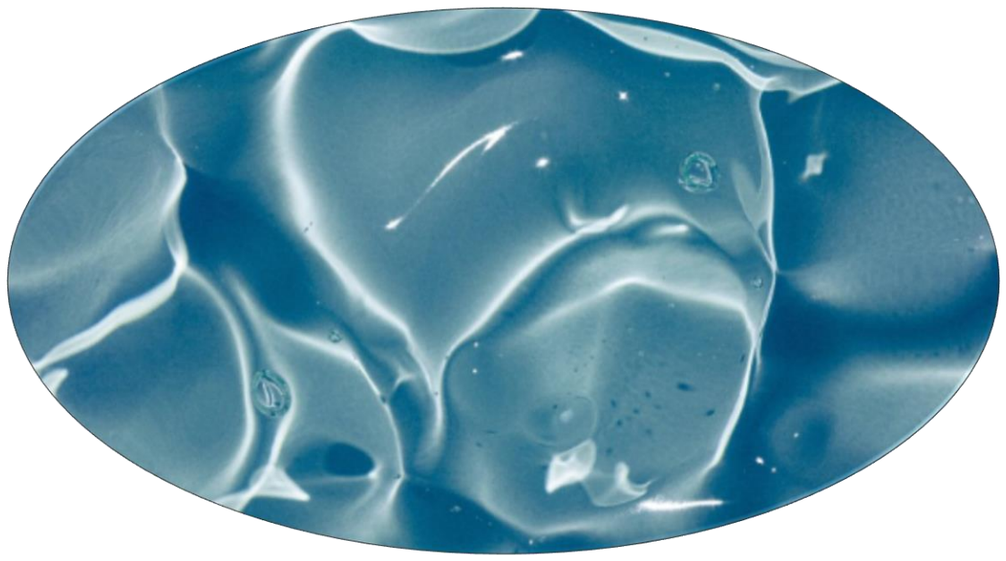
DJ GELLING AGENT SERIES

DJ Gelling Agents : Introduction



What's Gelling Agents?

Gelling agents are components used to increase the viscosity of liquids containing water or oils. They enhance the user experience by adjusting viscosity and suppressing the creaming speed of emulsions or suspensions, thereby improving stability.

The use of gelling agents results in a smooth and creamy texture for products, providing a comfortable feel during application. Additionally, they reduce the separation or sedimentation of ingredients, which further improves product stability and extends shelf life.

By adjusting the appropriate viscosity, gelling agents facilitate easy application for users. They are suitable for various cosmetic formulations, such as creams, lotions, and serums, making them widely applicable. Therefore, in the cosmetics industry, oil thickeners are among the commonly used ingredients in beauty and personal care products.

Functions

- Gelling oil : Turning into gels or semi-solid forms
- Stabilizing Emulsion
- Increasing viscosity of oils
- Improving texture
- Enhancing product performance
- Controlling release
- Adjusting consistency

Characteristics & Benefits

- Viscosity Control
- Product Stabilization
- Texture Improvement
- Emulsion Stabilization
- Enhanced Visual Appeal

Applications

- Lipsticks and Lip-care products
- Sunscreen lotion
- Hair-care products and Mascara
- Oil-type gel foundations
- Cleansers
- Skin care products

DJ Gelling Agent series

PRODUCT NAME	INCI NAME	CAS NO.
DJ DP	Dextrin Palmitate	83271-10-7
DJ DPEH	Dextrin Palmitate Ethylhexaonate	183387-52-2
DJ EG	Dibutyl Ethylhexanoyl Glutamide	861390-34-3
DJ LG	Dibutyl Lauroyl Glutamide	63663-21-8

DJ Gelling Agents : Products Introduction

DJC is a specialized manufacturer that continuously develops and produces cosmetic raw materials. In particular, oil gelling agents and thickeners are among DJC's areas of expertise, with products that have been developed over several years. This commitment enables DJC to provide high-quality and innovative cosmetic ingredients that meet the needs of the industry.

DJ DP

INCI Name :
Dextrin Palmitate

Cas No.
83271-10-7

DJ DPEH

INCI Name :
Dextrin Palmitate Ethylhexanoate

Cas No.
183387-52-2

DJ EG

INCI Name :
Dibutyl Ethylhexanoyl Glutamide

Cas No.
861390-34-3

DJ LG

INCI Name :
Dibutyl Lauroyl Glutamide

Cas No.
63663-21-8

Hard gels	Soft gels	Transparent Hard gels	Transparent Soft gels

DJ Gelling Agents : DJ DP& DJ DPEH

DJ DP
Dextrin Palmitate

DJ DP is an ester of dextrin and palmitic acid and an organic compound, it is a naturally derived from palmitic acid (from palm oil) oil gelling agent.

DJ DP primarily used in cosmetics as an emulsifier, stabilizer, texture enhancer and oil thickening agent makes it useful in a wide range of applications.

DJ DP provides excellent stability in emulsions. Ensures that creams, lotions, and other cosmetic products have a consistent texture and smooth application.

DJ DP helps combine oil and water phases in cosmetic formulations, ensuring a smooth and stable product.

DJ DPEH
Dextrin Palmitate Ethyhexanoate

DJ DPEH is a chemical compound used primarily in the cosmetics and personal care industries. It is a type of ester derived from the reaction of dextrin, palmitic acid, and 2-ethylhexanoic acid. It combines the properties of dextrin palmitate with those of ethylhexanoate, which is a branched-chain fatty acid ester.

DJ DPEH is used as an emulsifier, stabilizer, and texture enhancer in cosmetic formulations. It helps to improve the stability and texture of products like creams, lotions, and makeup.

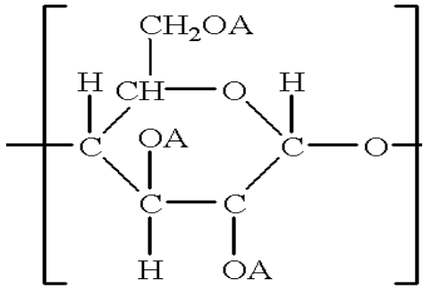
DJ DPEH can impart a smooth, non-greasy feel to the skin, enhancing the application and sensory properties of cosmetic products.

DJ DP VS DJ DPEH

Appearance: White or Light yellowish-brown powder
Melting Point : 80~130 C
Formula : $C_{54}H_{102}O_9$

Appearance: White to Light yellow powder
Melting Point : 80~130 C
Formula :
•Dextrin: $(C_6H_{10}O_5)_n$
•Palmitate: $C_{16}H_{32}O_2$
•Ethylhexanoate: $C_8H_{14}O_2$

A : Palmitoyl group or Hydrogen
n : Degree of Polymerization



A: $C_{15}H_{31}CO$-
or
$CH_3(CH_2)_3CHCO$-
|
CH_2CH_3
or
H

n: Degree of Polymerization

DJ Gelling Agents : DJ EG & DJ LG

DJ EG& LG is an oil thickener, stabilizer, and gelling agent. It can control the gel strength and viscosity and can give a transparent look and a non-sticky use feeling to the oil-stick product.

DJ EG & LG increase the viscosity of liquids, turning them into gels or semi-solid forms. This thickening action helps to create the desired texture and consistency in products such as creams, lotions, and gels.

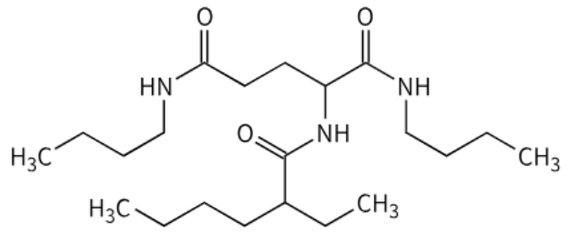
DJ EG &LG form a network using relatively small amounts, which has minimal impact on the oil's texture. This is a DJ EG & LG's major advantage.

DJ EG & LG is valued for its mildness and effectiveness in improving the feel and performance of skincare and personal care products as an emulsifier, it helps to blend oil and water components, improving the texture and stability of formulations.

DJ EG and DJ LG are both amide-based compounds used in cosmetic formulations, but they differ in their chemical structure and properties.

