inventory requirements for multiple components. Depending on specific product features and end-use applications, supplemental additives may or may not be incorporated in the final formulation.

Product appearance (semi-synthetic)



Additin® WM packages for semi-synthetic base oils

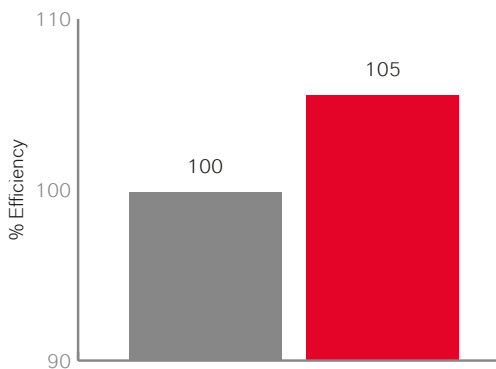
Additin®	Features and expected benefits
RC 5611 A	■ Boron-free, chlorine-free, low foaming, corrosion protection, naphthenic oils
RC 5650 A	■ Excellent corrosion protection, bio-resistant (contains biocide), simplified blending
RC 5661 A	■ Low foaming, high lubricity, naphthenic oils
RC 5666 A	■ Corrosion protection, hard water stability, naphthenic and paraffinic oils

Additin®	Applications
RC 5611 A	■ Multipurpose applications for ferrous-based materials as well as aluminum alloys
RC 5650 A	■ Grinding, drilling, cutting, forming and reaming applications for cast iron and ferrous-based materials, including stainless steel
RC 5661 A	■ Multipurpose applications for ferrous-based materials, including stainless steel
RC 5666 A	■ Multipurpose applications for ferrous-based materials, including stainless steel

As with any product, the use of the products mentioned in this publication in a given application must be tested (including field testing, etc.) by the user in advance to determine suitability.

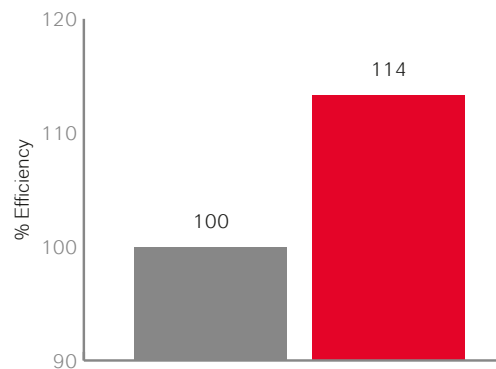
Tribological performance of Additin® water-miscible packages

Microtap testing ASTMD - 5619



■ Reference - Competitor
■ Semi-synthetic package blend - Additin® RC 5611 A

FIG.3 Microtap Testing Cutting Tap 1018 Steel
5% Emulsion



■ Reference - Competitor
■ Semi-synthetic package blend - Additin® RC 5611 A

FIG.4 Microtap Testing Forming Tap 1018 Steel
5% Emulsion

Additin® single component additives for heavy-duty metalworking fluids

Additin® WM packages can be used to design products for more advanced and demanding applications by blending them with Additin® single component additives that provide additional lubricity, EP and corrosion inhibition.

	Additin®	Chemistry	Compatibility with water-miscible packages
Lubricity additives With multi-functional properties	RC 8100	Highly viscous complex ester	RC 5611 A, RC 5650 A
	RC 8103	Polyolester	RC 5661 A, RC 5666 A
	RC 5010	Polymer	RC 5550 A, RC 5560 A, RC 5570 A
Extreme pressure additives	RC 2540	Dialkyl Pentasulfide	RC 5611 A, RC 5650 A, RC 5666 A
	RC 2526	Sulfurized fatty acid ester	RC 5661 A
	RC 5201	S-N additive	RC 5550 A, RC 5560 A, RC 5570 A
Corrosion inhibitors	RC 5402	Complex Triazine	RC 5611 A and others

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