

THE DEGREASING POWER OF STEPOSOL® M-8-10

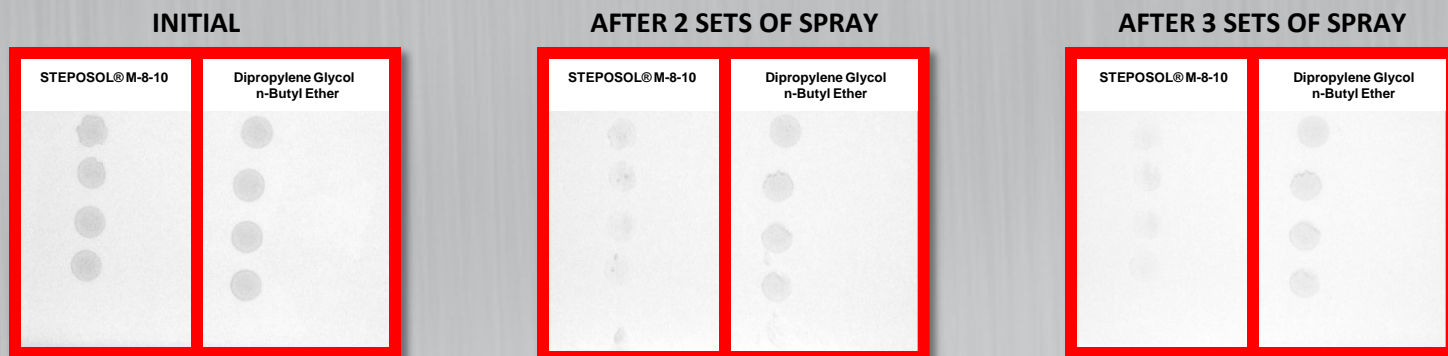
STEPOSOL® M-8-10 is a multi-functional ingredient that offers both the penetrating power of a solvent, and the low surface tension of a surfactant.

PRODUCT ATTRIBUTES

Chemistry: N, N-dimethyloctanamide and N, N-dimethyldecanamide
(made from biorenewable short chain (C8-10) methyl esters and dimethyl amine)
Form @ 25°C: Clear liquid
Stability: Heat and hydrolysis stable
LVP-VOC*: Low vapor pressure (LVP) VOC exempt
Solubility: Excellent solubility in organic solvents

For aqueous degreasing, an alkaline pH of 11-12 is more favorable than a neutral pH of 7-8. In the example below, one would expect the alkaline pH formulation to outperform the neutral pH formulation. The addition of 0.5% STEPOSOL® M-8-10 in a neutral pH formulation showed **improved performance** over the 0.5% Dipropylene Glycol n-Butyl Ether in an alkaline pH formulation.

RESULTS



EXPERIMENTAL DETAILS

1. Polymerized vegetable oil was mixed with Gardner ASTM D4488-95 A5 particulate. The soil was dissolved and dispersed in Isopropyl Alcohol and applied to enamel tiles.
2. 0.5% of the comparative solvents were formulated into an aqueous degreaser containing surfactant, builder and solvent. STEPOSOL® M-8-10 was tested in a neutral pH formulation with a Sodium Citrate builder and the Glycol Ether in an alkaline pH formulation with a Sodium Carbonate builder.
 - Neutral formulation: 0.5% solvent, 0.2% Sodium Citrate, 1% BIO-SOFT® N91-6
 - Alkaline formulation: 0.5% solvent, 0.2% Sodium Carbonate, 1% BIO-SOFT® N91-6
3. The formulas were sprayed onto the tiles set in a vertical position, allowing the product to run down the tile. Three (3) sprays were applied to each side of the tile simultaneously. Spraying was repeated a total of three (3) times at thirty (30) second intervals.

New CARB VOC Limit for General Purpose Degreasers

STEPOSOL® M-8-10 is a LVP-VOC* exempt solvent. It may be your solution to improved performance and compliance with California Air Resources Board (CARB) Consumer Products Regulation.

A new VOC limit of 0.5% for General Purpose Degreasers (non-aerosol) is effective as of December 31, 2012.

* LVP-VOC is defined as a compound that meets one of the following criteria: 1) The compound has a vapor pressure of less than 0.1 mm Hg at 20°C; 2) the compound has more than 12 carbon atoms, or a mixture comprised solely of compounds with more than 12 carbon atoms, and the vapor pressure is unknown or 3) the compound has a boiling point greater than 216°C.

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ALL PURPOSE SPRAY AND WIPE CLEANER #1180

Description:

This mildly alkaline spray-and-wipe formulation is a fast-acting cleaner that penetrates oily soils for easy removal. Its low alkalinity makes it suitable for many common household surfaces.

Formulation:

Ingredients	% by Weight	Functionality
Deionized Water	97.9	Diluent
BIO-SOFT® D-40	1.0	Anionic Agent
BIO-SOFT® N91-6	0.4	Emulsifier
STEPOSOL® M-8-10	0.5	Solvent
Sodium Citrate	<u>0.2</u>	Builder
TOTAL	100.0	

Procedure:

1. Charge Deionized Water.
2. With good agitation, add Sodium Citrate.
3. Slowly blend in BIO-SOFT® D-40, followed by BIO-SOFT® N91-6.
4. Continue mixing until homogenous.
5. Blend in STEPOSOL® M-8-10.
6. Mix until homogenous.

Physical Properties:

Appearance, as is	Clear liquid
pH, as is	8.2
Viscosity @ 25°C, as is	Water thin
Storage/Stability	Pass
Freeze thaw, 3 cycles	
1 month at 50°C	Stable
1 month at 25°C	Stable
1 month at 5°C	Stable

Instructions for Use:

Spray on soiled surface. Wipe clean with a sponge or cloth.

Test Method: ASTM D4488-95-A5, ASTM Book of Standards, Volume 15.04, D4488-95, Section A5
87% soil removed