

Emollient Esters

ELDEW

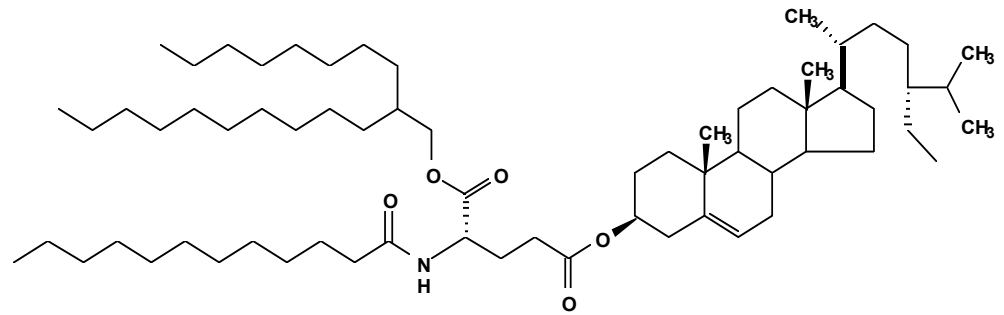
ELDEW PS Series

Product Name	Main	Ester Part			Appearance
PS-203	Lauroyl Glutamate	Phytosteryl	Octyldodecyl		Liquid
PS-304				Behenyl Alcohol	Paste or Wax
PS-306					

The Structure of *ELDEW* PS series is similar to Ceramides

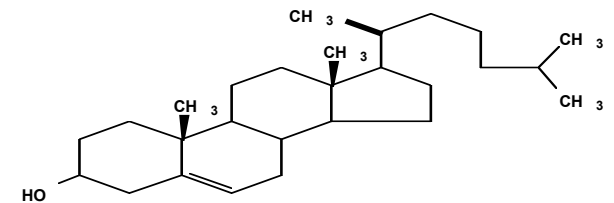
~ **ELDEW** performs like Ceramide ~

ELDEW PS-203

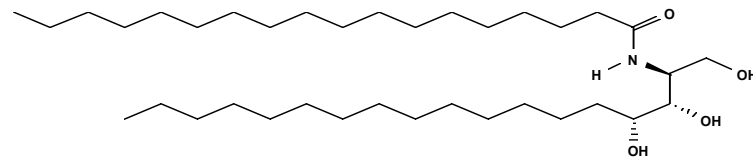


Composition of Intercellular lipids

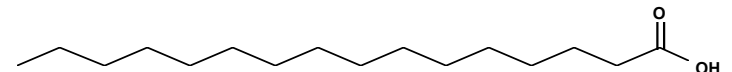
Cholesterol & derivative



Ceramide



Fatty Acids (C_{14~21})



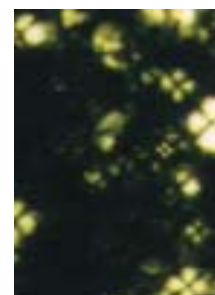
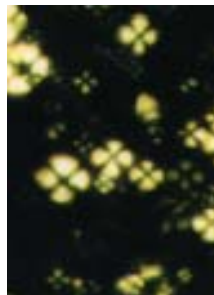
~ as a substitution for Ceramides ~

Eldew, as well as ceramides, can compose a lamellar structure in formulations*.

	Model A	Model B	Model C	Model D
Ceramide Type III	18			
<i>Eldew</i> CL-301		18		
<i>Eldew</i> PS-203			18	
<i>Eldew</i> PS-304				18
Squalene	7	7	7	7
Triolein	25	25	25	25
Cholesterol sulfate	2	2	2	2
Cholesterol	14	14	14	14
Phosphatidylethanolamine	5	5	5	5
Pristane	4	4	4	4
Free fatty acids	25	25	25	25
Deionized water	30	30	30	30

(wt.%)

*Human stratum corneum lipids
P.M.Elias *J.Lipid Res.*, 24,120(1983)



