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Schedule for

Density-composition tables for aqueous solutions of nitric acid

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Committees responsible for this British Standard

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British Laboratory Ware Association

Department of Trade and Industry (Laboratory of the Government Chemist)

Department of Trade and Industry (National Weights and Measures Laboratory)

Institute of Brewing

Institute of Petroleum

National Sulphuric Acid Association

Royal Society of Chemistry

Scientific Glassware Association

Scotch Whisky Association

Society of Glass Technology

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Contents

Foreword

This British Standard has been prepared under the direction of the Laboratory Apparatus Standards Committee.

This British Standard was first published in 1941 and was revised in 1957. This revision supersedes the 1957 edition which is withdrawn.

This British Standard is related to ISO 2990:1974 "*Nitric acid for industrial use — Evaluation of the nitric acid concentration by measurement of density*", prepared by Technical Committee TC 47, Chemistry, of the International Organization for Standardization (ISO), with the active participation and approval of the United Kingdom. However, ISO 2990:1974 has not been implemented as a dual numbered standard because the table is restricted to a single temperature (20 °C) and densities over a range of temperatures are required in the United Kingdom.

Together with hydrometers the tables provide a simple means of determining the strength of any given aqueous solution of nitric acid, or making up solutions of known strength. The tables may, or course, be used with other methods of determining density (for example, see BS 733).

The previous edition of this British Standard made reference to density and specific gravity hydrometers complying with BS 718:1953. When BS 718 was revised in 1979 it was aligned as far as possible with the intentions of Technical Committee 48, Laboratory glassware and related apparatus, of the International Organization for Standardization (ISO). The term "specific gravity" was replaced by "relative density", scales of relative density were excluded, and scales marked in kilograms per cubic metre were introduced as an alternative to grams per millilitre. Users who had a continuing need for relative density hydrometers (d 60/60 °F) were referred to ISO 650.

The readings of a 60/60 °F relative density hydrometer can readily be corrected (see Appendix A) to yield density (in kg/m^3) of the liquid at the temperature at which the hydrometer is used.

Within 1 to 2 parts in 1 000 readings at a temperature t (in °C) of a 60/60 °F relative density hydrometer can be taken as the density (in kg/m^3) at t. To an accuracy which is very frequently adequate (within 1 part in 1 000) the reading at a temperature t between 10 °C and 40 °C on a 20 °C or 15 °C density hydrometer complying with BS 718 may be accepted as the density (in kg/m^3) of the liquid at t. Density and relative density hydrometers therefore may often be used without correction. Appendix A gives information on how the highest accuracy can be obtained. Recommendations as to the choice of suitable hydrometers for use in conjunction with these tables are given in Appendix B. Appendix C gives examples of the use of density-composition tables in conjunction with these hydrometers.

The principal differences between BS 975:1957 and this edition are:

a) density, in Table 1, is given in kilograms per cubic metre instead of grams per millilitre;

b) SI units have been used throughout and, where applicable, the tables have been recomputed;

c) recommendations as to the choice of suitable hydrometers for use in conjunction with Table 1 have been revised to accord with BS 718;

d) the temperature calculations given in Table 3 have been computed using the value of the thermal cubical expansion coefficient quoted in ISO 1768 for use in the preparation of measurement tables for liquids.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 36, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

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1 Scope

This British Standard gives tables that enable the composition of an aqueous solution of nitric acid to be determined from its density at temperatures between 10 °C and 40 °C.

Appendix A gives information on the corrections that are necessary when density is determined by a hydrometer complying with BS 718[1)].

Appendix B gives information on the choice of BS hydrometers that are suitable for the determination of density of nitric acid solutions.

Appendix C gives examples of the use of a BS hydrometer in conjunction with Table 1.

NOTE The titles of the publications referred to in this standard are listed on the inside back cover.

2 Basis of Table 1

Table 1 is based on data obtained from the International Critical Tables (1928) Vol. III, page 58, which are still accepted as authoritative.

It should be observed that the table relates to mass, not to apparent mass in air.

3 Application of Table 1

Table 1 is arranged primarily for ease in determining the strength of an aqueous solution of nitric acid of known density. The density of a solution of known strength can, however, be obtained quite readily from the table. Moreover, by the application of small allowances (see Appendix A) Table 1 can be used to find the strength of solutions of known relative density or the relative density of solutions of known strength.

Consider, for example, a solution containing 10 g of HNO_3 in 100 g of solution, i.e. one for which $g = 10$. By looking up the value of D_t corresponding to the value $g = 10$ under any particular temperature in Table 1, the density of the solution at that temperature can be obtained. Thus, for example, the density of the solution is 1 058 kg/m^3 at 10 °C, 1 054 kg/m^3 at 20 °C, etc. Due allowance, based on the density of water at the various temperatures concerned, can then be made to find the corresponding relative densities at the same temperature as the acid.

It should be observed that the percentage composition g of a solution is independent of its temperature, but G, the number of grams of nitric acid in 1 L of solution, varies with the temperature of the solution owing to the change in volume of the solution with change in temperature. Hence, the concentration G should always be associated with a particular temperature. For a given value of G applicable at a particular temperature, Table 1 can be used to obtain the density of the solution at the specified temperature or at any other temperature within the range of the table. The value of G for the solution at temperatures other than the specified one can also be obtained. For example, consider a solution 1 L of which, at 20 °C, contains 201 g of HNO_3. Under 20 °C in Table 1 the value of D_t corresponding to $G = 201$ is 1 104 kg/m^3 and the corresponding value of g is 18.2 g. By tracing the value $g = 18.2$ g through the table, and interpolating where necessary, the density D_t at various temperatures of the solution containing 201 g of HNO_3 in 1 L of solution at 20 °C can be obtained and also the number of grams of HNO_3 in 1 L of the solution at various temperatures.

