Time and energy saving liquid shea

Why choose liquid shea?

Macro and consumer trends are driving a growing demand for more natural cosmetics with ethical and sustainable credentials. At the same time, environmentally-friendly products and production methods to help reduce carbon footprint are being introduced by manufacturers, leading to an increased use of:

- clean labels – fewer ingredients but those selected are from recognized natural sources and deliver high functionality and sensory appeal.
  - ✓ Liquid shea offers all the functionality and skin nourishing benefits of solid shea butter + delivers improved aesthetics in final formulations + it can be used across a wider, more versatile range of cosmetic applications.
- minimal packaging – of both ingredients and finished products
  - ✓ Liquid shea requires less packaging of the raw material than solid shea butter and has an easy-to-dispense pump format.
- ingredients from renewable sources that can be used for low-energy processing
  - ✓ Liquid shea is a responsible and sustainable choice + LIPEX® SheaLiquid TR™ is climate-compensated, from a fully traceable supply chain, and offers significant time and energy savings in the production process.

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AAK liquid shea offers time and energy savings

- Laboratory scale trial under strictly controlled conditions comparing hot processing of solid shea butter versus low-temperature processing using liquid shea.
- Comparisons were made using body lotion formulations containing 6% of the shea ingredient and looked at the following:
  - Total electrical energy spent for heating and cooling during processing
  - Rheological and sensory properties of the finished body lotions

Testing energy consumption when producing body lotions in the laboratory

Summary of results

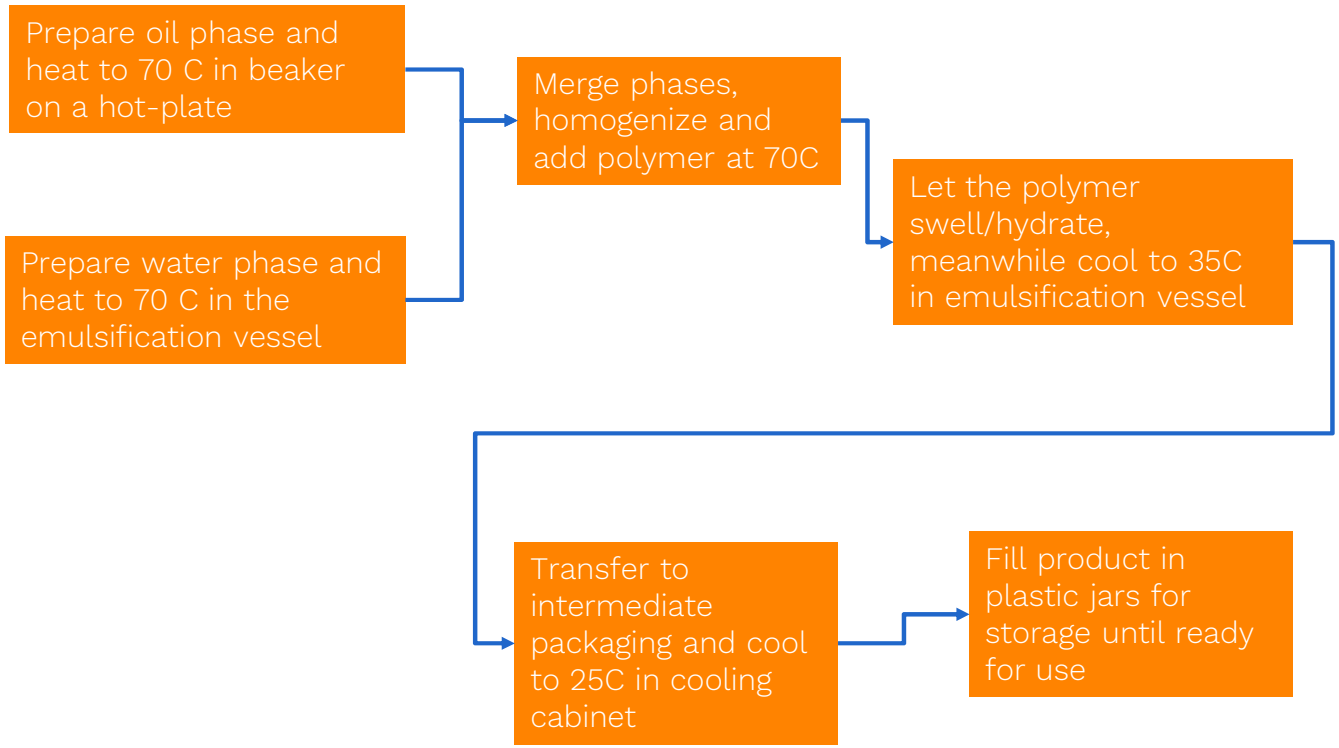
- 25-50 % energy savings when using liquid shea versus solid refined shea butter
- 25-35 % shorter processing time when using liquid shea
- Slightly higher viscosity obtained with solid shea butter

- Disclaimer: results are derived from laboratory conditions with specific formulations and equipment. Results from large scale production will be dependent on local procedures and conditions.