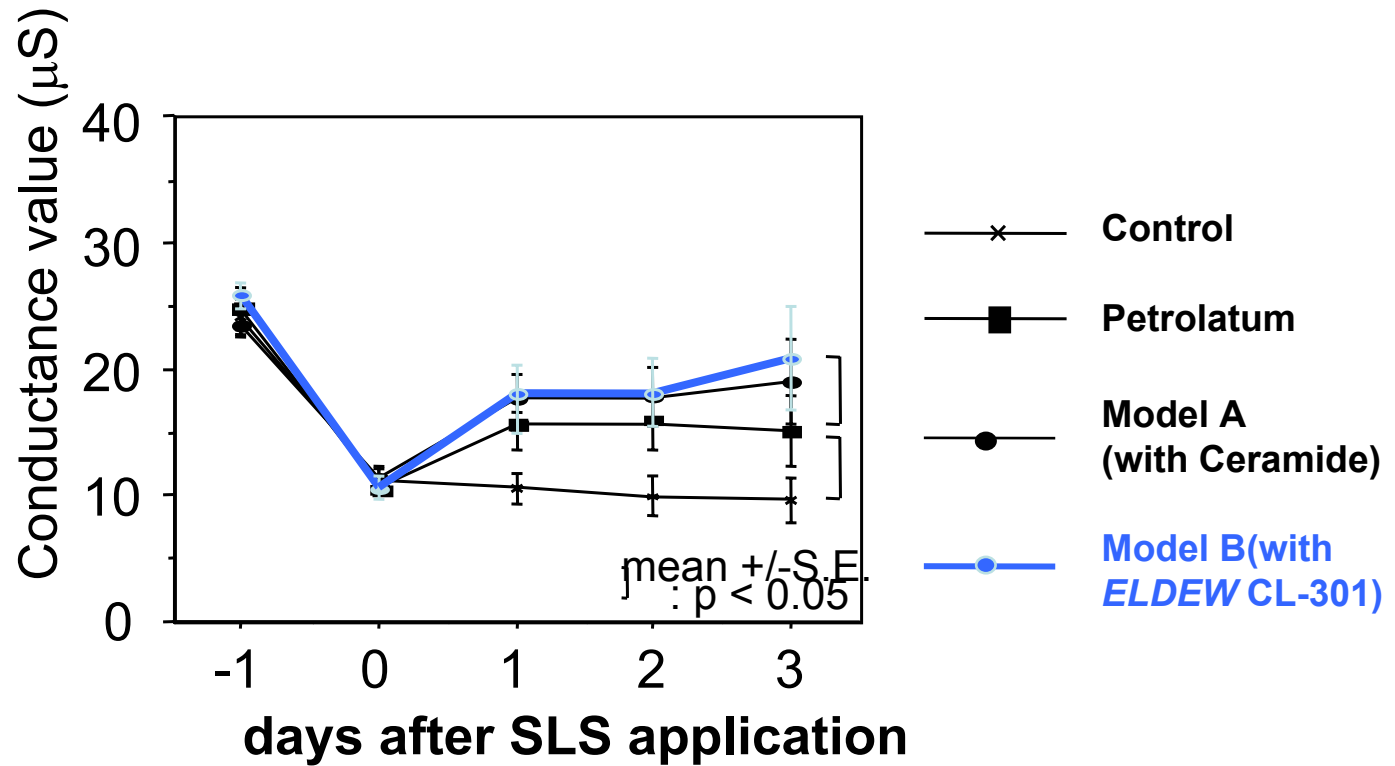
~ Recovery for damaged skin ~

Normal skin



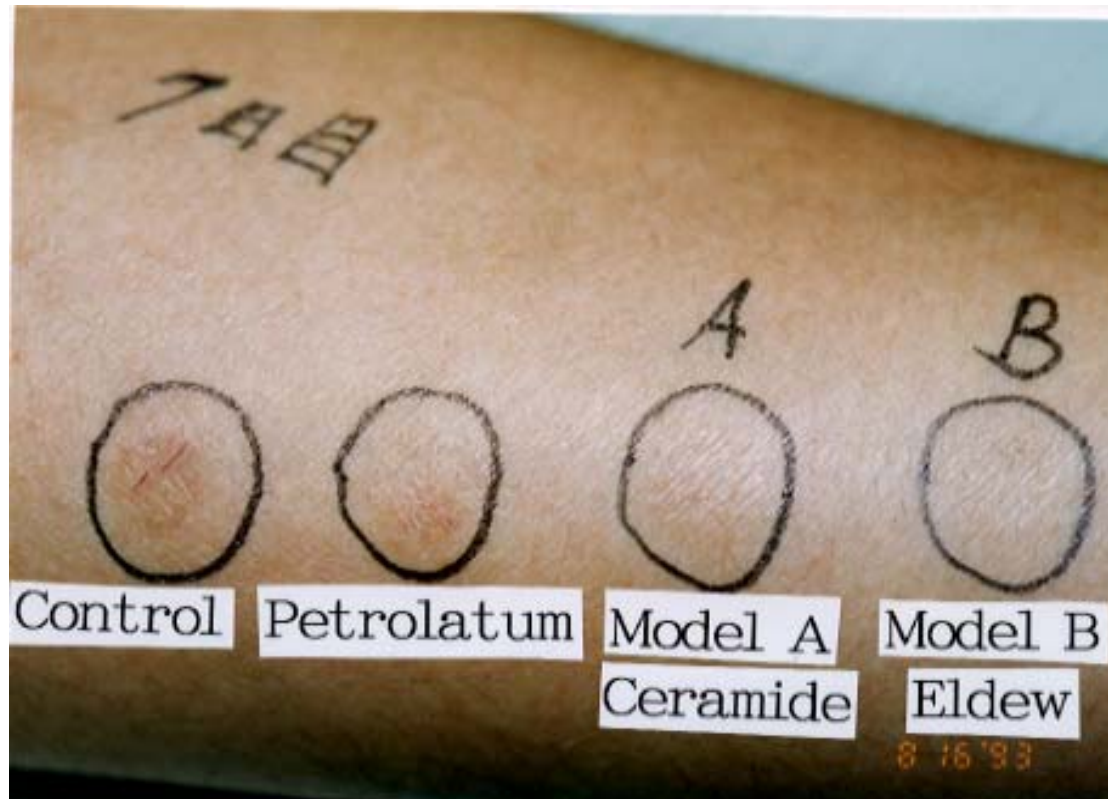
Scaly skin

Conductance



~ Recovery for damaged skin ~

Photograph in a week



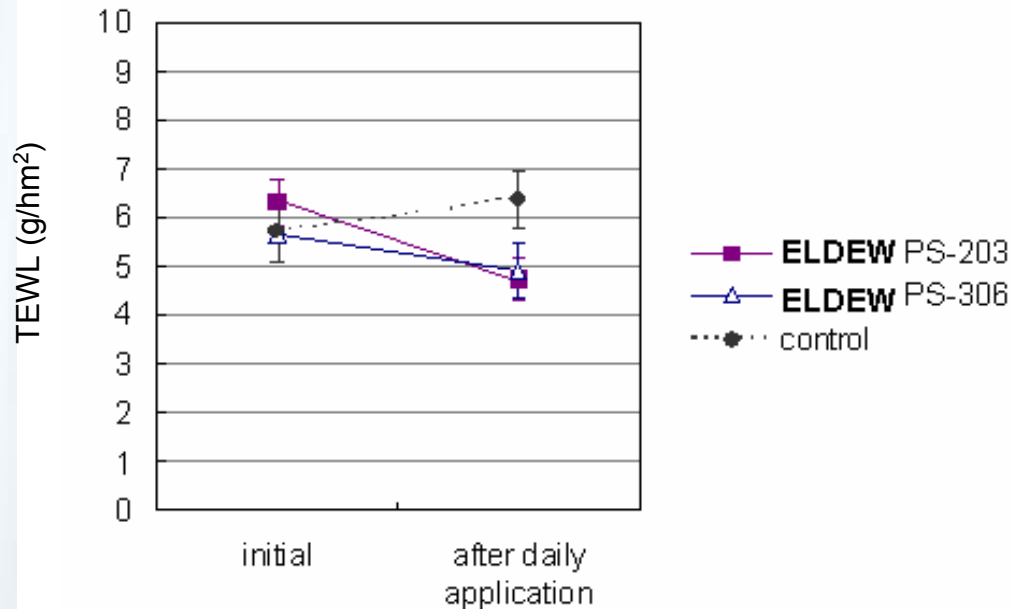
The efficiency of Model B containing *ELDEW* for the scaly skin were nearly equal to that of Model A containing Ceramides .

Eldew Improves Damaged Skin Condition ~Transepidermal Water Loss~

<Procedure>

The test area of 5 cm square on crus (leg) was chosen as model of damaged skin. A drop of **ELDEW**, 2-3 mm in diameter, was applied after daily bathing for 1 week. The TEWL