The following are examples of values which may thus be obtained.

t	**HNO_3 in 100 g of solution**	**Density of solution at t**	**HNO_3 in 1 L of solution at t**
°C	g	kg/m^3	g
10	18.2	1 109	202
20	18.2	1 104	201
30	18.2	1 098	200
40	18.2	1 092	199

[1)] From hereon referred to as a BS hydrometer.

Table 1 — Density-composition table for aqueous solutions of nitric acid

D_t is the density (mass per unit volume) of solution (in kg/m³) at a temperature t (in °C) [for many purposes it can be assumed that irrespective of the value of t the reading of a BS density hydrometer at t gives the density D_t, and that the reading of a 60/60 °F relative density hydrometer at t is numerically 0.001 greater than $D_{t/1\,000}$ (see Appendix A)].

g is the mass (in g) of HNO_3 in 100 g mass of solution.

G is the mass (in g) of HNO_3 in a quantity of solution occupying 1 L at the temperature stated at the head of the column.

t	10 °C		12 °C		14 °C		16 °C		18 °C		20 °C		22 °C		24 °C	
D_t	g	G	g	G	g	G	g	G	g	G	g	G	g	G	g	G
1 000	—	—	0.1	1	0.1	1	0.2	2	0.2	2	0.3	3	0.4	4	0.5	5
1 001	0.2	2	0.3	3	0.3	3	0.4	4	0.4	4	0.5	5	0.6	6	0.7	7
1 002	0.4	4	0.4	4	0.5	5	0.5	5	0.6	6	0.7	7	0.8	8	0.9	9
1 003	0.6	6	0.6	6	0.7	7	0.7	7	0.8	8	0.9	9	1.0	10	1.1	11
1 004	0.8	8	0.8	8	0.9	9	0.9	9	1.0	10	1.1	11	1.2	12	1.3	13
1 005	0.9	9	1.0	10	1.0	10	1.1	11	1.2	12	1.3	13	1.3	13	1.4	14
1 006	1.1	11	1.2	12	1.2	12	1.3	13	1.4	14	1.4	14	1.5	15	1.6	16
1 007	1.3	13	1.3	14	1.4	14	1.5	15	1.5	15	1.6	16	1.7	17	1.8	18
1 008	1.5	15	1.5	15	1.6	16	1.6	17	1.7	17	1.8	18	1.9	19	2.0	20
1 009	1.7	17	1.7	17	1.8	18	1.8	18	1.9	19	2.0	20	2.1	21	2.2	22
1 010	1.8	18	1.9	19	2.0	20	2.0	20	2.1	21	2.2	22	2.5	23	2.4	24
1 011	2.0	20	2.1	21	2.1	22	2.2	22	2.3	23	2.4	24	2.5	25	2.6	26
1 012	2.2	22	2.2	23	2.3	23	2.4	24	2.5	25	2.5	26	2.6	27	2.7	28
