

PRODUCT CATALOG



DeForest
SURFACTANTS
SOLUTIONS AT THE INTERFACE

INTRODUCTION

DeFOREST Enterprises, Inc. offers a diversified and comprehensive line of surfactants and specialties for a variety of end use applications. Our product portfolio is highly focused on differentiation as well as multi-functionality. We offer a unique line of products as follows:

- surfactants and wetting agents
- hydrotropes
- corrosion inhibitors
- metalworking lubricants
- specialty emulsifiers
- gelling agents
- environmentally sensitive chemistries

Our company remains committed to product innovation and developing unique products and solutions that are driven by our customer's changing needs. Our product line includes a variety of environmentally sensitive products that are readily biodegradable, low toxicity, and well-suited for use in eco-friendly products.

Research and innovation, collaboration with our customers, delivering high quality products and superior customer service are considered of key importance for the continued growth and success of DeFOREST Enterprises and our valued customers.



Central Research Lab, Boca Raton, Florida



Technical Service & Application Lab, Twinsburg, Ohio

DeFOREST's corporate headquarters and central Research & Development laboratories are located in Boca Raton, Florida. To complement our central R&D location and to meet the needs of our growing customer base, a Technical Service & Application Laboratory was opened in 2011 and operates in Twinsburg, Ohio. Our products are manufactured and distributed from our plants and warehouses strategically located in various industrial centers throughout North America including Delaware, Michigan, Minnesota, North Carolina, Ohio, Pennsylvania, Tennessee, and Texas.



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We welcome your inquiries and the opportunity to meet your specialty surfactant needs. Please contact us at 561-994-9696 to inquire about surfactants not listed in our catalog.

DeCORE Series *Corrosion Inhibitors*

DeCORE corrosion inhibitors are unique, multifunctional products which are effective in metalworking and cleaning applications as well as other water-based systems where corrosion inhibition is desired.

Additional DeForest products that provide corrosion protection include our phosphate esters such as DePHOS 8028, amphoteric including DeTERIC LP for acid corrosion inhibition, and DeTROPE CA-100 for aluminum corrosion inhibition. Information on these products can be found throughout this catalog or by requesting the associated technical bulletins.

Product Name	Appearance @ 25°C	Minimum Activity	Chemical Description	Typical Properties & Applications
DeCORE APCI-95MOD	Clear, amber liquid	95.0%	Modified Carboxylate	Versatile, low foaming corrosion inhibitor for use on copper, brass, bronze, aluminum & other non-ferrous metals, galvanized, ferrous & cast iron. Stable in systems at pH >7.
DeCORE AFCI-45	Clear, amber liquid	45.0%	Modified Carboxylate	Low foaming, amine-free corrosion inhibitor effective on multi-metals including aluminum, steel, copper & brass. Free of azoles, nitrites, borates & phosphates. Effective at pH 7 -10 plus good flash-rust protection in moderately acidic pH ranges of 3.5 – 7.
DeCORE IDMT-100	Clear, amber, viscous liquid	99.0%	Modified Carboxylate	Low foaming, multi-metal corrosion inhibitor effective on yellow metals, aluminum, cast iron & steel. Free of azoles, nitrites, phosphates, & borates. Alkaline systems only.
DeCORE IMT-100LF	Clear, amber, viscous liquid	99.0%	Modified Carboxylate	Low foaming corrosion inhibitor effective at low levels. Recommended for use on cast iron & steel. Contributes lubricity, wetting & spreading properties. Alkaline systems only.
DeCORE BE DeCORE BE-85	Clear, almost colorless, viscous liquid	100.0% 85.0%	MEA-Borates & MIPA Borates	<i>Non-foaming</i> corrosion inhibitors for ferrous & non-ferrous metals. For use in alkaline systems only. Approved for use as inert in non-food pesticides.
DeCORE SCI-45ECO	Clear, almost colorless liquid	43.5%	Proprietary Anionic	Very low foaming, amine-free, water soluble corrosion inhibitor for use on steel & cast iron. Limited corrosion inhibition on brass, copper & other non-ferrous metals. Not recommended for use on aluminum. Alkaline systems only.

