

## **DeMULS DLN-2314**

**DeMULS DLN-2314** is a DEA-free, nonionic/cationic, biodegradable emulsifier for D'Limonene & soy methyl esters. Micro-emulsion concentrates can easily be made, which remain clear upon dilution.

### **SPECIFICATIONS**

Appearance @ 25°C:	Clear to hazy amber liquid*
% Solids:	93% min.
pH (1.0% in DI Water):	9.0 +/-1.0
Color (Gardner):	10 max.

\* May separate upon standing.

**SOLUBILITY** DeMULS DLN-2314 is soluble in water, alcohols, glycols, chlorinated, terpene and aliphatic solvents. It is insoluble or dispersible in aromatic solvents and oils.

### **TYPICAL PROPERTIES**

Density @ 25°C	~0.99 g/ml
Brookfield Viscosity* (typical)	100 cPs @ 70°F, 250 cPs @ 40°F

\*RVT, Spindle 2 @ 50 rpm

- D'Limonene emulsifier
- Produces microemulsions of soy methyl esters
- Solubilizer & emulsifier for solvents
- Wetting properties
- Moderate foam
- Hard water stable
- Easy to handle
- Biodegradable
- Non-phenolic
- Approved for use as inert in non-food pesticide formulations.
- Approved for food use under 40CFR 180.920 & 180.930 with limitations.

### **APPLICATIONS**

- D'Limonene micro-emulsion concentrates that remain clear upon dilution
- Degreasers
- Engine cleaners
- Terpene based paint strippers
- Floor strippers
- All purpose hard surface cleaners
- Clear D'Limonene gels
- Graffiti removers
- Spot removers

*Continued*

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## **DeMULS DLN-2314 Starting Formulations**

**Table 1. D'Limonene Micro Emulsions**

Ingredient	Percent by Weight			
	A	B	C	D
D'Limonene	5.0	10.0	20.0	40.0
DeMULS DLN-2314	7.0	12.0	22.0	50.0
Tap Water	88.0	78.0	58.0	10.0
	100.0	100.0	100.0	100.0

**Procedure:**

1. Combine first two ingredients with moderate agitation until a clear solution forms.
2. Add half of the water and mix thoroughly.
3. Slowly add the remainder of the water and mix until a clear solution forms.

Dilute with tap water, as desired, to form clear dilutions. Note: dilution clarity can be affected by water hardness, type and age of d'limonene, and mixing. If dilutions are not clear, increasing the emulsifier level or adding a co-solvent such as a glycol ether may help.

**Table 2. Clear D'Limonene Gel**

Ingredient	Percent by Wt.
D'Limonene	35.0
DeMULS DLN-2314	35.0
Tap Water	30.0
	100.0

**Procedure:**

1. Combine first two ingredients and mix until well blended.
2. *Slowly* add water and mix until a clear, soft gel forms.

Gels may be diluted as desired and will form clear dilutions.