



Product Focus • Customer Commitment • Performance Flexibility

NAXONAC® 817LF

Product Data Sheet

LOW FOAMING PHOSPHATE ESTER

Description:

Catexel Nease LLC offers a growing list of phosphate esters under the **NAXONAC®** trade name. As an anionic surfactant, one of the main advantages of phosphate esters is their stability and solubility in alkali systems. They can be used as hydrotropes to couple nonionic surfactants systems which are not soluble and at the same time increase wetting and detergency properties. The presence of the phosphate group interacts with metallic surfaces, thereby exhibiting anti-corrosion and metal-adhesion characteristics. They can be used as additives in oil and water-soluble lubricant systems to improve lubricity, anti-frictional properties of the formula. Phosphate esters also find use as emulsifiers in emulsion polymerization.

CAS

Proprietary

Naxonac® 817LF is designed to meet your needs as an emulsifier, wetting agent, anti-wear additive, corrosion inhibitor and extreme pressure (EP) additive in lubricants and various metalworking fluids. It has a unique property as a low foam metalworking fluid additive.

Typical Properties:

Appearance	Clear to yellow liquid
Flash Point, (open cup)	> 212 °F
Pour Point	15°C
Solubility in Water	Dispersible

Product

Specifications:

Property	Specification
Appearance	Clear liquid
Acid number (1 st infl.)	190.0-210.0
Phosphoric acid (%)	3.0 Max

Applications:

Lubricants, Corrosion inhibitors, detergents, metalworking fluids and wetting agents

Performance data:

Foaming test:

As the graph (Figure 1) illustrates, Naxonac® 817LF has the best low foaming ability compared to the Control (a well-known metalworking fluids additive) and our other metalworking phosphate ester additives (Naxonac® 184). The low foaming trend was similar in different types of metalworking fluid formulations. The foam test was carried out at 0.125% concentration (neat ester) or 5% as metalworking fluid formulation. This is a hand shake foam test where the foam height is measured over 10 min.

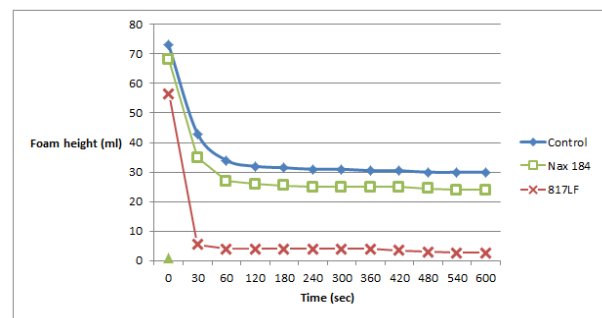


Figure 1: Foam test result for Naxonac® 817LF

Limited Warranty

The products sold by Catexel Nease LLC ("Seller") shall conform to the Seller's current published specifications. Seller makes no other warranty, express or implied, including warranty of merchantability or fitness for particular use, whether product is used singly or in combination with other substances or in any process. Nothing contained herein should be considered as a recommendation for use of any product or method in violation of any valid patent now effective or which may issue hereafter. Prior testing for fitness for use, and compliance with all applicable statutes by the user is a strict condition on the sale of any and all of Seller's products.

Iron Chip Corrosion test:

MWF formulations containing Naxonac® 817LF behaved the same as other phosphate ester based metalworking fluid. Their formulations passed the 24hr iron chip corrosion test (ASTM D4627) in soluble oil, semi synthetic and synthetic metalworking fluid (MWF) formulations at 5% concentration in 100ppm hard water. The results of the corrosion test in semi-synthetic MWF is shown in figure 2.

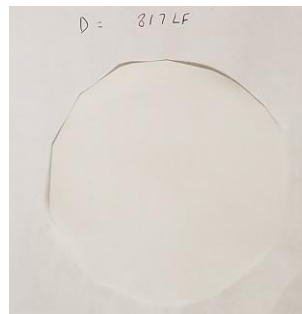


Figure 2: Iron chip corrosion test result for Naxonac® 817LF

Aluminum Corrosion test:

This product also showed no aluminum staining in a 24 hour period in most metalworking formulations at 5% concentration in the pH range of 8.8-9.2 at room temperature. Figure 3 illustrates the results of the non-staining of aluminum in soluble oil metalworking fluid formulation containing Naxonac® 817LF.



Figure 3: Aluminum corrosion test result for Naxonac®817LF

Lubricity test:

The lubricity test was obtained from testing on a Microtap Tauro 120T instrument on aluminum 6061-T6. This test measures the average torque over the specified portion of the metal cut. The lower the torque, the better the metalworking formulation; which generally means the higher the efficiency of the additive in the formulation. Naxonac® 817LF was tested against the Control (a commercial product) and Naxonac® 184 in soluble oil, semi-synthetic and synthetic metalworking formulas. The results of the testing done at 5% concentrations are presented below.