DeIONIC Series *Nonionic Surfactants*

The DeIONIC series are unique, nonionic surfactants which offer excellent wetting, low foam, and a variety of cloud points. Suggested applications include paints and coatings, pigment grinding, low foaming alkaline and acid cleaners, and metalworking and metal cleaning products. DeIONIC C-18 is a high melt point, high MW ethoxylate and very well suited for solid block detergents.

Product Name	Appearance @ 25°C	Minimum Activity	Chemical Description	Cloud Point*	HLB	Typical Properties & Applications
Modified Alcohol Alkoxyates and Alcohol Ethoxylates						
DeIONIC LF-60MOD	Clear to hazy, colorless liquid	96.0%	Modified alcohol alkoxyate	16°C	1.6	Low foam, wetting agent for use in pigment dispersions, grind aids, paints, coatings, alkaline & acid cleaners. Minimal VOC content.
DeIONIC LF-80MOD	Clear to hazy, colorless liquid	94.0%	Modified alcohol alkoxyate	16°C	1.6	A unique, modified alkoxyated alcohol delivering multifunctional characteristics including excellent dynamic surface tension reduction, wetting and very low foam. Properties are similar to DeIONIC LF-60MOD with the additional feature of being alkylphenol ethoxylate free.
DeIONIC 100-VLF	Clear to slightly hazy, colorless liquid	99.0%	Modified alcohol alkoxyate	<0°C	1.4	Properties & applications similar to DeIONIC LF-60MOD & is virtually non-foaming. Approved for use as inert in non-food pesticides.
DeIONIC C-18	Off white flakes	100.0%	Alcohol ethoxylate	>100°C	18.6	High melting point (58°C), biodegradable surfactant for use in solid or block formulations, water based lubricants & dry blended detergents. Approved for use as inert in non-food pesticides and also approved for use under 40CFR 180.910, 180.930, 180.940 & 180.960.

Continued

Product Name	Appearance @ 25°C	Minimum Activity	Chemical Description	Cloud Point*	HLB	Typical Properties & Applications
Alcohol Alkoxylates						
DeIONIC LF-EP-15	Almost colorless, clear to hazy liquid	99.0%	Alcohol Alkoxylate	15°C	6.0	Biodegradable, low foaming, nonionic surfactants with cloud points ranging from 15°C - 61°C. Stable in alkaline & acid systems including dry caustic & electrolytes. Will not gel when added to water. Excellent detergents & wetting agents when applied at temperatures near their cloud point. Suggested for use in alkaline & acid high pressure cleaners, mechanical dishwashing detergents, metal cleaning, bottle wash, textile cleaning & scouring, agricultural sprays & laundry detergents. Approved for use as inert in non-food pesticides and also approved for use under 40CFR180.910 & 40CFR180.930.
DeIONIC LF-EP-25 **VOC = 4.6 grams/liter (ASTM E1868-10 / SCAQMD RULE 1144)	“	“	“	25°C	7.0	
DeIONIC LF-EP-40	“	“	“	40°C	8.5	
DeIONIC LF-EP-61	“	“	“	61°C	12.0	

*Cloud point is determined using 1.0% by weight of surfactant in distilled water.

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DeMULS Series *Specialty Emulsifiers*

The DeMULS series is an exclusive group of unique specialty emulsifiers designed to produce micro and macro emulsions with D'Limonene and other oils, solvents, and esters.

Product Name	Minimum Activity	Appearance @ 25°C	Chemical Description	Typical Properties & Applications
DeMULS DLN-532CE MOD	95.0%	Clear, amber liquid	Modified Amino Propionate	Produces D' Limonene microemulsion concentrates that remain clear upon dilution up to 32:1 water. Biodegradable, hard water stable & does not contain APEs. Approved for use as inert in non-food pesticides.
DeMULS DLN-2314	95.0%	Clear to hazy amber liquid	Modified Complex Ethoxylate	Similar to DeMULS DLN-532CE MOD. Improved cold temperature handling & more cost effective. Also produces microemulsion concentrates of soy methyl ester blends. DEA free . Approved for non-food inert use. Approved for food inert use with limitations under 40CFR180.920 & 180.930.
DeMULS DLN-622EG	99.0%	Clear, amber, viscous liquid	Modified Amido Carboxylate	Forms clear concentrates which bloom upon dilution. Used to prepare clear & opaque D'Limonene gels. Approved for use as non-food inert.
DeMULS KE-75	77.0%	Clear, pale yellow liquid	Ethoxylated Alcohol Ester	Emulsifier for kerosene & other solvents including dibasic esters. Moderate to high foaming, non-phenolic, readily biodegradable surfactant recommended for use in degreasers, solvent based paint strippers, graffiti removers, & other industrial cleaning applications. DEA free . Approved for use as inert in non-food pesticides.
DeMULS SGE-95	95.0%	Clear, amber liquid	Modified Ester	Emulsifier for soy, canola, & rapeseed methyl esters. Produces clear or opaque, low VOC emulsions used as all purpose degreasers, graffiti removers, etc. Is cost effective, readily biodegradable, & stable in mildly alkaline formulations. DEA free .

