

Innovative solutions for sugar confectionery



Texture is determined by ingredients and processing conditions

Ingredients

Gelling agents:

- ◆ Such as, starch, gelatin, gums and/or pectin
- ◆ Type of modification

Ingredients

Sweeteners:

- ◆ Type of sweeteners
- ◆ Dosage ratio



Process

Cooking method:

- ◆ Direct steam, e.g. jet cooking
- ◆ Indirect steam, e.g. pressure dissolver
- ◆ Others such as bath process (kettle)

Process

Stoving parameters:

- ◆ Temperature
- ◆ Humidity
- ◆ Time



Know-how & Show-how

KMC's Food Innovation Center offers:

- ◇ Pilot scale equipment
- ◇ Skilled team of application specialists
- ◇ Customer-specific solutions
- ◇ Equipment for analyzing end-product

Benefits of Gelamyl

Gummy candy:

- ◆ High clarity
- ◆ Shelf life stability
- ◆ Neutral taste
- ◆ Customizing texture

Cost-effective

- ◆ Full or partial replacement of gelatin



Other benefits

- ◆ Plant-based
- ◆ Allergen-free
- ◆ Non-GMO
- ◆ Halal and Kosher certified

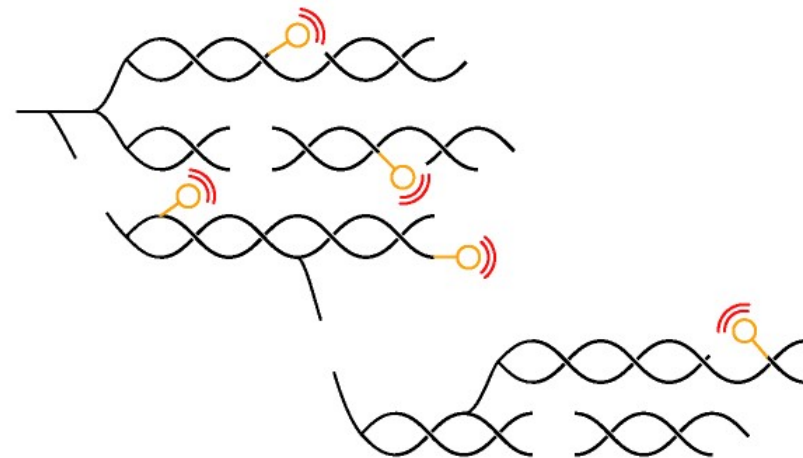
Processing

- ◆ Easy cooking
- ◆ Low viscosity at hot stage

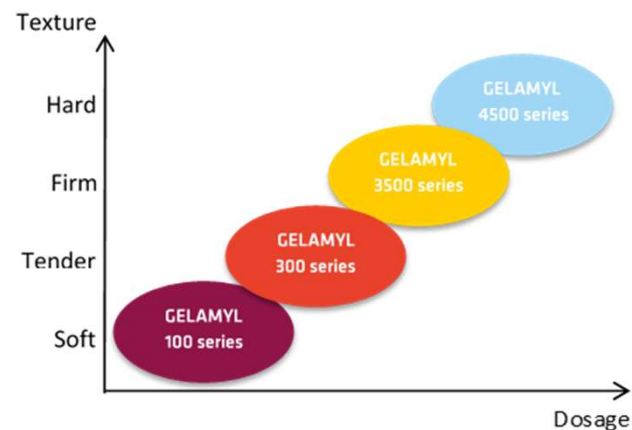
Modified starch for confectionery

The principle of thin-boiling starches:

- ◇ The starch chains are degraded into smaller chains by oxidation or acid hydrolyzation
- ◇ May be used in higher dosages
- ◇ Can form a gel.

