



Colonial Chemical Surfactants for Use with

d-Limonene Formulations

MICRO-EMULSIONS WITH d-LIMONENE

The following formulas are clear, microemulsions of d-Limonene and water. They represent the range of d-Limonene and water concentrations commonly used as degreasing solvent cleaners. These formulas are generally used by diluting in water (1-16 oz/gallon depending on use requirements). The formulas themselves are clear and exhibit a bloom effect upon dilution.

	I	II	III
d-Limonene	10.0	35.0	65.0
Cola®Mulse SBC	18.0	28.0	23.0
Isopropanol	0.0	5.0	--
Water	62.0	32.0	12.0

PROCEDURE:

In all cases, mix surfactant(s) with d-Limonene until dissolved. Add other ingredients except water. Mix until homogeneous. Add water slowly with stirring.

FAST SET WATERLESS HAND CLEANER WITH d-LIMONENE

<u>Compound</u>	<u>% Wt</u>
d-Limonene	40.00
Cola®Mulse MA	12.00
Cola®Fax 3376PE	0.50
Glycerine	1.00
Mineral Oil	2.00
Water	<u>44.50</u>
TOTAL	100.00

PROCEDURE:

Combine in order listed, adding water last with good agitation.

FORMULATION PROPERTIES:

Physical appearance: White ringing gel

d-LIMONENE ALKALINE CLEANER

<u>Compound</u>	<u>% Wt</u>
d-Limonene	3.00
Nonyl Phenol 10.5 Moles EO	6.00
Cola@Fax 3376PE	6.00
Water	73.89
KOH 45%	11.11
TOTAL	100.00

PROCEDURE:

Blend ingredients in order listed.

FORMULATION PROPERTIES:

Appearance	Clear Liquid
Cloud Point	51°C
Dilutions with Water	Clear Liquids

SOLVENT CLEANER

<u>Compound</u>	<u>% Wt</u>
d-Limonene	15.00
DBE Solvent	15.00
Cola@Mulse DLE	19.00
Water	<u>51.00</u>
TOTAL	100.00

PROCEDURE:

Add in order listed.

FORMULATION PROPERTIES:

Appearance	Clear Liquid
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d-LIMONENE PET SHAMPOO

	<u>Compound</u>	<u>% Wt</u>
Part A	Colonial TEALS (TEA lauryl sulfate)	50.00
	Deionized Water	36.00
Part B	d-Limonene	5.00
	Cola@Mid C (cocamide)	6.00
	Colonial LANCO 75(ethoxylated lanolin)	1.00
	Tween 80	<u>2.00</u>
	TOTAL	100.00

d-LIMONENE PET SHAMPOO

<u>Compound</u>	<u>% Wt</u>
d-Limonene	5.00
Cola®Mid C	5.00
Poly Suga®Nate 100P	8.00
Poly Suga®Nate 160P	8.00
Colonial TEALS	30.00
Tween 20	5.00
Water	39.00
TOTAL	100.00

Pre-mix d-limonene with ColaMid, then add Tween 20 to the mix. Add TEALS next followed by the Poly SugaNates.

d-LIMONENE SUPPLIERS

Arylessence Inc.
1091 Lake Drive
Marietta GA 30066
770/924-3775
800/553-2440

Ashland Chemical Inc.
Industrial Chemicals & Solvents Division
P. O. Box 2219
Columbus, OH 43216
614/889-3333
800/523-1738

Alfa Aesar Johnson Matthey
30 Bond Street
Ward Hill, MA 01835
800/343-0660

Penta Manufacturing Co.
50 Okner Parkway
Livingston, NJ 07039-1604
973/740-2300

Tr-AMC Chemicals
Division of Tri-Metro, Inc.
P. O. Box 296, Hudson Ave.
Ridgefield, NJ 07657
201/941-7706

Bell Chem Corp.
1340 Bennett Drive
Longwood, FL 32750
401/339-2355

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