1 013	2.4	24	2.4	25	2.5	25	2.6	26	2.6	27	2.7	28	2.8	28	2.9	30
1 014	2.5	26	2.6	26	2.7	27	2.7	28	2.8	28	2.9	29	3.0	30	3.1	31
1 015	2.7	28	2.8	28	2.8	29	2.9	30	3.0	30	3.1	31	3.2	32	3.3	33
1 016	2.9	29	2.9	30	3.0	31	3.1	31	3.2	32	3.3	33	3.4	34	3.5	35
1 017	3.1	31	3.1	32	3.2	32	3.3	33	3.4	34	3.4	35	3.6	36	3.7	37
1 018	3.2	33	3.3	34	3.4	34	3.4	35	3.5	36	3.6	37	3.7	38	3.8	39
1 019	3.4	35	3.5	35	3.6	36	3.6	37	3.7	38	3.8	39	3.9	40	4.0	41
1 020	3.6	37	3.7	37	3.7	38	3.8	39	3.9	40	4.0	41	4.1	42	4.2	43
1 021	3.8	38	3.8	39	3.9	40	4.0	41	4.1	42	4.2	42	4.3	44	4.4	45
1 022	3.9	40	4.0	41	4.1	42	4.2	43	4.3	43	4.3	44	4.5	45	4.5	47
1 023	4.1	42	4.2	43	4.3	43	4.3	44	4.4	45	4.5	46	4.6	47	4.7	48
1 024	4.3	44	4.4	45	4.4	45	4.5	46	4.6	47	4.7	48	4.8	49	4.9	50
1 025	4.5	46	4.5	46	4.6	47	4.7	48	4.8	49	4.9	50	5.0	51	5.1	52
1 026	4.6	48	4.7	48	4.8	49	4.9	50	5.0	51	5.1	52	5.2	53	5.3	54
1 027	4.8	49	4.9	50	5.0	51	5.0	52	5.1	53	5.2	54	5.4	55	5.5	56
1 028	5.0	51	5.0	52	5.1	53	5.2	54	5.3	55	5.4	56	5.5	57	5.7	58
1 029	5.1	53	5.2	54	5.3	55	5.4	55	5.5	56	5.6	58	5.7	59	5.8	60
1 030	5.3	55	5.4	56	5.5	56	5.6	57	5.7	58	5.8	60	5.9	61	6.0	62
1 031	5.5	57	5.6	57	5.7	58	5.7	59	5.8	60	6.0	61	6.1	63	6.2	64
1 032	5.7	59	5.7	59	5.8	60	5.9	61	6.0	62	6.1	63	6.3	65	6.4	66
1 033	5.8	60	5.9	61	6.0	62	6.1	63	6.2	64	6.3	65	6.4	66	6.6	68
1 034	6.0	62	6.1	63	6.2	64	6.3	65	6.4	66	6.5	67	6.6	68	6.7	69
1 035	6.2	64	6.3	65	6.3	66	6.4	67	6.6	68	6.7	69	6.8	70	6.9	71
1 036	6.4	66	6.4	67	6.5	67	6.6	68	6.7	70	6.8	71	7.0	72	7.1	73
1 037	6.5	68	6.6	68	6.7	69	6.8	70	6.9	72	7.0	73	7.1	74	7.3	75
1 038	6.7	69	6.8	70	6.9	71	7.0	72	7.1	74	7.2	75	7.3	76	7.4	77
1 039	6.9	71	6.9	72	7.0	73	7.1	74	7.3	75	7.4	76	7.5	78	7.6	79
1 040	7.0	73	7.1	74	7.2	75	7.3	76	7.4	77	7.5	78	7.7	80	7.8	81
1 041	7.2	75	7.3	76	7.4	77	7.5	78	7.6	79	7.7	80	7.8	81	8.0	83