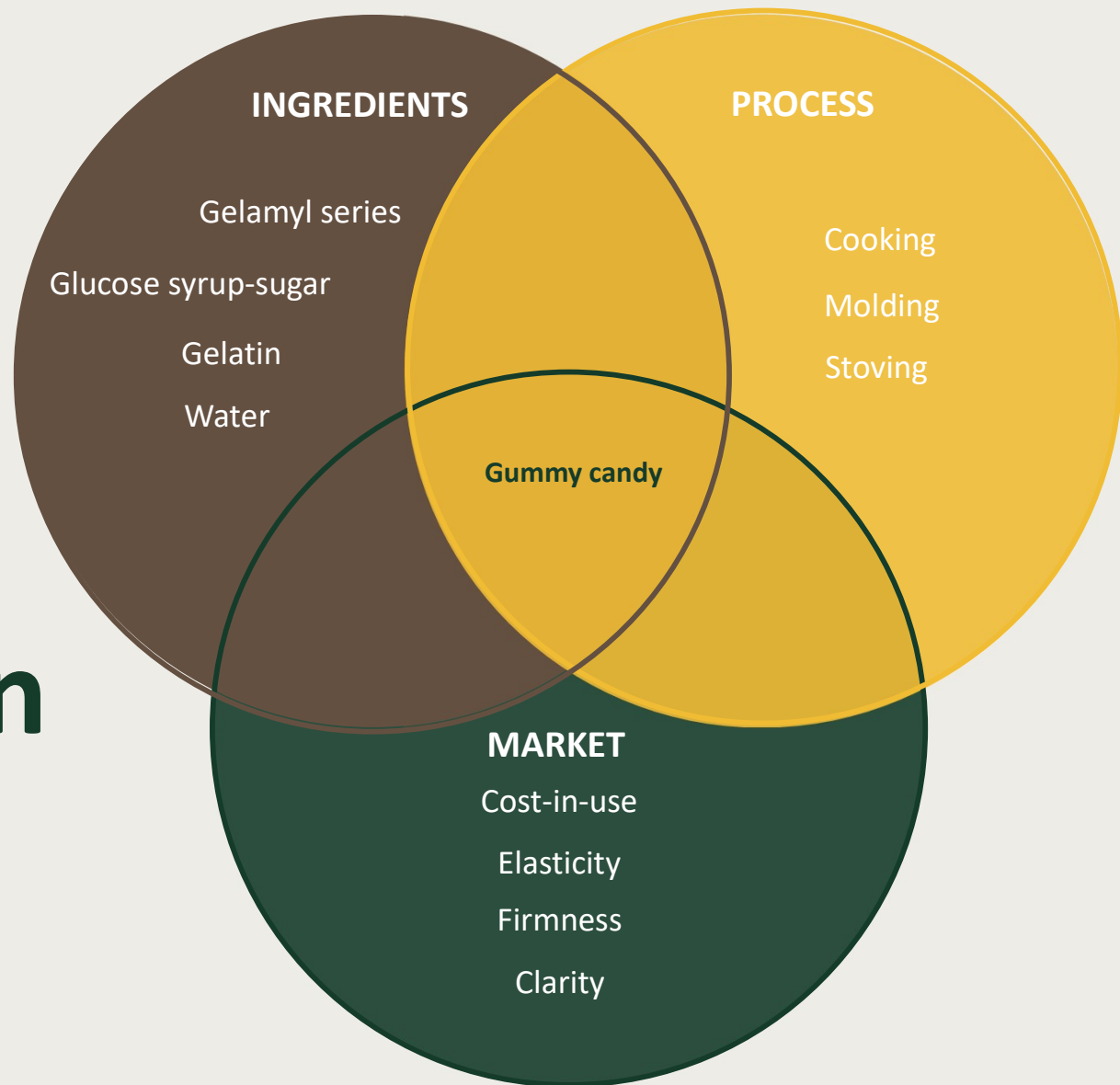


Customizing texture



	Gelamyl 125	Gelamyl 140 SH	Gelamyl 140 SAV	Gelamyl 801	Gelamyl 3501	Gelamyl 4503
Application guideline	Soft gummy candy	Soft gummy candy	Soft gummy candy & liquorice	Firm gummy candy & liquorice	Hard gummy candy, liquorice & pastilles	Liquorice & pastilles
Texture	Soft/tender	Tender/firm	Tender/Elastic	Firm/Elastic	Hard	Very hard
Elasticity	Medium	Medium	High	Medium	Low	Very low
Clarity	Medium	Medium	High	High	High	High
Flavor release	Good	Very good	Very good	Good	Good	Low

Combination Solution





Gummy candy with 7% Gelamyl 140 SAV and 3% gelatin

Main properties

- Flexible drying conditions
- Significant cost savings

Process

- 1 Add water, gelatin solution, glucose syrup, sugar and Gelamyl 140 SAV into the feed tank. Mix thoroughly and heat to 60°C/140°F
- 2 Pump to the cooking unit and heat to 120°C/248°F with a back pressure of 2 – 2.5 bar
- 3 De-aerate and cool to approx. 75°C/167°F
- 4 Add citric acid, colour and flavour
- 5 Deposit into starch molds at approx. 75°C/167°F and app. 75°Brix
- 6 Dry at approx. 25°C/77°F for 24-48 hours depending on size
- 7 Demold, remove residual molding powder and polish the product with e.g. glazing oil