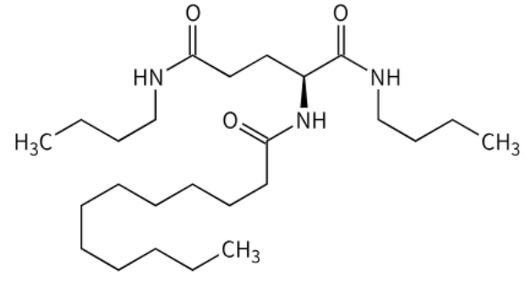
DJ EG

Dibutyl Ethylhexanoyl Glutamide



DJ LG

Dibutyl Lauroyl Glutamide



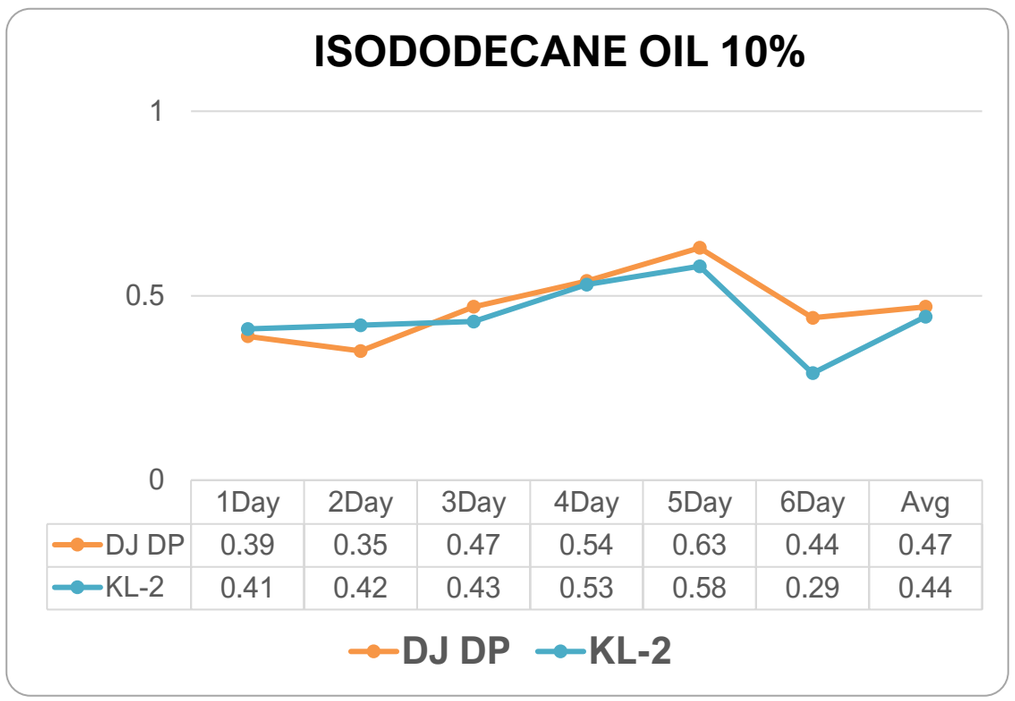
DJ DP & KL-2
Gel Strength Comparison- 1

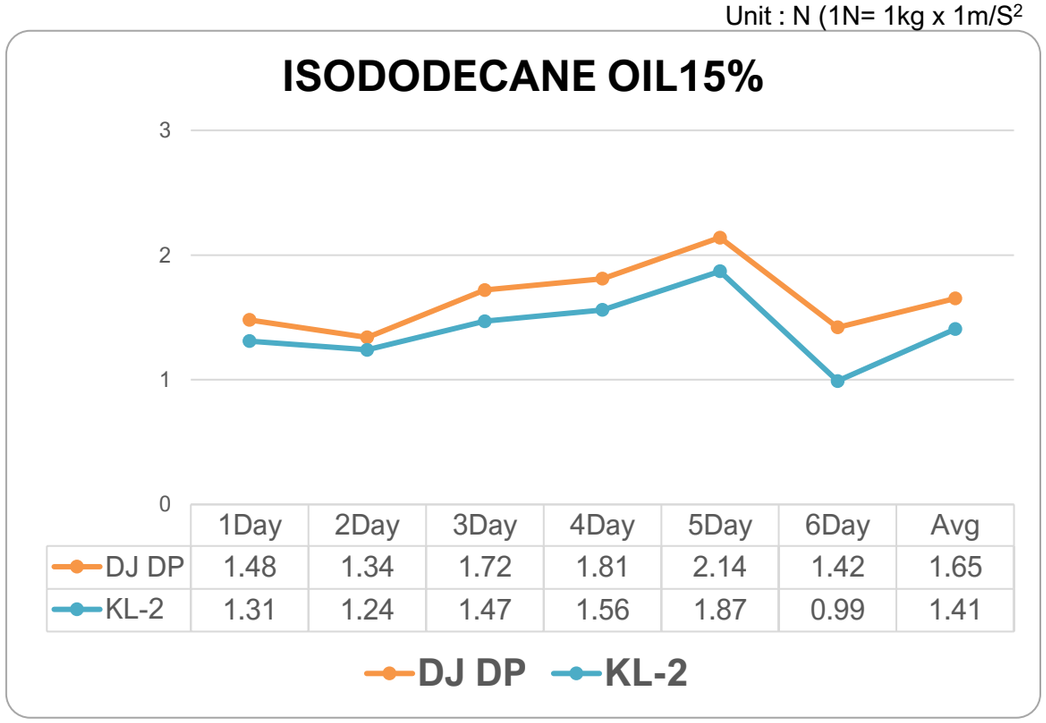
* To compare the oil hardness of DJC's DJ DP products with Chiba Flour Milling’s KL-2 and analyze performance differences.
* Use 4 types of oil (Isodonecanol, MCT, Cetyl Ethylhexanoate, Triethylhexanoin)
* Use TX-700 (LAMY RHEOLOGE)