was measured before and after application by a TEWAMETER TM210, Courage + Khazaka electronic GmbH.

ELDEW improves the barrier function of damaged skin

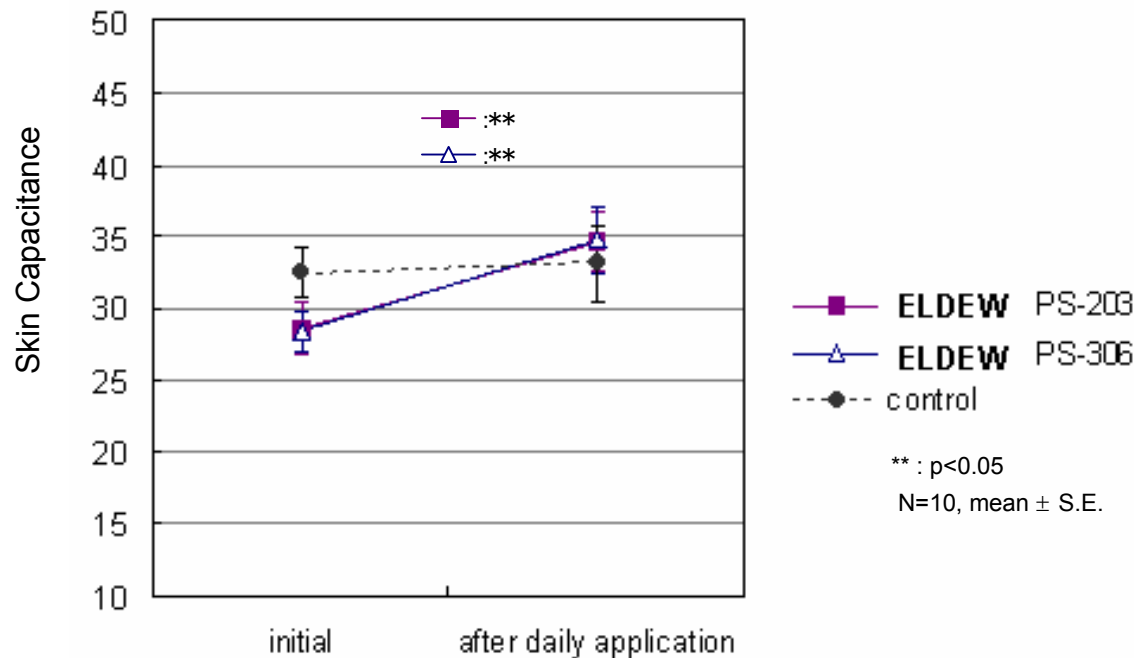


ELDEW Improves Damaged Skin Condition ~Skin Capacitance~

<Procedure>

The test area of 5 cm square on crus (leg) was chosen as model of damaged skin. A drop of **ELDEW**, 2-3 mm in diameter, was applied after daily bathing for 1 week. The skin capacitance was measured before and after application by a Corneometer CM825, Courage + Khazaka electronic GmbH.

ELDEW improves the hydration level in the stratum corneum of damaged skin.



