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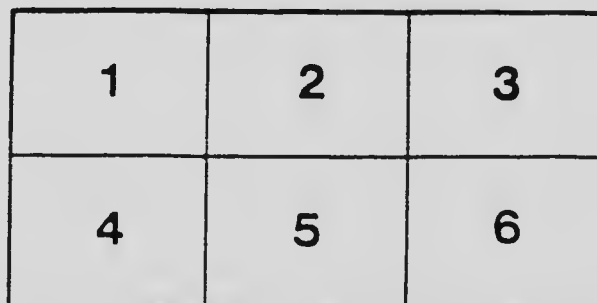
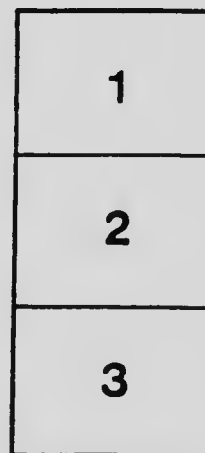
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LABORATORY  
OF THE  
INLAND REVENUE DEPARTMENT

OTTAWA, CANADA

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BULLETIN No. 339

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SWEET SPIRIT OF NITRE

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### 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 numbered in series.

A. MCGILL,  
*Chief Analyst.*

**LABORATORY**  
**OF THE**  
**INLAND REVENUE DEPARTMENT**  
**OTTAWA, CANADA**

**BULLETIN No. 339.**

**SWEET SPIRIT OF NITRE**

OTTAWA, May 3, 1916.

J. P. VINCENT, Esq.,  
 Deputy Minister of Inland Revenue.

Sir,—I beg to hand you a report upon eighty-five (85) samples of Sweet Spirit of Nitre (*Spiritus Aetheris Nitrosi*) procured by our inspectors during November and December of last year, in the districts of Manitoba and Saskatchewan.

This article has been made the subject of inspection under the Adulteration Act, on four different occasions, namely in 1891 (Bulletin 23), in 1908 (Bulletin 167), in 1911 (Bulletin 234), and in 1913 (Bulletin 255).

I may quote, in this connection, as follows from my introductory letter to the last named Bulletin.

"This important drug has on two former occasions been the subject of inspection, and has always been found to show a high percentage of adulteration; consisting not in the addition of foreign matters, but in containing less of the active principle (Ethyl Nitrite) than the standard set by the pharmacopœia requires.

"As has been pointed out in former bulletins, and emphasized by the pharmacopœias, the article is prone to decomposition and, unless kept with special care, will always deteriorate in the hands of the dealer. This fact is so well known to the drug trade that physicians have a right to expect special care on the part of the druggist, who is properly held responsible for the quality of the drugs he dispenses. The following table presents the results of three inspections of Sweet Spirit of Nitre:—

Bulletin.	Year.	Total samples.	Genuine.		Adulterated.	
			p. c.	p. c.	p. c.	p. c.
167	1908	77	37		63	
234	1911	74	57		43	
255	1913	73	56		44	

The minimum amount of Ethyl Nitrite required by the British Pharmacopœia is one and three-quarters per cent (1.75) by weight. Of the collection now reported, 14 per cent of the samples contain less than this amount; 30 per cent contain less than 1 per cent of Ethyl Nitrite; 14 per cent contain less than one-half of 1 per cent; while nearly 9 per cent of the samples contain none at all.

"Although the names of the manufacturers, or furnishers as supplied by the vendor, are given in their proper places in the appended table, it is but right to insist that responsibility for the quality of Sweet Spirit of Nitre should rest upon the immediate dealer, or vendor of the article. There is no reason to believe that any manufacturer of repute furnishes this drug otherwise than up to standard strength. The name of the manufacturer or furnisher is given in accordance with section 19 of the Act, and not because of any proved negligence on his part.

"It is abundantly evident, in view of the continued sale of this drug in a condition in which it seriously handicaps the physician, and imperils the well-being of the patient, that druggists must be made to realize their responsibility in dispensing drugs which fail to meet the standard set by the pharmacopœia.

"Experiments made by the late Franklin T. Harrison, Public Analyst, proved that Sweet Spirit of Nitre made according to British Pharmacopœal directions can be kept, without change, for a year, under proper precautions. (See Bulletin No. 23, p. 7.)

