Tocopherol Substituted Silanes

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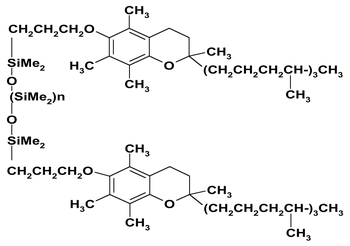
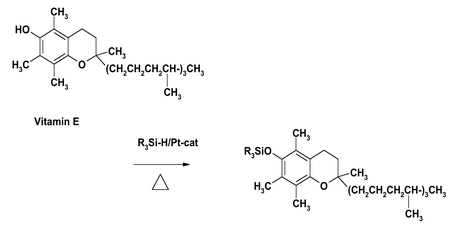
Introduction

- Vitamin E has biological importance for its anti-oxidant capabilities
- Vitamin E and its derivatives are typically used in skin creams and lotions
- Vitamin E and its derivates can also be used in foundations, gels, sunscreens and self-tanners
- Vitamin E is not easily soluble or incorporated into the silicone-based cosmetic formulations
- Derivatized Vitamin E with good compatibility and solubility is highly desired

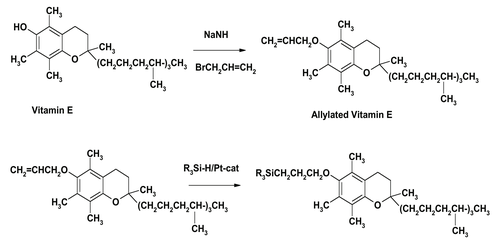
Vitamin E Derivative-III



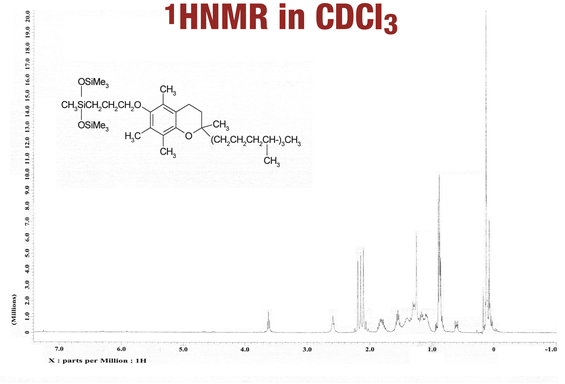
Dehydrogenative Coupling Route



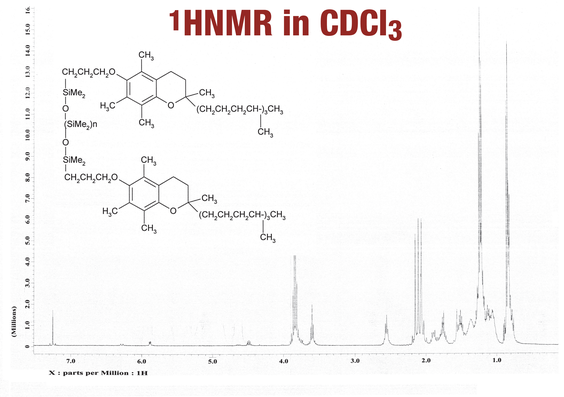
Hydrosilylation Route



^{1}HNMR in $CDCl_3$



^{1}HNMR in $CDCl_3$



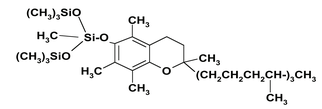
Skin Cream Formulation

	Ingredient(INCI Name)	Weight Percentage
Part A	Deionized Water	71.15
Part A	Ultrez 10(Carbomer)	0.20
Part A	Butylene Glycol	4.00
Part A	Methylparaben	0.30
Part A	Tween 60 (polysorbate 60)	0.50
Phase B	TRIS Amino (Trimethamine)	1.00
Phase B	Deionized Water	3.00
Part C	Disodium EDTA	0.05
Oil Phase D	Emersol 132(Stearic Acid)	2.00
Oil Phase D	Cerasynt SD (Glyceryl Stearate)	1.00
Oil Phase D	Arlacel 60 (Sorbitan Stearate)	0.50
Oil Phase D	Cerasphyl ODS (Octyldodeceyl Stearate)	9.00
Oil Phase D	Sample 2	6.00
Oil Phase D	Propylparaben	0.10
Part E	Germall II (Diazolidinyl urea)	0.20
Part E	Deionized Water	1.00
	Total	100.00

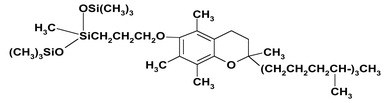
Skin Cream Sample

Lipstick Sample

Vitamin E Derivative-I



Vitamin E Derivative-II



Lipstick Formulation

Ingredient (Supplier)	INCI Name	Weight Percentage
Crystal O, (Caschem)	castor oil	14.38
Schercemol TISC, (Noveon)	triisostearyl citrate	30.00
Eutanol G	octyldodecanol	6.00
Sample 2		10.00
Methylparaben		0.20
Propylparaben		0.10
Candelilla		7.00
Microwax SP 19, (Strahl&Pitch)	microcrystalline wax	3.5
Ozkerite 170D, (Ross Wax)	ceresin	2.00
Carnauba		1.50
Color Grind:		
Crystal O, (Caschem)		7.75
A-1206, (Color Techniques)	iron oxides	6.00
X-200, (Kemira)	titanium dioxide	1.70
A-1301, (Color Techniques)	iron oxides	1.00
C19-7711, (Sun Chemical)	Red 7 Lake	0.17
Mearlmica CF, (Englehard)	mica	8.00
	Total	100.00

Summary

1. A facile synthesis for derivatized Vitamin E has been developed
2. New derivatized Vitamin E has been synthesized and characterized
3. Silicone derivatized Vitamin E has a broad solubility and compatibility in the cosmetic formulations
4. Lipstick and Skin Cream based on derivatized Vitamin E have been obtained