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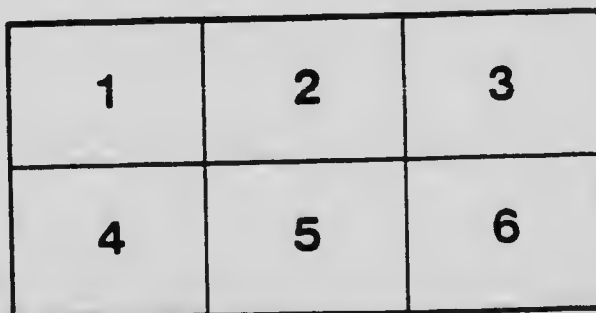
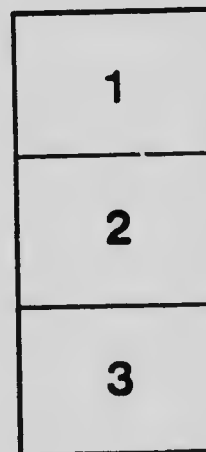
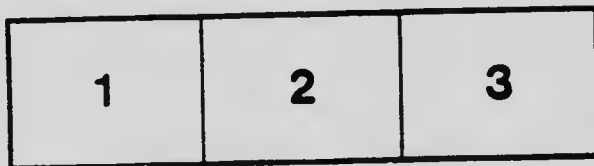
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LABORATORY

OF THE

INLAND REVENUE DEPARTMENT

OTTAWA, CANADA

BULLETIN No. 363

MALT EXTRACT FOR BAKERS' USE



NOTES AND COMMENTS.

Under this heading, as occasion arises, the Bulletins issued by this Department will contain, as an appendix, such comment as may seem necessary or advisable upon matters relating to the work of the Department in connection with the administration of the Adulteration Act, the Fertilizers Act, the Feeding Stuffs Act or the Proprietary Medicines Act.

It frequently happens that correspondents ask information regarding the above Acts, of such a nature that the matter in question possesses general interest, and comment upon it would prove acceptable and useful to others than the immediate questioner. In such cases the reply may find a place in these columns. For convenience of reference these notes will be published in series.

A. MCGILL,
Chief Analyst.

LABORATORY
OF THE
INLAND REVENUE DEPARTMENT
OTTAWA, CANADA

BULLETIN No. 363

MALT EXTRACT FOR BAKERS' USE

OTTAWA, 9th February, 1917.

J. U. Vincent, Esq., K.C.,
Deputy Minister of Inland Revenue,

SIR,—I had the honour, in February of last year, to report to you upon a collection of so-called Malt Extracts (152 samples) since published as Bulletin No. 326.

This term was found to include many different types of food material, varying from the pharmacopoeal article, to extracts which differed little, if at all, from ordinary beer.

Since publication of the report named, many inquiries have been made regarding the Malt Extracts which are now largely employed by bakers, and which were not specially represented in my last report.

The article in question is generally understood to be a concentrated preparation of the soluble matters of barley malt, so treated as not to destroy the activity of the diastase, whose presence and amount constitutes, probably, the most valuable feature of the extract from the baker's standpoint.

The diastatic value of Malt, and Malt Extract is usually expressed in degrees Lintner; and I have used this form of stating it, as being most intelligible to ordinary readers. A malt preparation is said to have a value of 100 degrees Lintner, when one-tenth cubic centimeter of a 5 per cent solution converts enough starch to completely reduce 5cc of a standard Fehling's Solution, certain definite conditions of time and temperature being observed.

The Malt Extract of the British pharmacopoeia, as reported in Bulletin No. 326, was found to possess Lintner values somewhat above 100 degrees in the best samples, average samples giving values from 50 to 60 degrees.

Malt.—According to Ebertz and Schule (Lunge, Technical Methods, Vol. 111, 698) the diastatic power of English brewing malt is usually between 20° to 40° Lintner, while that of green malt may be as high as 100° to 125°.

Five of the samples purchased by our inspectors, are found to be, not malt extracts, as called for by their instructions, but ground malt, or malt flour. These five samples possess diastatic values ranging from 54.4 degrees Lintner to 64.5 degrees. (See samples 74813, 74814, 74815, 74818 and 75029.)

Malt Extract.

Baker (Allen's Commercial Organic Analysis, 4th Edn., Vol. 1, 145) quotes six samples of commercial extracts as giving Lintner values from 25.6 degrees, to 46.5 degrees; the mean value being 33.6 degrees.