Soluble oil MWF Formulation:

From the data below (Figure 4) the formulations with Naxonac® 817LF shows slightly better lubricity performance than the Control and equal or slightly better than Naxonac®184.

Components	%
Alkyl Aryl Sulfonate	12.96
Alcohol Ethoxylate	5.4
Alkanoamine	1.14
Fatty Acid	2.14
Glycol Coupler	2.16
Water	1.26
Naxonac® 817LF	6.00
Base Oil	68.94

Table 1: Components of Soluble oil MWF formulations

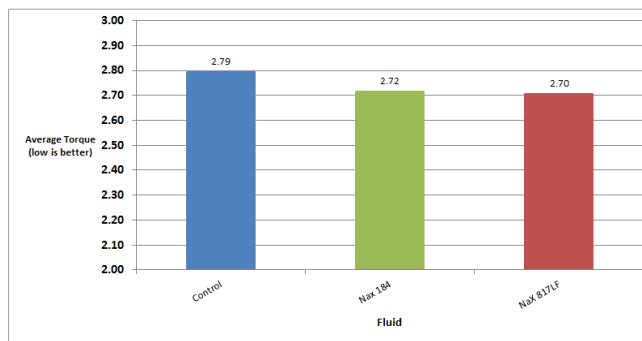


Figure 4: Aluminum 6061 tapping data for Naxonac® 817LF

Semi-Synthetic MWF Formulation:

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The results depicted below (Figure 5) further shows that the addition of Naxonac® 817LF to a semi-synthetic metalworking fluid (MWF) formulation enhanced the performance of the formulation. This product is better than the Control and Naxonac® 184 in this formulation

Components	%
Natural Alkyl Aryl Sulfonate	14.00
Glycol Coupler	8.00
Base Oil	10.00
Fatty Acid	8.00
Substituted Oxazoline	4.00
Naxonac® 817LF	2.40
Alkanolamine	4.70
Alkali Hydroxide	1.34
DI Water	47.56

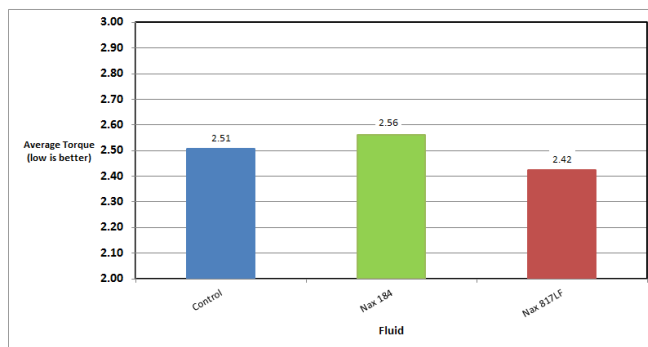


Table 2: Components of Semi-synthetic MWF formulations

Figure 5: Aluminum 6061 tapping data for Naxonac® 184

Synthetic MWF Formulation:

As shown in Figure 6 Naxonac® 817LF has good lubricity performance compare to the Control and other metalworking phosphate ester additive (Naxonac® 184) tested in the same synthetic metalworking formulations

Components	%
Fatty Acid	5.00
Glycol Ester	9.00
Naxonac® 817LF	4.00
Alkanolamine	12.00
DI Water	70.00

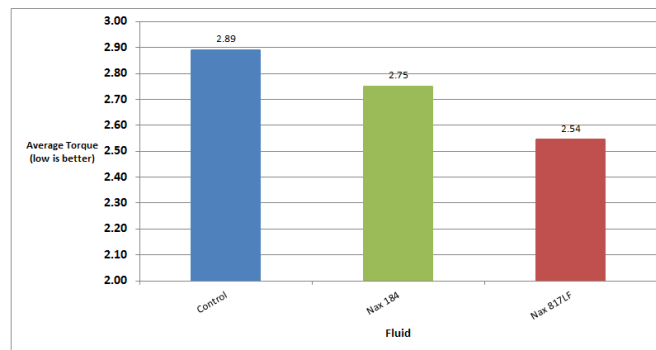


Table 3: Components of Synthetic MWF formulation

Figure 6: Aluminum 6061 Tapping data for Naxonac® 817LF

Storage and Handling:

Store covered in a dry, well ventilated area. Keep container tightly closed when not in use. Prevent from freezing. Store material above 20°C (68°F).

Availability:

55 gallon drum, 275 gallon tote

Chemical Control Law Status:

This product is in compliance with the inventory listing requirements of the Chemical Control Laws in the following countries: United States of America, Canada (NDSL), Europe, Korea, and Japan

Transport Regulations

Shipping Description: DOT Non-Regulated
 Hazard Class: NA ID Number: NA Packing Group: NA Label: None

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