DePHOS Series *Phosphate Esters*

DePHOS phosphate esters are anionic surfactants that provide a variety of properties including wetting, detergency, hydrotrope, lubrication, and corrosion inhibition. Based on aliphatic or aromatic hydrophobes, they are supplied in the acid form or as neutralized salts. Suggested for use in metalworking and metal cleaning applications, and other industrial cleaning markets.

Product Name	Appearance @25°C	Minimum Activity	Hydrophobe	pH Range	Acid* Values	Typical Properties & Applications
DePHOS 8028	Clear to slightly hazy, almost colorless liquid	80.0%	Aliphatic	6.5 – 7.2 5% soln.	0/35 Max	Low to moderate foaming, outstanding wetting agent with alkaline & acid stability. Multi-metal corrosion inhibitor. For use as lubricant and emulsifier in metal working & textile applications.
DePHOS 8028FA	Clear to slightly hazy pale yellow liquid	99.0%	Aliphatic	<2.5 1% soln.	120/193	Free acid form of DePHOS 8028. For use as acid emulsifier, corrosion inhibitor, dispersant & wetting agent. Suggested for use in paints & adhesives.
DePHOS H-66-872	Clear, light yellow liquid	50.0%	Aromatic	8.0 -10.0 5% soln.	0/15 Max	Low foaming hydrotrope for nonionics & anionics in alkaline & acid systems.
DePHOS HP-739	Clear, amber, viscous liquid	99.0%	Aliphatic	< 2.5 1% soln.	220/315	Oil soluble, high phosphorous content ester for use as EP additive, lubricant, corrosion inhibitor, wetting agent & emulsifier in metal working applications. Becomes water soluble when neutralized with water soluble amines.

*Acid values represent the milligrams of KOH/per gram required to titrate to a pH of 5.0 - 5.5 and to a pH of 9.0 - 9.5

Continued

Product Name	Appearance @ 25°C	Minimum Activity	Hydrophobe	pH Range	Acid* Values	Typical Properties & Applications
DePHOS 4AL	Clear, colorless to pale yellow liquid	98.0%	Aliphatic	< 2.5 10% soln.	155 – 170 (AVII)	Low – moderate foaming phosphate ester in free acid form. Suggested for use as a lubricant, corrosion inhibitor, and emulsifier in metal working applications. Very effective for aluminum machining applications.
DePHOS P-6LF-AS **VOC = 9.7 grams/liter ASTM E1868-10 / SCAQMD RULE 1144	Clear, viscous yellow liquid	99.0%	Aromatic	<2.5 10% soln.	170/310	Low foaming, water soluble lubricant & hydrotrope with excellent alkaline stability. Approved for use as inert in non-food pesticides.
DePHOS QSA-90	Clear, yellow, viscous liquid	75.0%	Aliphatic	< 2.5 1% soln.	150/280	Economical, moderate to high foaming detergent for use in alkaline & acid cleaners.
DePHOS RA-60	Clear, yellow, viscous liquid	99.0%	Aliphatic	< 2.5 10% soln.	110/175	Good emulsifying & hydrotrope properties. Due to excellent wetting properties, it is suggested for use in alkaline metal cleaners, high pressure steam cleaners & other institutional & industrial cleaners. Soluble in water and many solvents. Approved for use as inert in non-food pesticides.
DePHOS 717	Clear to hazy, viscous liquid	99.0%	Aromatic	< 2.5 10% soln.	60/90	High foaming, water-soluble phosphate ester recommended for use as an emulsifier, detergent, and corrosion inhibitor for industrial applications including oilfield.

