Smooth Glide Deo Stick

Example Formulation*

DESCRIPTION

An example of an anhydrous deodorant stick is described. The formula balances pay-off through a combination of Ellamera BI-THIN 402 and Ellamera TER-SET 603 by Kraton to thicken the oils, eliminate syneresis, and minimize wax structuring agents. The formula delivers odor-fighting ingredients in a smooth glide format to delivery underarm protection.

PHYSICAL PROPERTIES

Appearance:	Stick
Color:	White
Odor:	Fragrance
Solubility (in water):	Insoluble

*The formulation above is intended for information purposes only based on the best of our knowledge. It is the responsibility of the customer to undertake the appropriate testing to determine the suitability of the product for their intended use.

COMPOSITION

INCI	Wt %	TRADE NAME	FUNCTION
C13-14 Isoalkane	22.0	Isopar M Fluid	Solvent
Cetyl Alcohol	20.0	Adol 52 Cetyl Alcohol NF	Structurant
Brassica Alcohol	12.5	SustOleo BA	Structurant
Triethyl Citrate	12.0	CITROFOL AI Extra	Odor control/ cosolvent
Trilaurin	10.0	SustOleo TL	Dry feel emollient
C20-40 Alcohols	9.0	Performacol 425 Alcohol	Structurant
Kaolin	4.0	Kaolin Clay TH-1	Texturizer/ dry feel
Hydrogenated Styrene/ Isoprene Copolymer	3.0	Ellamera BI-THIN 402	Rheology modifier
Stearoxytrimethylsilane (and) Stearyl Alcohol	2.0	DOWSIL 580 Wax	Glidant, sensory
Hydrated Silica	2.0	Syloid 9005 PC	Sebum absortion, odor control, dry feel
Fragrance	2.0	Red Rose Apple (94-4003-23)	Fragrance
Hydrogenated Styrene/ Butadiene Copolymer	1.0	Ellamera TER-SET 603	Rheology modifier
Methylheptylglycerin	0.5	Lexgard MHG Natural MB	Bacteriastatic agent

* ISOPAR is a trademark of ExxonMobil; ADOL is a trademark of Peter Cremer; SUSTOLEO and LEXGARD are trademarks of Inolex; CITROFOL is a trademark of Jungbunzlauer; PERFORMACOL is a trademark of NuCera; Kaolin Clay was supplied by Univar Solutions; DOWSIL is a trademark of Dow Chemical; SYLOID is a trademark of Grace; Fragrance was supplied by Lebermuth.

EQUIPMENT

- Laboratory mixer, top stirring
- Heating plate
- Homogenizer

PREPARATION

PHASE A

Isopar M Fluid	22.0
CITROFOL AI Extra	12.0
SustOleo TL	10.0
Ellamera TER-SET 603	1.0
Ellamera BI-THIN 402	3.0

PHASE B

Performacol 425	9.0
SustOleo BA	12.5
Adol 52 Cetyl Alcohol	20.0
DOWSIL 580 Wax	2.0

PHASE C

Kaolin Clay TH-1	4.0
Syloid 9005 PC	2.0

PHASE D

Lexgard MHG Natural MB	0.5
Fragrance	2.0

- Combine Phase A emollients. Heat to 40^{o}C with mixing.

- At 40^{o}C (once SustOleo TL has dissolved), add Ellamera polymers with mixing; continue heating to 95-100^{o}C to dissolve the polymers.

- Once polymers have dissolved, add Phase B waxes sequentially to Phase A with mixing. Maintain melt mixture's temperature ≥ 70^{o}C. Return mixture to 75^{o}C to retain good melt mixture.

- Disperse Phase C solids into A+B using an homogenizer (3000-5000 rpm).

- Cool mixture to 75-77^{o}C and add Phase D ingredients sequentially with mixing.

- Pour into AP/DEO stick molds at ≥ 75^{o}C. Cool to room temperature before use.

PREPARATION NOTES

- A dispersion blade (or cowles blade) improved dispersion and increased rate of dissolution of the Ellamera polymers in Phase A.
- Each wax's melt endotherm (Phase B) will reduce the temperature of the batch. Add waxes slowly enough to maintain temperature ≥ 70^{o}C.
- To prevent shock—product cracking from rapid loss in temperature—in very small sticks (15 to 30 mL), filled packages were cooled in two steps: (1) 30 minutes at 49^{o}C and then (2) overnight at ambient temperature (~21^{o}C).

PACKAGING

The example formulation for a deodorant stick requires AP/DEO-style packaging.

SAFETY NOTES

- Always be attentive when using mechanical equipment
- Manage all the ingredients with correct PPE in accordance with safety guidelines
- It is always better to cover the vessel during mixing.
- Review the safety data sheets for all the ingredients prior to formulating.

LEGAL DISCLAIMER

FOR FURTHER INFORMATION

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