

## DeTERGE CS-45LF

**DeTERGE CS-45LF** is a unique, economical, low foaming, chlorine stable, anionic surfactant for use in products containing up to 15% active caustic and other alkaline electrolytes. Chemically described as an alkoxyated carboxylate, it's designed for use in alkaline systems only. Not recommended for use in acid systems.

### SPECIFICATIONS

Appearance @ 25°C:	Clear almost colorless liquid
pH (5% in DI water):	9.0 – 11.0
% Activity:	43 +/- 1.5%
Color (Gardner):	1 max.

**SOLUBILITY** (at 10% by weight): DeTERGE CS-45LF is soluble in water, alcohols and glycols and insoluble/dispersible in most solvents.

### TYPICAL PROPERTIES

Density @ 25°C ~1.06 g/ml

- Chlorine stable
- Very low foaming (low flash foam)
- Emulsifier
- Hydrotrope
- Good detergency & wetting
- Dispersant
- Biodegradable
- Hard water stable
- Excellent caustic & alkaline electrolyte stability
- Cloud point >90°C @ 1% by weight in DI water

### APPLICATIONS

- Alkaline, low foaming, automatic dishwashing detergents
- Highly alkaline food plant cleaners
- Chlorine containing cleaners
- Primary surfactant or hydrotrope in low foaming alkaline cleaners
- Stable for use in dry caustic formulations
- Industrial laundry detergents
- Metalworking fluids

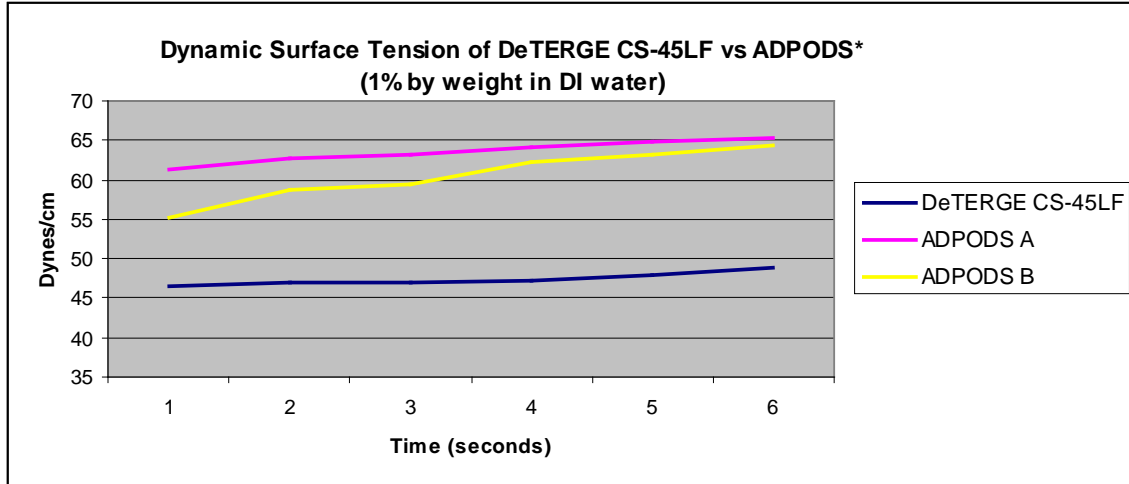
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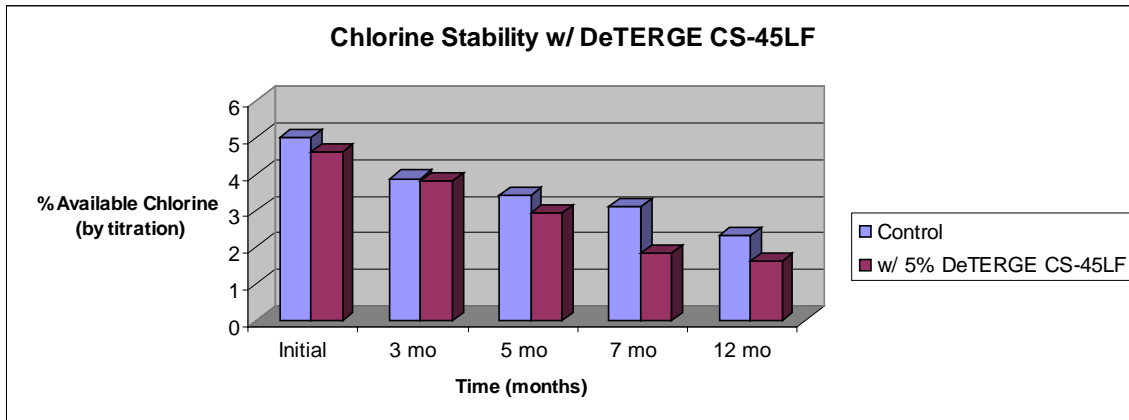
**DYNAMIC SURFACE TENSION of DeTERGE CS-45LF**

The graph below depicts the dynamic surface tension of 1% by weight DeTERGE CS-45LF in deionized water compared to alkyldiphenyloxydisulfonates surfactants.



**CHLORINE STABILITY**

The stability of sodium hypochlorite in the presence of 5% by weight DeTERGE CS-45LF was determined by quantitative analysis. Solutions were stored at ambient temperature and the percent available chlorine was determined over the course of 12 months.



