

TECHNICAL DATA SHEET

100% of Natural Liquid Crystal Emulsifier
Total Skin Care Effect by Multi-lamellar Structure
No Irritation and No Animal Sources
High Content of Bound Water System

DESCRIPTIONS

SUGAR CRYSTAL-LC is a 100% botanical natural emulsifier having multi-functional activity without any active ingredients. SUGAR CRYSTAL-LC is an exclusive blend used to create advanced liquid lamellar crystal structure systems. SUGAR CRYSTAL-LC forms a multi-layer liquid crystal structure that mimics the skin, consisting of similar components (sucrose diester surfactant, hydrogenated lecithin, fatty alcohols, triglycerides, etc.) including 15~37% bound water. Unlike typical liquid crystal systems, SUGAR CRYSTAL-LC forms a thick wall around oil droplets improving stability and delivery.



APPLICATIONS

SYSTEMS: 100% Natural Liquid Crystal System (EO-free emulsifier)

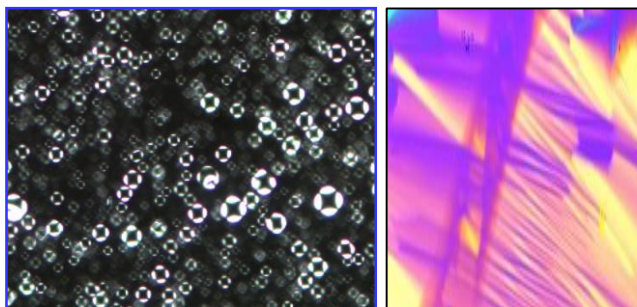
FORMULAS: Very stable low viscous lotions, creams, body lotion, hand cream, eye cream etc.

MAKE-UP: BB/CC Cream, Foundations

SUNSCREENS: Emulsifier for Physical and Chemical Sunscreens

WHAT IS SD SUGAR CRYSTAL LC?

SD Sugar Crystal LC is a 100% Natural emulsifier having high functional actions having very safety, sweet flavor. SUGAR CRYSTAL-LC is a proprietary blend of oil, phospholipids and fatty acids. This unique blend creates a beautiful liquid crystal structure as seen below. You can see that all droplets were certified with Maltese cross images (below picture: left). We certified that all droplets are liquid crystals measuring by polarized microscopic analysis as below picture right side.



Liquid crystal droplets

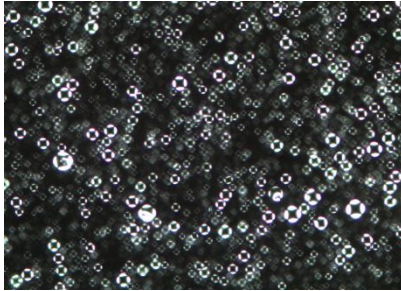
Linear multi-lamellar structures

SD SUGAR CRYSTAL LC

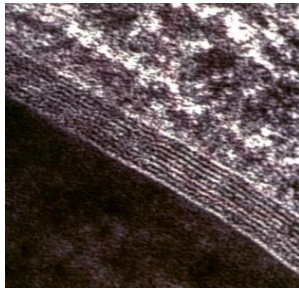
CERTIFICATIONS OF SUGAR CRYSTAL LC

Certification of LC with Polarized Microscopy

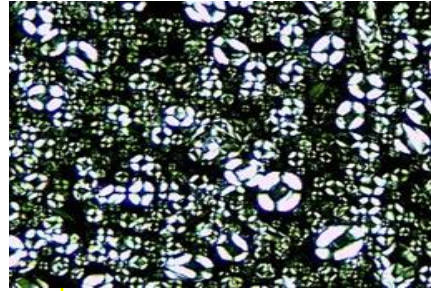
Liquid Crystal of Low Viscosity
Emulsion, mag. X 200



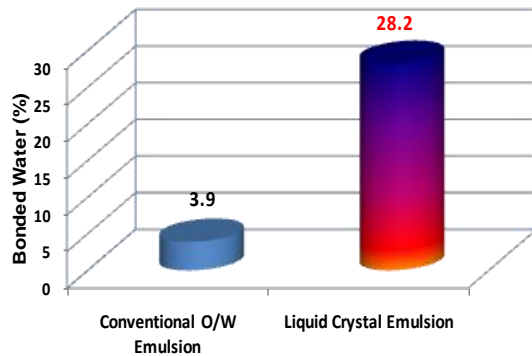
Origin *Stratum Corneum*
Ref) *IFSCC Magazine*



