



Technical Data Sheet of Golden Chlorella® (GC50)



1. Water Holding Capacity (WHC)

WHC represents the ability of a protein matrix to absorb and retain bound, hydrodynamic, capillary, and physically entrapped water against gravity. WHC is very important as it affects the texture, juiciness, and taste of food formulations and in particular the shelf-life of bakery products.

*Solution of 5 % w/w *Chlorella* powder and 50 ml volume were prepared using distilled water.

$$\text{WHC (g water/g dm)} = 4.5 \pm 0.0$$

2. Oil Holding Capacity (OHC)

OHC is expressed as the weight of oil bound by 1 g of sample and measured similarly to WHC.

* Solution of 5 % w/w *Chlorella* powder and 50 ml volume were prepared using rapeseed oil.

$$\text{OHC (g oil /g dm)} = 3.4 \pm 0.1$$

3. Emulsion Stability

Emulsion stability is calculated through the ratio of the height of the serum bottom layer to the height of the emulsion after the solution was chilled.

* Solution of 5 % w/w *Chlorella* powder prepared as in the WHC procedure. 10 % w/w oil was added, homogenized, and stored for 24 h at 20 °C.

$$\text{Emulsion Stability (\%)} = 86.0 \pm 0.4$$

4. Foam

The amount of foam is calculated as the height of the visual foam (most top layer) divided by the height of the emulsion.

$$\text{Foam (\%)} = 0.0 \pm 0.0$$

5. Protein Solubility

Ingredient	Soluble mass fraction (% w/w <u>d.b.</u>)	Soluble protein fraction (% w/w <u>d.b.</u>)	Protein content of powder (% w/w <u>d.b.</u>)	Protein content of supernatant (% w/w <u>d.b.</u>)	Protein solubility (% w/w <u>d.b.</u>)
GC50	17.9 ± 0.7	17.6 ± 0.7	45.7 ± 1.3	45.1 ± 2.0	20.4 ± 0.7

6. pH

$$\text{pH} = 6.2 \pm 0.0$$

Alver World SA

AgriCo. Route de la Petite Glâne 20

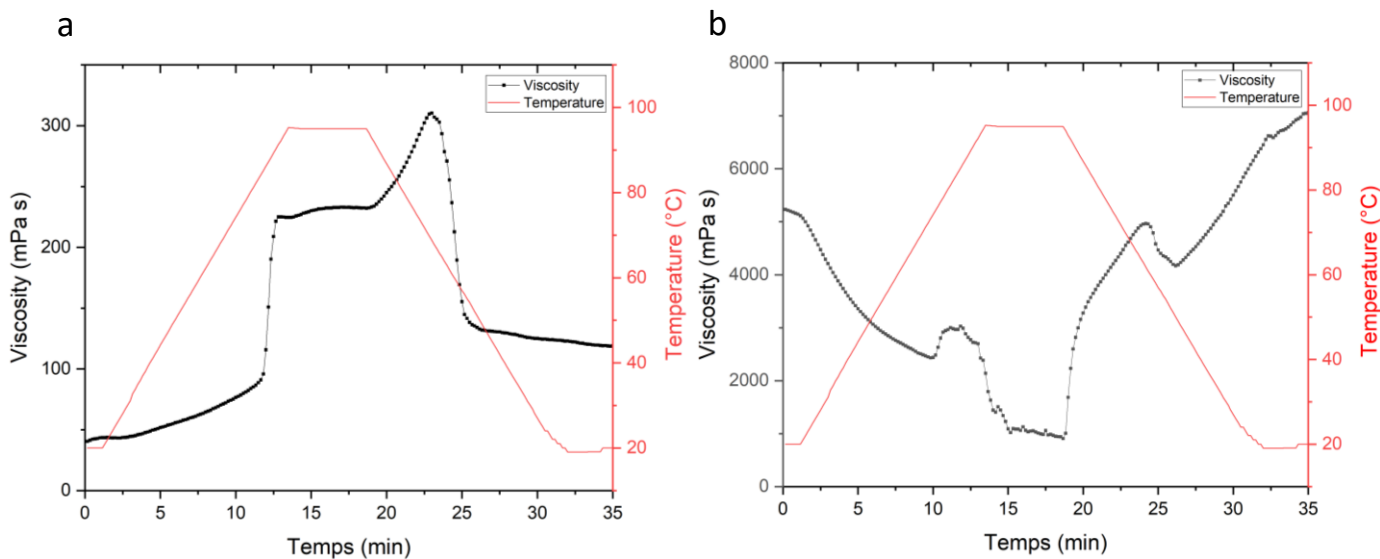
1566 Saint-Aubin

Switzerland

www.alver.ch

contact@alver.ch

7. Viscosity Profile



Viscosity profile of GC50 15 % (a) and 30 % (b) solid concentration

Chlorella type	Solid concentration (% w/w)	Initial viscosity (mPa s)	Peak viscosity (mPa s) - heating	Peak viscosity (mPa s) - cooling	Final viscosity (mPa s)
GC50	15	41.4 ± 2.3	225.0 ± 3.3	309.0 ± 10.9	118.8 ± 0.9
	30	5217.8 ± 508.9	2983.0 ± 124.9	4960.3 ± 322.4	7063.0 ± 826.8

8. Gelling Properties

GC50 at 30 % solid concentration submitted to thermal treatment showed a gel behavior.

9. Hydration

Optimal ratio of water:powder to obtain a thick paste prior to the food application (optional) is 1:1. The paste can be obtained by mixing the powder with cold water (7 – 8 °C). To ban the clump formation, we suggest the use of a stirrer (e.g. KitchenAid flat stirrer at level 10) or a homogenizer.

Alver World SA

AgriCo. Route de la Petite Glâne 20
1566 Saint-Aubin
Switzerland

www.alver.ch

contact@alver.ch