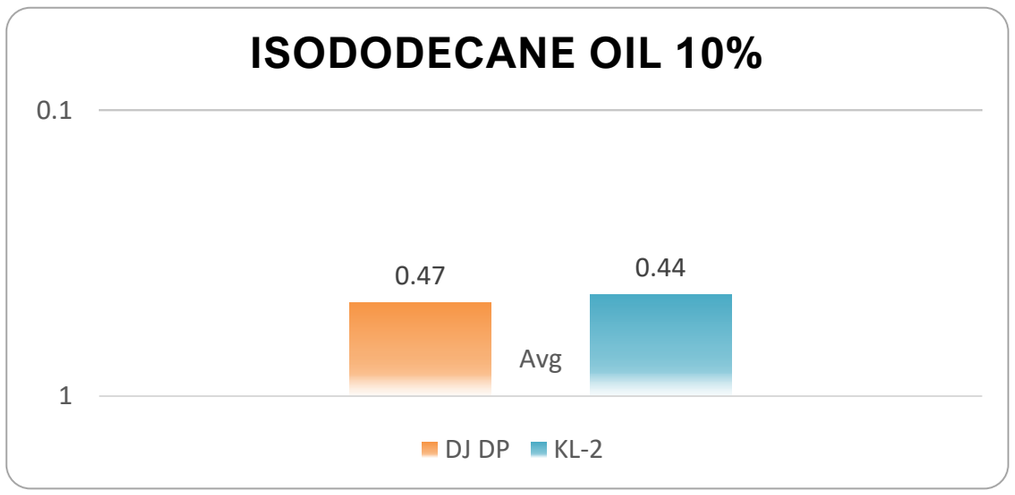
DJ DP & KL-2 Comparison 1-1

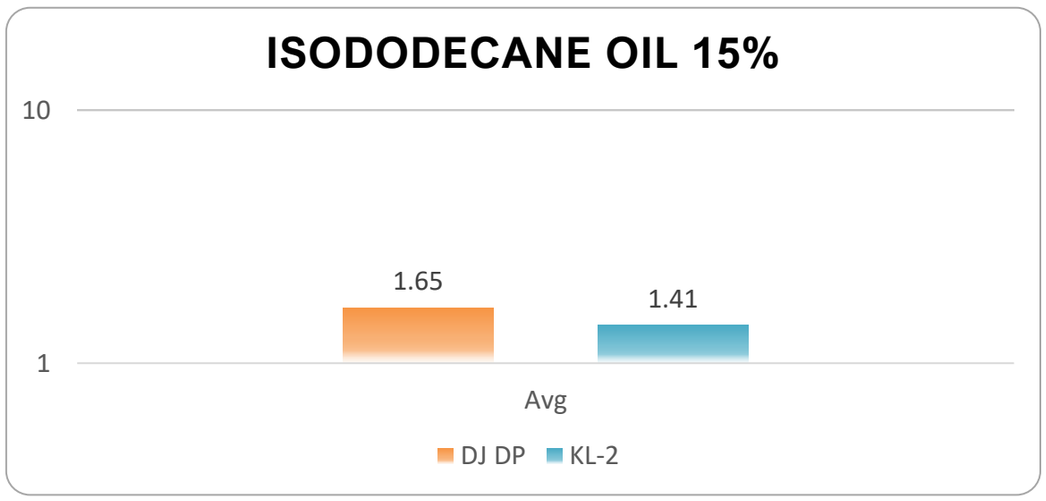
We conducted a hardness comparison analysis between DJ DP and KL-2 using Isododecane oil.
The dissolution temperature ranges from 100 to 120 degrees, and we observed hardness changes from 1 to 6 days

Unit : N (1N= 1kg x 1m/S^2







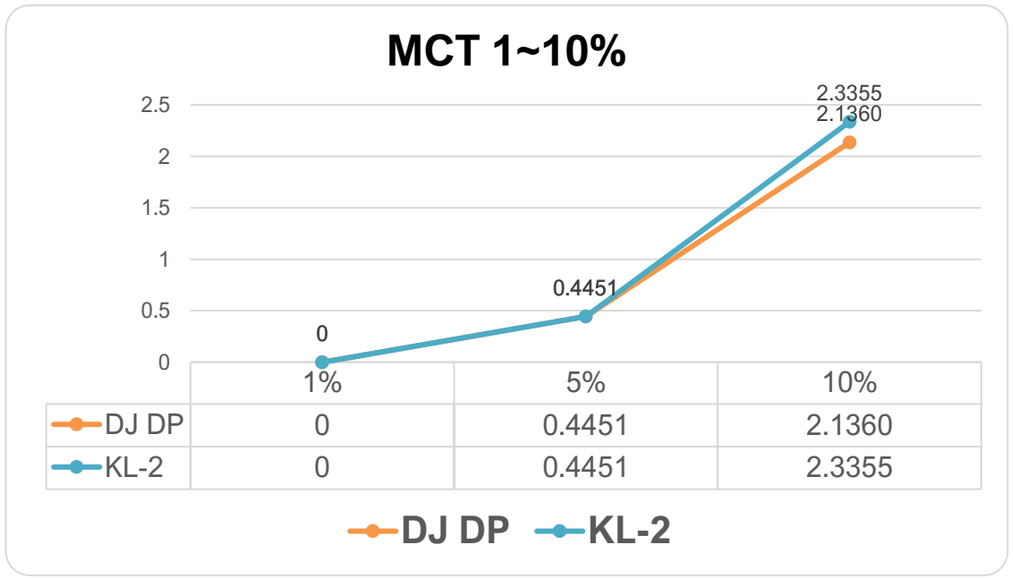


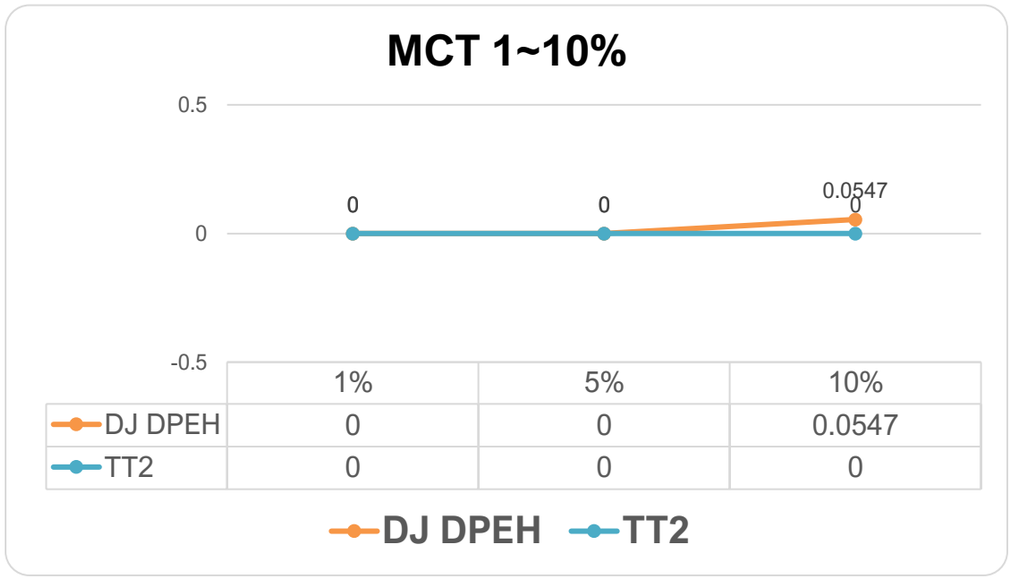
The hardness of DJ DP and KL-2 was almost the same according to the experimental results.