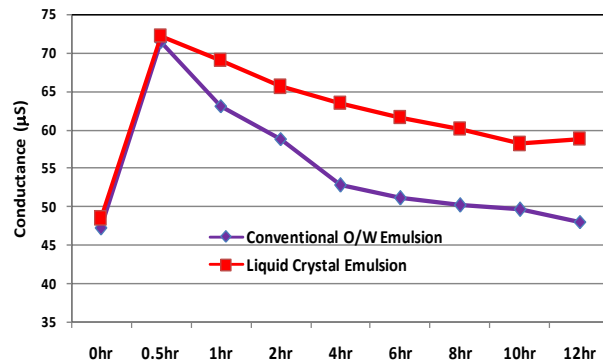
Usage: Sugar Crystal LC 4%



TECHNOLOGY APPROACHES



Bound Water Activity
SUGAR CRYSTAL LC has good effectiveness of more than 7 times compared with conventional o/w emulsion



Hydration Effect
SUGAR CRYSTAL LC has good moisturizing effect for long-lasting compared with conventional o/w emulsion

FORMULATION GUIDELINES

100% NATURAL LIQUID CRYSTAL EMULSIFIER

Recommended Use Level: 2.00~4.00%

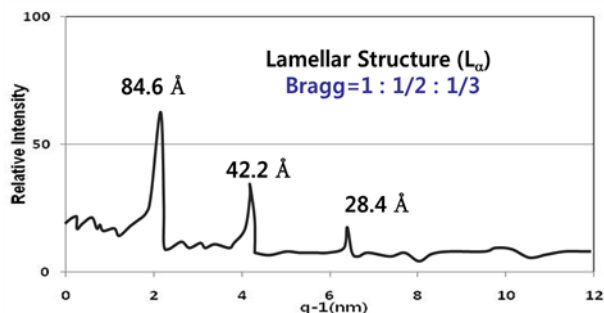
(SUGAR CRYSTAL LC is a sole emulsifier and does not require additional co-emulsifiers)

Solubility	: Oil Soluble
pH	: 3.0 - 11.0
Viscosity	: Increase percentage of SUGAR CRYSTAL LC to increase viscosity Increase percentage of Oil Phase to increase viscosity
Thickeners	: Add Polymeric thickeners (ex. Carbomers) Increase percentage of other waxes and fatty alcohols
Oil Phase	: SUGAR CRYSTAL LC emulsions (tested at 3-4%) can hold up to 40% oil phase. Can hold up to 20% silicone (in oil phase)

SD SUGAR CRYSTAL LC

ANALYSIS OF MULTI-LAMELLAR STRUCTURE

Certification of Lamellar Structure Measured by X-ray Analysis

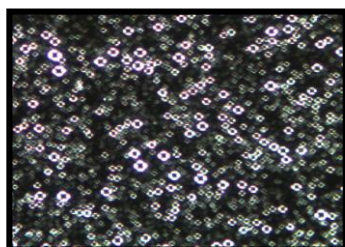


The cream used to 4% SUGAR CRYSTAL LC were certified to lamellar structure measured by small angled x-ray through Bragg equation as follow.

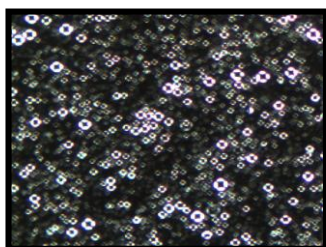
Bragg equation (L_{α}) : 1:1 / 2:1 / 3

pH EFFECT

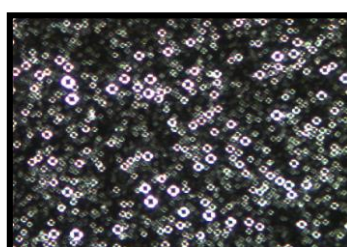
As you can see as below polarized microscopic analysis, various formulations applied SUGAR CRYSTAL LC, Large range were good stabilized from pH= 4.0 to 10.0.



pH=4.6



pH=6.8



pH=9.1

PHYSICAL PROPERTY

Appearance	: Yellowish wax
Melting Point	: 42 – 60C (Method 1, 1g)
Acid Value	: Max. 5 (Method 2)
Heavy metal	: Max. 20ppm
Arsenic	: Max. 2ppm

LEGISLATION

- INCI Name: Sucrose Distearate, Glyceryl Stearate, Cetearyl Alcohol, Behenyl Alcohol, Hydrogenated Lecithin, Squalane, Ceramide 3.
- Global Compliance: US, JAPAN, CHINA, KOREA, EU, Global standard

DISTRIBUTED BY



UNIT 2 CORINUM INDUSTRIAL ESTATE
RAANS ROAD, AMERSHAM
HP5 6JQ, UNITED KINGDOM

TEL: +44 (0) 1494 410160
FAX: +44 (0) 1494 722320
EMAIL: SALES@AMMEREX.COM