Ingredients:	%
Glucose syrup 40 DE	45.00
Sugar	26.00
Water	13.00
Gelamyl 140 SAV	7.00
Water for gelatin solution ¹	6.00
Gelatin 230 Bloom ¹	3.00
Citric acid, 50% solution	q.s.
Color	q.s.
Flavor	q.s.

¹ Preparation of gelatin solution: add gelatin directly to hot water (80-90°C/176-194°F) during stirring, and mix for min. 10 minutes at 60°C/140°F

Remarks

The texture may vary depending on the process parameters such as equipment, drying time, type of glucose syrup, glucose/sugar ratio and addition of other gelling agents.

KMC's pilot cooking unit is a pressure dissolver Princess® Jelly from CHOCOTECH.



Heat stability

After 24 heat exposure hours at 40°C

Shape retention



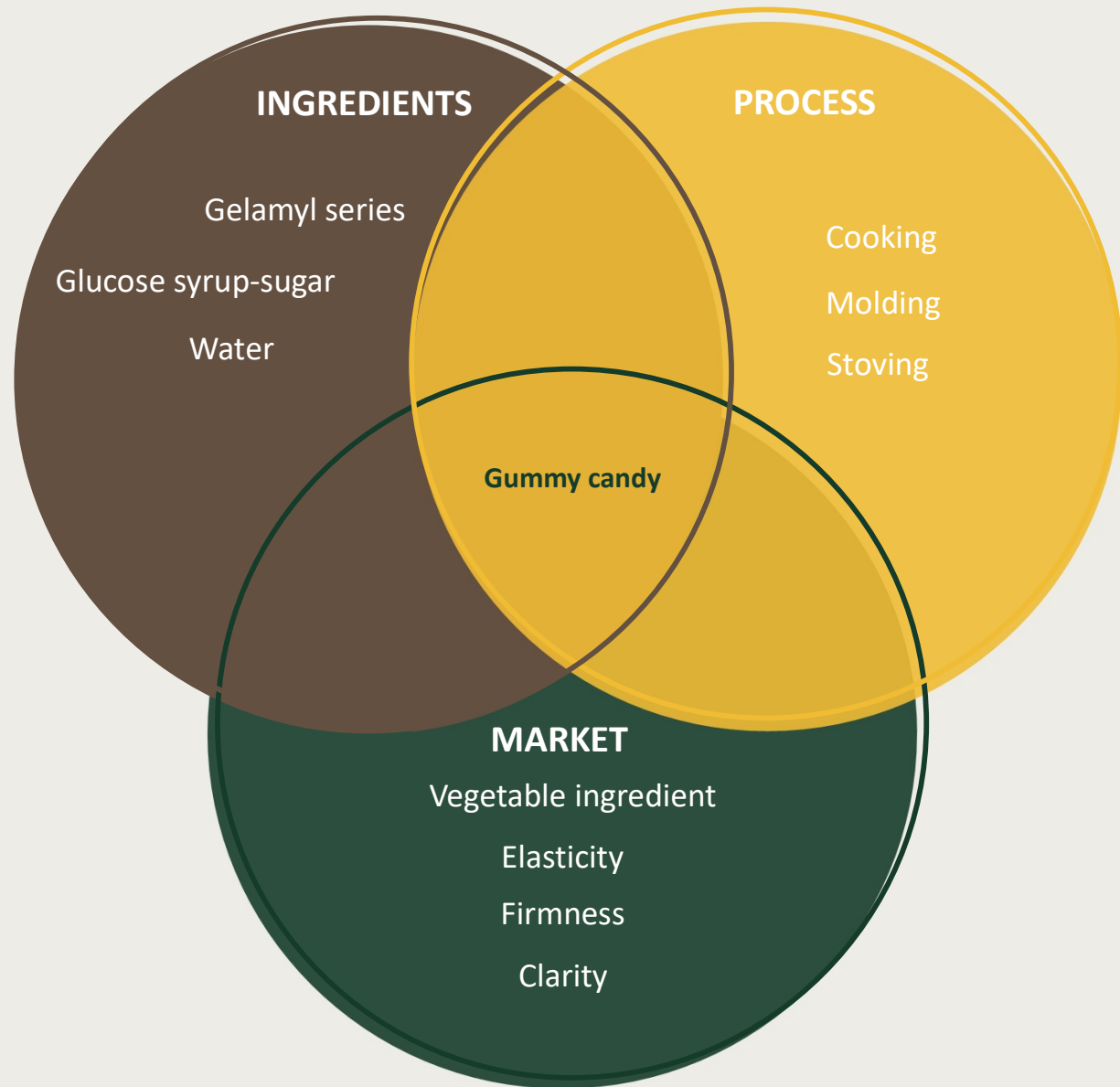
7% Gelatin

6% Gelatin
1.5% Gelamyl 140 SAV

5% Gelatin
3% Gelamyl 140 SAV

4% Gelatin
4.5% Gelamyl 140 SAV

Plant base solution





Plant-based gummy candy soft gum-like texture with Gelamyl 801

KMC has developed Gelamyl 801 as an alternative to gelatin. Gelamyl 801 provides a soft gum-like texture to the gummy candy.