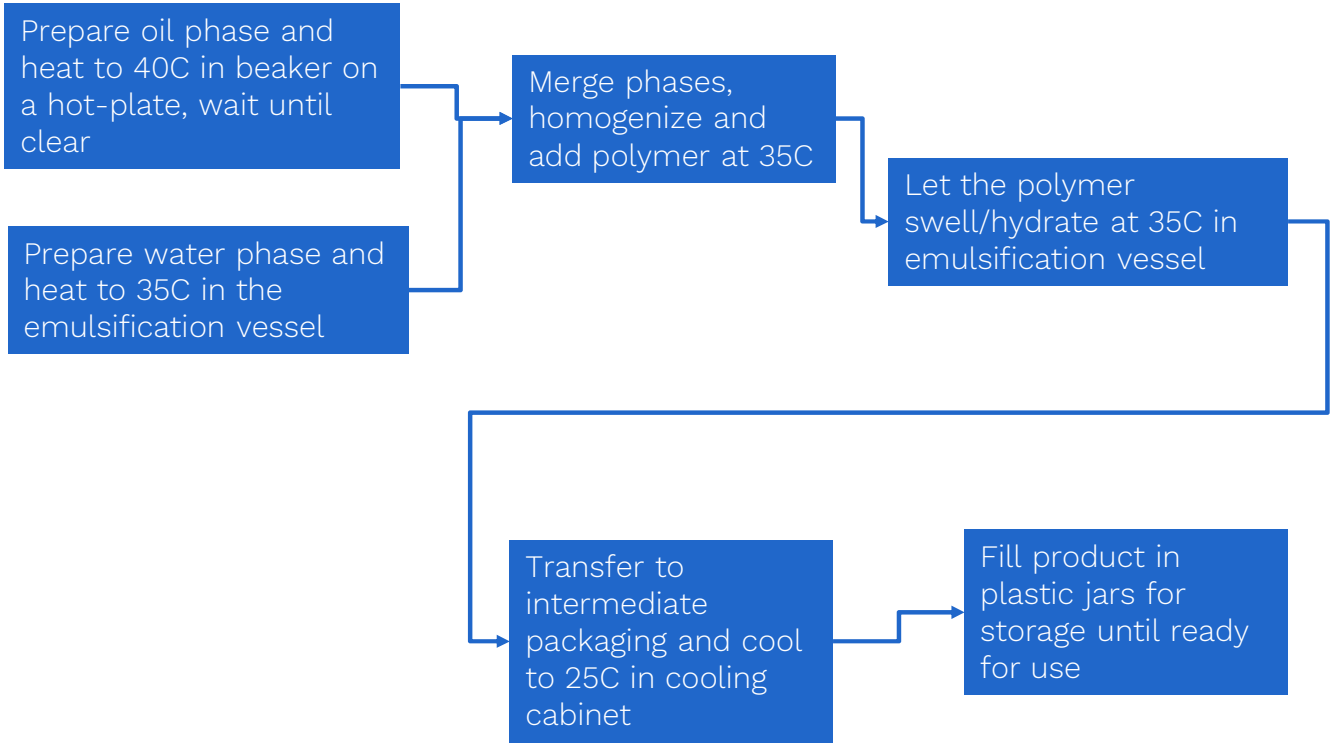
Experimental section and result

- Ingredients used in the study
  - Solid refined shea butter
  - LIPEX® SheaLiquid TR™ - fully traceable, liquid shea butter
  - LIPEX® Bassol C™ - highly stable base emollient derived from renewable canola oil

