

REDUCTION OF COOKING LOSS AND SHRINKAGE IN HAMBURGERS



33% LESS COOKING LOSS AND SHRINKAGE

People who love a good burger don't want to see it shrinking before their eyes as it sizzles on the grill. Our research has shown that the average diameter of each burger reduces by 27%, with an overall cooking loss of 24%. This study shows that replacing 5% of meat with 1% of QBind Beef PP70B and QBind Beef GP83B (plus 4% water) reduces shrinkage and cooking loss by up to 33% without compromising the quality or the sensory experience.

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Study set up

3 hamburger recipes were used. One was the reference hamburger, and the remainder were modifications using either QBind Beef PP70B (1%) or a combination of QBind Beef PP70B and QBind Beef GP83B. All modifications also contained water (4%).

The goals for this study were to examine the effects on:

- Size: shrinkage and cooking loss
- Sensory experience: juiciness, taste, structure

Recipe - Hamburgers

	Reference	QBind Beef PP70B (1%)	QBind Beef PP70B (0.75%) & GP83B (0.25%)
Ingredients	Quantity %	Quantity %	Quantity %
Beef trimmings 70/30	88.00%	83.00%	83.00%
Spices incl. salt	2.00%	2.00%	2.00%
QBind Beef PP70B		1.00%	0.75%
QBind Beef GP83B			0.25%
Ice / Water	10.00%	14.00%	14.00%
Total	100.0%	100.0%	100.0%

Production set up

Steps

1. Grind the fresh meat
2. Add water/ice to the meat
3. Add spices and proteins
4. Shape burgers
5. Cooked in a water bath of 80°

Details

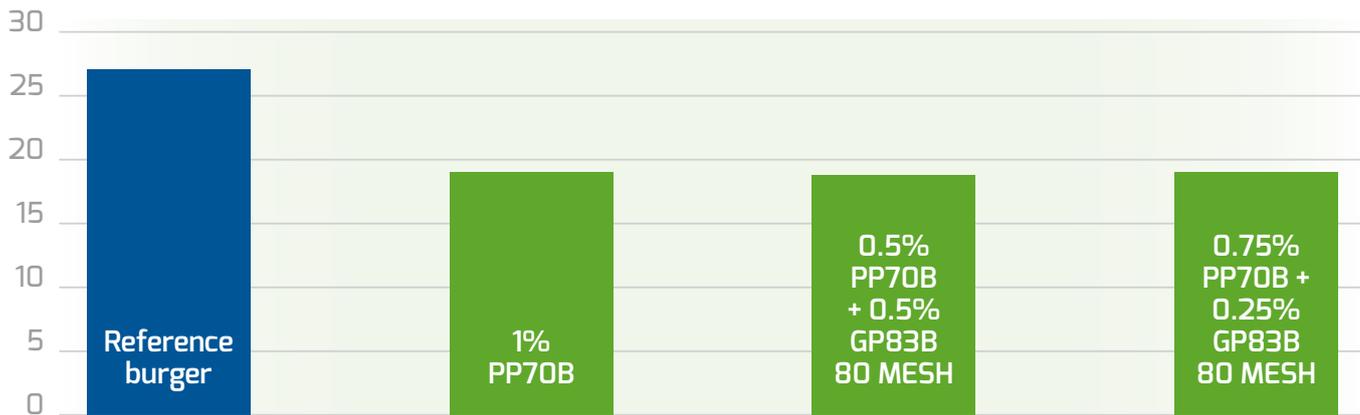
60 grams of meat - use standard burger mold

15 minutes – core temperature 72°

Cooking loss (%)

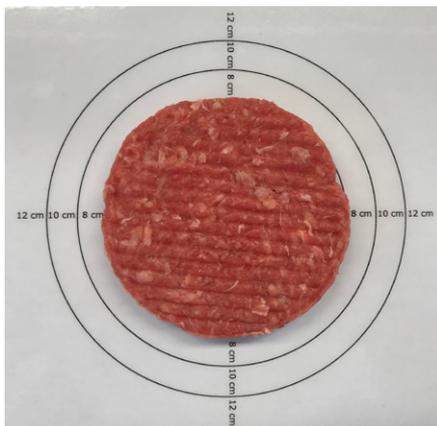


Diameter reduction (%)