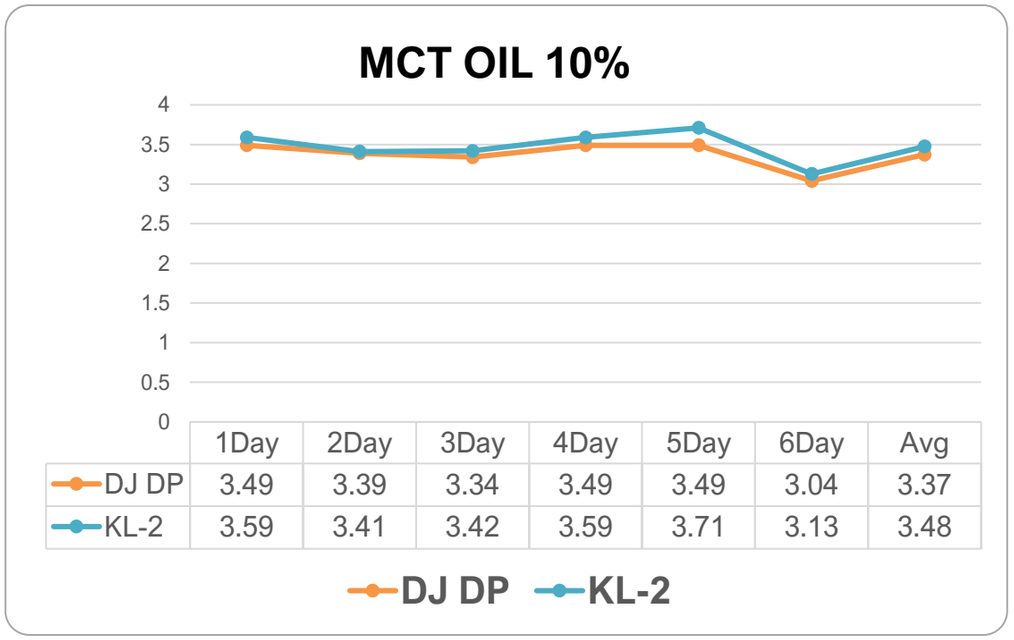
DJ DP & KL-2 Comparison 1-2

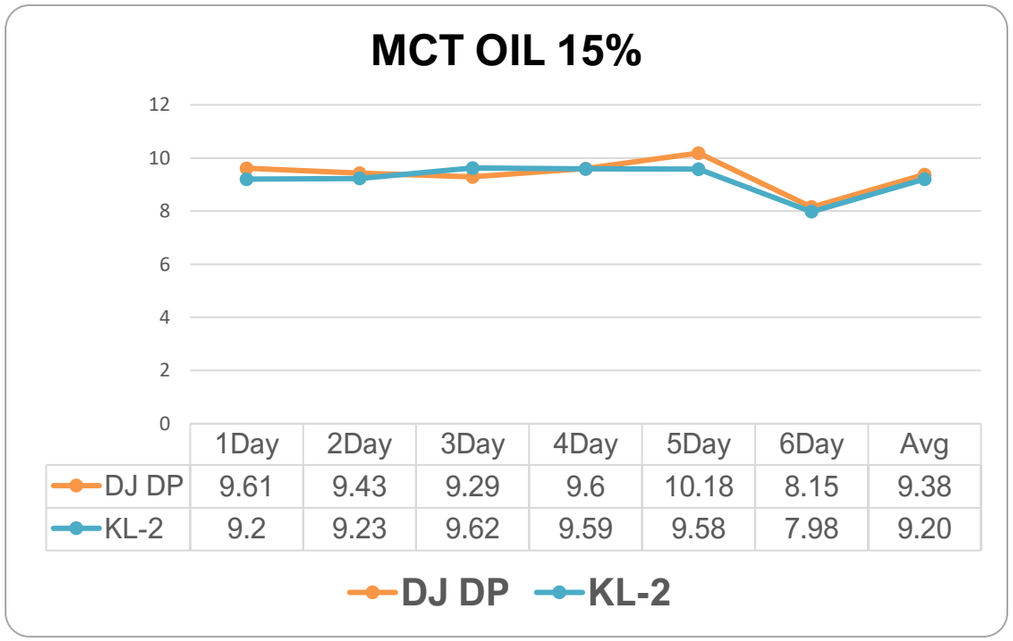
We conducted a hardness comparison analysis between DJ DP (DJ DPEH) and KL-2 using Caprylic/Capric Triglyceride(MCT)
The dissolution temperature ranges from 100 to 120 degrees, and we observed hardness changes from 1 to 6 days

Unit : N (1N= 1kg x 1m/S^2







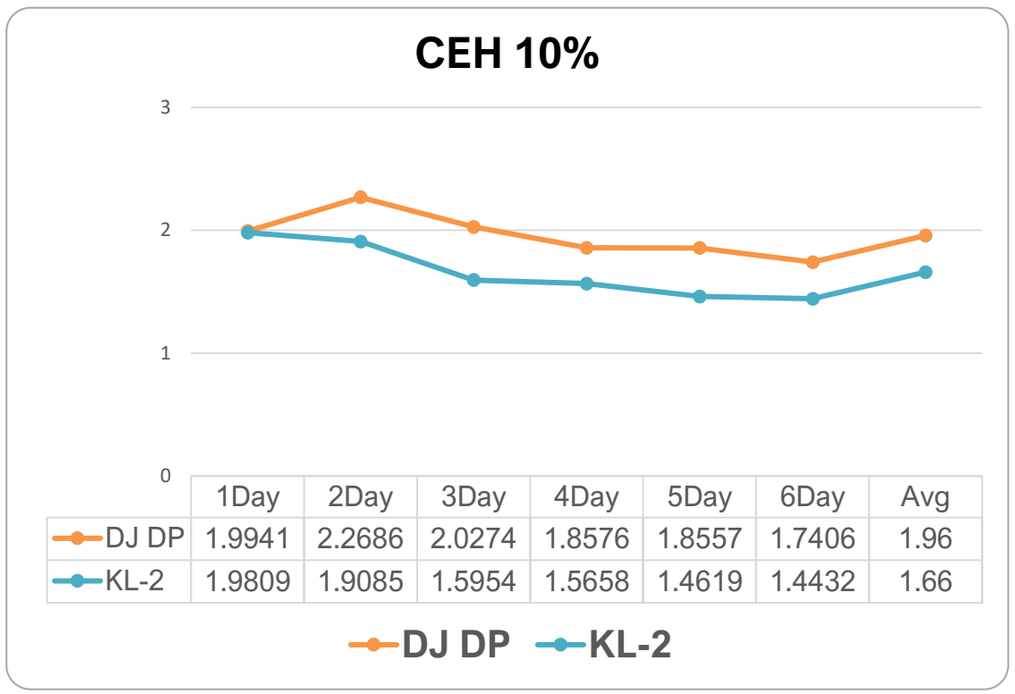


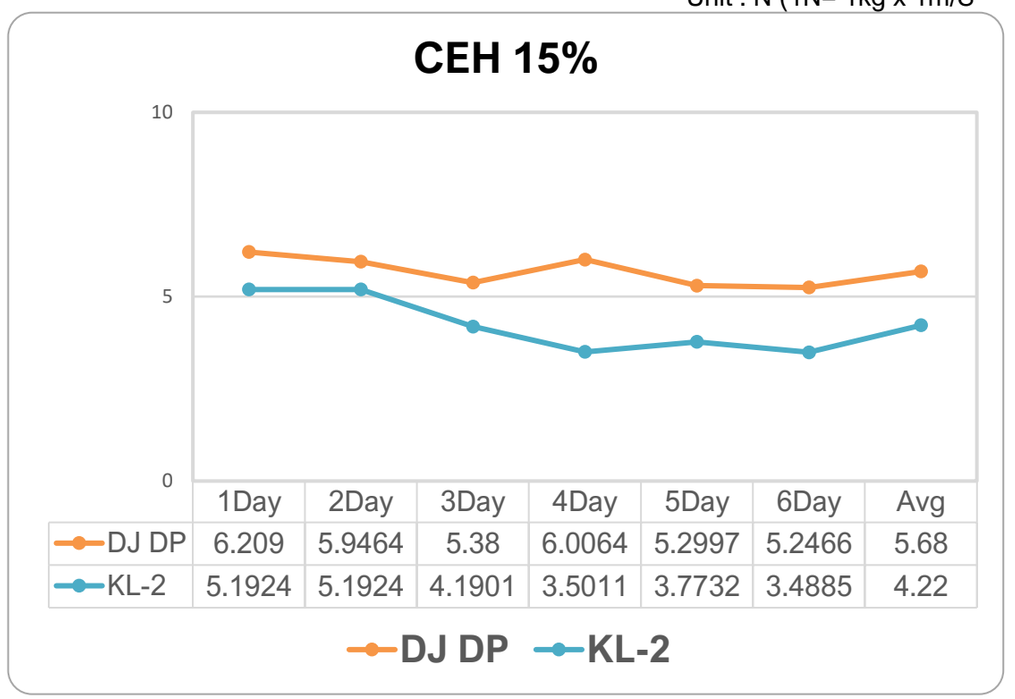
The hardness of DJ DP and KL-2 was almost the same according to the experimental results.

