Water-insoluble sodium carboxymethyl cellulose

Sunrose® SLD Series

-Strengthening of dietary fiber in breads (sponge and dough method) -

Sunrose® SLD is slightly carboxymethylated cellulose; this type of CMC presents properties of both powdered cellulose and CMC.
The carboxymethylated portion of SLD absorbs water and swells (gelling, because of its water-insoluble characteristics); this greatly enhances the ability of the bread to retain moisture.

Mixture example (when adding 8% water)

Recommendation

	Ingredients	①	②	③	④
Sponge	Flour	70.00%	70.00%	70.00%	70.00%
	Yeast	2.00%	2.00%	2.00%	2.00%
	Conditioning agent	0.20%	0.20%	0.20%	0.20%
	Salt	0.20%	0.20%	0.20%	0.20%
	Emulsifier	0.20%	0.20%	0.20%	0.20%
	Water	40.00%	40.00%	40.00%	40.00%
Dough	Flour	30.00%	30.00%	30.00%	30.00%
	Sugar	6.00%	6.32%	6.32%	6.32%
	Salt	1.80%	1.90%	1.90%	1.90%
	Powdered skim milk	2.00%	2.00%	2.00%	2.00%
	Shortening	6.00%	6.00%	6.00%	6.00%
	SLD-F1	–	1.00%		–
	F10MC	–	–	1.00%	
	α Starch	–	–		1.00%
	Water	22.00%	30.00%	30.00%	30.00%

Calories (100g)	267kcal	256.8kcal	256.5kcal	259kcal
Weight immediately after baking	200.84g	200.57g	201.01g	202.35g
Weight 1 hour after baking	199.61g	199.01g	199.49g	199.98g

Process conditions

Sponge	Mixing:L2MH1.5
	Kneading temperature 24℃
	Sponge rising: 4 hours (temperature:28℃,humidity:75%)
	Temperature of fnished sponge: 29℃
Dough	Mixing ①:L3MH3H2.5↓(fat)L2MH3H5 ②:L3MH3H5↓(fat)L2MH3H5.5 ③:L3MH3H6↓(fat)L2MH3H5.5 ④:L3MH3H7.5↓(fat)L2MH3H5.5
	Kneading temperature:27℃
	Floor time:20 minutes
	Portion size:235g
	Bench time:20 minutes
	Molding: round
	Hoiro: approx. 70 minutes (temperature: 35℃ humidity: 85%)
	Baking: at 170℃ for 25 minutes (using a convection oven)

Comparison of bread dough after preparation

Process	①	②	③	④
Mixing	4	3	2	2
Molding (overall)	4	4	2	2
Hoiro	4	4	4	3
Baking	4	4	4	3

Evaluation method

Conditions	①	②	③	④
Immediately after baking	3	4	4	3
After 48 hours (kept in 20℃)	2	4	4	3
After 48 hours (kept refrigerated)	1	3	3	2

Evaluation method: dough tested at each stage, with texture measured on a scale of one to five (highest: 5, lowest: 1)

Benefits of adding SLD

Achieved 8% increase in water content (moisture retention effect)
Prevented bread from going stale (moisture retention effect)
Ensured sufficient rise with no coarse inner layer, owing to increased water content (Improved bread making)

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