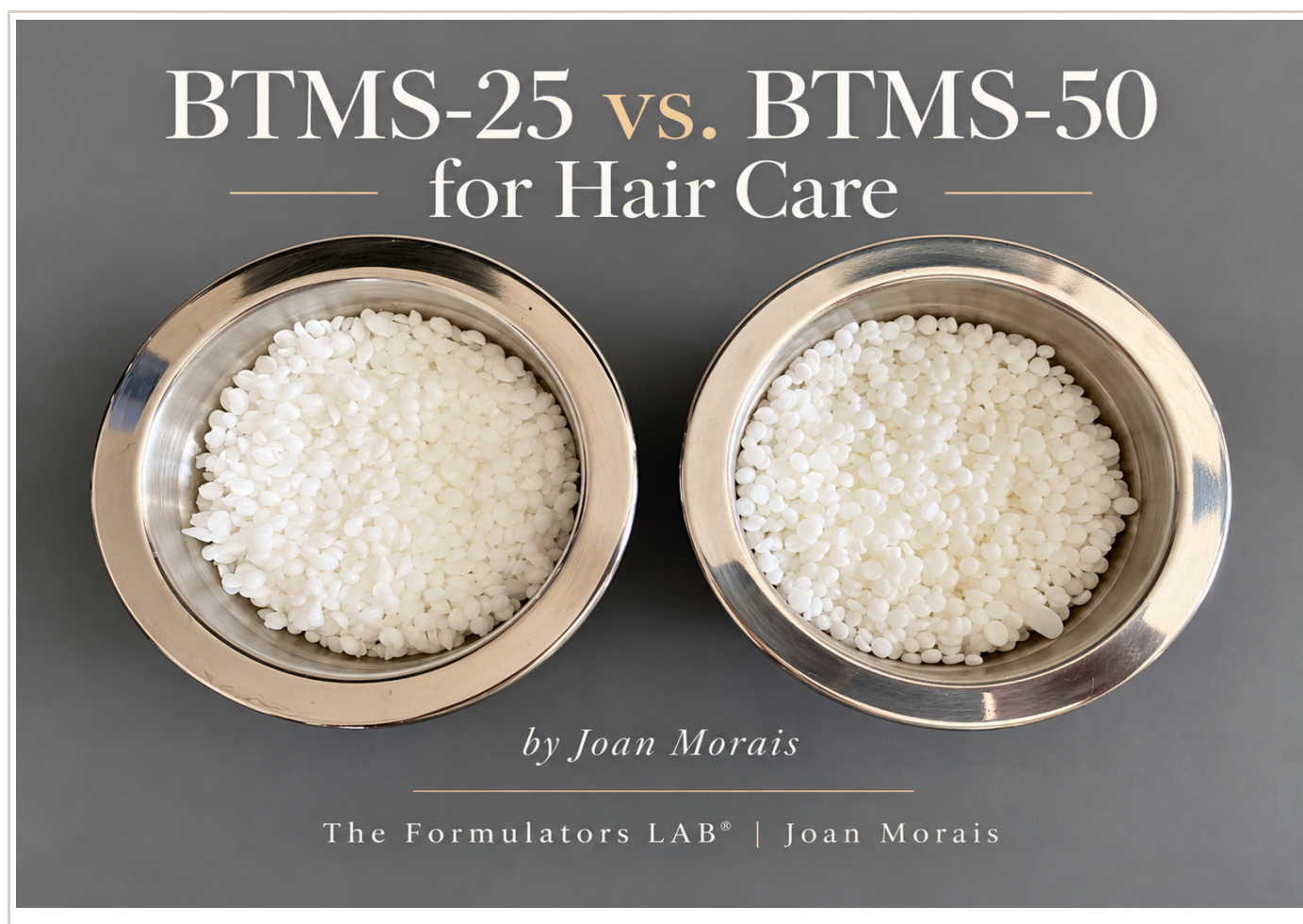


BTMS-25 vs. BTMS-50 for Hair Care

A practical guide to conditioning strength, use levels, hair feel + formulation choices
by Joan Morais



IN THIS GUIDE

Compare BTMS-25 and BTMS-50, understand how much conditioning active each supply, choose practical starting percentages, and predict how each can change the feel, body, slip, and weight of a finished hair conditioner.

BTMS-25 and BTMS-50: Why They Feel Different

BTMS-25 and BTMS-50 are both cationic conditioning emulsifiers, but they are not interchangeable gram for gram. The key difference is the approximate amount of Behentrimonium Methosulfate in the raw material and the amount of fatty alcohol supplied with it. Always verify the INCI and active level for your specific supplier grade.

BTMS-25: Conditioning + Structure

A typical BTMS-25 grade contains about 25% Behentrimonium Methosulfate and a high proportion of fatty alcohol. That built-in fatty alcohol adds body, creaminess, cushion, and viscosity. On the hair, BTMS-25 can feel soft, substantial, rich, and slightly more coating, making it especially useful for dry, coarse, curly, porous, or textured hair when a creamy conditioner is desired.