"If this important drug cannot be procured by physicians in such condition as the pharmacopœia requires, it should either be removed from the pharmacopœia altogether, or physicians must learn to employ it in full knowledge of its doubtful character and be prepared for most erratic and uncertain results.

"The fact is that it can be prepared and kept by careful and intelligent druggists, and that this is not done must be regarded as a disgrace to the drug trade, and a very serious menace to the public."

The results of the present inspection may be summarized thus:—

	Samples.
Found to meet B.P. requirements. . . . .	4
" correct as to content of Ethyl Nitrite. . . . .	31
" approximately correct as to Ethyl Nitrite content . . . . .	12
" to contain decided excess of Ethyl Nitrite. . . . .	19
" to contain marked deficiency of Ethyl Nitrite. . . . .	19
Total. . . . .	85

It is to be noted that the revised pharmacopœia of 1914 makes some slight change in the standard for this drug as below:—

	1898.	1914.
Method of preparation. . . . .		Unchanged.
Ethyl Nitrite in freshly prepared spirit. . . . .	2.5%	2.66%
Specific gravity. . . . .	0.838 to	0.842
Ethyl Nitrite as dispensed: minimum. . . . .	1.75%	1.52%
" " maximum. . . . .	2.50%	2.66%

Since the revised pharmacopœia of 1914 has but recently come into recognition in Canada, it is fair to interpret the results of analysis in such a way as to conform to either the edition of 1898 or that of 1914. As a matter of fact the differences as far as this drug is concerned are negligible.

It will be noted that, in the matter of specific gravity only five (5) samples fall within the limits fixed by the pharmacopœia. Fifty-four (54) samples have a specific gravity below 0.838 and twenty-six (26) samples have specific gravity above 0.842.

The latter are doubtless prepared with weaker alcohol than 90 per cent.

Samples (12 in number) which do not deviate more than 0.5 per cent from the minimum percentage of Ethyl Nitrite fixed by the pharmacopœia, I have felt justified in describing as approximately correct, in their Ethyl Nitrite content.

Nineteen (19) samples, containing less than this must be described as adulterated under the Act. The percentage of adulteration is 22, and indicates a very considerable improvement when compared with the results of former inspections.

I beg to recommend publication of this report as Bulletin No. 339.

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

A. MCGILL,  
*Chief Analyst.*



BULLETIN No. 339—SWEET SPIRIT OF NITRE.

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.	Inspector's Report. (Is not an expression of opinion.)	Results of Analysis.			Remarks and Opinion of the Chief Analyst.	
				Quantity.	Cent.			Sp. gr. at 15° C.	Latent vol. gas to vol. of liquid.	Ethyl Nitrite per cent. by weight.		No. of Sample.
1915.	Nov. 29 Spirit of Nitrous Ether.	71901	W. F. Woodhall, Hartney.	6 oz.	75	Martin Bole & Wynne, Winnipeg.	.....	0.9285	None.	None.	71901	Adulterated
"	" 30	71903	H. L. Gamble, Boisvain.	6 "	75	.....	.....	0.8775	10.80	4.01	71903	Excess Ethyl Nitrite.
"	" 30	71904	C. F. Hasselfield, Delo-raine.	6 "	75	.....	.....	0.8511	5.00	1.80	71904	Correct Ethyl Nitrite.
"	" 30	71905	E. J. Hays, Deloraine.	6 "	75	.....	.....	0.8298	5.50	2.08	71905	" "
Dec.	" 1	71906	W. P. Duncalfe, Cart-right.	6 "	60	.....	.....	0.8984	5.25	1.95	71906	" "
"	" 1	71907	P. D. Evans, Killarney.	6 "	75	.....	.....	0.8292	2.15	0.80	71907	Adulterated.
"	" 1	71908	W. J. Carson, Killarney.	6 "	75	.....	.....	0.9319	1.25	0.41	71908	" "
"	" 2	71909	Pilot Mound Pharmacy, Pilot Mound.	6 "	75	Nat. Drug Co., Winnipeg.	.....	0.8231	7.05	2.63	71909	Correct Ethyl Nitrite.
"	" 3	71910	The Pharmacy, Crystal City.	6 "	60	.....	.....	0.8275	6.80	2.32	71910	" "
"	" 8	71911	Bartlett Drug Store, Selkirk Ave., Winnipeg.	410 6 "	75	Martin Bole & Wynne, Winnipeg.	.....	0.8515	9.35	3.37	71911	Excess Ethyl Nitrite.
"	" 8	71912	International Drug Co., 503 Selkirk Ave., Winni-pig.	6 "	60	.....	.....	0.8782	2.50	0.87	71912	Adulterated.
"	" 8	71913	McLalland Drug Co., Selkirk Ave., Winni-pig.	609 6 "	60	Martin Bole & Wynne, Winnipeg.	.....	0.8273	4.20	1.56	71913	Correct Ethyl Nitrite.

