TECHNICAL DATA SHEET

Flexiclean™ CC-630

Overview

- Partially Neutralized Dispersant Polymer Used in Encapsulating Carpet and Upholstery Cleaning Formulations
- Optimized for Use in Peroxide and other Acid Formulations (pH < 6)
- Provides Maximum Acid Dye Resistance (Stain Resistance)
- Provides Powerful Cleaning Properties without Tacky Residue
- Eliminates Rapid Resoiling through Encapsulation
- Enhances Dry Soil Pick-Up During Vacuuming
- Imparts Anti-Soiling and Anti-Staining Properties to Cleaned Surfaces
- Allows Reduction of the Detergent Load in the Formulation
- Ultra Low VOC: Formulate Effectively with Less than 1% Total VOC
- Suitable for Woolsafe™ Formulations

Applications

- Peroxide and Acid pH Cleaning Formulations: Commercial and Retail Carpet and Upholstery Cleaners: Extraction, Prespray, Traffic Lane, Spotter, and Low Moisture
- Peroxide and Acid pH Automotive Carpet and Upholstery Cleaners

Technical Information

Many carpet cleaning products used in the commercial and retail marketplace are highly alkaline detergent/surfactant systems that leave behind tacky soil-attracting residues. The chemical nature of high alkaline, tacky residue cleaners can sometimes damage the stain and soil resistance built into the carpet by the carpet manufacturer. While some of these products clean effectively, their residues will actually damage the carpet and cause rapid resoiling. This rapid resoiling can result in complaints from owners who have their carpets professionally cleaned, only to find that the carpet gets dirty and grey soon after cleaning. Another common complaint related to carpet and upholstery spot cleaners is that upon removing a stain, the stain quickly returns, bigger than the original spot. This effect is caused by tacky residual detergent attracting oily particulate soil. The stain did not come back: a new stain is appearing because of the nature of the cleaning agent's residue.

These common industry problems have led to the Carpet and Rug Institute's Seal of Approval Program which verifies and certifies a product's cleaning and resoiling character (www.carpet-rug.org). Using Flexiclean CC-630 in upholstery and carpet cleaning formulations eliminates these problems. When used as prescribed, Flexiclean CC-630 formulations can be readily certified via the CRI Seal of Approval Program, providing a next generation product with excellent cleaning and minimal resoiling.

Acid side cleaning is becoming a popular option in the carpet cleaning industry (e.g. OXY). Flexiclean CC-630 is an ideal raw material choice for acid side applications. When formulated properly, Flexiclean CC-630 imparts maximum stain and soil resistance.

FORMULARY

Ingredients such as fragrance, chelates and polar solvents can be added if desired. Any ingredient additions should be evaluated for their effect on soiling and peroxide stability. Peroxide stability should be determined before packaging. Additional or alternative stabilizing agents may be added to satisfy local conditions or specific formulary. Final formulations may require addition of a preservative and should be tested for adequate spoilage protection.

Sample Formulary

Oxy Spotter

Water (DI or Soft)	83.5%
Flexiclean CC-630	5.0%
Flexisperse™ 318	5.0%
Hydrogen Peroxide (50%)	6.0%
Dequest 2006	0.5%

H_2O_2 Stability @ 50°C

Initial H_2O_2	2.72
24hr H_2O_2	2.64
1 wk H_2O_2	2.62
pH	6.13

Appearance: Clear, colorless liquid

Use as is

Prespray

Water (DI or Soft)	58.5%
Flexiclean CC-630	25.0%
Flexisperse™ 318	10.0%
Hydrogen Peroxide (50%)	6.0%
Dequest 2006	0.5%

H_2O_2 Stability @ 50°C

Initial H_2O_2	2.59
24hr H_2O_2	2.50
1 wk H_2O_2	2.26
pH	5.87

Appearance: Clear, colorless liquid (very slight blue hue)

Use Dilution *1:5*

Low Moisture

Water (DI or Soft)	53.5%
Flexiclean CC-630	25.0%
Flexisperse™ 318	10.0%
Hydrogen Peroxide (50%)	6.0%
Dequest 2006	0.5%
Flexisurf™ LO-30	5.0%

H_2O_2 Stability @ 50°C

Initial H_2O_2	2.43
24hr H_2O_2	2.37
1 wk H_2O_2	2.17
pH	6.05

Appearance: Clear, colorless liquid (slight blue hue)