Table 1 — Density-composition table for aqueous solutions of nitric acid

D_t is the density (mass per unit volume) of solution (in kg/m³) at a temperature t (in °C) [for many purposes it can be assumed that irrespective of the value of t the reading of a BS density hydrometer at t gives the density D_t, and that the reading of a 60/60 °F relative density hydrometer at t is numerically 0.001 greater than $D_{t/1\,000}$ (see Appendix A)].
g is the mass (in g) of HNO_3 in 100 g mass of solution.
G is the mass (in g) of HNO_3 in a quantity of solution occupying 1 L at the temperature stated at the head of the column.

26 °C		28 °C		30 °C		32 °C		34 °C		36 °C		38 °C		40 °C		t
g	G	g	G	g	G	g	G	g	G	g	G	g	G	g	G	D_t
0.6	6	0.7	7	0.8	8	1.0	10	1.1	11	1.2	12	1.4	14	1.5	15	**1 000**
0.8	8	0.9	9	1.0	10	1.2	12	1.3	13	1.4	14	1.6	16	1.7	17	**1 001**
1.0	10	1.1	11	1.2	12	1.4	14	1.5	15	1.6	16	1.8	18	1.9	19	**1 002**
1.2	12	1.3	13	1.4	14	1.5	15	1.7	17	1.8	18	2.0	20	2.1	21	**1 003**
1.4	14	1.5	15	1.6	16	1.7	17	1.9	19	2.0	20	2.2	22	2.3	23	**1 004**
1.5	15	1.7	17	1.8	18	1.9	19	2.1	21	2.2	22	2.3	24	2.5	25	**1 005**
1.7	17	1.9	19	2.0	20	2.1	21	2.3	23	2.4	24	2.5	26	2.7	27	**1 006**
1.9	19	2.0	21	2.2	22	2.3	23	2.4	25	2.6	26	2.7	27	2.9	29	**1 007**
2.1	21	2.2	22	2.4	24	2.5	25	2.6	27	2.8	28	2.9	29	3.1	31	**1 008**
2.3	23	2.4	24	2.6	26	2.7	27	2.8	28	3.0	30	3.1	31	3.3	33	**1 009**
2.5	25	2.6	26	2.7	28	2.9	29	3.0	30	3.2	32	3.3	33	3.4	35	**1 010**
2.7	27	2.8	28	2.9	30	3.1	31	3.2	32	3.4	34	3.5	35	3.6	37	**1 011**
2.8	29	3.0	30	3.1	31	3.3	33	3.4	34	3.5	36	3.7	37	3.8	39	**1 012**
3.0	31	3.2	32	3.3	33	3.4	35	3.6	36	3.7	38	3.9	39	4.0	41	**1 013**
3.2	33	3.3	34	3.5	35	3.6	37	3.8	38	3.9	40	4.1	41	4.2	43	**1 014**
3.4	34	3.5	36	3.7	37	3.8	39	4.0	40	4.1	42	4.3	43	4.4	45	**1 015**
3.6	36	3.7	38	3.9	39	4.0	41	4.1	42	4.3	44	4.4	45	4.6	47	**1 016**
3.8	38	3.9	40	4.0	41	4.2	43	4.3	44	4.5	45	4.6	47	4.8	49	**1 017**
4.0	40	4.1	41	4.2	43	4.4	44	4.5	46	4.7	47	4.8	49	5.0	51	**1 018**
4.1	42	4.3	43	4.4	45	4.6	46	4.7	48	4.8	49	5.0	51	5.2	53	**1 019**
4.3	44	4.4	45	4.6	47	4.7	48	4.9	50	5.0	51	5.2	53	5.3	54	**1 020**
4.5	46	4.6	47	4.8	49	4.9	50	5.1	52	5.2	53	5.4	55	5.5	56	**1 021**
4.7	48	4.8	49	5.0	51	5.1	52	5.3	54	5.4	55	5.6	57	5.7	58	**1 022**
4.9	50	5.0	51	5.2	53	5.3	54	5.4	56	5.6	57	5.8	59	5.9	60	**1 023**
5.1	52	5.2	53	5.3	55	5.5	56	5.6	58	5.8	59	5.9	61	6.1	62	**1 024**
5.2	54	5.4	55	5.5	56	5.7	58	5.8	59	6.0	61	6.1	63	6.3	64	**1 025**
5.4	56	5.6	57	5.7	58	5.8	60	6.0	61	6.2	63	6.3	65	6.5	66	**1 026**
5.6	58	5.7	59	5.9	60	6.0	62	6.2	63	6.3	65	6.5	67	6.7	68	**1 027**
5.8	59	5.9	61	6.1	62	6.2	64	6.4	65	6.5	67	6.7	69	6.8	70	**1 028**
6.0	61	6.1	63	6.2	64	6.4	66	6.5	67	6.7	69	6.9	71	7.0	72	**1 029**
6.1	63	6.3	65	6.4	66	6.6	68	6.7	69	6.9	71	7.0	73	7.2	74	**1 030**
6.3	65	6.4	66	6.6	68	6.7	69	6.9	71	7.1	73	7.2	74	7.4	76	**1 031**
6.5	67	6.6	68	6.8	70	6.9	71	7.1	73	7.2	75	7.4	76	7.6	78	**1 032**
6.7	69	6.8	70	6.9	72	7.1	73	7.3	75	7.4	77	7.6	78	7.8	80	**1 033**
6.9	71	7.0	72	7.1	74	7.3	75	7.4	77	7.6	78	7.8	80	7.9	82	**1 034**
7.0	73	7.2	74	7.3	76	7.5	77	7.6	79	7.8	80	7.9	82	8.1	84	**1 035**
7.2	75	7.3	76	7.5	78	7.6	79	7.8	81	8.0	82	8.1	84	8.3	86	**1 036**
7.4	77	7.5	78	7.7	79	7.8	81	8.0	83	8.1	84	8.3	86	8.5	88	**1 037**
7.6	78	7.7	80	7.8	81	8.0	83	8.1	84	8.3	86	8.5	88	8.7	90	**1 038**
7.7	80	7.9	82	8.0	83	8.2	85	8.3	86	8.5	88	8.7	90	8.8	92	**1 039**
7.9	82	8.1	84	8.2	85	8.3	87	8.5	88	8.7	90	8.8	92	9.0	94	**1 040**
8.1	84	8.2	86	8.4	87	8.5	89	8.7	90	8.8	92	9.0	94	9.2	96	**1 041**