DISTRICT OF MANITOBA—J. B. COSGROVE, TEMPORARY INSPECTOR.

Account No.	Description	Quantity	Unit Price	Total	Balance	Remarks
71914	McCullough's Drug Store, Broadway and Sherbrooke, Winnipeg	6	1.25	7.50	0.8248	71914
71915	Kirkwood's Drug Store, 581 Portage Ave., Winnipeg.	6	0.95	5.70	0.8279	71915
71916	R. C. Jamieson, 539 Ellice Ave., Winnipeg.	6	0.06	0.36	0.9060	71916 Adulterated.
71917	J. R. Robinson, 587 Ellice Ave., Winnipeg.	6	0.63	3.78	0.8308	71917
71918	McCullough Drug Co., Ellice and Beverly, Winnipeg.	6	2.63	15.78	0.8257	71918 Correct Ethyl Nitrite.
71919	G. A. Hunter, Norwood, Winnipeg.	6	0.49	2.94	0.9240	71919 Adulterated.
71920	D. J. Monev, St. Vital, Winnipeg.	6	0.48	2.88	0.9264	71920
71921	Hudson's Bay Co., 119 Main St., Winnipeg.	6	0.16	0.96	0.9265	71921
71922	W. F. G. Brathwaite, 288 Poyntz Co., 871 Westminister Ave., Winnipeg.	6	1.85	11.10	0.8357	71922 Meets legal requirements.
71923	Arkell's Drug Store, 855 Sargent Ave., Winnipeg.	6	2.08	12.48	0.8401	71923 Correct Ethyl Nitrite.
71924	F. Whaley, 864 Sargent Ave., Winnipeg.	6	3.79	22.74	0.8281	71924 Excess Ethyl Nitrite.
71925	E. Nesbit, 587 Sargent Ave., Winnipeg.	6	1.25	7.50	0.8227	71925 Approximate Ethyl Nitrite.
71926	Colclough Co., 652 Notre Dame Ave., Winnipeg.	6	3.25	19.50	0.8307	71926 Excess Ethyl Nitrite.
71927	Wellington Pharmacy, Wellington St., Winnipeg.	6	0.39	2.34	0.8365	71927 Adulterated.
71928	W. F. Lyons, Elgin and Sherbrooke Sta., Winnipeg.	6	1.51	9.06	0.8317	71928 Correct Ethyl Nitrite.
71929	Roberts Drug Store, Logan and Sherbrooke Sta., Winnipeg.	6	1.83	10.98	0.8488	71929
71930	J. N. Somerville, William and Isabel Sts., Winnipeg.	6	3.82	22.92	0.8423	71930 Excess Ethyl Nitrite.
71931	T. Eaton Co., Winnipeg.	6	3.97	23.82	0.8475	71931
71932		6	1.82	10.92	0.8475	71932 Meets legal requirements.

In stock when store was purchased.

In stock when purchased lately.

BULLETIN No. 339—SWEET SPIRIT OF NITRE.

