

Gel strength – CK 5'

Purpose of the analysis

Determination of gel strength by penetration of a 1.5% w/v solution at 20°C, using a Mecmesin texture analyzer

Materials and equipment

- Precision scale $\pm 0.01\text{g}$
- Glass flask 1L 3.3 borosilicate
- Rubber stopper with hole
- Digital magnetic stirrer Labbox H20SQC
- Magnetic stirring bar
- Chronometer
- 400 mL stainless tray (or 100 mL crystallizing dish 40x70 3.3 borosilicate)
- Thermostatic refrigerator
- Electronic texture analyzer Mecmesin (or manual texture analyzer), with 1 cm^2 plunger



Ingredients

- Distilled water 295,5 mL
- Agar agar 4,5 g

Procedure

- Note the tare weight of the flask, including the magnetic stir bar
- Add 305 mL of distilled water (this is considered excess water for evaporation)
- Gently pour into water 4.5 g of agar while stirring to prevent lumps formation
- Heat on the magnetic plate, setting the temperature to 450°C. It is important to keep stirring and to keep the rubber stopper in place
- When it starts to boil, set the timer for 5 minutes and remove the flask to prevent foam from escaping
- Lower the temperature to 350°C and replace the flask, keep stirring
- After 5 minutes, check that the solution weighs 300g. Top up with distilled water if necessary
- Pour the solution into the stainless tray or glass container and let it cool. Then cover with film and place in the thermostatic refrigerator for 24h at 20°C
- Remove the stainless tray and perform the gel strength test by using the electronic texture analyzer with the following program (or Nikkan texture analyzer)



Test Program - ck B & V.lif 14/02/2017 10:37

Line No	Command
1	ZERO value of load and displacement
2	RUN @ 200 mm/min until load = 10gf
3	ZERO value of load and displacement
4	CLEAR DATA
5	CLEAR GRAPH
6	RUN @ 10 mm/min until displacement = 10,00mm
7	RUN @ -200 mm/min until displacement = -50,00mm
8	END

Additional note