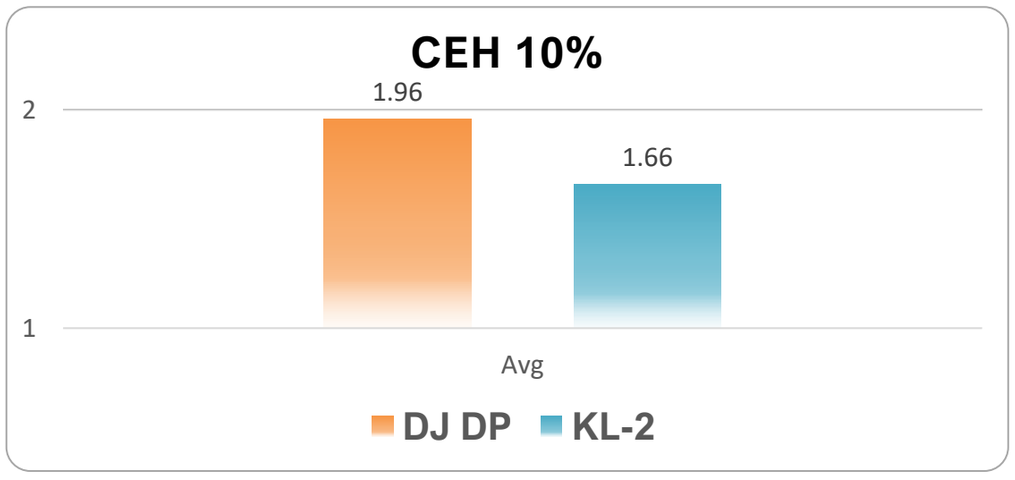
DJ DP & KL-2 Comparison 1-3

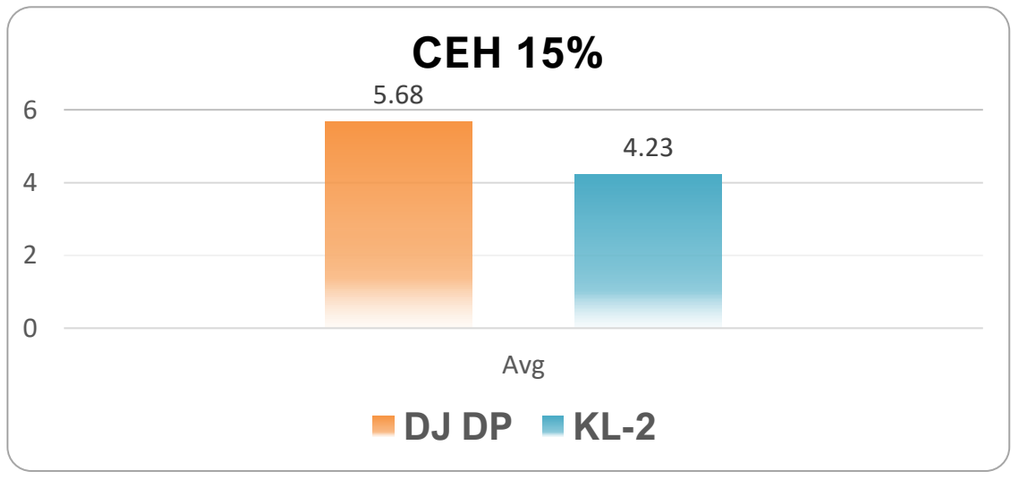
We conducted a hardness comparison analysis between DJ DP and KL-2 using Cetyl Ethylhexanote(CEH).
The dissolution temperature ranges from 100 to 120 degrees, and we observed hardness changes from 1 to 6 days

Unit : N (1N= 1kg x 1m/S^2







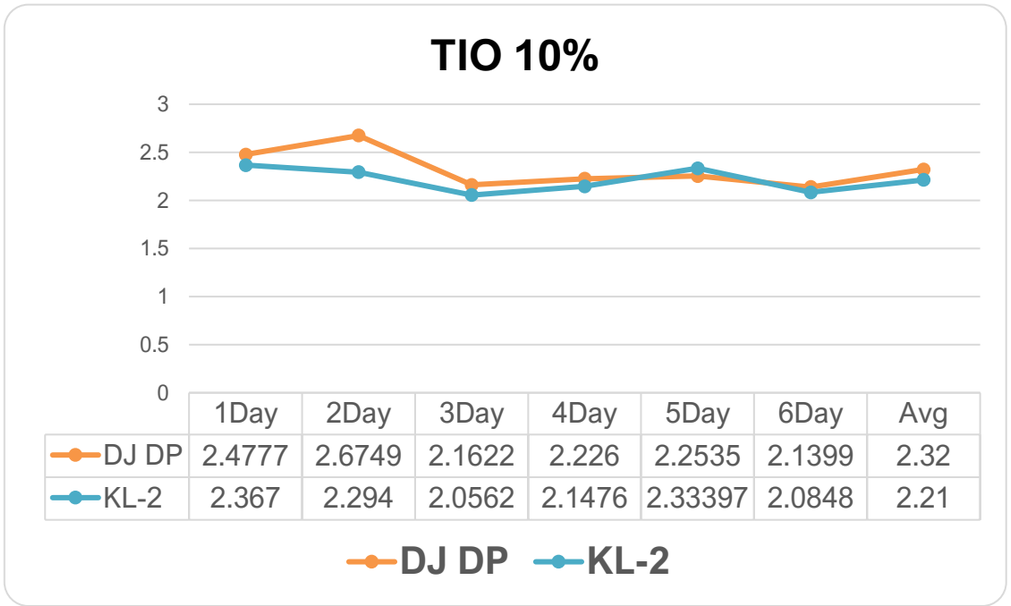


The hardness of DJ DP and KL-2 was almost the same according to the experimental results.

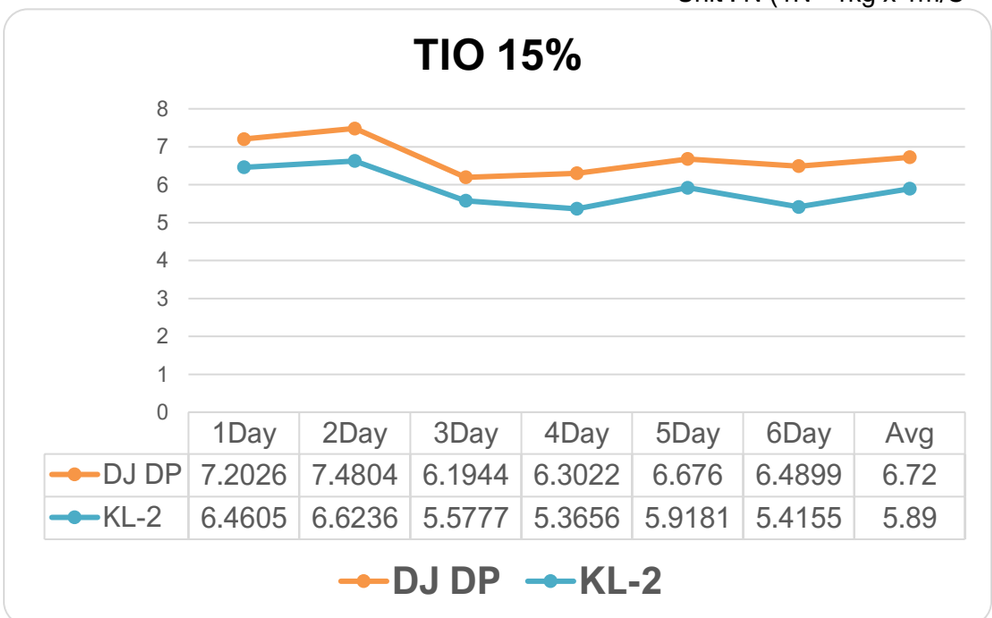
DJ DP & KL-2 Comparison 1-4

We conducted a hardness comparison analysis between DJ DP and KL-2 using Triethylhexanoin(TIO)
The dissolution temperature ranges from 100 to 120 degrees, and we observed hardness changes from 1 to 6 days