*Acid values represent the milligrams of KOH/per gram required to titrate to a pH of 5.0 - 5.5 and to a pH of 9.0 - 9.5

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The information and suggestions given are drawn from data we believe to be reliable, but in all cases the user should check and confirm the suggestions and results in his/her own use before proceeding further. DeFOREST Enterprises, Inc. offers no warranties other than to guarantee the products are manufactured to specifications and cannot assume any liability or risk involved in the use of our products since these conditions of use are beyond our control. None of the suggestions or recommendations constitute freedom from any patents that may be existent in the field or be issued.

2012, sellers and end users of these products could face large fines from AQMD.

DeTERIC Series *Amphoteric Surfactants*

The DeTERIC products are a series of amphoteric surfactants. They are cationic in acidic environments, anionic in alkaline conditions and nonionic at their isoelectric points or within their zwitterion range. Generally used in combination with primary surfactants, they are recommended for use in household, institutional, and industrial formulations. DeTERIC LP can also be used in personal care applications.

The DeTAINE series are amphoteric betaine surfactants exhibiting outstanding stability across a wide pH range. Betaines offer outstanding foam boosting and viscosity building properties when used in combination with anionic surfactants. DeTAINE PB can also be used in personal care applications.

Product Name	Appearance @ 25°C	Minimum Activity	Chemical Description	Typical Properties & Applications
Amphoterics				
DeTERIC LP	Light yellow liquid	29.0%	Sodium Lauriminodipropionate (INCI Name = Sodium Lauriminodipropionate)	High foaming, salt-free surfactant with detergency, wetting, hydrotrope & emulsifying properties. Stable in strong alkali & acids. Good brine stability. Provides corrosion protection in strong acids and hard water . Readily biodegradable. Recommended for high foaming alkaline & acid cleaners. Approved for use as inert in non-food pesticides. For use in personal care applications.
DeTERIC CP-Na-38	Clear, yellow liquid	37.0%	Sodium salt, Carboxylated C ₈₋₁₂ Modified Propionate	Similar to DeTERIC LP with higher foam, increased alkaline, acid & brine stability. Readily biodegradable. Approved for use as inert in non-food pesticides.
DeTERIC ODP-LF *VOC = 0.0 grams/liter (ASTM E1868-10 / SCAQMD Rule 1144).	Yellow liquid	49.0%	Sodium Octyliminodipropionate	Very low foaming amphoteric with excellent alkaline & acid stability. Exhibits corrosion inhibition & hydrotrope properties. Suggested for use in low foaming alkaline & acid cleaners. Approved for use as inert in non-food pesticide formulations.

Continued

Product Name	Appearance @ 25°C	Minimum Activity	Chemical Description	Typical Properties & Applications
Amphoterics (Continued)				
DeTERIC LF-Na-50	Clear, amber liquid	49.0%	Partially Neutralized Short Chain propionate	Low foaming amphoteric with very good wetting & hydrotrope properties. For use in high alkaline & acid systems.
DeTERIC CSP-50	Clear, almost colorless liquid	22.0%	Phosphated Amphoteric	For use in systems containing 50% active caustic soda & 45% active caustic potash. Provides low, quick breaking foam, detergency, wetting, & surface tension reduction. Maintains good color stability in highly caustic formulations. Hard water stable & biodegradable.
Betaines				
DeTAINE PB	Clear to slightly hazy, almost colorless, viscous liquid	20.0%	Palmitic betaine/ Cetyl betaine (INCI Name = Cetyl Betaine)	Odorless, colorless, alcohol-free betaine producing dense foam & unique viscosity building properties. Alkali & acid stable. Can be used in germicidal cleaners without reducing germicidal properties of quaternary compounds. Also suggested for use in acid or alkaline cleaners and personal care products. Approved for use as inert in non-food pesticides.

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DeTERGE Series *Alkaline & Acid Stable Specialties*

The DeTERGE LF series are multifunctional and used at typical concentrations of 1%-5% in low foaming, alkaline and acidic formulations. The DeTERGE LF series are excellent detergents and outstanding wetting agents. Several may be used as hydrotropes. All are biodegradable, non-phenolic and phosphate free.

DeTERGE CS-45LF, DeTERGE AT-100 and DeTERGE AN508-LF are specialty products designed for specific applications such as chlorine containing systems, acid thickening/gelling and highly alkaline systems.