Table 1 — Density-composition table for aqueous solutions of nitric acid

D_t is the density (mass per unit volume) of solution (in kg/m^3) at a temperature t (in °C) [for many purposes it can be assumed that irrespective of the value of t the reading of a BS density hydrometer at t gives the density D_t, and that the reading of a 60/60 °F relative density hydrometer at t is numerically 0.001 greater than $D_{t/1\,000}$ (see Appendix A)].

g is the mass (in g) of HNO_3 in 100 g mass of solution.

G is the mass (in g) of HNO_3 in a quantity of solution occupying 1 L at the temperature stated at the head of the column.

t	10 °C		12 °C		14 °C		16 °C		18 °C		20 °C		22 °C		24 °C	
D_t	g	G	g	G	g	G	g	G	g	G	g	G	g	G	g	G
1 042	7.4	77	7.4	78	7.5	79	7.7	80	7.8	81	7.9	82	8.0	83	8.1	85
1 043	7.5	79	7.6	79	7.7	81	7.8	82	7.9	83	8.1	84	8.2	85	8.3	87
1 044	7.7	80	7.8	81	7.9	82	8.0	84	8.1	85	8.2	86	8.3	87	8.5	89
1 045	7.9	82	8.0	83	8.1	84	8.2	85	8.3	87	8.4	88	8.5	89	8.7	90
1 046	8.0	84	8.1	85	8.2	86	8.3	87	8.5	88	8.6	90	8.7	91	8.8	92
1 047	8.2	86	8.3	87	8.4	88	8.5	89	8.6	90	8.7	92	8.9	93	9.0	94
1 048	8.4	88	8.5	89	8.6	90	8.7	91	8.8	92	8.9	93	9.0	95	9.2	96
1 049	8.5	89	8.6	91	8.7	92	8.9	93	9.0	94	9.1	95	9.2	97	9.4	98
1 050	8.7	91	8.8	92	8.9	94	9.0	95	9.1	96	9.3	97	9.4	98	9.5	100
1 051	8.9	93	9.0	94	9.1	95	9.2	97	9.3	98	9.4	99	9.6	100	9.7	102
1 052	9.0	95	9.1	96	9.3	97	9.4	99	9.5	100	9.6	101	9.7	102	9.9	104
1 053	9.2	97	9.3	98	9.4	99	9.5	100	9.7	102	9.8	103	9.9	104	10.0	106
1 054	9.4	99	9.5	100	9.6	101	9.7	102	9.8	104	9.9	105	10.1	106	10.2	108
1 055	9.5	101	9.6	102	9.8	103	9.9	104	10.0	105	10.1	107	10.3	108	10.4	110
1 056	9.7	102	9.8	104	9.9	105	10.0	106	10.2	107	10.3	109	10.4	110	10.6	112
1 057	9.9	104	10.0	105	10.1	107	10.2	108	10.3	109	10.5	110	10.6	112	10.7	113
1 058	10.0	106	10.1	107	10.3	109	10.4	110	10.5	111	10.6	112	10.8	114	10.9	115
1 059	10.2	108	10.3	109	10.4	110	10.5	112	10.7	113	10.8	114	10.9	116	11.1	117
1 060	10.4	110	10.5	111	10.6	112	10.7	114	10.8	115	11.0	116	11.1	118	11.2	119
1 061	10.5	112	10.6	113	10.8	114	10.9	116	11.0	117	11.1	118	11.3	120	11.4	121
1 062	10.7	114	10.8	115	10.9	116	11.1	117	11.2	119	11.3	120	11.5	122	11.6	123
1 063	10.9	115	11.0	117	11.1	118	11.2	119	11.3	121	11.5	122	11.6	124	11.8	125
1 064	11.0	117	11.1	118	11.3	120	11.4	121	11.5	122	11.7	124	11.8	125	11.9	127
1 065	11.2	119	11.3	120	11.4	122	11.6	123	11.7	124	11.8	126	12.0	127	12.1	129
1 066	11.3	121	11.5	122	11.6	124	11.7	125	11.8	126	12.0	128	12.1	129	12.3	131
1 067	11.5	123	11.6	124	11.8	125	11.9	127	12.0	128	12.2	130	12.3	131	12.4	133
1 068	11.7	125	11.8	126	11.9	127	12.1	129	12.2	130	12.3	132	12.5	133	12.6	135
1 069	11.8	126	12.0	128	12.1	129	12.2	131	12.3	132	12.5	133	12.6	135	12.8	137
1 070	12.0	128	12.1	130	12.3	131	12.4	132	12.5	134	12.7	135	12.8	137	12.9	138
1 071	12.2	130	12.3	132	12.4	133	12.5	134	12.7	136	12.8	137	13.0	139	13.1	140
1 072	12.3	132	12.4	133	12.6	135	12.7	136	12.8	138	13.0	139	13.1	141	13.3	142
1 073	12.5	134	12.6	135	12.7	137	12.9	138	13.0	140	13.2	141	13.3	143	13.5	144
1 074	12.7	136	12.8	137	12.9	139	13.0	140	13.2	141	13.3	143	13.5	145	13.6	146
1 075	12.8	138	12.9	139	13.1	140	13.2	142	13.3	143	13.5	145	13.6	147	13.8	148
1 076	13.0	140	13.1	141	13.2	142	13.4	144	13.5	145	13.7	147	13.8	149	14.0	150
1 077	13.1	141	13.3	143	13.4	144	13.5	146	13.7	147	13.8	149	14.0	151	14.1	152
1 078	13.3	143	13.4	145	13.6	146	13.7	148	13.8	149	14.0	151	14.1	152	14.3	154
1 079	13.5	145	13.6	147	13.7	148	13.9	150	14.0	151	14.2	153	14.3	154	14.5	156
1 080	13.6	147	13.7	148	13.9	150	14.0	152	14.2	153	14.3	155	14.5	156	14.6	158

Table 1 — Density-composition table for aqueous solutions of nitric acid

D_t is the density (mass per unit volume) of solution (in kg/m^3) at a temperature t (in °C) [for many purposes it can be assumed that irrespective of the value of t the reading of a BS density hydrometer at t gives the density D_t, and that the reading of a 60/60 °F relative density hydrometer at t is numerically 0.001 greater than $D_{t/1\,000}$ (see Appendix A)].

g is the mass (in g) of HNO_3 in 100 g mass of solution.

G is the mass (in g) of HNO_3 in a quantity of solution occupying 1 L at the temperature stated at the head of the column.