Use Dilution *1:10*

Extraction

Water (DI or Soft)	58.5%
Flexiclean CC-630	25.0%
Flexisperse™ 318	10.0%
Hydrogen Peroxide (50%)	6.0%
Dequest 2006	0.5%
Flexistop™ AF-333	(as needed)

H_2O_2 Stability @ 50°C

Initial H_2O_2	2.59
24hr H_2O_2	2.50
1 wk H_2O_2	2.26
pH	5.87

Appearance: Clear, colorless liquid (very slight blue hue)

Use Dilution *1:32*

Soling Performance Data

Product(s)
Sample 1: Flexiclean CC-630 Based Extraction Cleaner, 4oz/gal (label use instruction)
Sample 2: Commercial Extraction Cleaner 4oz/gal (label use instruction)

Test
Evaluation of Resoiling Characteristics of Carpet Cleaning Products

Procedure
ASTM D 6540-00 Accelerated Soiling of Pile Yarn Floor Covering (excluding AATCC Gray Scale)

Scope
This is a standardized laboratory procedure for determining the effects of cleaning equipment, chemistry and technologies on the resoiling properties of a specified floor covering. A control test carpet is prepared by applying 3 grams of ready to use cleaning solution diluted according to label instructions in a 2.5 inch circle template. The control test carpet is allowed to thoroughly ambient dry and is then soiled per ASTM D6540-2000. Additional control carpet that has no cleaning solution applied is soiled per ASTM D6540-2000. The difference (ΔEc) between the unsoiled carpet and the soiled control; and the difference (ΔEt) between the unsoiled carpet and the soiled test carpet (cleaned) are measured using a HunterLab Miniscan XE Spectrophotometer. The difference between these results is calculated as

$$\Delta\Delta E = \Delta Ec - \Delta Et$$

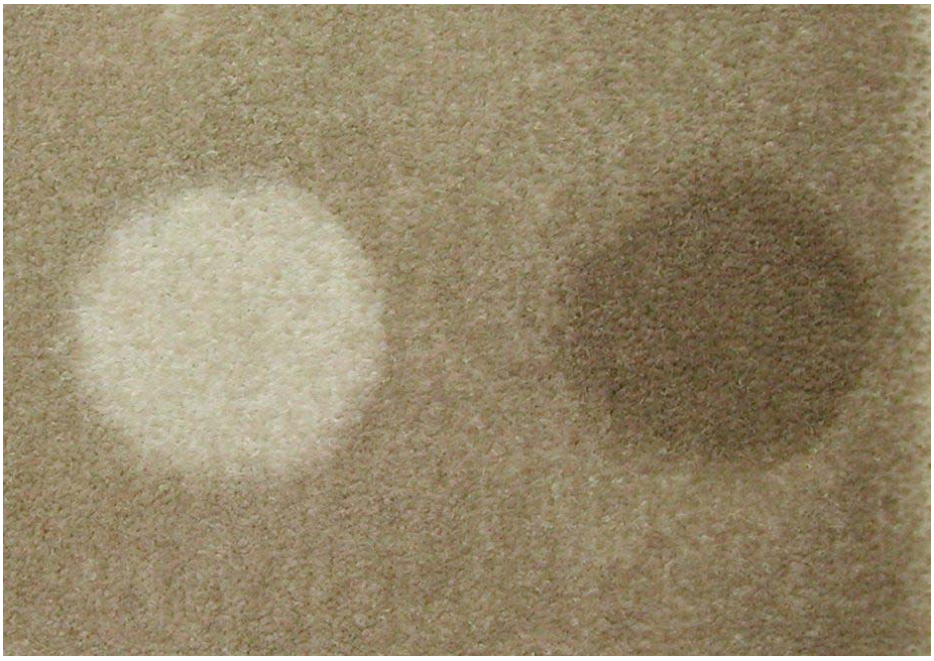
This test practice is applicable to all liquid carpet cleaning chemicals.

Test material description
26 oz, cut pile, nylon 6,6, tenth gauge, without stain/soil treatment, dye free

Results

Sample	ΔE_c	ΔE_t	$\Delta\Delta E^*$
Sample 1	15.80	9.52	6.28
Sample 2	14.13	21.53	-7.40

* Negative numbers indicate treated carpet attracts more soil than the untreated standard



Sample 1
Flexiclean CC-630 Based Extraction Cleaner

Sample 2
Commercially Available Extraction Cleaner

Cleaning Performance Data

Product(s)
Sample 1: Flexiclean CC-630 Based Extraction Cleaner, 4oz/gal (label use instruction)
Sample 2: Commercial Extraction Cleaner, 4oz/gal (label use instruction)