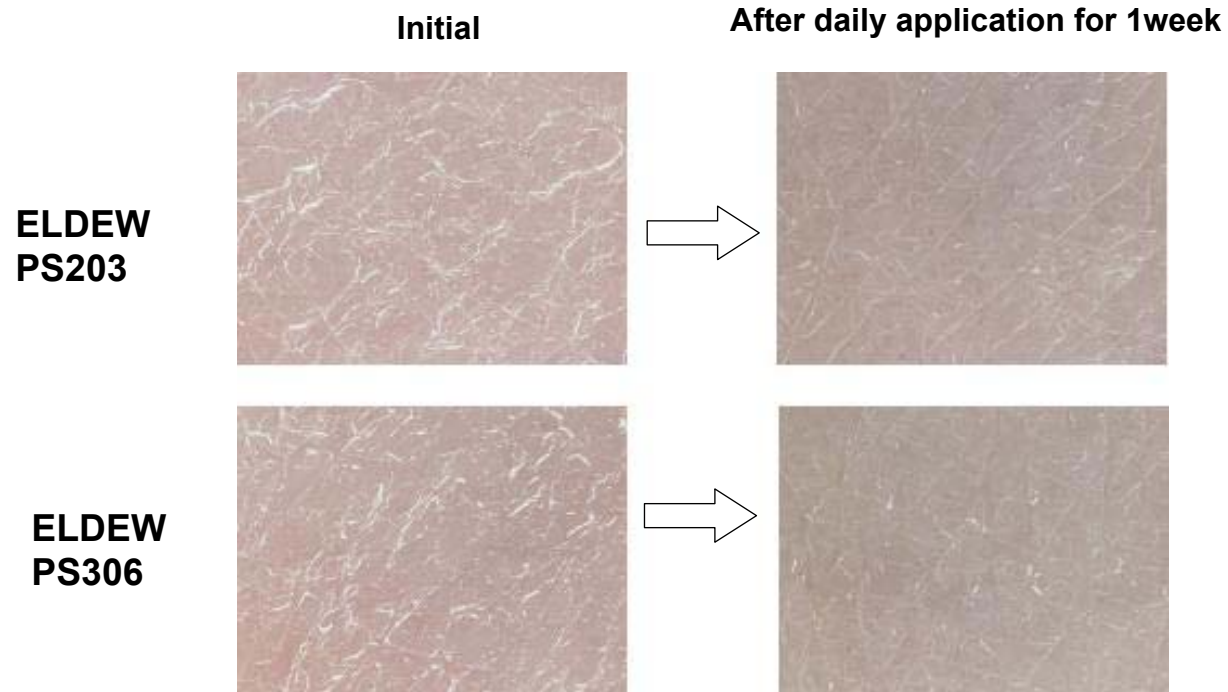
ELDEW Improves Damaged Skin Condition

~Microscope Observation~

<Procedure>

The test area of 5 cm square on crus (leg) was chosen as model of damaged skin. A drop of **ELDEW**, 2-3 mm in diameter, was applied after daily bathing for 1 week. The skin surface was observed before and after applying **ELDEW** by Microscope KH-3000, HIROX Co.,Ltd.

ELDEW improved the texture of damaged skin.



~ Water holding capacity ~

ELDEW has special affinity with water and holds much water.

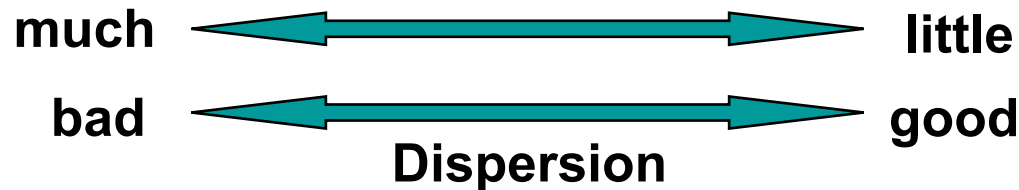
Sample	Water holding capacity(%)
ELDEW PS-203	420
ELDEW PS-304	420
Lanolin	360
Petrolatum	10

~ Pigment dispersion ~

Mix 10% of one of the emollients below with 90%wt of TiO_2 . Add mineral oil gradually to the mixture.

Wet Point(mineral oil required to wet the mixture)

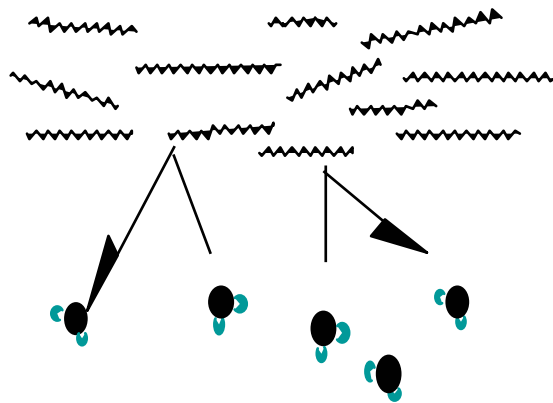
Flow Point (mineral oil to impart fluidibility)



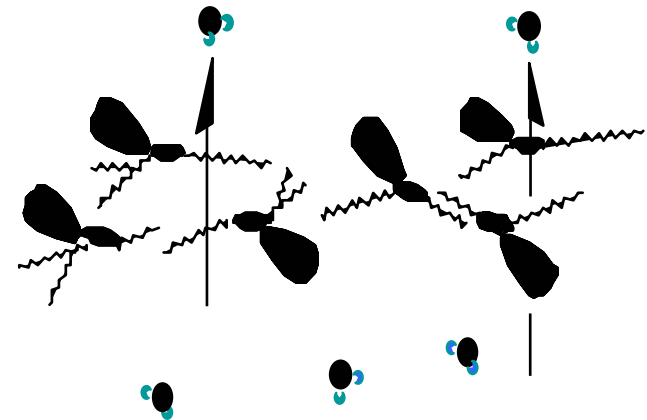
Emollients	Wet Point	Flow Point
<i>ELDEW PS-203</i>	31	50
<i>ELDEW PS-304</i>	34	60
Lanolin Oil	20	46
Lanolin	23	102
Liquid Paraffin	32	216

~ Image of moisture permeability ~





ELDEW demonstrates high moisture permeability and reduces occlusivity of oils.