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.		Inspector's Report. (Is not an expression of opinion.)	Sp. gr. at 15°C.	Ratio of vol. gas to vol. of liquid.	Ethyl Nitrite p.c. by weight.	No. of Sample.	Remarks and opinion of the Chief Analyst.
				Quantity.	Cents.	Manufacturers.	Furnisher.						
1915.													
Dec. 10	Spirit of Nitrous Ether.	71933	Andrews Arcade Drug Store, 229 Portage Ave., Winnipeg.	6 oz.	90	Andrews & Co., Winnipeg.			0.8271	11.40	4.23	71933	Excess Ethyl Nitrite.
" 11	"	71934	B. H. Bartlett, 161 Lilac St., Winnipeg.	"	50	"			0.8346	11.00	4.26	71934	" " "
" 11	"	71935	A. J. Brooking, Corydon and Lilac Sts., Winnipeg.	6 "	75	Mallinckrodt, St. Louis, U.S.A.			0.8294	6.80	2.53	71935	Correct Ethyl Nitrite.
" 11	"	71936	W. B. Davis, 217 Nassau St., Winnipeg.	"	60	Nat. Drug Co., Winnipeg.			0.8211	7.90	2.96	71936	Approximate Ethyl Nitrite.
" 11	"	71937	Dunlop Drug Store, Main St., Winnipeg.	448 6 "	75	"			0.8518	7.00	2.52	71937	Correct Ethyl Nitrite.
" 11	"	71938	A. J. Brown & Co., Market St., Winnipeg.	291 6 "	75	Nat. Drug Co., Winnipeg.			0.8237	7.20	2.72	71938	Approximate Ethyl Nitrite.
" 13	"	71939	Muir's Pharmacy, Main St., Winnipeg.	1424 6 "	50	Martin Bole and Wynne Co., Winnipeg.			0.8286	8.60	3.18	71939	Excess Ethyl Nitrite.
" 13	"	71940	Kildonan Pharmacy, Hepler St., Winnipeg.	206 6 "	60	"			0.8190	6.10	2.20	71940	Correct Ethyl Nitrite.
" 13	"	71941	J. K. Brown Drug Store, Main St., Winnipeg.	308 6 "	60	Unknown.			0.8267	6.20	2.30	71941	" " "
" 13	"	71942	Redwood Pharmacy, Redwood Ave., Winnipeg.	410 6 "	60	Nat. Drug Co., Winnipeg.			0.8242	9.90	3.68	71942	Excess Ethyl Nitrite.
" 13	"	71943	North Main Pharmacy, Main St., Winnipeg.	833 6 "	75	"			0.8286	6.00	2.23	71943	Correct Ethyl Nitrite.
" 13	"	71944	Limo Drug Co., St., Winnipeg.	806 Main 6 "	75	Frasier Thornton Co., Ltd., Quebec.			0.9668	0.12	0.04	71944	Adulterated.

DISTRICT OF MANITOBA—Continued.

19 " " 71944 Lamo Drug Co., 805 Main St., Winnipeg. 75 Frasier, Thornton Co., Ltd., Quebec. 0-9668 0 12 0 04 71944 Adulterated.

13	"	71945	C. Ira Drug Store, Main St., Winnipeg.	75 Nat. Drug Co., Winnipeg.	"	8-550	2-80	71945	Approximate Ethyl Nitrite
14	"	71946	Hogens Sps., Winnipeg.	50 " " "	"	0-9784	0-15	71946	Adulterated.
Nov. 19	"	61476	Portage Ave., Winnipeg.	75 " " "	"	0-8314	6-24	61476	Correct Ethyl Nitrite.
"	"	61477	H. D. Campbell, 988 Main St., Winnipeg.	75 Nat. Drug Co., Winnipeg.	"	0-8300	2-57	61477	Meets legal requirements.
"	"	61479	R. D. Bruce, 1290 Main St., Winnipeg.	75 Martin Bole & Wynne Co., Winnipeg.	"	0-8375	4-45	61479	"
"	"	61480	D. W. Bradshaw, 888 Portage Ave., Winnipeg.	75 Unknown.	"	0-8332	3-30	61480	Approximate Ethyl Nitrite
"	"	61481	W. W. Storr, 807 Portage Ave., Winnipeg.	90 Nat. Drug Co., Winnipeg.	"	0-8210	4-48	61481	Excess Ethyl Nitrite.

DISTRICT OF SASKATCHEWAN—L. H. HAMIL, TEMPORARY INSPECTOR.