BTMS-50: More Conditioning Active per Gram

- A typical BTMS-50 grade contains about 48-50% Behentrimonium Methosulfate, so it supplies more conditioning active at the same use level.
- It can create strong slip, detangling, softness, and a silky conditioned feel while allowing the formulator to control fatty alcohol separately.
- At lower percentages, BTMS-50 can be especially useful for fine or low-density hair where conditioning is needed without excessive body or weight.
- At higher levels, it can be used for rich conditioners and masks, but the supporting fatty alcohol and oil phase should be designed intentionally.

Conditioning Active + Substitution

As an approximate comparison, 4% BTMS-25 supplies about 1% Behentrimonium Methosulfate active, while 2% BTMS-50 supplies about 1%. Likewise, 6% BTMS-25 and 3% BTMS-50 each supply about 1.5% active. The conditioning active may be similar, but the formulas will not feel identical because BTMS-25 contributes much more fatty alcohol and therefore more structure.

JOAN'S FORMULATION NOTE

Do not judge a conditioner only by how slippery it feels when wet. Evaluate detangling during application and rinse, then assess softness, movement, volume, coating, and weight after the hair is completely dry. The best BTMS level is the lowest level that delivers the performance you want without unnecessary buildup or heaviness.

Recommended Starting Percentages

Use these ranges as formulation-development starting points, not strict limits. Hair type, oil phase, added fatty alcohols, polymers, proteins, silicones or silicone alternatives, and the exact commercial BTMS grade will change the final result.

Product type	BTMS-25	BTMS-50
Light leave-in conditioner	1-2%	0.5-1%
Cream leave-in conditioner	2-4%	1-2.5%
Detangling cream	2-4%	1-2%
Fine-hair rinse-off	2-4%	1-3%
Daily rinse-off conditioner	3-6%	2-4%
Rich rinse-off conditioner	5-8%	3-5%
Deep conditioning mask	5-10%	3-6%
Co-wash	2-5%	1-3%
Waterless conditioner bar	High; system-dependent	High; system-dependent

FORMULATION TIP

If you replace BTMS-25 with BTMS-50, do not simply use the same percentage. Match the approximate conditioning active first, then rebuild viscosity and creaminess with the fatty alcohol system as needed. The reverse is also true: increasing BTMS-25 to match BTMS-50 active can add considerably more fatty alcohol and make the formula heavier.

How the Finished Hair May Feel

- BTMS-25: creamier, fuller, more cushioned and substantial; useful when you want conditioning and body from the same ingredient system.
- BTMS-50: silkier slip and stronger conditioning at a lower raw-material level; useful when you want more control over viscosity and final weight.
- Both: performance depends on the complete formula. Evaluate wet combing, rinse feel, dry softness, volume, curl definition, movement, and buildup over repeated use.

Formulator's Decision Guide

Use this checklist before choosing BTMS-25 or BTMS-50 for a hair care formulation.

- Define the hair type and product goal: fine, medium, coarse, curly, textured, porous, damaged, detangling, softness, volume, or deep conditioning.
- Decide whether you want the BTMS material to provide both conditioning and structure, or whether you want to control fatty alcohol and viscosity separately.
- For fine or low-density hair, begin conservatively. BTMS-50 can provide noticeable conditioning at a lower raw-material level with less built-in fatty alcohol.
- For dry, coarse, curly, textured, or porous hair, BTMS-25 can create a rich creamy feel; BTMS-50 can provide stronger conditioning while you customize the supporting fatty alcohol system.
- Consider the product format. Leave-ins usually need lower levels; rinse-off conditioners and masks can tolerate more. In co-washes, verify compatibility with the surfactant system, especially anionic surfactants.
- Follow the supplier technical data for use level, processing temperature, pH, and compatibility, then complete stability, preservation, packaging, and finished-hair performance testing.

The Main Takeaway

BTMS-25 is often the better choice when you want conditioning plus built-in creaminess and body. BTMS-50 is often the better tool when you want more conditioning active per gram and greater freedom to design the fatty alcohol and viscosity system separately.

REMEMBER

The percentage of BTMS alone does not predict the finished conditioner. Consider conditioning active, fatty alcohol, oil phase, hair type, rinse-off versus leave-in use, and the complete sensory profile. Aim for effective conditioning without unnecessary weight or buildup.

LEARN MORE

Learn how to select, combine, process, and test conditioning ingredients in the Professional Natural Hair Care Product Making Course from Joan Morais Cosmetics School.

Read the full BTMS-25 vs. BTMS-50 article and explore professional cosmetic formulation training at www.JoanMorais.com.

Educational formulation reference by Joan Morais. Usage ranges are general formulation-development starting points. Always follow supplier specifications and verify preservation, stability, packaging compatibility, finished-product performance, and safety.