



IOI OLEOCHEMICAL

PERSONAL CARE

# TECHNICAL DATA SHEET

# DYNASAN<sup>®</sup> CrystalCONTROL L

INCI: Polyglyceryl-3 Tetrastearate



2-0002-04-100-02



## FORMULATOR'S JEWEL FOR WORRY-FREE PROCESSES

Natural vegan polymorphic-free solid lipid, helping to control crystallization and coloring processes, while offering better moisturization, gliding and pay-off

## DESCRIPTION

**DYNASAN® CrystalCONTROL L** is the formulator's jewel for worry-free processes. The polymorphic-free solid lipid helps to control the crystallization process in **anhydrous sticks and balms**, helping to delay or reduce the blooming effect. It offers a batch-to-batch consistency (quality, color, odor).

It is natural ester based on polyglycerin and stearic acid. DYNASAN® CrystalCONTROL L are white solid flakes with characteristic odor. This solid lipid is based on **100% natural** (ISO 16128, COSMOS, NaTrue), **vegan**, and **renewable RSPO MB sources** and is produced exclusively in Germany.

## APPLICATION

Blooming is an effect that occurs when certain solid components of a material mixture change their state of crystallinity at microscopic level leading to a change in macroscopic level observed as white spots. **Materials causing blooming** in cosmetic sticks **are** predominantly **triglycerides** such as natural butters and waxes.



Figure 1 - Blooming effect  
Lipstick without CCL (left), lipstick with CCL (right)



Figure 2 - Color effect  
Lipstick without CCL (left), lipstick with CCL (right)

DYNASAN® CrystalCONTROL L helps to:

- **Control crystallization** in formulas
- Delay or even cancel blooming effect
- Allow worry-free heating & cooling
- Reduce less out-of-specification batches (→ increased production output, **less production waste**)

Due its **batch-to-batch consistent** white color, sticks and balms formulated with DYNASAN® CrystalCONTROL L show light color values and **ease color matching process** for color formulations.

The proven softness (micropenetration test) leads to enhanced gliding and pay-off.

Apart from technical and sensorial benefits, concepts with DYNASAN® CrystalCONTROL L also contribute to a significant **improvement of skin moisturization** from the first application\*. Moreover, this solid lipid is a very good **film-former** and significantly **diminishes TEWL**, as efficient as waxes\*\*.

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|---|--|--|---|
| <input checked="" type="checkbox"/> Skin Care | <input checked="" type="checkbox"/> Body Care  | <input checked="" type="checkbox"/> Sun Care   | <input checked="" type="checkbox"/> Color Cosmetics |
| <input checked="" type="checkbox"/> Baby Care | <input checked="" type="checkbox"/> Hair Care  | <input checked="" type="checkbox"/> Bath Care  | <input type="checkbox"/> Wet Wipes                  |
| <input checked="" type="checkbox"/> Styling   | <input checked="" type="checkbox"/> Beard Care | <input checked="" type="checkbox"/> Deodorants | <input type="checkbox"/> Intimate Hygiene           |

DYNASAN® CrystalCONTROL L is compatible with oils (e.g., ester oils, plant oils, silicone oils and plant butters), waxes, pigments, and preservation systems.

\*Deep skin moisturization test was carried out at external certified third-party laboratory; n = 20; simple stick formulation with 15% of DYNASAN® CrystalCONTROL L, 15% wax and MCT.

\*\*Tewametry test was carried out at external certified third-party laboratory; n = 20; simple stick formulation with 15% of DYNASAN® CrystalCONTROL L, 15% wax and MCT. Contact [personalcare@ioioleoleo.de](mailto:personalcare@ioioleoleo.de) for more information.



## FORMULATION HINTS

- Recommended concentration of **DYNASAN® CrystalCONTROL L**: 2 – 20%\*
  - Sticks (Lip / Eye / Face / Sun / Body / AP)
    - 5 – 20% (up to 30%)
    - Pair with waxes for sufficient hardness
    - Castor oil increases hardness
  - Balms (Lip / Eye / Face / Sun / Body / AP)
    - 2 – 10% (up to 30%)
    - Advised to pair with 2 – 5% wax for adequate hardness
    - Castor oil increases hardness
    - Any kind of starch can reduce the richness of a formula
- Applicable for hot processes (**melting range: 58 – 64°C**), can be heated to 85 – 90°C
- Add DYNASAN® CrystalCONTROL L to the oil or wax phase
- **Worry-free (re-)heating & cooling:** DYNASAN® CrystalCONTROL L does not change its form
- Sticks: Can both be used in pre-tempered (e.g., 50°C) and preferably non-tempered moulds; the choice of process can lead to a different hardness
- Recommended pH level: not applicable, use advised in water-free stick and balm formulations

\*Disclaimer: The dosage values used here, only represents a technical indication.  
The safety assessment of any formula and ingredient dosage must be assessed by the manufacturer, according to local regulations in force.



# FORMULATION GUIDE

## MAGIC SCRUB BALM, NO. 900

The magic scrub balm is an anhydrous hybrid formulation offering multi-benefits to eco-conscious consumers. It does not only exfoliate and cleanse, but also cares for the skin thanks to the magical transformation of its peeling agent into a light lotion with soft after-feel (→ in-cos Asia 2023 Silver Award Winner “Functional” - SOFTISAN® MagicPOWDER S -). **DYNASAN® CrystalCONTROL L**, helps to control the recrystallization process and prevents the unwanted blooming effect. It also offers a significant improvement of skin moisturization and high gliding and softness.