Nov. 17	Sweet Spirit of Nitre.	66456	C. H. Stewart, Nutana.	75 Vendor.	"	0-8283	9-40	3-49	66456	Excess Ethyl Nitrite.
"	"	66457	Argue, Ltd., Nutana.	75 " "	"	0-8269	10-45	3-88	66457	"
"	"	66460	P. H. Coad, Saskatoon.	75 " "	"	0-8576	3-25	1-16	66460	Adulterated.
"	"	66461	The Bean & Marshall, Saskatoon.	50 " "	"	0-8346	9-90	3-64	66461	Excess Ethyl Nitrite.
"	"	66462	Saskatoon Drug and Stationery Co., Saskatoon.	50 " "	"	0-8247	11-00	4-10	66462	"
"	"	66463	A. Dulmage, Saskatoon.	75 " "	"	0-8247	7-90	2-94	66463	Approximate Ethyl Nitrite.
"	"	66464	S. T. Atkinson, Saskatoon.	75 " "	"	0-9033	5-40	1-83	66464	Correct Ethyl Nitrite.
"	"	66465	R. S. Fleury, Rosthern.	50 Martin Bole & Wynne Co., Winnipeg.	"	0-9173	2-30	0-84	66465	Adulterated.
"	"	66471	W. H. Rowe, Prince Albert.	75 " "	"	0-9439	None.	None.	66471	"
"	"	66472	W. D. Mitchell, Prince Albert.	75 Vendor.	"	0-8241	10-30	3-84	66472	Excess Ethyl Nitrite.

BULLETIN No. 339—SWEET SPIRIT OF NITRE

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.		Inspector's Report. (Is not an expression of opinion.)	Results of Analysis.			No. of Sample.	Remarks and Opinion of the Chief Analyst.
			Name and Address of Vendor.	Prince Rupert, Alberta.	Quantity.	Per cent.	Manufacturer.	Furnisher.		Sp. gr. at 15° C.	Ratio of solids to Ethyl Nitrite by weight.	Ethyl Nitrite per cent.		
1915.														
Nov. 19	Sweet Spirit of Nitre.	661-3	J. A. Stewart, Albert.	Prince Rupert, Alberta.	1.00					0.9219	0.25	0.08	661-3	Adulterated.
"	"	664-7	Charles MacDonald, Albert.	Prince Rupert, Alberta.	75		Layman's, Ltd., Montreal.			0.8461	5.36	1.92	664-7	Correct Ethyl Nitrite.
"	"	664-8	C. H. Wilson, atoom.	Saskatoon, atoom.	75		Vendor.			0.8247	7.66	2.83	664-8	Approximate Ethyl Nitrite.
"	"	664-81	John A. MacDonald, atoom.	Saskatoon, atoom.	75		"			0.8286	7.10	2.65	664-81	Correct Ethyl Nitrite.
"	"	664-82	E. B. Carruthers, jaw.	Moosejaw, jaw.	75		"			0.8317	3.70	1.33	664-82	Approximate Ethyl Nitrite.
"	"	664-83	H. A. Davidson, jaw.	Moosejaw, jaw.	75		"			0.8394	6.20	2.19	664-83	Correct Ethyl Nitrite.
"	"	664-84	Moosejaw Drug and Stationery Co., jaw.	Moosejaw, jaw.	75		E. B. Shuttleworth, Toronto.			0.8301	5.46	2.00	664-84	"
"	"	664-9	J. H. Thomson, jaw.	Moosejaw, jaw.	50		"			0.8301	3.20	1.16	664-9	Adulterated.
"	"	664-90	R. N. Kelly, Regina.	Regina.	60		Vendor.			0.8266	7.85	2.92	664-90	Approximate Ethyl Nitrite.
"	"	664-91	A. Duncan, Regina.	Regina.	75		"			0.8258	6.25	2.32	664-91	Correct Ethyl Nitrite.
"	"	664-92	R. P. Teasdale, Regina.	Regina.	75		"			0.8273	8.20	3.01	664-92	Approximate Ethyl Nitrite.
"	"	664-93	Canada Drug & Black Co., Regina.	Regina.	1.00		Nat. Drug & Chem. Co., Regina.			0.8250	7.60	2.83	664-93	"

DISTRICT OF SASKATCHEWAN—Continued.