Petrolatum



ELDEW

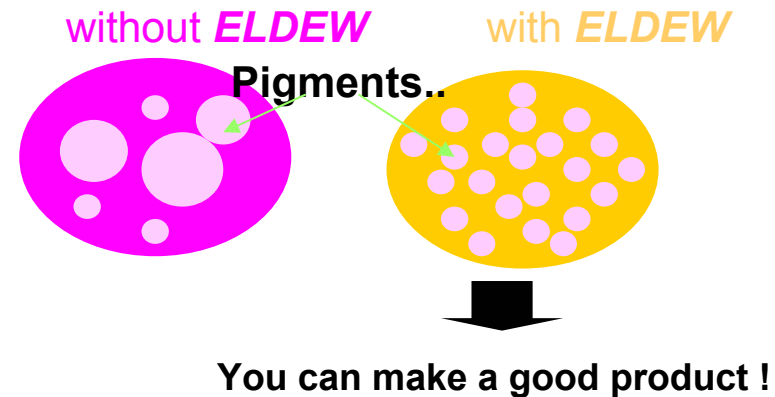
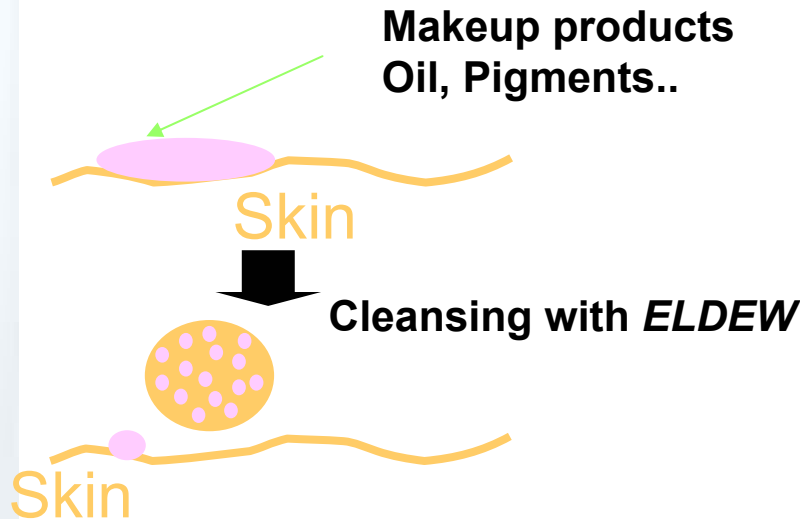
-  Glutamic Acid
-  Cholesteryl
-  Carbon chain
-  H₂O molecule

~Applications of Pigment Dispersibility to Skin Care Products~

- **ELDEW** has excellent pigment dispersibility
- Make-off Cosmetics
 - Cleansing Gel
 - Cleansing Oil
- Makeup Cosmetics
 - Foundations
 - Lipsticks

Cleansing Process

Manufacturing Process



~Formulation~

Makeup Remover<Oil>MRU-14

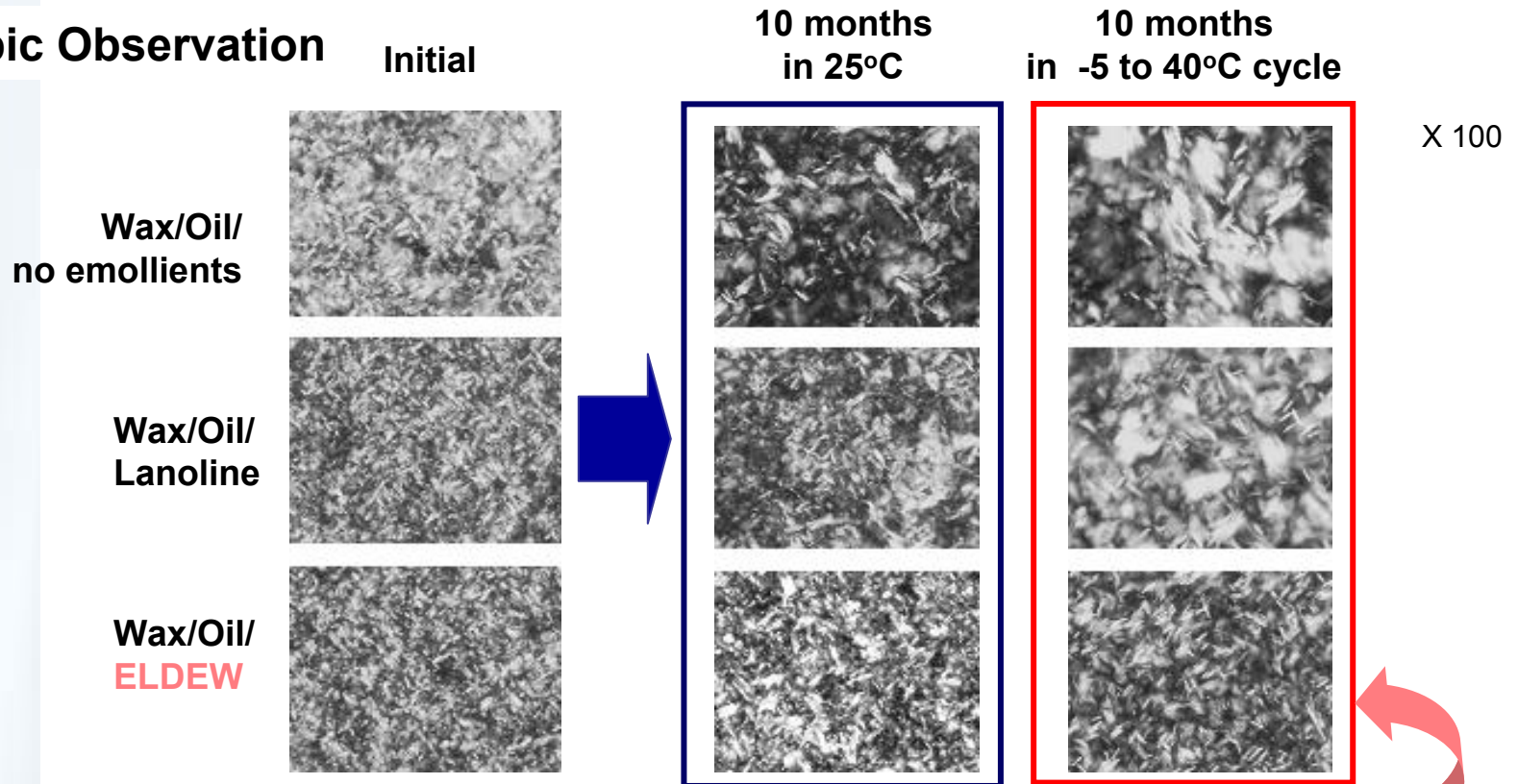
		Wt%
A	Mineral Oil	38
	Ethylhexyl Palmitate	20
	Triethylhexanoin	10
	Isopropyl Palmitate	10
	Octyldodecyl Myristate	10
	PEG-20 Glyceryl Triisostearate	10
	<i>ELDEW PS-203</i>	1
B	Water	1

