



# Colonial DF-20

Anionic for Low Foam, High Caustic Spray Cleaning

<b>CHEMICAL NAME</b>	Modified polyether
<b>LISTINGS</b>	US (TSCA); Canada (DSL); Australia (AICS); New Zealand (NZIoC); Philippines (PICCS); Korea (ECL); China (IECSC)

**Colonial DF-20** is an anionic modified polyether that behaves as an anionic in alkali concentrates but displays nonionic cloud point behavior in diluted use solutions. This unique surfactant is intended for use in highly alkaline, built liquid cleaner concentrates. Colonial DF-20 exhibits very low foam and excellent hard-surface detergency when used at temperatures above its cloud point in use solutions. It is very effective in power-wash metal cleaners, low-foam floor cleaners, steam cleaners, liquid dishwashing compounds and other low-foam cleaning applications.

## FEATURES

- Solubility in concentrated alkaline solutions
- Low foam above the cloud point
- Effective hard-surface detergency
- Potent wetting

## APPLICATIONS

- Spray metal cleaners
- Steam Cleaning
- Power floor cleaning
- Paint stripping
- In-place pipeline cleaning
- Electrocleaning
- Bottle washing
- Automatic car wash
- Food process equipment cleaning
- Automatic liquid dishwashing compounds

## SPECIFICATIONS

Appearance @ 25°C	Clear Liquid
Acid Value	298 – 329
Cloud Point, °C 5% in 10% KOH (concentrate)	54°C – 64°C
Cloud Point, °C 0.5% in 1% KOH (diluted)	45°C – 58°C
Color, Gardner '98	3 Max.
<b>Draves Wetting Test<sup>1</sup></b> 25° C, use dilutions in 1% KOH	
Wetting Out Time, sec.	Concentration, wt %
10	0.20
25	0.11
50	0.08

<sup>(1)</sup> 5-gm cotton skein with 3-g hook

## Solubility in Use Dilutions:

Colonial DF-20 behaves like a typical low-foam surfactant in use dilutions and exhibits definitive cloud point characteristics. The cloud point varies with the concentration of electrolytes in the use solution, but is generally in the range of 45°C to 58°C.

## Foaming Properties:

Colonial DF-20 exhibits very low foam in high-pressure washing operations. Foam height decreases with increasing temperature. Foam height is also affected by the type and amount of electrolyte present. The foam characteristics of formulations are not particularly affected by the concentration of Colonial DF-20 in the use solution.

## APPLICATION PROPERTIES

### Compatibility

Colonial DF-20 is compatible with other anionic and non-ionic surfactants and most alkaline detergent builders. It is not compatible with cationic materials and not recommended for use in acid solutions.

### Solubility

Colonial DF-20, as supplied, is not soluble in water and must be reacted with a strong base, such as potassium or sodium hydroxide, to achieve solubility in alkaline solutions. After reaction with a base, solubility depends on the concentration of alkaline builders in solution, the temperature of the solution, and the concentration of Colonial DF-20.

Solubilization of Colonial DF-20 requires a minimum of 1.5 equivalents of base (NaOH or KOH) in the formulation for an efficient reaction. At least 0.375 pounds of sodium hydroxide or 0.525 pounds of potassium hydroxide are required for each pound of Colonial DF-20 used in the formulation. Colonial DF-20 and the required base are usually combined with other alkaline builders in the formulation. In certain formulations that are relatively dilute or low in alkalinity, heat may be required to complete the reaction with the base. In these cases, heating a premix of Colonial DF-20 with at least 1.5 equivalents of base in a concentrated solution may be a preferred method of converting the product to a soluble state. Care must be used during this neutralization step to control any heat rise or foam surge.

### Solubilization of 5% Colonial DF-20 in Alkaline Solutions<sup>1</sup>

<i>Alkaline Builder System</i>	<i>Mixing Time Required for Solubility</i>
30% Potassium Hydroxide	< 15
10% Sodium Metasilicate + 1.74% (1 equiv.) Potassium Hydroxide	40 min.
10% Sodium Silicate <sup>(2)</sup> + 1.74% (1 equiv.) Potassium Hydroxide	6 hr
50% TKPP + 3.5% (2 equiv.) Potassium Hydroxide	20 min.
50% TKPP + 3.2% (1.8 equiv.) Potassium Hydroxide	26 min.
50% TKPP + 2.6% (1.5 equiv.) Potassium Hydroxide	20 min.
50% TKPP + 1.74% (1 equiv.) Potassium Hydroxide	> 12 hr.

<sup>(1)</sup> Reaction Temperature = 50° C.

<sup>(2)</sup> The approximate ratio of SiO<sub>2</sub>/Na<sub>2</sub>O = 2.50

## Hard Surface Degreaser

No. 218B

INGREDIENT	%
1 Water	qs to 100.00
2 Potassium Hydroxide, Liquid 45%	8.00
3 <b>Colonial DF-20</b>	6.00
4 Tetrapotassium Pyrophosphate	10.00
5 Anhydrous Metasilicate	3.00
6 Tetrasodium ethylenediaminetetraacetate	1.00

### PROCEDURE:

Blend in order with sufficient stirring to clarify. Use at 4 oz. - 8 oz. per gallon.

### TYPICAL PROPERTIES:

Appearance:	Clear thin liquid
5% pH:	13.8
5% Cloud Point:	58°C
5% Draves wetting time:	13 sec.

## Low Foam Spray Wash

INGREDIENT	%
1 Water	qs to 100.00
2 Potassium Hydroxide, Liquid 45%	10.00
3 <b>Colonial DF-20</b>	8.00
4 Tetrasodium ethylenediaminetetraacetate	1.00
5 Alcohols, C12-14, ethoxylated propoxylated	5.00

### PROCEDURE:

Blend in order with sufficient stirring to clarify. Use at 4 oz. - 8 oz. per gallon.

### TYPICAL PROPERTIES:

Appearance:	Clear thin liquid
5% pH:	13.8
5% Cloud Point:	45°C
5% Draves wetting time:	< 1 sec.

## STORAGE AND HANDLING

Colonial DF-20 should be stored in closed containers. Shelf life is 24 months from date of manufacture. Colonial DF-20 is shipped in spoly 55-gal drums, net weight 450 lbs (204.1 kg) and in bulk. Safety Data Sheet may be downloaded at [www.colonialchem.com](http://www.colonialchem.com).



## Colonial Chemical

225 Colonial Drive • South Pittsburg, TN 37380  
Phone: 423-837-8800 • Fax: 423-837-3888  
[www.colonialchem.com](http://www.colonialchem.com)

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