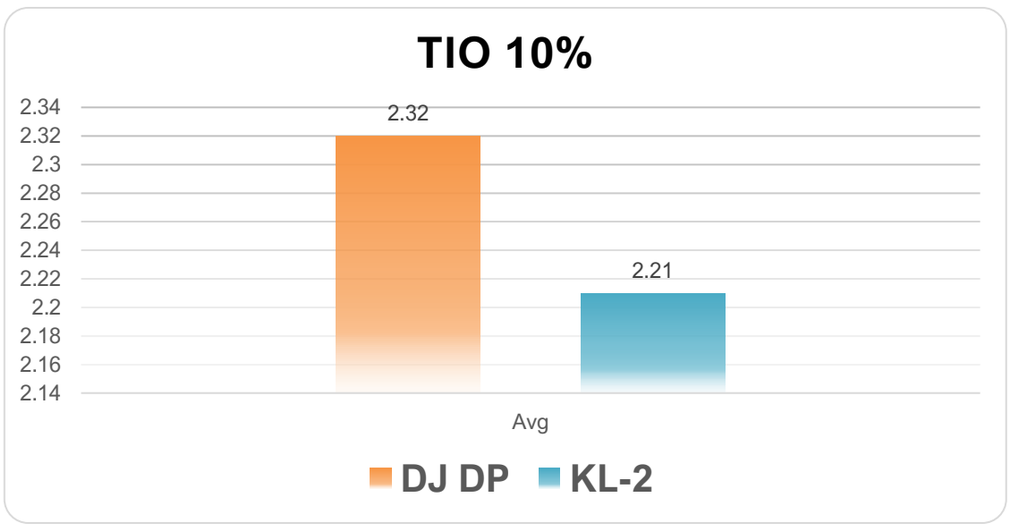
Unit : N (1N= 1kg x 1m/S^2

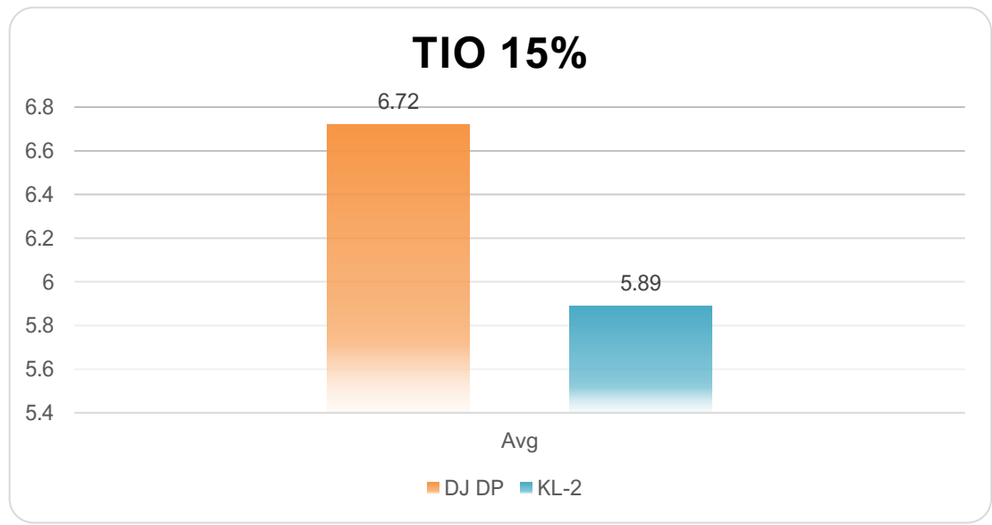


	1Day	2Day	3Day	4Day	5Day	6Day	Avg
DJ DP	2.4777	2.6749	2.1622	2.226	2.2535	2.1399	2.32
KL-2	2.367	2.294	2.0562	2.1476	2.33397	2.0848	2.21



	1Day	2Day	3Day	4Day	5Day	6Day	Avg
DJ DP	7.2026	7.4804	6.1944	6.3022	6.676	6.4899	6.72
KL-2	6.4605	6.6236	5.5777	5.3656	5.9181	5.4155	5.89





The hardness of DJ DP and KL-2 was almost the same according to the experimental results.

DJ EG & DJ LG vs GP-1 & EB-21 Comparison-2

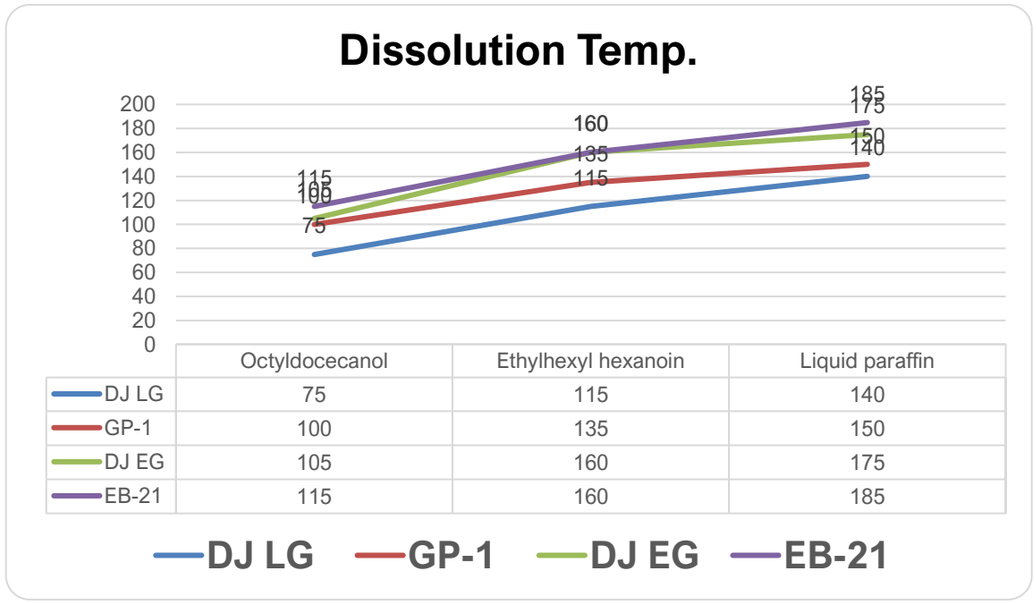
* To compare the dissolution temperature and gelation temperature of DJC's DJ EG & DJ LG with Ajinomoto's GP-1 & EB-21 and analyze performance differences.

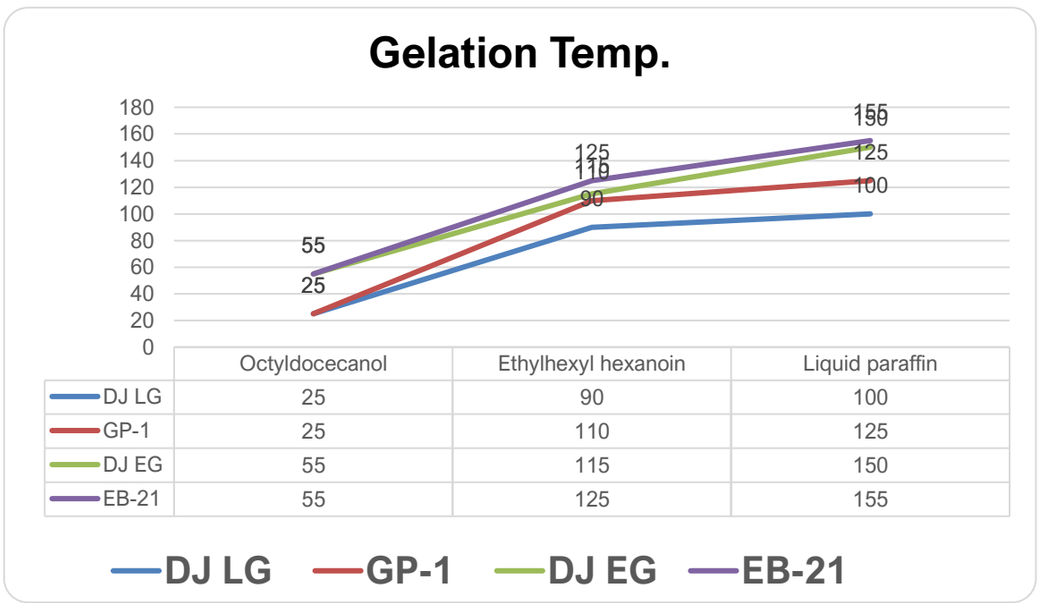
* To compare the dissolution temperature and gelation temperature, use 3 types of oil : Octyldocecanol, Ethylhexyl hexanoin, Liquid paraffin.

* To measure the dissolution temperature and gelation temperature, use 2 types of oil : Carnation , Coronado.