Control: 45% Tap water, 45% sodium hypochlorite (12.5% active), 10% NaOH (50% active)

Test Formulation: 45% Tap water, 42.5% sodium hypochlorite (12.5% active), 10% NaOH (50% active), 5% DeTERGE CS-45LF

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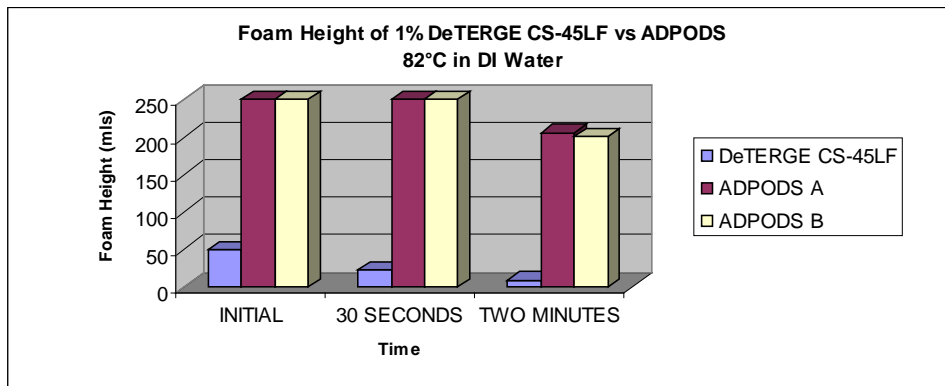
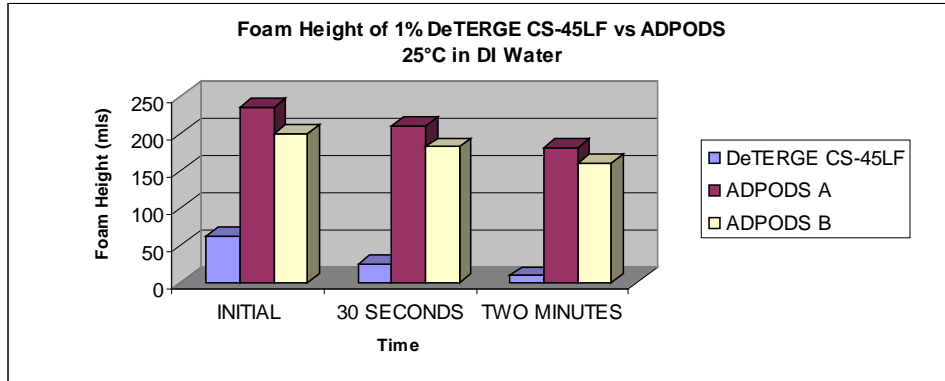
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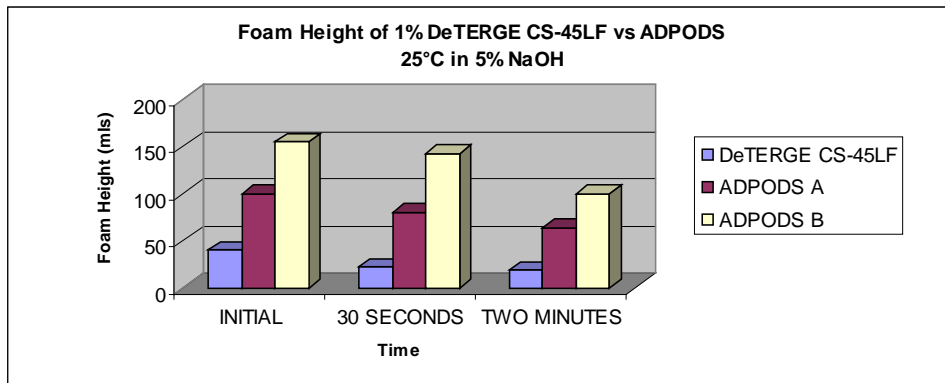
**DeTERGE CS-45LF FOAM HEIGHT DATA** (continued)

Foam height comparisons were made by modified Ross-Miles graduated cylinder shake test using 1% by weight surfactant in deionized water, 5% NaOH, and 5% KOH under the conditions noted below.

**Foam Height in Deionized Water**



**Foam Height in 5% Active NaOH**



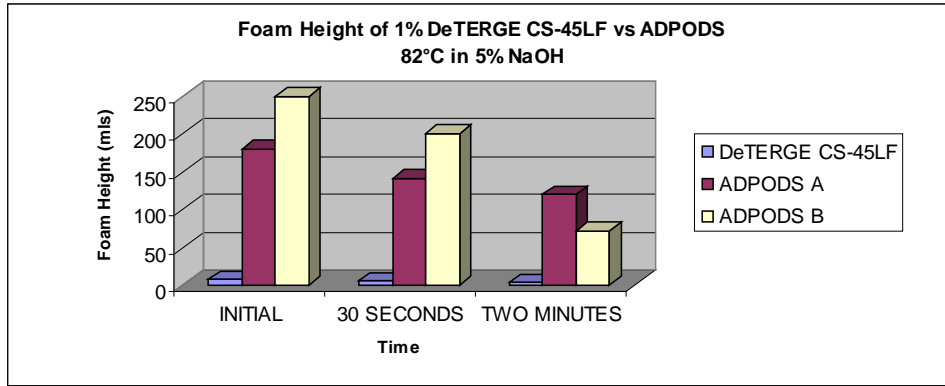
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**DeTERGE CS-45LF FOAM HEIGHT DATA**

**Foam Height in 5% Active NaOH**



**Foam Height in 5% Active KOH**