Parry (Food and Drugs, 1911, page 166) quotes six samples of Malt Extracts, as varying from 14° Lintner to 38°; and mentions the last as being "one of the best known brands, and of the best quality." The mean value for these six samples is 26.7 degrees Lintner.

Eighteen samples herein reported vary from 12.2 degrees Lintner to 50.0 degrees, the average value being 30.0 degrees.

The content in reducing sugars, which represent complete hydrolysis of starchy matter, is also a condition of value. These substances not only give sweetness to the bread, but also assist in retaining the natural moisture of the loaf. According to *Parry* (loc. cit.) the reducing sugars, stated as maltose, in nine samples, varied from 48 per cent to 62 per cent, the average amount being 56.7 per cent.

Eighteen samples reported herein give reducing sugars (as maltose) from 60 to 75 per cent, averaging 67.9 per cent.

The ash of malt and malt extracts, represents the mineral constituents of the article; and this mineral matter possesses a value as yeast food.

There is no evidence in the accompanying analytical results, to show that additions have been made to the extracts for the purpose of increasing such yeast food. The ash normal to malt extracts, varies from about 1.4 to about 1.7 as a percentage on the extract. The ash found only exceeds these limits by being less in amount than the minimum quoted.

This is the first occasion upon which we have examined the special extract which forms the subject of this report; and I am not aware of any standards for the article having authoritative endorsement. If it should be considered desirable to fix such standards, a much fuller, and more extended investigation should be undertaken.

Meantime, I would respectfully recommend publication of this report as Bulletin No. 363.

I have the honour to be, Sir,
Your obedient servant,

A. MCGILL,
Chief Analyst.

BULLETIN No. 363—

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost.		Name and Address of Manufacturer or Furnisher as given by the Vendor.	
				Quantity.	Cents.	Manufacturer.	Furnisher.

DISTRICT OF MONTREAL—

1916.							
Aug. 29	Malt Extract.	74811	James Strachan, Ltd., 240 City Hall ave., Montreal.	3 jars.	.....	.....	Bowes Co., Ltd., Toronto.
" 29	"	74812	" " " "	3 "	.....	.....	P. Ballantine & Sons, Newark, N.J.
" 29	Ground Malt	74813	A. & L. Strachan, 167 Cadieux st., Montreal.	3 "	.....	.....	D. & J. Finlayson, Montreal.
" 29	"	74814	D. J. Finlayson & Son, 348 Victoria ave., Westmount.	3 "	.....	.....	Vendor
" 29	"	74815	" " " "	3 "	.....	.....	" .....
" 29	Malt Extract.	74816	Dent Harrison, 323 Prince Albert ave., Westmount.	3 "	.....	.....	British Malt Products Co., England
" 31	"	74817	Canada Bread Co., 609 Rivard st., Montreal.	3 "	.....	.....	American Diastalt Co., Riverside, Cincinnati.
" 31	Ground Malt.	74818	Henri Lacombe, 623 Rivard st., Montreal.	3 "	10	.....	D. J. Finlayson....

DISTRICT OF TORONTO—

July 17	Malt Extract.	75451	Milton Bread Co., 611 Gerard st., E. Toronto.	1½ lb.	20	.....	American Diastalt Co., Cincinnati.
" 17	"	75452	Malt Products of Canada, Ltd., 1 Howard Park, Toronto.	1½ "	20	.....	Vendors
" 26	"	75467	The Bowes Co., Ltd., Front st., E. Toronto.	1½ "	25	.....	Malt Diastase Co., New York.

DISTRICT OF HAMILTON—

June 26	Malt Extract.	75441	McLaughlin Sons & Co., Ltd., Owen Sound.	1½ lb.	20	.....	American Diastalt Co., Cincinnati.
" 29	"	75442	Geo. Williams, 135 Wyndote ave., Guelph.	2 "	25	.....	Malt Products Co., Hamilton.
" 29	"	75443	Imperial Biscuit Co., Wilson Co., Guelph.	1½ "	15	.....	Malt Diastase Co., New York.
July 11	"	75444	H. & C. Linkert Bros., 115 Park st., Hamilton.	1½ "	20	.....	Ballantine & Sons, Newark, N.J.

