

[0179] Other Bakery Mixes

[0180] The leavening agent of the invention may also be incorporated into self-raising flour. The latter may for example comprise at least 0.5% by weight of the leavening agent, preferably at least 1%, more preferably at least 2%, most preferably at least 5%, but less than 15%, more preferably less than 10% most preferably less than 8%.

[0181] Leavening agents of the invention, or baking powders comprising them, may be incorporated into bakery mixes. These may be batters (i.e. pastes in which the volume of liquid exceeds that of solid) or doughs (i.e. pastes in which the volume of solid exceeds that of liquid) and may be adapted for the production of a range of baked confections. The leavening agents may be used in conjunction with yeast.

[0182] It will be apparent that the leavening agent may be preformulated as a baking powder or prepared in situ by adding the ingredients separately to the dough or batter.

[0183] Baked products according to our invention include any leavened confection including, without limitation, pancakes, bread, cakes, biscuits, waffles, scones, buns, cookies, batter coatings, sponges and puddings.

[0184] The invention will be illustrated by the following examples in which all proportions, unless otherwise stated, are percentages by weight based on total weight. All references to calcium chloride are to normal commercial calcium chloride, which was Non-acidic. The Neutralisation Value was found to be negative (−0.055 by the method of Brose, Becker and Bouchain vs). A 0.5 molar solution had a pH greater than 8. When 2 g of the calcium chloride in 200 ml deionised water was mixed with 0.25 g sodium bicarbonate in 50 ml deionised water, and the mixed solutions were stored at 23° C. and 764 mm Hg pressure, no evolution of carbon dioxide could be detected using Chittick apparatus.

EXAMPLE 1

[0185] Bakery trials with sodium bicarbonate and Precipitant, in the stoichiometric amount required to precipitate the carbonate formed by thermal decomposition of the bicarbonate in aqueous solution, as in the “balanced” system described by Wu (vs), had shown wide variations in pH, which was undesirably high giving a dark crumb and bitter aftertaste. To compensate for the expected 50% reduction in CO₂ available from the thermal decomposition compared with conventional acid/base leavening systems, the amount of bicarbonate was proportionately increased. None of the tests gave a commercially viable product.

[0186] An Acidulant-free composition according to the invention comprising a substantial excess of Precipitant over the stoichiometric amount, and using conventional levels of addition of bicarbonate was compared to one of the earlier formulations, and also with sodium bicarbonate alone at both the conventional and increased levels and calcium chloride alone, in the following Madeira cake recipe.

Heat treated cake flour	300
Caster sugar	391.8
Skimmed milk powder	22.2
Salt	7.5
Sweetener	211.2
Skimmed milk	19.6
Water	177.9

[0187] The comparison consisted of 8.9 g sodium bicarbonate and 5.9 g calcium chloride. The example consisted of 5.11 g sodium bicarbonate and 5.9% calcium chloride. The results are shown in the following table I:

TABLE I

	pH	Volume (cm ³)	Colour
Comparison	8.6	1152	Light brown
Example 1	8.4	1183	Off white
8.9% soda	9.2	1012	Brown
5.11% soda	8.8	968	Dark brown
5.9%	6.3	952	White

[0188] The product of the invention although using substantially less bicarbonate than the control provided a greater increase in volume, lower pH and almost no discolouration.

EXAMPLES 2-4

[0189] Four formulations were prepared using mixtures of Precipitant and Acidulant at various levels and compared with a commercial product in bakery trials, using the following recipe.

[0190] A scone mix was prepared with the composition, based on weight of flour:

Plain flour	100
Baking powder	10.3
Caster sugar	20
Unsalted butter	30
Milk	50

[0191] The pH of the scones was noted. The results are set out in the following table II, in which all proportions are in grams.

TABLE II

Example	NaHCO ₃	flour	CaCl ₂	MCPa	SAPP	pH
Comparative	0.74	0.4	0	0	1.04	7.3
2	1.14	0.24	0.495	0.47	0	8.8
3	0.765	0.24	0.47	0.495	0	7.35
4	0.64	0.27	0.62	0.35	0	7.9
5	0.39	0.24	0.78	0.2	0	6.7

EXAMPLE 6-8

[0192] Three leavening formulations according to the invention were tested in the following Madeira cake recipe of Example 1. The pH was acceptable in all cases and the examples had a brighter crumb than the control, which used a balanced Acidulant/soda system. The height in mm was measured in the centre and edge. No sagging was observed in the middle. The improved rise compared to the control resulted from a late surge in gas evolution. The results are set out in the following table in which proportions are percent by weight based on total weight.