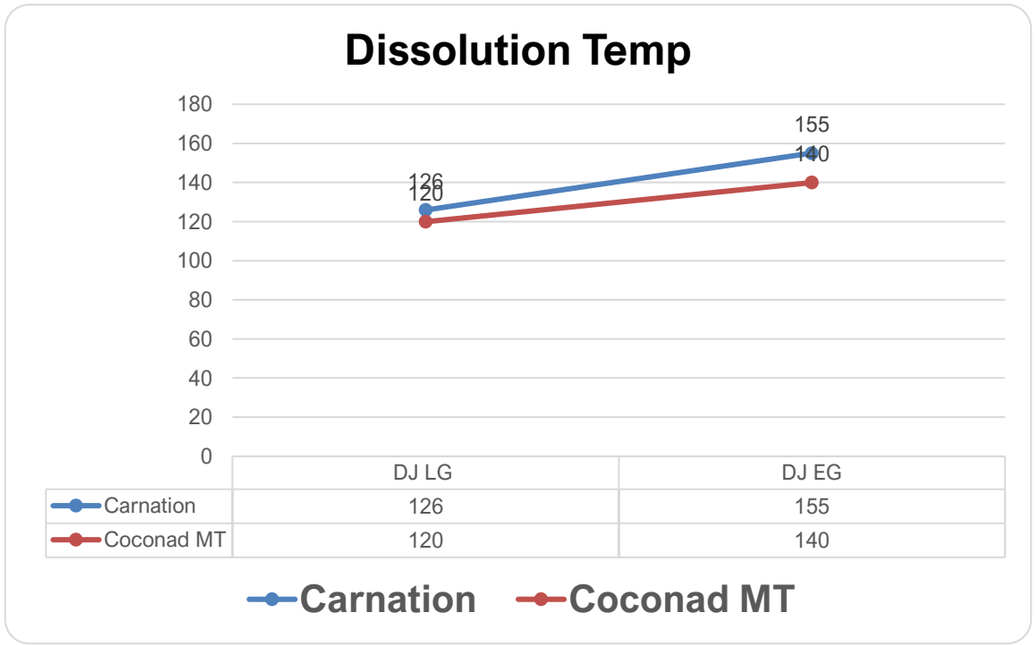
DJ Gelling Agents Comparison 2-1

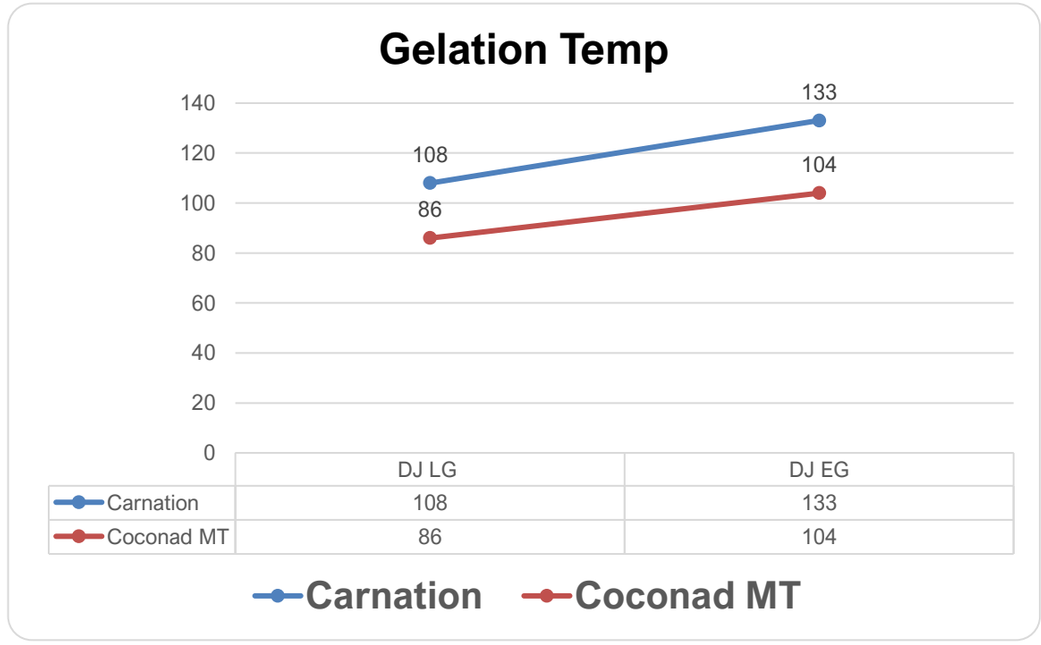
To compare the temperature and gelation temperature of DJC's DJ EG & DJ LG with Ajinomoto's GP-1 & EB-21.
To prepare a mixture where each type of gelling agent (Octyldocecanol, Ethylhexyl hexanoin, Liquid paraffin) is at a 5% concentration in the final solution.





The dissolution temperature of DJ EG and DJ LG is lower than that of the others, which means they dissolve more easily.

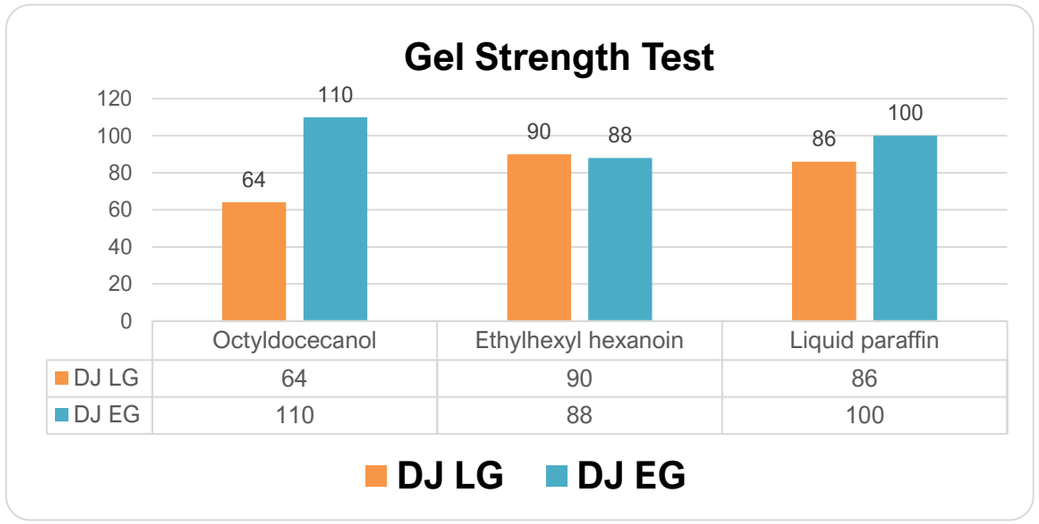


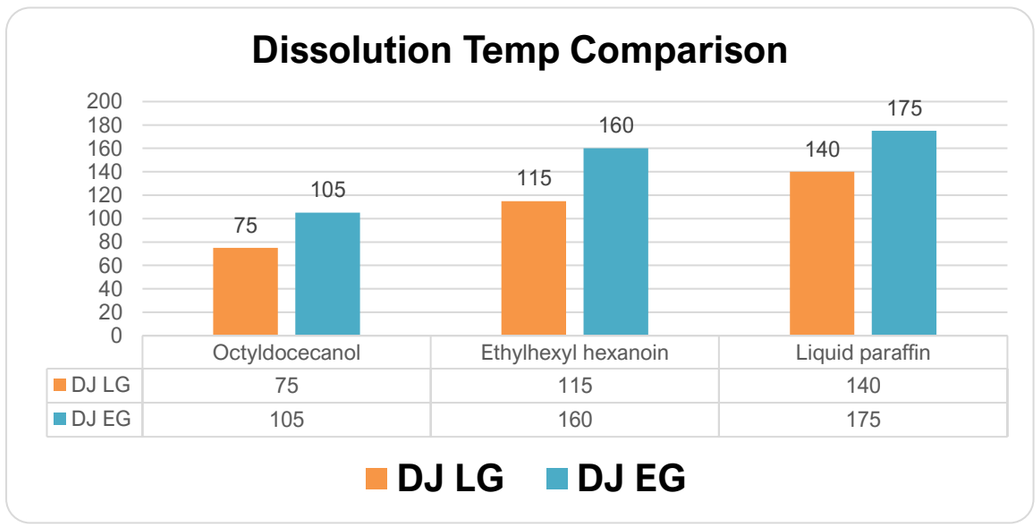


* Carnation Oil :Dianthus Caryophyllus Flower Oil * Coconad MT : Cocamidopropyl Betaine

DJ Gelling Agents Comparison 2-2

The dissolution temperature ranges from 95 to 110 degrees.
Measure by increasing the oil volume to 1%, 5%, and 10%.