26 °C		28 °C		30 °C		32 °C		34 °C		36 °C		38 °C		40 °C		t
g	G	g	G	g	G	g	G	g	G	g	G	g	G	g	G	D_t
8.3	86	8.4	88	8.6	89	8.7	91	8.8	92	9.0	94	9.2	96	9.4	98	**1 042**
8.4	88	8.6	89	8.7	91	8.9	93	9.0	94	9.2	96	9.4	98	9.5	100	**1 043**
8.6	90	8.8	91	8.9	93	9.0	94	9.2	96	9.4	98	9.5	100	9.7	101	**1 044**
8.8	92	8.9	93	9.1	95	9.2	96	9.4	98	9.5	100	9.7	102	9.9	103	**1 045**
9.0	94	9.1	95	9.3	97	9.4	98	9.6	100	9.7	102	9.9	104	10.1	105	**1 046**
9.1	96	9.3	97	9.4	99	9.6	100	9.7	102	9.9	104	10.1	105	10.3	107	**1 047**
9.3	97	9.5	99	9.6	101	9.7	102	9.9	104	10.1	106	10.3	107	10.4	109	**1 048**
9.5	99	9.6	101	9.3	102	9.9	104	10.1	106	10.2	107	10.4	109	10.6	111	**1 049**
9.7	101	9.8	103	10.0	104	10.1	106	10.3	108	10.4	109	10.6	111	10.8	113	**1 050**
9.8	103	10.0	105	10.1	106	10.3	108	10.4	110	10.6	111	10.8	113	11.0	115	**1 051**
10.0	105	10.2	107	10.3	108	10.4	110	10.6	112	10.8	113	11.0	115	11.2	117	**1 052**
10.2	107	10.3	109	10.5	110	10.6	112	10.8	114	11.0	115	11.1	117	11.3	119	**1 053**
10.4	109	10.5	111	10.7	112	10.8	114	11.0	116	11.1	117	11.3	119	11.5	121	**1 054**
10.5	111	10.7	113	10.8	114	11.0	116	11.1	117	11.3	119	11.5	121	11.7	123	**1 055**
10.7	113	10.9	115	11.0	116	11.2	118	11.3	119	11.5	121	11.7	123	11.9	125	**1 056**
10.9	115	11.0	116	11.2	118	11.3	120	11.5	121	11.6	123	11.9	125	12.0	127	**1 057**
11.1	117	11.2	118	11.4	120	11.5	122	11.7	123	11.8	125	12.0	127	12.2	129	**1 058**
11.2	119	11.4	120	11.5	122	11.7	124	11.8	125	12.0	127	12.2	129	12.4	131	**1 059**
11.4	121	11.5	122	11.7	124	11.9	126	12.0	127	12.2	129	12.4	131	12.6	133	**1 060**
11.6	123	11.7	124	11.9	126	12.0	128	12.2	129	12.4	131	12.6	133	12.8	135	**1 061**
11.7	125	11.9	126	12.0	128	12.2	130	12.4	131	12.6	133	12.7	135	12.9	137	**1 062**
11.9	127	12.1	128	12.2	130	12.4	132	12.5	133	12.7	135	12.9	137	13.1	139	**1 063**
12.1	128	12.2	130	12.4	132	12.5	133	12.7	135	12.9	137	13.1	139	13.3	141	**1 064**
12.2	130	12.4	132	12.6	134	12.7	135	12.9	137	13.1	139	13.3	141	13.5	143	**1 065**
12.4	132	12.6	134	12.7	136	12.9	137	13.1	139	13.2	141	13.4	143	13.6	145	**1 066**
12.6	134	12.7	136	12.9	138	13.1	139	13.2	141	13.4	143	13.6	145	13.8	147	**1 067**
12.8	136	12.9	138	13.1	140	13.2	141	13.4	143	13.6	145	13.8	147	14.0	149	**1 068**
12.9	138	13.1	140	13.2	142	13.4	143	13.6	145	13.8	147	13.9	149	14.2	151	**1 069**
13.1	140	13.3	142	13.4	143	13.6	145	13.7	147	13.9	149	14.1	151	14.3	153	**1 070**
13.3	142	13.4	144	13.6	145	13.7	147	13.9	149	14.1	151	14.3	153	14.5	155	**1 071**
13.4	144	13.6	146	13.8	147	13.9	149	14.1	151	14.3	153	14.5	155	14.7	157	**1 072**
13.6	146	13.8	148	13.9	149	14.1	151	14.3	153	14.4	155	14.6	157	14.8	159	**1 073**
13.8	148	13.9	150	14.1	151	14.3	153	14.4	155	14.6	157	14.8	159	15.0	161	**1 074**
13.9	150	14.1	151	14.3	153	14.4	155	14.6	157	14.8	159	15.0	161	15.2	163	**1 075**
14.1	152	14.3	153	14.4	155	14.6	157	14.8	159	15.0	161	15.2	163	15.4	165	**1 076**
14.3	154	14.4	155	14.6	157	14.8	159	14.9	161	15.1	163	15.3	165	15.5	167	**1 077**
14.4	156	14.6	157	14.8	159	14.9	161	15.1	163	15.3	165	15.5	167	15.7	169	**1 078**
14.6	158	14.8	159	14.9	161	15.1	163	15.3	165	15.5	167	15.7	169	15.9	171	**1 079**
14.8	160	14.9	161	15.1	163	15.3	165	15.5	167	15.6	169	15.8	171	16.1	173	**1 080**

Table 1 — Density-composition table for aqueous solutions of nitric acid

D_t is the density (mass per unit volume) of solution (in kg/m^3) at a temperature t (in °C) [for many purposes it can be assumed that irrespective of the value of t the reading of a BS density hydrometer at t gives the density D_t, and that the reading of a 60/60 °F relative density hydrometer at t is numerically 0.001 greater than $D_{t/1\,000}$ (see Appendix A)].

g is the mass (in g) of HNO_3 in 100 g mass of solution.

G is the mass (in g) of HNO_3 in a quantity of solution occupying 1 L at the temperature stated at the head of the column.