Main properties

- Plant-based solution
- Flexible drying conditions
- Significant cost savings
- Customization of your gummies (PB)

Process

- 1 Add water, glucose syrup, sugar and Gelamyl 801 into the feed tank
- 2 Mix thoroughly and heat to 60°C/140°F
- 3 Pump to the cooking unit and heat up to 130°C/266°F with a back pressure of 2 – 2.5 bar
- 4 De-aerate and cool to 85-90°C/185-194°F
- 5 Add citric acid, color and flavor
- 6 Deposit into starch molds at 85°C /185°F and app. 75°Brix
- 7 Dry at 50-55°C/122-131°F for 24-48 hours, depending on size
- 8 De-mold and remove residual molding powder and polish the product with e.g. glazing oil

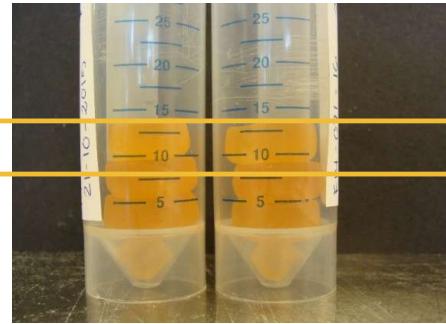
Ingredients:	%
Sugar	36.00
Glucose syrup 40 DE	34.00
Water	19.00
Gelamyl 801	11.00
Citric acid	q.s.
Color	q.s.
Flavor	q.s.



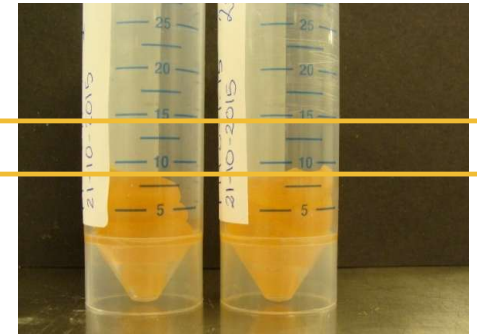
Heat stability

7.8% Gelatin

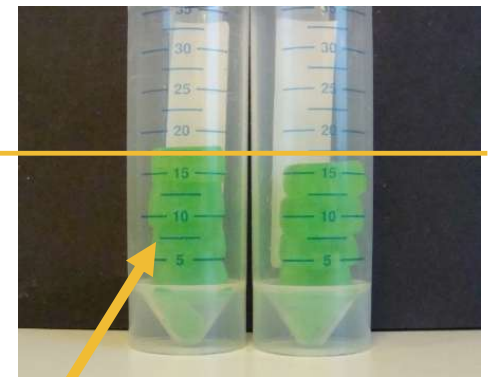
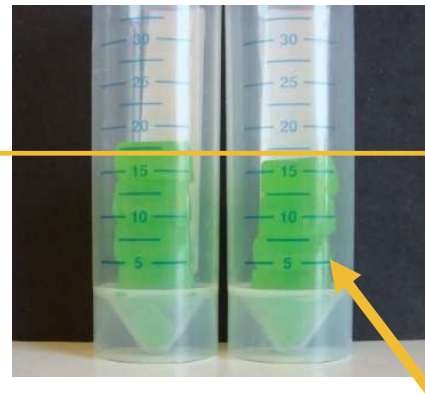
Before heat exposure