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Stabilization of Lipstick by ELDEW -1

ELDEW[®] prevents localization of wax crystal[®] to improve[®] the stability of lipstick formulation.

Microscopic Observation



<Composition>

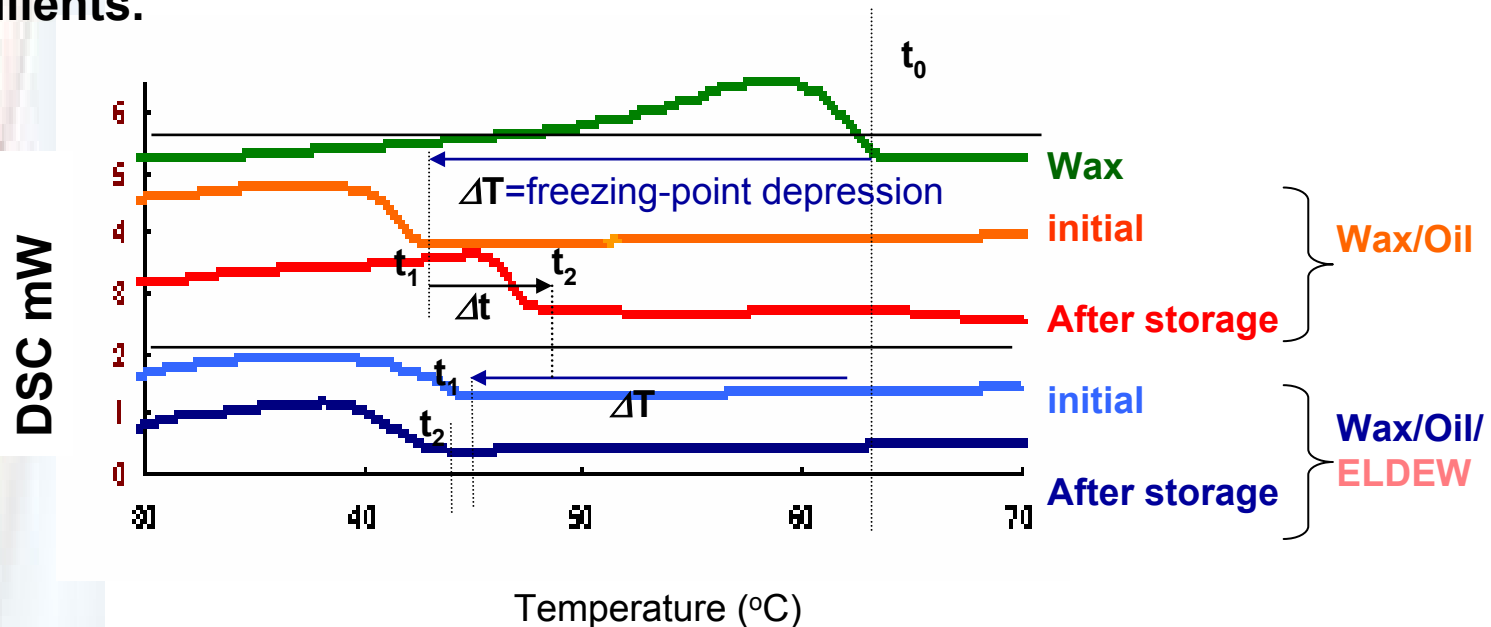
Wax	Oil	Emollients	
Solid Paraffin 10 part	Squalane 90 part	Lanolin	5 part
		ELDEW PS-306	5 part

No remarkable localization of wax crystal

Stabilization of Lipstick by ELDEW[®] -2

By DSC measurement

The freezing point of test samples (Solid Paraffin/Squalane/Emollient Oil) are shifted after the thermal cycle. However, Dt of formulation with ELDEW are smaller than those of other emollients.