t	10 °C		12 °C		14 °C		16 °C		18 °C		20 °C		22 °C		24 °C	
D_t	g	G	g	G	g	G	g	G	g	G	g	G	g	G	g	G
1 081	13.8	149	13.9	150	14.0	152	14.2	153	14.3	155	14.5	157	14.6	158	14.8	160
1 082	13.9	151	14.0	152	14.2	154	14.4	155	14.5	157	14.6	158	14.8	160	15.0	162
1 083	14.1	153	14.2	154	14.4	155	14.5	157	14.7	159	14.8	160	15.0	162	15.1	164
1 084	14.3	155	14.4	156	14.5	157	14.7	159	14.8	161	15.0	162	15.1	164	15.3	166
1 085	14.4	156	14.5	158	14.7	159	14.8	161	15.0	163	15.1	164	15.3	166	15.5	168
1 086	14.6	158	14.7	160	14.9	161	15.0	163	15.1	164	15.3	166	15.5	168	15.6	170
1 087	14.7	160	14.9	162	15.0	163	15.2	165	15.3	166	15.5	168	15.6	170	15.8	172
1 088	14.9	162	15.0	164	15.2	165	15.3	167	15.5	168	15.6	170	15.8	172	15.9	173
1 089	15.1	164	15.2	165	15.3	167	15.4	168	15.6	170	15.8	172	15.9	174	16.1	175
1 090	15.2	166	15.4	167	15.5	169	15.6	170	15.8	172	15.9	174	16.1	176	16.3	177
1 091	15.4	168	15.5	169	15.7	171	15.8	172	16.0	174	16.1	176	16.3	178	16.4	179
1 092	15.5	170	15.7	171	15.8	173	16.0	174	16.1	176	16.3	178	16.4	180	16.6	181
1 093	15.7	171	15.8	173	16.0	175	16.1	176	16.3	178	16.4	180	16.6	181	16.8	183
1 094	15.8	173	16.0	175	16.1	176	16.3	178	16.4	180	16.6	182	16.8	183	16.9	185
1 095	16.0	175	16.1	177	16.3	178	16.4	180	16.6	182	16.8	184	16.9	185	17.1	187
1 096	16.2	177	16.3	179	16.5	180	16.6	182	16.8	184	16.9	186	17.1	187	17.3	189
1 097	16.3	179	16.5	181	16.6	182	16.8	184	16.9	186	17.1	187	17.3	189	17.4	191
1 098	16.5	181	16.6	182	16.8	184	16.9	186	17.1	188	17.3	189	17.4	191	17.6	193
1 099	16.6	183	16.8	184	16.9	185	17.1	188	17.3	190	17.4	191	17.6	193	17.7	195
1 110	16.8	185	16.9	186	17.1	188	17.3	189	17.4	192	17.6	193	17.7	195	17.9	197
1 101	16.9	187	17.1	188	17.3	190	17.4	192	17.6	193	17.7	195	17.9	197	18.1	199
1 102	17.1	188	17.3	190	17.4	192	17.6	194	17.7	195	17.9	197	18.1	199	18.2	201
1 103	17.3	190	17.4	192	17.6	194	17.7	196	17.9	197	18.1	199	18.2	201	18.4	203
1 104	17.4	192	17.6	194	17.7	196	17.9	198	18.1	199	18.2	201	18.4	203	18.6	205
1 105	17.6	194	17.7	196	17.9	198	18.1	199	18.2	201	18.4	203	18.5	205	18.7	207
1 106	17.7	196	17.9	198	18.0	200	18.2	201	18.4	203	18.5	205	18.7	207	18.9	209
1 107	17.9	198	18.0	200	18.2	202	18.4	203	18.5	205	18.7	207	18.9	209	19.0	211
1 108	18.0	200	18.2	202	18.4	203	18.5	205	18.7	207	18.9	209	19.0	211	19.2	213
1 109	18.2	202	18.4	203	18.5	205	18.7	207	18.8	209	19.0	211	19.2	213	19.4	215
1 110	18.4	204	18.5	205	18.7	207	18.8	209	19.0	211	19.2	213	19.4	215	19.5	217
1 111	18.5	206	18.7	207	18.8	209	19.0	211	19.2	213	19.3	215	19.5	217	19.7	219
1 112	18.7	208	18.8	209	19.0	211	19.2	213	19.3	215	19.5	217	19.7	219	19.9	221
1 113	18.8	209	19.0	211	19.1	213	19.3	215	19.5	217	19.7	219	19.9	221	20.0	223
1 114	19.0	211	19.1	213	19.3	215	19.5	217	19.7	219	19.8	221	20.0	223	20.2	225
1 115	19.1	213	19.3	215	19.5	217	19.6	219	19.8	221	20.0	223	20.2	225	20.4	227
1 116	19.3	215	19.5	217	19.6	219	19.8	221	20.0	223	20.2	225	20.3	227	20.5	229
1 117	19.4	217	19.6	219	19.8	221	20.0	223	20.1	225	20.3	227	20.5	229	20.7	231
1 118	19.6	219	19.8	221	19.9	223	20.1	225	20.3	227	20.5	229	20.7	231	20.8	233
1 119	19.8	221	19.9	223	20.1	225	20.3	227	20.5	229	20.6	231	20.8	233	21.0	235
1 120	19.9	223	20.1	225	20.3	227	20.4	229	20.6	231	20.8	233	21.0	235	21.1	237
1 121	20.1	225	20.2	227	20.4	229	20.6	231	20.8	233	21.0	235	21.1	237	21.3	239
1 122	20.2	227	20.4	229	20.6	231	20.8	233	20.9	235	21.1	237	21.3	239	21.5	241

Table 1 — Density-composition table for aqueous solutions of nitric acid

D_t is the density (mass per unit volume) of solution (in kg/m³) at a temperature t (in °C) [for many purposes it can be assumed that irrespective of the value of t the reading of a BS density hydrometer at t gives the density D_t, and that the reading of a 60/60 °F relative density hydrometer at t is numerically 0.001 greater than $D_{t/1\,000}$ (see Appendix A)].
g is the mass (in g) of HNO_3 in 100 g mass of solution.
G is the mass (in g) of HNO_3 in a quantity of solution occupying 1 L at the temperature stated at the head of the column.