After 24 hours at 40°C



12.0% Gelamyl



Shape retention

New Texture

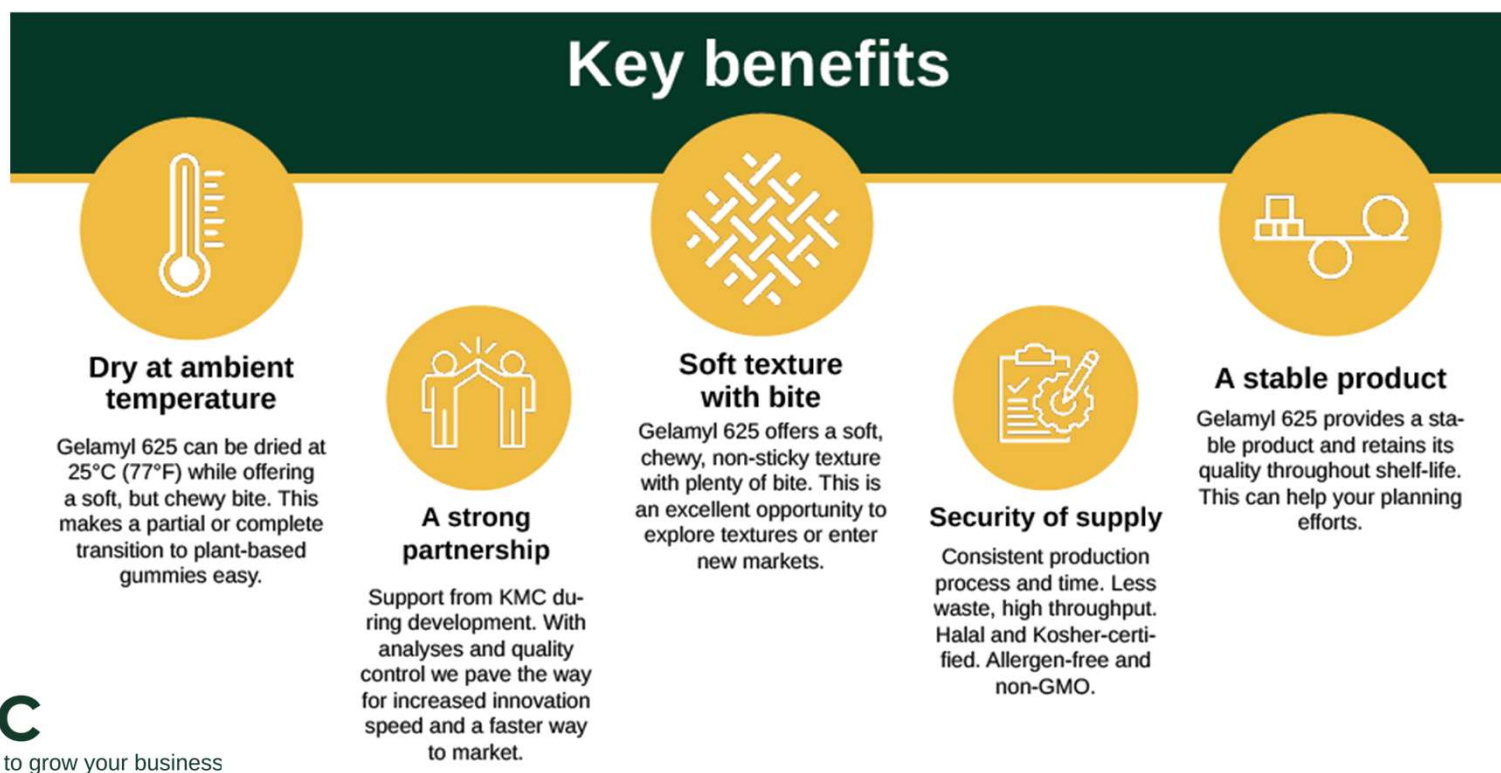
- With Gelamyl 625



Gelamyl 625

-Dry your plant-based gummy candy at ambient temperature

- Gelamyl 625 is a potato starch-based gelling agent for confectionery that can be dried at 25°C (77°F).
- Gelamyl 625 is the new tool in your toolbox of options for customizing texture and bite.



Various options



More information?

WWW.kmc.dk