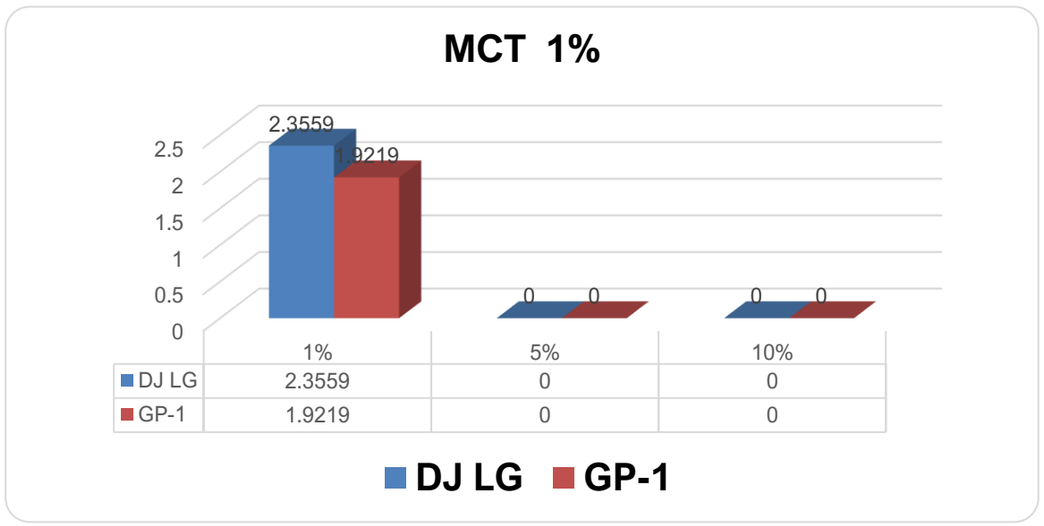




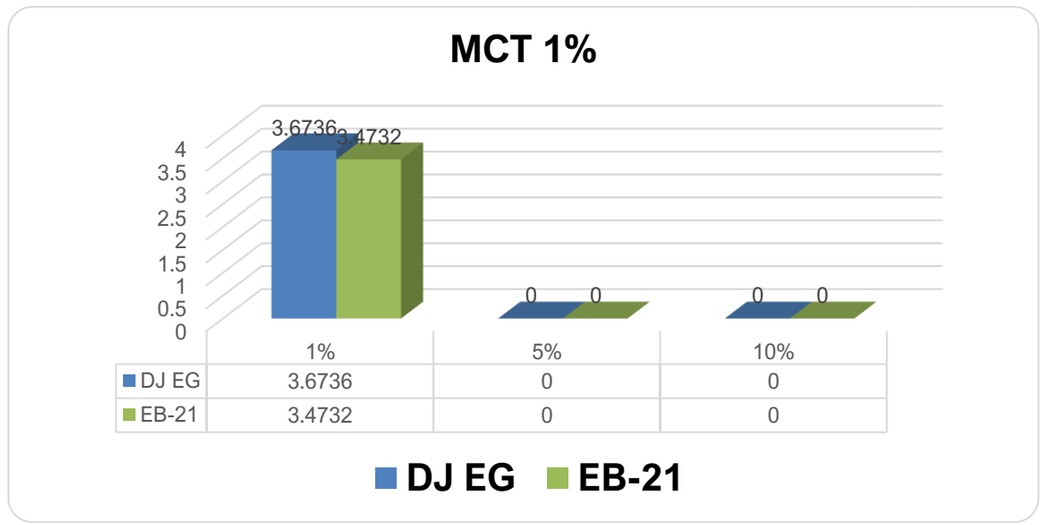
Based on the gel strength tests conducted with three types of oils, it was found that DJ EG exhibited higher gel strength compared to DJ LG. Additionally, DJ EG had a higher dissolution temperature.

- DJ EG is preferable due to its higher gel strength, providing a firmer and more stable gel structure.
- DJ EG is also advantageous as it has a higher dissolution temperature, making it more suitable for environments with higher temperatures.
- DJ LG might be chosen for applications where a softer gel or a gel that dissolves at lower temperatures is desirable.

Unit : N (1N= 1kg x 1m/S^2)



The meaning of zero indicates that analysis is impossible

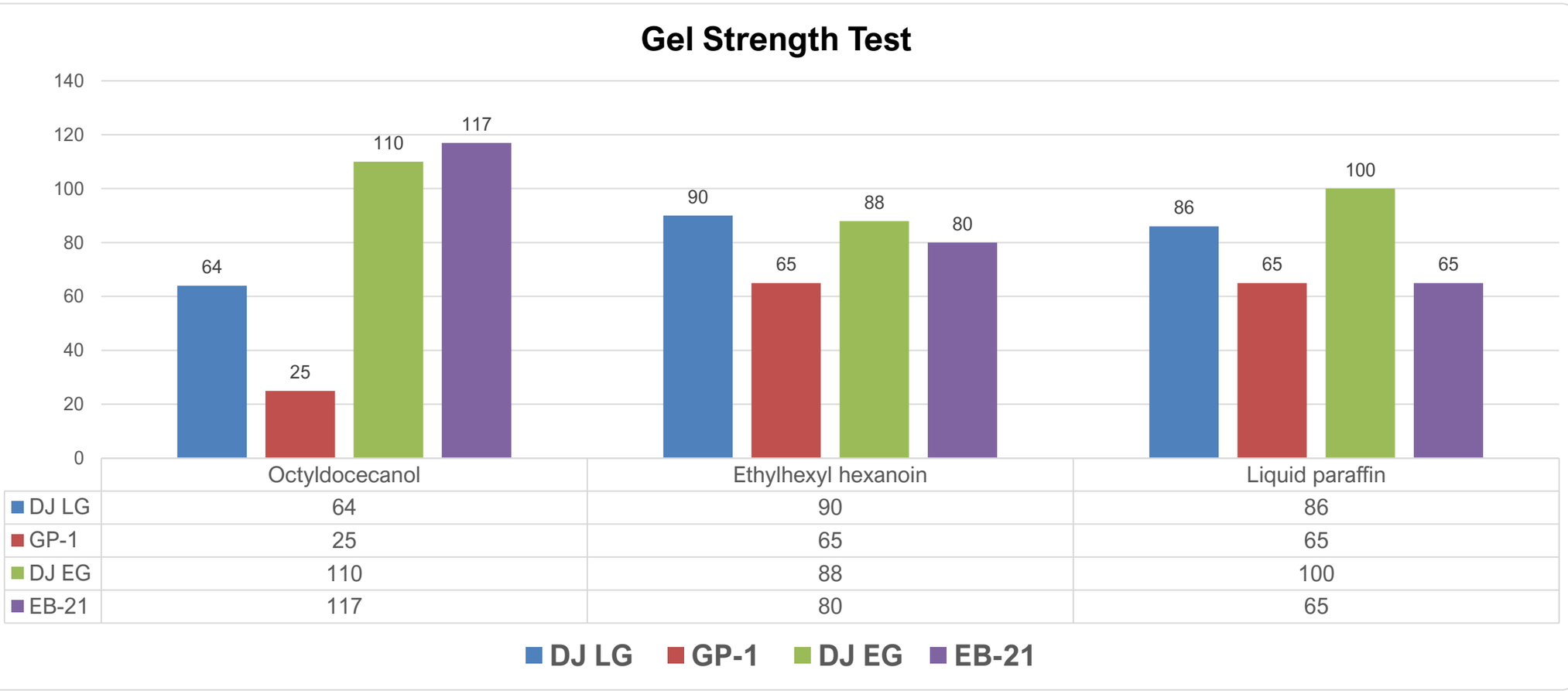


The results of gelation tests with 1% of each sample show that DJ-LG had a higher hardness than GP-1.

The results of gelation tests with 1% of each sample show that DJ-EG had a higher hardness than GP-1.

DJ Gelling Agents Comparison 2-3

Test instrument : The FUDOH Rheometer RTC / Adapter : 3mm disk type / Speed : 6cm/min



Octyldodecanol is a fatty alcohol often used in cosmetics and personal care products as an emollient and skin-conditioning agent.
Typically low viscosity compared to more viscous oils.
It generally provides a softer, more fluid texture to gels

Ethylhexyl Hexanoin is an ester used in cosmetics and skincare products as a skin-conditioning agent and emollient.
Slightly higher viscosity than Octyldodecanol but generally still low.

Liquid Paraffin, also known as mineral oil, is a colorless and odorless oil used as a moisturizer in many personal care products.
Higher viscosity and tends to be more viscous compared to Octyldodecanol and Ethylhexyl Hexanoin.

Based on the results of the experiment with three types of oils, it was found that DJ LG and DJ EG have gel strengths similar to or greater than those of Ajinomoto's EB-21 and GP-1 products.

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