

# COLA<sup>®</sup>FAX 3644

## SPECIALTY PHOSPHATE ESTER SURFACTANT

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Chemical Description – Polyether phosphate ester (free acid form) – Surfactant Type: Anionic

### DESCRIPTION

Cola<sup>®</sup>Fax 3644 is an anionic surfactant and a unique hydrotrope that is especially useful in combination with nonionic surfactants in alkaline cleaning baths. It functions effectively without a co-surfactant in many applications requiring highly alkaline conditions.

### BENEFITS

- Very effective solubilizer for nonionic surfactants in hot, alkaline cleaning baths and in built liquid detergents.
- Completely stable and does not discolor when compounded with solid caustic or other alkaline builders.
- Soluble and stable in concentrated builder solutions to the boil.
- Stable on solid caustic
- An effective deduster for powdered alkaline materials.
- Highly surface-active; unlike conventional hydrotropes it produces wetting and detergency under a variety of conditions.
- Provides particle size control and good water resistance in latex systems
- Soluble in highly alkaline solutions

### APPLICATIONS

- Primary surfactant for liquid alkaline detergents and cleaners
- Solubilizes surfactants into low & moderately built detergents
- Emulsion polymerization

**UTYPICAL PHYSICAL PROPERTIES**

Actives, wt%	80
Solvent	Water
Appearance	Transparent, brown liquid
pH, (1% aq solution)	1.6
Viscosity at 25°C (77°F), cP	10,000
Density at 25°C (77°F), g/mL	1.176
Flash Pt, Closed Cup, ASTM D93	None
Pour point, °C (°F)	6 (43)

**PERFORMANCE PROPERTIES**

Equilibrium surface tension <sup>1</sup> , dynes/cm	32
Dynamic surface tension <sup>2</sup> , dynes/cm	50
Draves 25 sec wetting conc, wt% at 25°C (77°F)	0.11
Ross-Miles Foam Test, Initial/5 min, 1% at 25°C (77°F), mm	113/103

<sup>1</sup>Measured at 0.1 wt% and 25°C (77°F) pH=7

<sup>2</sup>Measured at 0.1 wt% and 25°C (77°F) Maximum Bubble Pressure at 4 bubbles/sec

**SOLUBILITY AND COMPATIBILITY**

- Soluble in water
- Insoluble in aromatic, chlorinated & aliphatic hydrocarbons
- Chemically stable in acid & alkaline solutions
- Compatible with anionic & nonionic surfactants

**APPLICATIONS****Metal Cleaning**

Soak Tank Operations: nonionic surfactants usually have excellent detergency in hot alkaline cleaning baths, but limited solubility restricts their full potential in metal cleaning operations. Poor solubility results in an oiling-out of the nonionic from the wash solution, leading to poor bath life and low soil capacity. The hydrotropic action of Cola<sup>®</sup>Fax 3644 greatly extends the solubility of nonionics in high-temperature alkaline solution and gives excellent detergency and high soil capacity. The following represents a typical formulation:

**SOAK TANK CLEANER**

<u>Ingredients</u>	<u>Wt Percent</u>
Cola <sup>®</sup> Fax 3644	1.25
Tomadol 91-6	1.00
Sodium Hydroxide	40.00
Sodium Metasilicate, anhydrous	31.50
Sodium Carbonate (Soda Ash)	26.25

Soiled mild steel panels were rotated five minutes in a cleaning bath containing 5.0-percent detergent at 82°C. Detergency was measured as percent hydrophilic area.

	<u>Percent Detergency on Typical Soils</u>	
	Brightstock Mineral Oil	Rust Preventative Coating
0.1% Surfactant Solids in 0.5% Detergent		
Cola <sup>®</sup> Fax 3644/Tomadol 91-6 blend (1:1)	65	94
Sodium Dodecylbenzene Sulfonate	21	34
Builders Alone	0	0

**ALL-PURPOSE CLEANER**

<u>Ingredients</u>	<u>Wt Percent</u>
Cola <sup>®</sup> Fax 3644	3.00
Sodium Hydroxide (to neutralize Colafax 3644)	0.55
Tomadol 91-6	7.60
Tetrasodium Pyrophosphate	5.00
Tetrapotassium Pyrophosphate	5.00
Water	78.85

<u>Formulation</u>	<u>Percent Detergency</u> <sup>(1)</sup>		
	<u>Oily Metallic Brown on Linoleum</u>	<u>Sanders-Lambert Soil on Paint</u>	<u>Floor Wax &amp; Carbon Black on Linoleum</u>
All-Purpose Cleaner	78	94	78
Commerical Product	73	92	89

(1) At 1.5 wt % product.

Formulations may be modified to meet specific requirements.

**POWDERED BOTTLE-WASHING COMPOUND**

<u>Ingredients</u>	<u>Wt Percent</u>
Cola <sup>®</sup> Fax 3644	1.25
Organic Sequestering Agents	1.00
Sodium Hydroxide	97.75

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**WARRANTY**

Colonial Chemical guarantees that its products meet published specifications. No other warranties or guarantees are expressed or implied because the use of this material is beyond the control of Colonial Chemical.