Instructions for hot processing



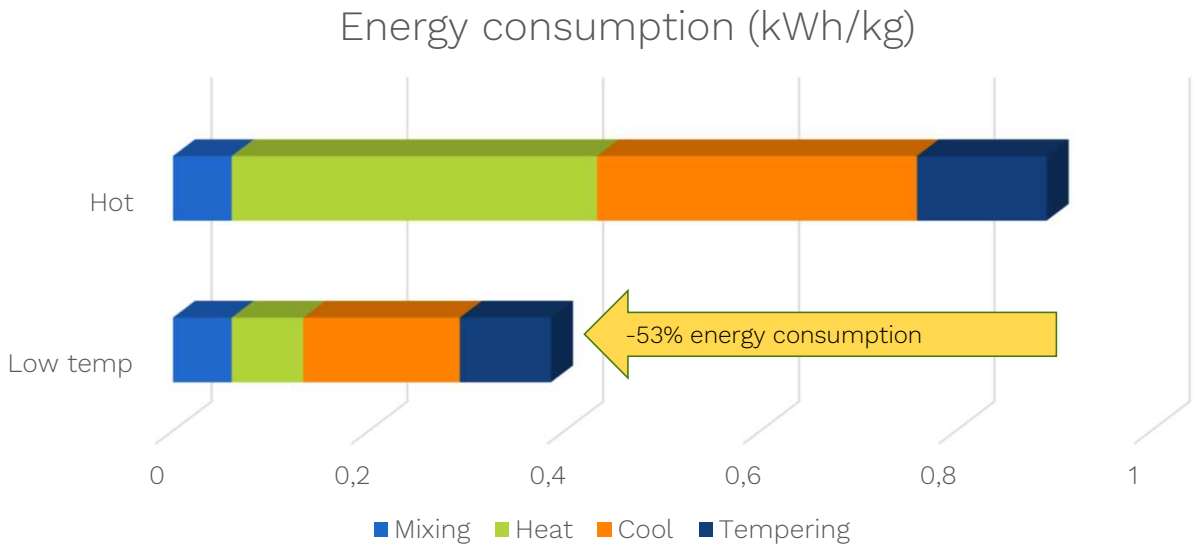
Instructions for low-temperature processing