DISTRICT OF WINNIPEG—

July 14	Malt Flour.	75029	A. W. Stone & Sons, Brandon.	3 lb.	45	.....	Malt Products Co., Toronto.
" 28	Malt Extract.	75030	Canada Bread Co., Portage ave., Winnipeg.	3 bots.	Nil.	.....	American Diastalt Co., Cincinnati.
Aug. 19	"	75031	Speers Parnell Co., 666 Elgin ave., Winnipeg.	3 "	"	.....	" " .....
" 19	"	75040	Milton's Bakery, 672 Balfour lantyne ave.	3 "	"	.....	Bowes Ltd., Toronto

MALT EXTRACT.

Inspector's Report. (Is not an expression of opinion.)	Results of Analysis.							No. of Sample.	Remarks and Opinion of the Chief Analyst
	Specific gravity at 20° C.	Solids by weight.	Ash.	Reducing Sugars as Dextrose.	Reducing Sugars as Maltose.	Diastatic Value. Lintner's.	Ash as p.c. on Solids.		

D. J. KEARNEY, INSPECTOR.

Liquid	1.356	72.60	0.80	38.40	60.00	50.0	1.10	74811	
"	1.372	75.00	1.34	40.83	63.80	37.2	1.79	74812	
Powder				12.50	18.75	60.6		74813	Is ground malt.
"			2.16	11.76	17.64	64.5	2.16	74814	"
"			2.16	16.66	25.0	60.2	2.16	74815	"
Liquid	1.301	77.40	1.80	40.17	62.70	37.0	2.33	74816	
"	1.309	74.80	0.86	45.16	70.59	35.9	1.15	74817	
Powder			1.80	14.28	21.42	64.3	1.80	74818	Is ground malt.

H. J. DAGER, INSPECTOR.

.....	1.371	74.60	1.00	45.16	70.59	27.3	1.34	75451	
.....	1.391	76.50	1.20	42.64	66.20	31.0	1.55	75452	
.....	1.381	77.64	1.34	42.64	66.60	22.0	1.73	75467	

H. J. DAGER, ACTING INSPECTOR.

.....	1.388	77.06	1.40	45.16	70.59	27.3	1.82	75441	
.....	1.381	78.40	1.64	38.40	60.00	12.2	2.09	75442	
.....	1.384	78.08	1.42	48.00	75.00	35.3	1.82	75443	
.....	1.377	75.00	1.00	40.83	63.80	37.2	1.83	75444	

J. B. COSGROVE, INSPECTOR.

Dry Extract			1.40	28.57	42.81	51.4	1.40	75029	Is ground malt.
.....	1.369	74.60	1.62	48.00	75.00	30.5	2.17	75030	
.....	1.373	74.84	1.60	48.00	75.00	30.5	2.14	75031	
.....	1.372	72.80	1.60	42.64	66.60	31.6	2.19	75040	

BULLETIN No. 363—

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost.		Name and Address of Manufacturer or Furnisher as given by the Vendor.	
				Quantity.	Cents.	Manufacturer.	Furnisher.

DISTRICT OF VANCOUVER—

1916.							
July	5	Malt Extract.	55662	Shelley Bros. Bakery, cor 10th ave. & Ash st., Vancouver.	1 lb.	Nil.	American Diamalt Co., Cincinnati.
"	5	"	55664	Hampton Bros., 1695 7th ave., Vancouver.	1 "	"	"
"	6	"	55665	Ramsay & Pinchin Co., 60 Lansdowne st., Vancouver.	1 "	"	"
"	7	"	55666	Stevenson Bros., cor. Willow st. & 17th ave., Vancouver.	1 "	15	"

MALT EXTRACT.

Inspector's Report. (Is not an expression of opinion.)	Results of Analysis.							N ^o . of Sample.	Remarks and Opinion of the Chief Analyst.
	Specific gravity at 20° C.	Solids by weight.	Ash.	Reducing Sugars as Dextrose.	Reducing Sugars as Maltose.	Diastatic Value. Lintner's.	Ash as p. c. on Solids.		

C. S. EMES, INSPECTOR.

.....	1.392	77.48	1.20	40.83	63.80	32.4	1.55	55662
.....	1.381	75.00	1.08	48.00	75.00	19.3	1.44	55664
.....	1.349	72.60	1.00	42.64	66.60	23.4	1.38	55665
.....	1.362	72.86	1.00	45.15	70.59	20.0	1.37	55666