$\Delta t / \Delta T = \text{close to 0 or slightly minus is better}$

<Measurement Condition>

Instrument : DSC6200 (SII)

Condition : 100 to 0°C, 10°C/min

TS data 1015-0840

ELDEW® can inhibit the change of freezing point during long term storage in each wax/oil combination.

		Wax	Solid Paraffin, $t_0 = 63.5 \text{ }^\circ\text{C}$								
		Oil	Hydrogenated Polyisobutene			Isononyl Isononanoate			Squalane		
			$\Delta t / \Delta T$	$\Delta t \text{ (}^\circ\text{C)}$	$\Delta T \text{ (}^\circ\text{C)}$	$\Delta t / \Delta T$	$\Delta t \text{ (}^\circ\text{C)}$	$\Delta T \text{ (}^\circ\text{C)}$	$\Delta t / \Delta T$	$\Delta t \text{ (}^\circ\text{C)}$	$\Delta T \text{ (}^\circ\text{C)}$
Emollient	Blank	15%	2.3	15.4	-3%	-0.6	18.2	25%	5.2	20.9	
	ELDEW CL-301	-1%	-0.2	14.5	-3%	-0.6	18.6	3%	0.5	19.6	
	ELDEW PS-203	-2%	-0.3	14.7	-3%	-0.5	18.6	-6%	-1.1	19.1	
	ELDEW PS-304	2%	0.3	15.0	1%	0.2	18.1	-5%	-1.0	19.2	
	ELDEW PS-306	-2%	-0.3	15.2	-5%	-1.0	18.2	-9%	-1.7	18.8	
	Lanoline	-2%	-0.3	15.2	3%	0.5	19.1	15%	3.1	20.8	
	Hydroxystearic Acid	0%	0.0	14.8	4%	0.7	18.1	-1%	-0.1	19.2	
	Dipentaerythryl Hexahydroxystearate/ Stearate/Rosinate	-3%	-0.5	14.7	-4%	-0.7	17.4	15%	2.8	18.9	

		Wax	Euphorbia Cerifera (Candelilla) Wax, $t_0 = 67.2 \text{ }^\circ\text{C}$								
		Oil	Hydrogenated Polyisobutene			Isononyl Isononanoate			Squalane		
			$\Delta t / \Delta T$	$\Delta t \text{ (}^\circ\text{C)}$	$\Delta T \text{ (}^\circ\text{C)}$	$\Delta t / \Delta T$	$\Delta t \text{ (}^\circ\text{C)}$	$\Delta T \text{ (}^\circ\text{C)}$	$\Delta t / \Delta T$	$\Delta t \text{ (}^\circ\text{C)}$	$\Delta T \text{ (}^\circ\text{C)}$
Emollient	Blank	31%	6.2	19.8	8%	2.2	28.7	38%	8.1	21.1	
	ELDEW CL-301	-2%	-0.5	20.1	-1%	-0.2	29.4	4%	0.9	22.2	
	ELDEW PS-203	0%	-0.1	20.5	0%	0.0	28.0	-1%	-0.2	25.7	
	ELDEW PS-304	5%	1.0	21.8	-2%	-0.6	28.4	-4%	-1.0	24.6	
	ELDEW PS-306	-6%	-1.3	20.1	-1%	-0.2	28.1	-3%	-0.8	23.5	
	Lanoline	0%	0.0	19.8	1%	0.2	27.6	-2%	-0.4	22.5	
	Hydroxystearic Acid	-16%	-2.8	17.7	-2%	-0.6	28.3	-4%	-1.0	24.6	
	Dipentaerythryl Hexahydroxystearate/ Stearate/Rosinate	0%	0.0	20.8	-4%	-1.0	27.7	-5%	-1.1	24.2	

Reference:

T. Nakamura, S. Hojyo, K. Sakon, *J. Soc. Cosmet. Chem. Jpn.* **28(2)**, 139-146 (1994)

TS data 1015-0840

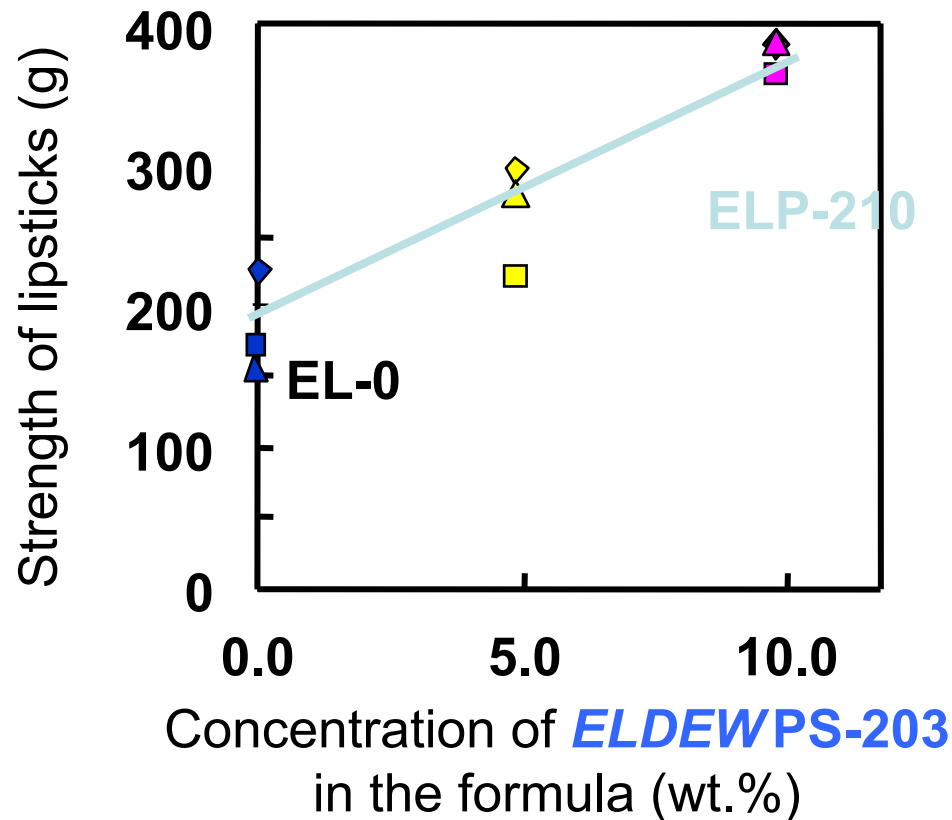
~ Lipstick Test Formula ~

	Without Eldew EL-0 (wt.%)	With ELDEW ELP-210 (wt.%)
Polybutene	24.0	14.0
Octyldodecyl myristate	23.5	23.5
Caprylic/capric triglyceride	5.0	5.0
Octyldodecanol	20.0	20.0
ELDEW PS-203	0.0	10.0
Ozokerite	7.5	7.5
Carnauba wax	5.0	5.0
Candelilla wax	5.0	5.0
Pigments	10.0	10.0
Total	100.0	100.0

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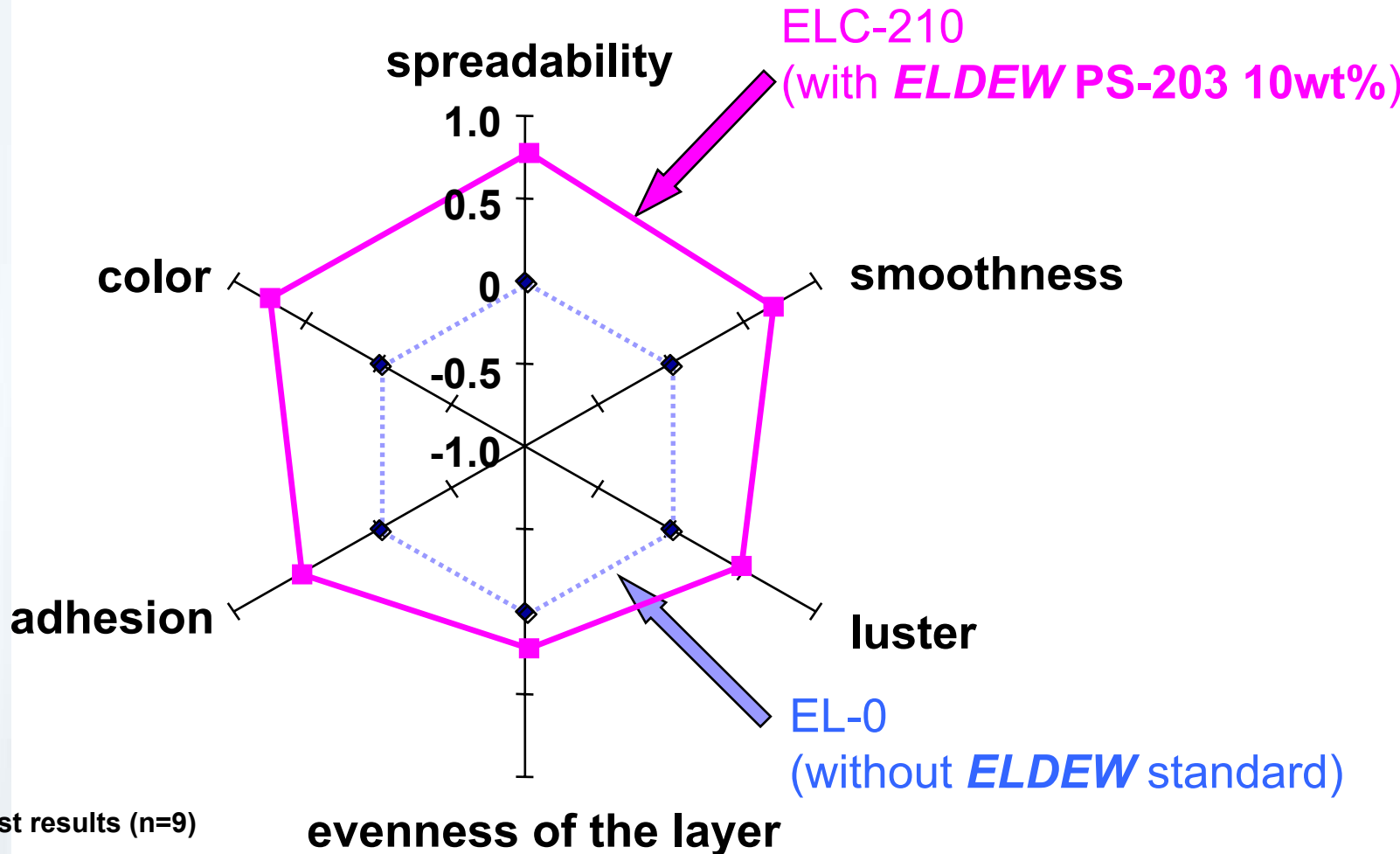
~ Breakage of lipstick ~

ELDEW PS-203 increases the strength against breakage of lipstick



~ Sensory test of lipstick ~

ELDEW PS-203 improves the feeling of lipstick.



Sensory test results (n=9)