



Formulating Soap Bars with Dow Personal Care Ingredients

Soap bars remain one of the most popular cleansing products worldwide. Consumers familiar with this product format are very demanding and expect high quality products that provide outstanding cleansing and sensorial performance. As a formulator, you have to address the challenge of providing soap bar formulations that are aesthetically pleasing and stable over time in unknown conditions, while also being able to deliver good cleansing, lathering, easy rinse and nice skin feel. Moreover, your formulation must enable easy manufacture and cost-effectiveness.

Dow Personal Care has a range of ingredients that can help you meet these challenges and allow for the production of soap bars with excellent quality. These technologies include ACULYN™ and METHOCEL™ Rheology Modifiers, POLYOX™ Lubricating Polymers and UCARE™ Conditioning Polymers.

Improving Soap Processing

The addition of a low amount of ACULYN™ Rheology Modifier provides outstanding performance for paste extrusion. ACULYN™ Rheology Modifier imparts high plasticity with sufficient cohesiveness for pastes, easily enabling the production of homogenous and uniform soap bars.

ACULYN™ Rheology Modifiers are aqueous-based, acrylic ready-to-use emulsions that can greatly improve soap bar processing with levels between 0.2 and 0.8% of product as supplied. The high molecular weight (Mw) and low glass transition temperature (Tg) of ACULYN™ Rheology Modifiers provides plastic flow of extrudate and increases the compressibility of plastic feed.

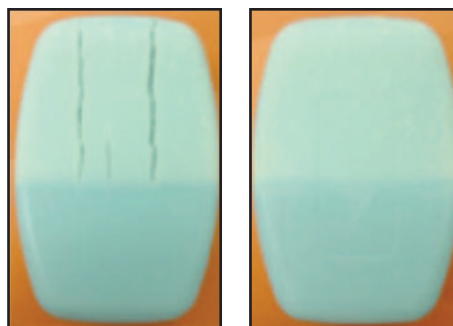
- Open new possibilities: A tailored balance of plasticity and strength can be used to increase multiple base combinations, stamps and shapes
- Increase Productivity: Enables higher speed and lower temperature of extrusion, easier slug cutting, reduces flashing and avoids dye adhesion
- Enable to Reduce Cost: Enhances color development by improving dispersion of components, enabling the reduction of dye content

Improving Soap Aesthetics and Integrity

The addition of ACULYN™ Rheology modifiers at 0.2 to 0.8% into formulation also helps improve the integrity of the soap bar during its use life:

- Reduces cracks and the formation of fissures
- Improves water resistance by reducing the fraction of bar becoming too soft (mushing)
- Reduces mass loss
- Allows for a smoother surface with the sensation of a soft touch on the skin

Extruded bars can be dried quickly, reducing cracks and fissures.



No additive

0.8% ACULYN™

The soap bars were immersed, half portion, in natural water bath at 20° C for 10 minutes.

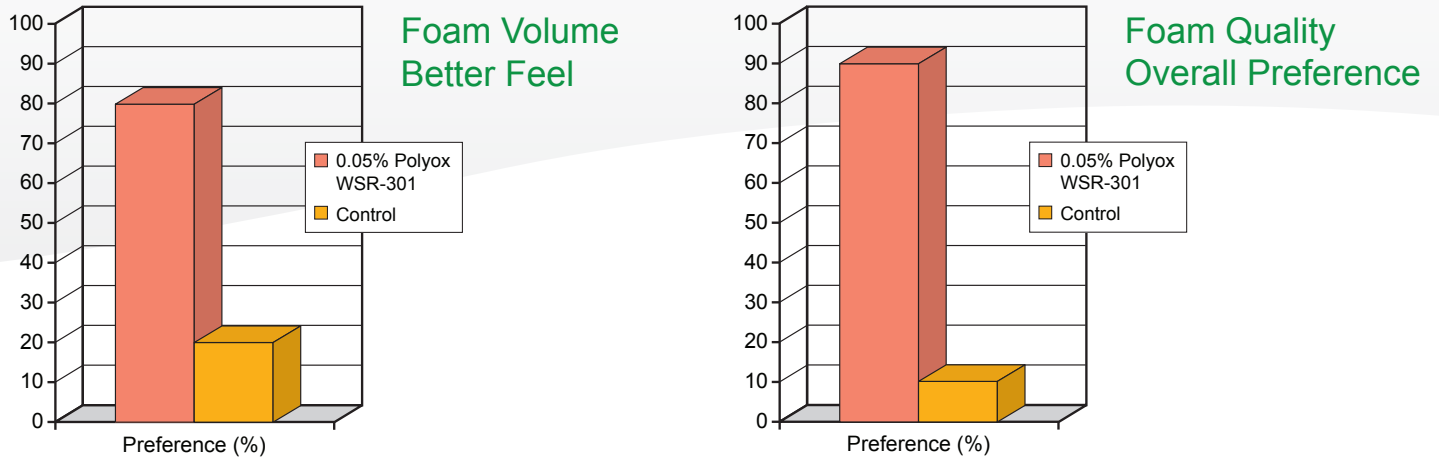
The procedure was repeated each 24 hours over a period of seven days.