Product Name	Appearance @ 25°C	Minimum Activity	Chemical Description	Typical Properties & Applications
DeTERGE LF Series				
DeTERGE LF-28	Clear, almost colorless liquid	48.5%	Modified Carboxylate	For use in formulated products containing 10% or less caustic and alkaline electrolytes. Not recommended for use in systems containing more than 5% trisodium phosphate. At 1% use level, exhibits excellent wetting properties with zero foam in up to 10% caustic. Not stable in acid systems. Approved for use as inert in non-food pesticides.
DeTERGE LF-531	Clear, amber liquid	54.0%	Modified Carboxylate	Similar properties to DeTERGE LF-28 but with increased caustic stability. Can be used at 1-3% in systems containing up to 20% active NaOH. Hydrotrope for nonionics in alkaline systems. Not as stable in sodium metasilicate as DeTERGE LF-28. At 1% use level, exhibits excellent wetting properties and very low foam in up to 20% caustic. Not stable in acid systems. Approved for use as inert in non-food pesticides.
DeTERGE LF-7315	Clear, amber liquid	54.0%	Modified Carboxylate	Exceptional stability at 1-3% use levels across a broad spectrum of concentrated acids, caustic (30-40%) & alkaline electrolytes. Not recommended for systems containing more than 5% sodium metasilicate or trisodium phosphate. Effective hydrotrope for nonionic surfactants in high caustic systems, low to moderate foam with good wetting. Stable in acid systems. Approved for use as inert in non-food pesticides.

Continued

Product Name	Appearance @ 25°C	Minimum Activity	Chemical Description	Typical Properties & Applications
DeTERGE Products				
DeTERGE AN508-LF	Yellow, slightly viscous liquid	51.0%	Complex Amphoteric	Low to moderate foaming surfactant having alkali & acid stability with good wetting properties. For use in low foam alkali & acid cleaners. Stable in up to 35% KOH. Approved for use as inert in non-food pesticides. Readily Biodegradable.
DeTERGE AT-100	Amber, semi-solid to paste	99.0%	Ethoxylated Complex Amine	Suggested as a thickening & gelling agent in acid systems. Provides detergency, wetting & is an outstanding emulsifier. Used in viscous bowl cleaners, acid pickling, vertical surface detergents, acid & corrosion inhibitors, emulsion cleaners & in down-hole oil field applications.
DeTERGE CS-45LF	Clear, almost colorless liquid	43.5%	Alkoxylated Carboxylate	A unique, economical low foaming, chlorine stable surfactant for use in alkaline systems only. Stable in 15% active caustic and alkaline electrolytes. Promotes detergency, wetting & offers excellent hard water stability. Biodegradable. Not stable in acid systems.
DeTERGE NAS	Clear, colorless to pale yellow liquid	33%	Modified Anionic	A low to moderate foaming, chlorine & peroxide stable surfactant for use in alkaline, acid and neutral systems. Provides detergency, wetting & solubilizing properties. Readily biodegradable. Approved for use as inert in non-food pesticides.

DeTROPE & DePHOTROPE Series, *Hydrotropes*

The DeTROPE and DePHOTROPE series of hydrotropes find utility in many applications including highly alkaline and/or acid cleaners, chlorine containing formulations, metal working and synthetic cutting fluid formulations.

Product Name	Appearance @ 25°C	Minimum Activity	Chemical Description	Typical Properties & Applications
DeTROPE CA-100 & DeTROPE CA-90	Clear, amber, viscous liquids	99.0% 90.0%	Modified Carboxylates	Low foaming hydrotropes for use in liquid & powdered highly alkaline systems. Provides wetting and corrosion inhibition. Excellent corrosion inhibitor in aerosol cans & highly effective on aluminum . Biodegradable, hard water stable, non-phenolic & phosphate free. Not acid stable. DeTROPE CA-90 remains liquid at temperatures above -35F for easier handling.
DeTROPE SA-45	Clear, colorless to yellow liquid	44.0%	Sodium Alkanoate	Virtually non-foaming, non-phenolic, chlorine stable hydrotrope. Recommended for use in chlorine containing, high pressure alkaline cleaners, automatic dishwashing detergents, textile mercerizing and low foam spray VAC detergents. For use in alkaline systems only. Approved for use as inert in non-food pesticide formulations. Readily biodegradable.
DePHOTROPE LFW-98	Clear, yellow liquid	99.0%	Complex Phosphate Ester	Excellent hydrotrope for use in strong alkaline & acid formulations. This low foaming, water soluble, wetting agent also contributes lubricating properties & is recommended for use in synthetic cutting fluids.
DePHOTROPE CAS-MF	Clear, yellow to amber liquid	53.0%	Phosphated Amphoteric	An outstanding hydrotrope, detergent, dispersant & wetting agent. Alkaline, acid & hard water stability. Used to hydrotrope other surfactants in products with high electrolyte content. This low to moderate foaming product may be used as a primary surfactant.