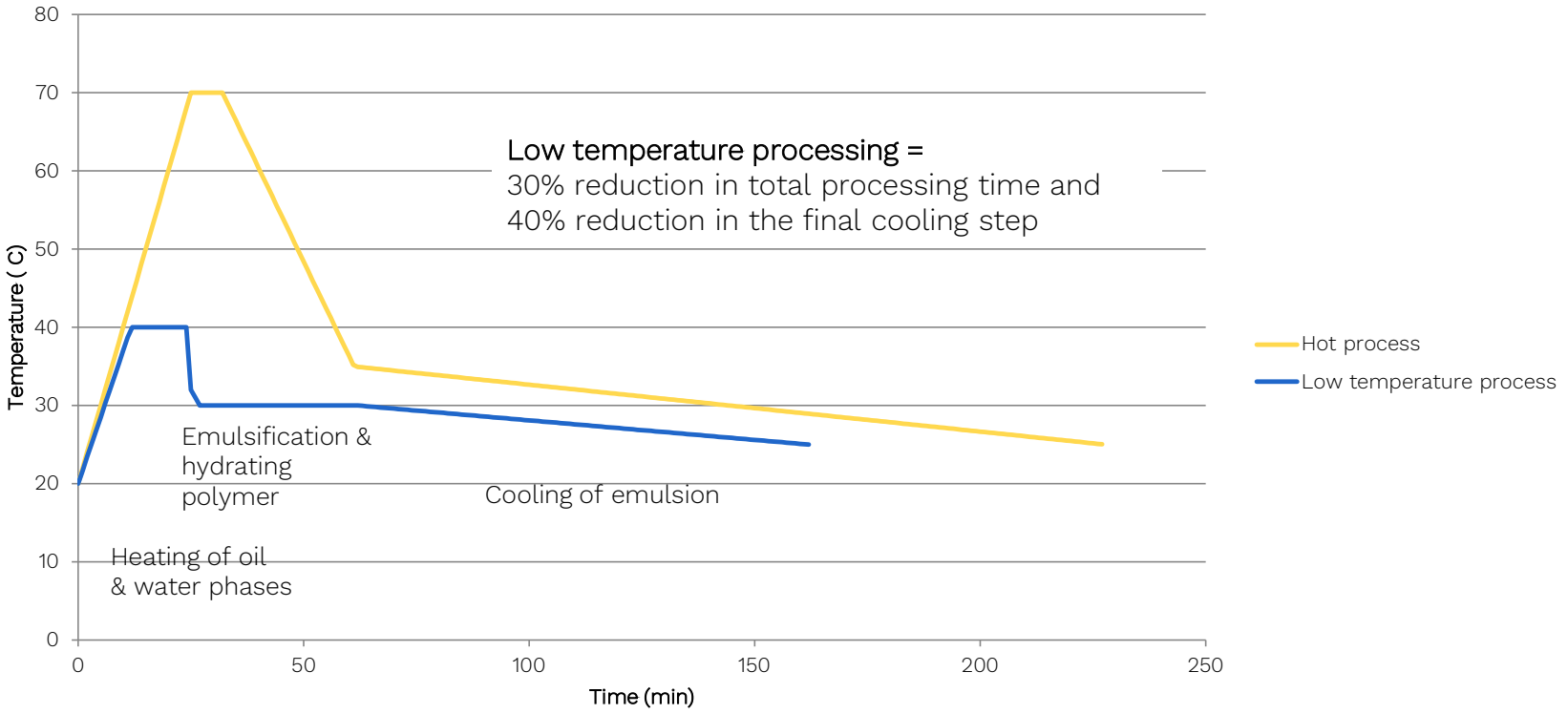
Body lotion formulation

INCI/Trade name	% concentrations
Aqua	77,40
Preservative	1,10
Glycerin	3,00
Lipex Bassol C / Canola oil (or) Olus oil	4,50
Isopropyl palmitate	4,50
Butyrospermum parkii butter	6,00
Trilaureth-4 phosphate	2,80
Aristoflex AVC	0,70
pH	5,5

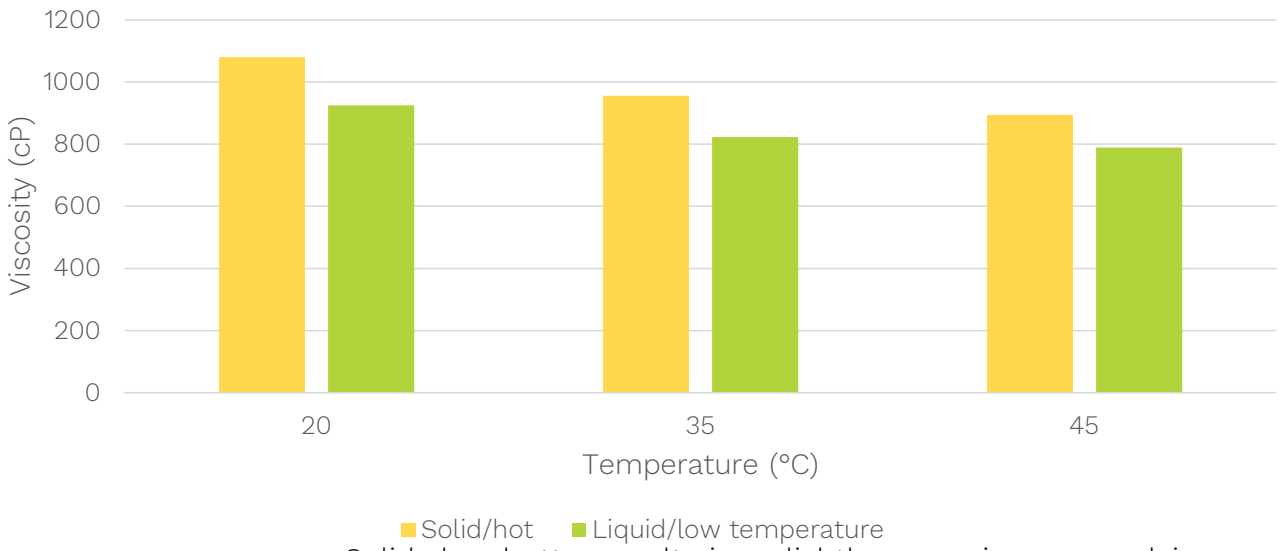
Breakdown of energy consumption in production stages – hot versus low-temperature processing



Processing graph for making body lotions in laboratory conditions



Comparison of body lotions with 6% solid versus 6% liquid shea butters



Solid shea butter results in a slightly more viscous emulsions

Comparison of body lotions with 6% solid versus 6% liquid shea butter – sensory analysis (triangle test)

Comparison	Correct/Total (significance)	Comment
Solid versus liquid shea butter - hot processing	4/12 (ns)	8 correct answers required
Solid versus liquid shea butter - low temperature processing	5/14 (ns)	9 correct answers required

Summary and conclusions

- Liquid shea offers up to 50% energy savings and 30% time savings in production when compared to solid shea butter
- Product character is not significantly changed and sensory properties are equal in emulsions with up to 6% shea butter
- Further optimization of formulation can offer even higher savings

Thank you!