Improving in-Use Sensorial Experience

Several of our technologies can be used to improve the sensorial experience of bar soaps:

Medium to high molecular weight Polyethylene Oxide: POLYOX™ Lubricating Polymers

Used between 0.05% for high molecular weight (POLYOX™ WSR 301) to 0.1% for medium molecular weight (POLYOX™ WSR N750), POLYOX™ Polymers will significantly improve the speed of foam generation, foam stability and feel as well as dry skin feel after rinsing.



Panel Testing illustrating perceived benefits for POLYOX™ Polymers-based soap bar versus control

Hydroxypropyl Methylcellulose: METHOCEL™ Thickeners

Used at around 0.1%, grades of METHOCEL™ Thickeners such as METHOCEL™ 40-0202 can visibly improve foam volume, foam stability, foam feel, rinse speed and after-drying feel.

Cationic Hydroxyethyl Cellulose: UCARE™ Conditioning Polymers

Used at around 0.1%, grades of UCARE™ Conditioning Polymers such as UCARE™ LR-30M or UCARE™ JR-400 can help significantly improve rinsability, after-drying feel, moisturizing, softness and smoothness.

Combinations of the above technologies have been shown to provide synergistic benefits:

- Combining UCARE™ Conditioning Polymers with METHOCEL Thickeners provides strong moisture feel and foam quality
- Combining METHOCEL™ Thickeners and POLYOX™ Lubricating Polymers provides excellent after-wash feel

No-cracks Soap Bar Formulation

ACULYN™ 88 Rheology Modifier helps improve the processability of soap bars, virtually guarantees the absence of cracks and improves water resistance.

Ingredients

Trade Name	% wt	CTFA / INCI Name
Puricolor Green U3	0.3	Acetylated Lanolin
Titanium Dioxide	0.5	Titanium Dioxide
Fragrance	0.4	Parfum / fragrance
Semi Glycerine Soap Base (14% humidity)	98.0	
ACULYN™ 88 Rheology Modifier	0.8	Acrylates / Steareth-20 Methacrylate Crosspolymer

Conditioning Soap Bar Formulation

POLYOX™ WSR N-60K Lubricating Polymer provides excellent slip during application to this conditioning soap bar, as well as helping to reduce cracking.

Ingredients

Trade Name	% wt	CTFA / INCI Name
POLYOX™ WSR N-60K Lubricating Polymer	0.10	PEG-45M
Glucam E-10	1.00	Methyl Gluceth-10
Modulan	1.00	Acetylated Lanolin
Titanium Dioxide	0.50	Titanium Dioxide
Antioxidant	0.07	
Deionized Water	1.00	Deionized Water
BradPride Coco/Tallow Soap Base 80/20	95.5	
Preservative and Fragrance	q.s.	

Processing Instructions

POLYOX™ WSR N-60K Lubricating Polymer provides excellent slip during application to this conditioning soap bar, as well as helping to reduce cracking.

Interested in Learning More?

For more information on ACULYNTM and METHOCEL™ Rheology Modifiers, POLYOX™ or UCARE™ or other products offered by Dow Personal Care, please contact us at the numbers listed below:

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Toll-free from South Africa: +800 99 5078
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