

NA-SUL[®] EDS Performance in HLP-Type Fluids

NA-SUL EDS imparts outstanding steel corrosion protection and demulsibility to formulated functional fluids. It is recommended for use at 0.05%-1.0% by weight to formulate HLP-type fluids. HPL fluids are anti-wear hydraulic fluids as defined by DIN 51524 part 2.

TESTS	FORMULATIONS	0.6% ZDDP	0.6% ZDDP 0.1% NA-SUL EDS
Base Oil		ISO VG 46 (Group II)	ISO VG 46 (Group II)
Steel Corrosion (ASTM D 665, DIN 51 585) A & B		Fail	Pass
Demulsibility (ASTM D 1401, DIN 51 599) Oil-Water-Emulsion Time (minutes)		42-10-28 30	39-39-2 20
Copper Corrosion (ASTM D 130, DIN 51 759) 3 hours, 100°C 3 hours, 135°C 3 hours, 160°C		1b 1b 1b	1b 1b 1b
Four Ball Wear (ASTM D 4172) 1 hour, 75°C, 40 kg, 1200 rpm Scar Diameter (mm)		0.47	0.47
Four Ball Weld (ASTM D 2783) 10 seconds, 25°C, 1800 rpm OK Load (kg) Weld Load (kg)		100 120	100 120
FZG A/8.3/90 (ASTM D 5182, DIN 51 354 Part 2) Damage Load Stage		11	10

The results shown reflect data generated by King Industries' Technical Service Laboratory. Actual results may vary depending on the additive package, base oil, and test equipment design.

HLP-Type fluids can be developed using **NA-SUL EDS** as the corrosion inhibitor/demulsifier portion of the formulation.

This table compares the performance of an HLP-type fluid with and without **NA-SUL EDS**. The fluid without **NA-SUL EDS** failed the steel corrosion and demulsibility tests. Inclusion of **NA-SUL EDS** in the formulation imparted excellent steel corrosion protection and demulsibility and exhibited no adverse effects on other performance tests including copper corrosion, four ball wear and four ball weld.

(see reverse side)

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For Samples or Technical Service, contact King Industries or your King representative.

King Industries, Inc.
Science Road
Norwalk, CT 06852-0588
Tel: 203-866-5551
Fax: 203-866-0425
E-mail: LAD@kingindustries.com

King Industries International, Inc.
Science Park 402,
1098 XH Amsterdam
The Netherlands
Tel: +31-20-723-1970
E-mail: info@kingintl.nl

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