DeForest SURFACTANTS
SOLUTIONS AT THE INTERFACE

DeMULS DLN-622EG

DeMULS DLN-622EG is an economical, nonionic/anionic, concentrated D'Limonene emulsifier used to produce microemulsion concentrates that "bloom" upon dilution.

SPECIFICATIONS

Appearance @ 25°C:	Clear, amber, viscous liquid
pH (10% in DI Water):	8.5 – 10.5
Color (Gardner):	8 max.

SOLUBILITY DeMULS DLN-622EG is soluble in water, alcohols, chlorinated solvents, terpene solvents, aromatic solvents and glycols. It is insoluble or dispersible in aliphatic solvents and oils.

TYPICAL PROPERTIES

% Activity	100% active
Density @ 25°C	~1.0 g/ml

- D'Limonene emulsifier
- Dipentene/D'Limonene blend emulsifier
- Solubilizer and emulsifier for solvents
- Low to moderate foam
- Wetting agent
- Economical
- Easy to handle
- Contains Diethanolamine
- Biodegradable
- Non-phenolic
- Approved for use as inert in non-food pesticide formulations

APPLICATIONS

- D'Limonene micro-emulsion concentrates that 'bloom' upon dilution
- Degreasers
- Engine cleaners
- Terpene based paint strippers
- Graffiti removers
- Clear D'Limonene gels
- All purpose hard surface cleaners
- Pine oil cleaners

Amtec Center • 6421 Congress Avenue • Boca Raton, FL 33487 • (561) 994-9696 • FAX (561) 994-9995
www.DeForestEnterprises.com • info@DeForestent.com

DeMULS DLN-622EG Starting Formulations

Table 1. D'Limonene Micro Emulsions

Ingredient	Percent by Weight					
	A	B	C	D	E	F
D'Limonene	5.0	10.0	20.0	30.0	40.0	50.0
Butyl carbitol	5.0	5.0	7.0	10.0	10.0	10.0
DeMULS DLN-622EG	5.0	9.0	15.0	20.0	25.0	20.0
Versene 100*	2.0	2.0	2.0	2.0	2.0	2.0
Tap Water	83.0	74.0	56.0	38.0	23.0	18.0
	100.0	100.0	100.0	100.0	100.0	100.0

* Versene 100: Tetrasodium salt of ethylenediamine tetraacetic acid, trademark of Dow Chemical

Procedure:
1. Mix the first three ingredients with moderate agitation until a clear solution forms.
2. Add the last two ingredients *slowly* and mix until a clear solution forms.

These formulations will produce clear micro emulsions that 'bloom' upon dilution with water.

Table 2. Clear D'Limonene Gels

Ingredient	Percent by Weight		
	A	B	C
Tap Water	65.0	60.0	50.0
DeMULS DLN-622EG	15.0	17.0	10.0
DA-4	7.5	6.5	10.0
DA-6	7.5	6.5	10.0
D'Limonene	5.0	10.0	20.0
	100.0	100.0	100.0

Procedure:
1. Add first 4 ingredients in the order listed using continuous agitation and mix until well blended.
2. Heat to 50°-55°C.
3. With moderate agitation, *slowly* add d'limonene while maintaining temperature.
4. Continue mixing until homogenous and clear.

Product is liquid at 50°-55°C and will gel upon cooling.

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