Natural Origin Content: >96%

	Trade Name	INCI	%
<b>PHASE A</b>	<b>MIGLYOL® Coco 810</b>	<b>Coco-Caprylate/Caprata</b>	<b>10.0</b>
	Cotton Seed Oil	Gossypium Herbaceum Seed Oil	10.0
	<b>MIGLYOL® 829 ECO</b>	<b>Caprylic/Capric/Succinic Triglyceride</b>	<b>7.8</b>
	Castor Oil	Ricinus Communis Seed Oil	13.0
	<b>SOFTISAN® 378</b>	<b>Caprylic/Capric/Myristic/Stearic Triglyceride</b>	<b>20.0</b>
	<b>SOFTISAN® 649</b>	<b>Bis-Diglyceryl Polyacyladipate-2</b>	2.0
	6290 Berry Wax	Rhus Verniciflua Peel Cera	3.0
	<b>DYNASAN®</b>	<b>Polyglyceryl-3 Tetrastearate</b>	2.0
	<b>CrystalCONTROL L</b>		
	6607 Sunflower Seed Wax	Helianthus Annuus Seed Cera (and) Ascorbyl Palmitate (and) Tocopherol (and) Helianthus Annuus Seed Oil	1.0
Cosphaderm® T-70 Non Gmo Eco	Tocopherol (and) Helianthus Annuus Seed Oil	0.2	
<b>PHASE B</b>	SCI Powder	Sodium Cocoyl Isethionate	20.0
	<b>SOFTISAN®</b>	<b>Tricaprylin (and) Acacia Senegal Gum</b>	10.0
	<b>MagicPOWDER S</b>		
	Nivesse	Parfum	1.0

### PREPARATION:

1. For best results, stir and heat (60°C) SOFTISAN® 378 prior weighing
2. Heat and mix phase A to 80 – 85°C
3. Add Phase B while stirring
4. Keep stirring until phases A/B cool down to 55 – 60°C
5. Fill into molds and allow to cool down to RT

### SUPPLIERS:

**IOI Oleo GmbH: DYNASAN®, MIGLYOL®, SOFTISAN®**  
 Gustav Heess: Plant Oils  
 Kahl: Waxes  
 Cosphatec: Cosphaderm®  
 Bell: Parfum



**PEACHY FUZZ STICK, NO. 901**

This anhydrous highlighter stick offers a subtle glow in the Pantone Color of the Year 2024 – Peach Fuzz. **DYNASAN® CrystalCONTROL L** offers a batch-to-batch consistent white color and eases formulating reproducible color cosmetics. Due to its lower melting point (compared to waxes), it adds gliding and enhances pay-off.

The elegant combination of **SOFTISAN® 378**, the melt-on-touch emollient and **MIGLYOL® 829 ECO**, the deluxe-touch emollient ensures a pleasant application and sensory on skin. Mixed with the vegan film-forming protector **SOFTISAN® 649**, these ingredients also offer skin moisturization and an improved skin barrier (by reducing the TEWL). So, nothing stands in the way of formulating exciting hybrid sticks.

Natural Origin Content: >99%

	Trade Name	INCI	%
<b>PHASE A1</b>	<b>MIGLYOL® DO</b>	<b>Decyl Oleate</b>	<b>15.00</b>
	Castor Oil	Ricinus Communis Seed Oil	23.00
	COD8008 White Castor Oil Disp	Ricinus Communis Seed Oil (and) Titanium Dioxide	2.30
	COD-8009 FD&C Yellow 5 Al Lake Castor Oil Dispersion	Ricinus Communis Seed Oil (and) Yellow 5 Lake (CI 19140)	0.43
	SWD-4511 D&C Red 7 Ca Lake Synthetic Wax Dispersion	Synthetic Wax (and) Red 7 Lake (CI 15850) Calcium Sodium Borosilicate (and)	0.07
	Mirage Glamour Gold	Titanium Dioxide (and) Tin Oxide	2.00
	<b>PHASE A</b>	2442 Carnauba Wax	Copernicia Cerifera Cera
2039L Candelilla Wax		Euphorbia Cerifera Cera	7.00
<b>DYNASAN® CrystalCONTROL L</b>		<b>Polyglyceryl-3 Tetrastearate</b>	<b>10.00</b>
<b>SOFTISAN® 378</b>		<b>Caprylic/Capric/Myristic/Stearic Triglyceride</b>	<b>15.00</b>
<b>MIGLYOL® 829 ECO</b>		<b>Caprylic/Capric/Succinic Triglyceride</b>	<b>15.00</b>
<b>SOFTISAN® 649</b>		<b>Bis-Diglyceryl Polyacyladipate-2</b>	<b>2.00</b>
Cosphaderm® T-70 Non Gmo Eco		Tocopherol (and) Helianthus Annuus Seed Oil	0.20

**PREPARATION:**

1. Premix phase A1 and ensure all pigments are properly wetted and dispersed
2. For best results, stir and heat (60°C) **SOFTISAN® 378** prior weighing
3. Mix and heat phase A to 80 – 85°C (or until clear)
4. Add phase A1 to A and stir
5. Keep stirring until 75°C and fill into moulds

**SUPPLIERS:**

**IOI Oleo: DYNASAN®, MIGLYOL®, SOFTISAN®**  
 Sun Chemical: Dispersions, Lake  
 Eckart: Mirage  
 Kahl: Waxes  
 Cosphatec: Cosphaderm®



## HANDLING AND SHELF LIFE

The shelf life for DYNASAN® CrystalCONTROL L is at least thirty-six months if the product is stored below 25°C in a dry place in original, tightly closed containers, protected from light and moisture.

## PACKAGING UNITS

Bags with 25 kg, 600 kg on CP3 pallet

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