Miscellaneous *Surfactants & Specialties*

DeCONC, DeMOX, DeSULF, DeTHOX

A variety of interesting surfactants including several specialties are included in this section.

Product Name	Appearance @ 25°C	Minimum Activity	Chemical Description	Typical Properties & Applications
DeCONC Specialty Concentrate				
DeCONC I-100	Amber viscous liquid	99.0%	Amido Sulfonate Concentrate	Suggested for use in formulating high foaming alkaline stable detergents. Dilutions up to 6:1 may be used to produce highly viscous liquid detergents, alkaline cleaners, dishwashing, & laundry compounds, including powdered products.
DeMOX Amine Oxides				
DeMOX CSG-30 ECO	Clear to hazy viscous liquid	30.0%	Modified Amine Oxide	DeMOX CSG-30 ECO can produce clear, colorless gels & viscous liquids in the presence of sodium hypochlorite (alkaline systems) & hydrogen peroxide (acid systems). Highly recommended for vertical surface sanitizing cleaners & drain cleaners. This product is nonionic in alkaline systems and cationic in acid systems. Approved for use as an inert in non-food pesticides. Readily biodegradable.
DeSULF Alkyl Sulfate				
DeSULF SO-LF33	Clear, off white liquid	32.0%	Sodium Octyl Sulfate	Low to moderate foam wetting agent with caustic & chlorine stability. Used in highly alkaline cleaners, mechanical dishwashing detergents, high pressure spray metal cleaners, glass cleaners, & firefighting formulations. For use in mildly acidic cleaners & formulations containing peroxide. Readily biodegradable.
DeTHOX Ethoxylated Alcohols & Amines				
DeTHOX AMINE C-15	Clear amber liquid	97% min	Ethoxylated Coconut Amine	Emulsifier, dispersant, lubricant and corrosion inhibitor. For use in latex paints, water based inks, synthetic cutting fluids, and insecticides.

ENVIRONMENTALLY SAFER SELECTION

The following products are readily biodegradable, have low aquatic toxicity, and are well-suited for use in environmentally sensitive products.



- ❖ **DeTERIC LP & DeTERIC CP-Na-38**: high foaming amphoteric, excellent detergency, wetting, & foam stability in the presence of oil & grease. Excellent hydrotropes.
- ❖ **DeTROPE SA-45**: chlorine stable hydrotrope offering very low, fast breaking foam & wetting.
- ❖ **DeTERGE LF-2379**: low foam, modified alcohol ethoxylate. Good detergency, fast wetting, & excellent removal of hydrocarbon-based soils in neutral & mildly alkaline formulations.
- ❖ **DeTAINE PB**: alcohol-free palmitic betaine producing dense, creamy foam.
- ❖ **DeTERGE NAS**: low to moderate foaming, anionic surfactant offering detergency, wetting, & hydrotroping properties. Stable in caustic, sodium hypochlorite, & hydrogen peroxide.
- ❖ **DeMOX CSG-30 ECO**: thickener for sodium hypochlorite or hydrogen peroxide.
- ❖ **DeCORE AFCI-45**: low foaming, amine-free corrosion inhibitor for steel, aluminum, and yellow metals.
- ❖ **DeMULS KE-75**: Emulsifier for dibasic esters, kerosene, & other solvents.
- ❖ **DeMULS SGE-95**: Emulsifier for soy, canola, & other vegetable esters/oils.

While the iguana enjoys the sunshine outside our Florida lab window, we are inside, focused on developing new and innovative **readily biodegradable products!**