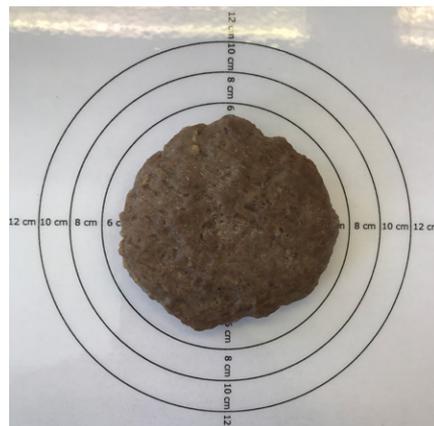


Diameter reduction hamburger

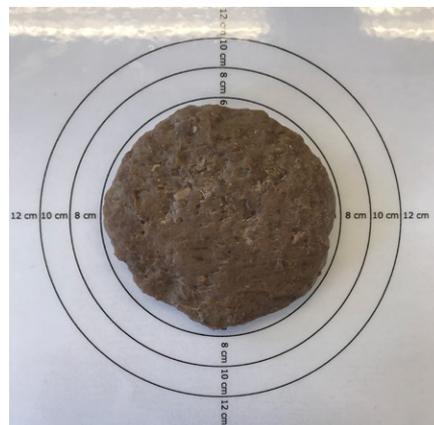
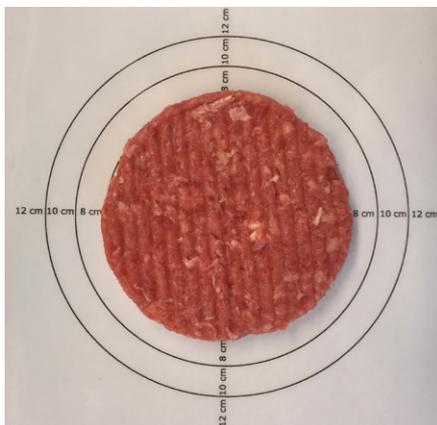
Reference raw product



Reference after grilling



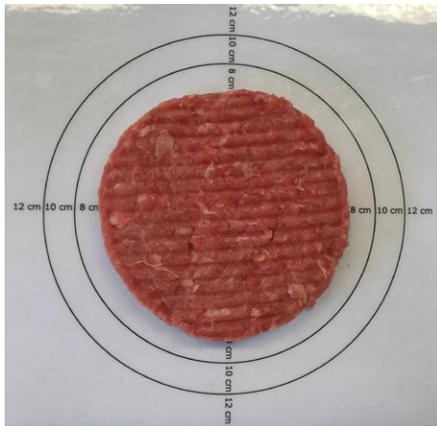
5% of meat replaced by 1% PP70B + 4% water



5% of meat replaced by
0.5% PP70B + 0.5% GP83B 80 mesh + 4% water



5% of meat replaced by
0.75% PP70B + 0.25% GP83B 80 mesh + 4% water



Research findings

QBind Beef PP70B (1%) as a meat replacement

- The use of PP70B led to only 15% average cooking loss, compared to over 24% for the reference burger.
- Diameter reduction was kept to 20%, compared to nearly 27% for the reference burger.

QBind Beef PP70B (0.75%) + QBind Beef GP83B 80 mesh (0.25%) as a meat replacement

- The use of PP70B and GP83B led to only 16.5% average cooking loss, compared to over 24% for the reference burger.
- Diameter reduction was kept to 18.25%, compared to nearly 27% for the reference burger.



Cost price optimization

In the above tests, 5% of lean meat was replaced by 1% of Sonac proteins and 4% water, resulting in a lower cost price of the modified formulations.

Additional information:

Sonac is the only supplier in the world who can supply beef plasma and beef greaves protein, enabling us to deliver the particular combination you need.

Research execution

Date: June 2019

Location: Deutsches Institut für Lebensmitteltechnik (DIL), Germany

Sonac: Arjan van Waes / Lindsay van Noordenburg

Sonac is a leading manufacturer of reliable ingredients of animal origin. With an active R&D program, reliable processes and sustainable end products Sonac continuously adjusts to market needs. A good geographical spread of locations and a broad portfolio of fats, proteins, minerals and specialties make Sonac a trusted partner for many international producers in food, pet food, feed and fertilizers, worldwide. Sonac is part of Darling Ingredients



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