

DeTERGE LF-7315

DeTERGE LF-7315 is a low foaming, modified amphoteric recommended for use in highly alkaline and acidic systems. **DeTERGE LF-7315** is easy to formulate into caustic (up to ~40% active) and alkaline electrolytes, or into a wide variety of highly acidic systems.

DeTERGE LF-7315 can be used as the primary surfactant and will provide wetting and detergency in both acid and alkaline systems. Due to its excellent solubility, the need for a hydrotrope may be eliminated. It is biodegradable, non-phenolic and phosphate free.

SPECIFICATIONS

Appearance @ 25°C:	Clear liquid
pH (5% in DI water):	8.5 +/- 1.5
% Solids:	54.0 +/- 1.5
Color (Gardner):	10 max.

SOLUBILITY DeTERGE LF-7315 is soluble in water, alcohols and glycols and dispersible or insoluble in solvents and oils.

TYPICAL PROPERTIES

Density @ 25°C ~1.1 g/ml

- Excellent caustic and alkaline electrolyte stability
- Soluble & stable in a wide variety of acids
- Excellent surface tension reduction and fast wetting properties
- Hydrotrope for nonionics in highly alkaline systems
- Low foam
- May eliminate the need for hydrotropes or other surfactants in alkaline systems
- Good detergency
- Approved for use as Inerts in non-food pesticide formulations

SUGGESTED APPLICATIONS

- Low foam caustic and/or acid cleaners
- Highly acidic cleaners, acid pickling
- Mechanical dishwashing detergents
- Metal cleaners
- Alkaline plating baths
- Hard surface cleaners
- Paints and coatings
- Textile scouring
- Steam cleaners
- Food plant cleaners
- Oven cleaners
- CIP cleaners

Note: Additional products in the DeTERGE LF series include **DeTERGE LF-28** and **DeTERGE LF-531** which are soluble in $\leq 20\%$ NaOH. Please refer to the associated product bulletins for additional information on these products.

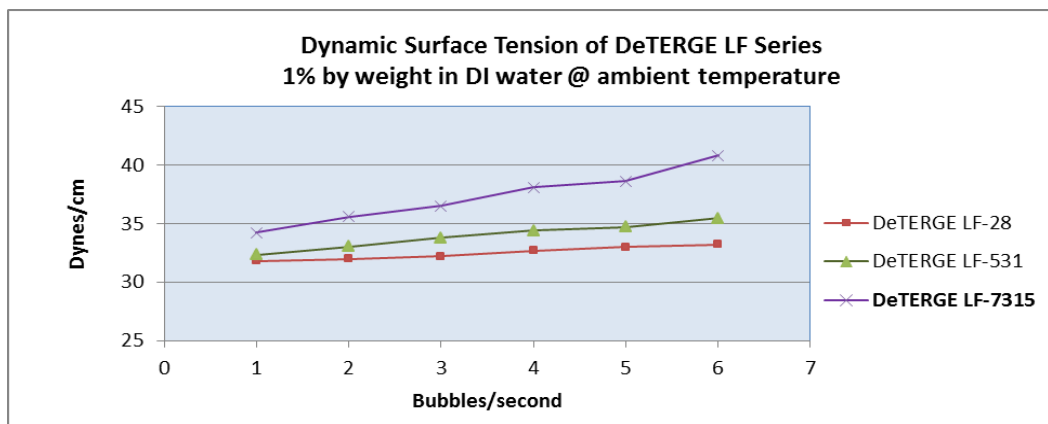
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APPLICATION DATA

Dynamic Surface Tension: The DeTERGE LF surfactants were tested at 1% by weight in deionized water at ambient temperature using a SensaDyne QC6000 Surface Tensiometer.



DeTERGE LF-7315 in CAUSTIC AND ALKALINE ELECTROLYTES

Table 1. Days Stable in Caustic and Electrolytes @ 25°C: DeTERGE LF-7315 was tested at 3% by weight. The data reflects the minimum number of days that the products remained clear and stable @ 25°C.

% Active	Days Stable
10% NaOH	90
20% NaOH	90
30% NaOH	90
30% KOH	90
30% TKPP	90
10% SMP	21
20% Soda Ash	42
10% TSP	28

Table 2. Cloud Point, Foam Height, Draves Wetting, 1% by Weight

% Active	Cloud Point (°C)	Foam Height (mL)	Draves Wetting (seconds)
10% NaOH	70	Initial 91 2 min. 48	4
20% NaOH	75	Initial 90 2 min. 45	21
30% NaOH	70	Initial 70 2 min. 46	57

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DeTERGE LF-7315 PERFORMANCE IN ACIDS (continued)

CLOUD POINT DATA: The following table presents the cloud points of 1% DeTERGE LF-7315 by weight in various acids. All solutions are clear at ambient temperature.

Acid (% Active)	Haze Point, °C	Cloud Point, °C
15% Phosphoric	~56	>100
15% Hydrochloric	~65	>100
15% Glycolic	>100	>100
15% Sulfuric	~50	>100
15% Nitric*	~52	>100
15% Acetic	>100	>100
30% Phosphoric	~45	>100
15% Methanesulfonic	~58	~62
30% Hydrochloric	~65	>100
30% Glycolic	>100	>100
30% Sulfuric	~55	>100*
30% Nitric*	~55	>100
30% Acetic	>100	>100
30% Methanesulfonic	~58	~62

*develops a pale brown hue

ACID STABILITY: DeTERGE LF-7315 was added at 5% by weight to various acid solutions and stored at 25°C and 43°C for 90 days. The final appearance is noted in the table below.

Acid (% Active)	25°C	43°C
15% Phosphoric	Clear	Clear
15% Hydrochloric	Clear	Clear
15% Glycolic	Clear	Clear
15% Sulfuric	Clear	Clear
15% Nitric*	Clear	Clear
15% Acetic	Clear	Clear
15% Methansulfonic	Clear	Clear
30% Phosphoric	Clear	Clear
30% Hydrochloric	Clear	Clear
30% Glycolic	Clear	Clear
30% Sulfuric	Clear	Clear
30% Nitric	Clear	Clear*
30% Acetic	Clear	Clear
30% Methanesulfonic	Clear	Clear

* develops a pale brown hue

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DeTERGE LF-7315 PERFORMANCE IN ACIDS

Foam Height

The following charts illustrate the foam height in various acids determined via Modified Ross Miles Graduated Cylinder Shake Test at ambient temperature. All solutions are clear liquids.