Test
Cleaning Efficacy Evaluation of Carpet Cleaning Products

Procedure
CRI TM 111 Evaluation Procedures for CRI Carpet Cleaning Certification of In-Tank and Pre-Spray Cleaning Products (excluding Lab and AATCC Gray Scale)

Scope
This is a standardized laboratory procedure for determining the cleaning efficacy of carpet cleaning chemicals which are designed to be applied as a pre-spray or by using extraction equipment. Uniformly soiled control test carpet is prepared using ASTM D6540-2000. Additional unsoiled control carpet is prepared. The soiled control test carpet is cleaned using specific extraction equipment and procedures. The difference (ΔEs) between the soiled control test carpet and the unsoiled control carpet; and the difference (ΔEf) between the cleaned control test carpet and the unsoiled control carpet is measured using a HunterLab Miniscan XE Spectrophotometer to determine the degree to which the cleaning chemical was able to restore the control carpet to its original appearance. The difference between these results is calculated as

$$\Delta\Delta E = \Delta Es - \Delta Ef$$

This test practice is applicable to all liquid carpet cleaning chemicals.

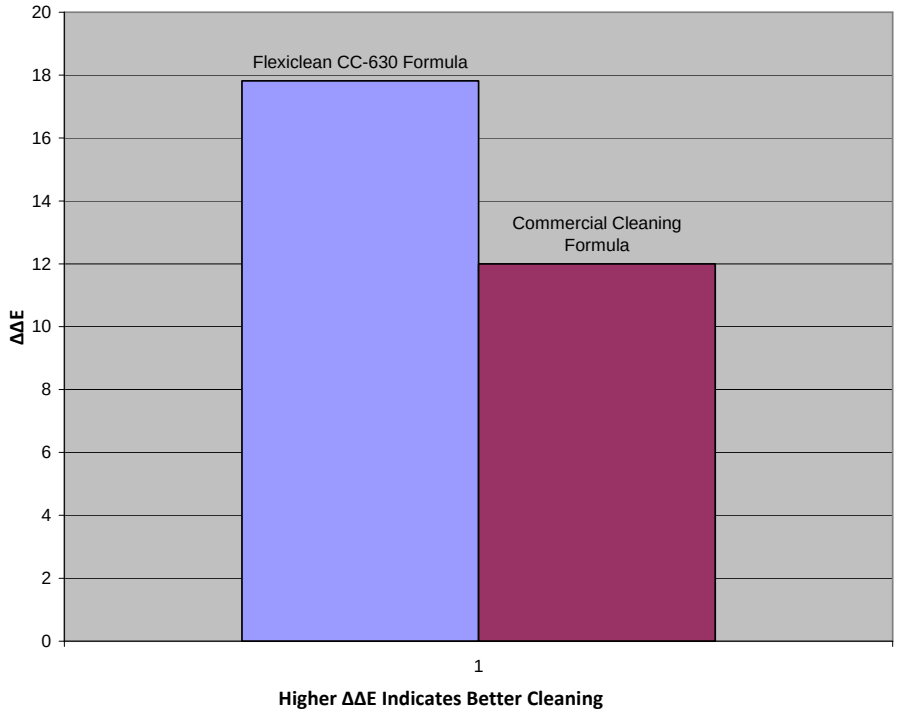
Equipment
Specifications of control extractor/ wand: 1.0 gallon solution tank; 1.5 gallon recovery tank; 60 psi solution pump; 3 stage 1.8 hp vacuum motor; 136 inch sealed water lift; single jet (110-03) 4" wand

Test material description:
26 oz, cut pile, nylon 6,6, tenth gauge, without stain/soil treatment, dye free

Results

Sample	ΔEs	ΔEf	ΔΔE*	Number Wet Passes	Number Dry Passes
Sample 1	21.05	3.23	17.82	3	3
Sample 2	20.35	8.34	12.01	3	3

*Larger positive numbers indicate cleaner carpet



Higher ΔΔE Indicates Better Cleaning

Typical Properties

Appearance	Clear, colorless to pale yellow liquid
Density @ 25°C	1.07 +/- 0.02 g/mL (8.9 lbs/gal)
pH (as is)	4.5 - 5.5
Water Solubility	Soluble
Boiling Point	Approx. 100°C

Packaging and Handling

Flexisorb CC-630 is available in 275 gallon totes (Net Wt. 2300 lbs), 55 gallon drums (Net Wt. 460 lbs), and 5 gallon pails (Net Wt. 40 lbs).

DOT Classification is Non Regulated.