26 °C		28 °C		30 °C		32 °C		34 °C		36 °C		38 °C		40 °C		t
g	G	g	G	g	G	g	G	g	G	g	G	g	G	g	G	D_t
14.9	162	15.1	163	15.3	165	15.4	167	15.6	169	15.8	171	16.0	173	16.2	175	**1 081**
15.1	163	15.3	165	15.4	167	15.6	169	15.8	171	16.0	173	16.2	175	16.4	177	**1 082**
15.3	165	15.4	167	15.6	169	15.8	171	16.0	173	16.1	175	16.4	177	16.6	179	**1 083**
15.4	167	15.6	169	15.8	171	16.0	173	16.1	175	16.3	177	16.5	179	16.7	181	**1 084**
15.6	169	15.8	171	15.9	173	16.1	175	16.3	177	16.5	179	16.7	181	16.9	184	**1 085**
15.8	171	15.9	173	16.1	175	16.3	177	16.5	179	16.7	181	16.9	183	17.1	186	**1 086**
15.9	173	16.1	175	16.3	177	16.4	179	16.6	181	16.8	183	17.0	185	17.3	188	**1 087**
16.1	175	16.3	177	16.4	179	16.6	181	16.8	183	17.0	185	17.2	187	17.4	190	**1 088**
16.3	177	16.4	179	16.6	181	16.8	183	17.0	185	17.2	187	17.4	189	17.6	192	**1 089**
16.4	179	16.6	181	16.8	183	16.9	185	17.1	187	17.3	189	17.6	191	17.8	194	**1 090**
16.6	181	16.8	183	16.9	185	17.1	187	17.3	189	17.5	191	17.7	193	17.9	196	**1 091**
16.8	183	16.9	185	17.1	187	17.3	189	17.7	191	17.7	195	17.9	195	18.1	198	**1 092**
16.9	185	17.1	187	17.3	189	17.5	191	17.8	193	17.8	195	18.1	197	18.3	200	**1 093**
17.1	187	17.3	189	17.4	191	17.6	193	18.0	195	18.0	197	18.2	199	18.5	202	**1 094**
17.3	189	17.4	191	17.6	193	17.8	195	18.2	197	18.2	199	18.4	201	18.6	204	**1 095**
17.4	191	17.6	193	17.8	195	18.0	197	18.4	199	18.4	201	18.6	204	18.8	206	**1 096**
17.6	193	17.8	195	17.9	197	18.1	199	18.5	201	18.5	203	18.7	206	19.0	208	**1 097**
17.8	195	17.9	197	18.1	199	18.3	201	18.7	203	18.7	205	18.9	208	19.1	210	**1 098**
17.9	197	18.1	199	18.3	201	18.5	203	18.9	205	18.9	207	19.1	210	19.3	212	**1 099**
18.1	199	18.3	201	18.4	203	18.6	205	19.0	207	19.0	209	19.3	212	19.5	214	**1 100**
18.2	201	18.4	203	18.6	205	18.8	207	19.2	209	19.2	211	19.4	214	19.7	216	**1 101**
18.4	203	18.6	205	18.8	207	19.0	209	19.4	211	19.4	213	19.6	216	19.8	218	**1 102**
18.6	205	18.8	207	18.9	209	19.1	211	19.5	213	19.5	215	19.8	218	20.0	220	**1 103**
18.7	207	18.9	209	19.1	211	19.3	213	19.7	215	19.7	217	19.9	220	20.2	222	**1 104**
18.9	209	19.1	211	19.3	213	19.5	215	19.9	217	19.9	220	20.1	222	20.3	225	**1 105**
19.1	211	19.2	213	19.4	215	19.7	217	20.0	219	20.0	222	20.3	224	20.5	227	**1 106**
19.2	215	19.4	215	19.6	217	19.8	219	20.2	221	20.2	224	20.4	226	20.7	229	**1 107**
19.4	215	19.6	217	19.8	219	20.0	221	20.2	223	20.4	226	20.6	228	20.8	231	**1 108**
19.6	217	19.7	219	19.9	221	20.1	223	20.3	225	20.5	228	20.8	230	21.0	233	**1 109**
19.7	219	19.9	221	20.1	223	20.3	225	20.5	227	20.7	230	20.9	232	21.2	235	**1 110**
19.9	221	20.1	223	20.3	225	20.5	227	20.7	230	20.9	232	21.1	234	21.3	237	**1 111**
20.1	223	20.2	225	20.4	227	20.6	229	20.8	232	21.0	234	21.3	236	21.5	239	**1 112**
20.2	225	20.4	227	20.6	229	20.8	231	21.0	234	21.2	236	21.4	238	21.7	241	**1 113**
20.4	227	20.6	229	20.8	231	21.0	233	21.2	236	21.4	238	21.6	241	21.8	243	**1 114**
20.5	229	20.7	231	20.9	233	21.1	235	21.3	238	21.5	240	21.8	243	22.0	245	**1 115**
20.7	231	20.9	233	21.1	235	21.3	237	21.5	240	21.7	242	21.9	245	22.2	247	**1 116**
20.9	233	21.1	235	21.2	237	21.4	240	21.7	242	21.9	244	22.1	247	22.3	249	**1 117**
21.0	235	21.2	237	21.4	239	21.6	242	21.8	244	22.0	246	22.2	249	22.5	251	**1 118**
21.2	237	21.4	239	21.6	241	21.8	244	22.0	246	22.2	248	22.4	251	22.7	254	**1 119**
21.3	239	21.5	241	21.7	243	21.9	246	22.1	248	22.3	250	22.6	253	22.8	256	**1 120**
21.5	241	21.7	243	21.9	245	22.1	248	22.3	250	22.5	252	22.7	255	23.0	258	**1 121**
21.7	243	21.9	245	22.0	247	22.2	250	22.4	252	22.7	254	22.9	257	23.2	260	**1 122**

Table 1 — Density-composition table for aqueous solutions of nitric acid

D_t is the density (mass per unit volume) of solution (in kg/m³) at a temperature t (in °C) [for many purposes it can be assumed that irrespective of the value of t the reading of a BS density hydrometer at t gives the density D_t, and that the reading of a 60/60 °F relative density hydrometer at t is numerically 0.001 greater than $D_{t/1\,000}$ (see Appendix A)].

g is the mass (in g) of HNO_3 in 100 g mass of solution.

G is the mass (in g) of HNO_3 in a quantity of solution occupying 1 L at the temperature stated at the head of the column.

t	10 °C		12 °C		14 °C		16 °C		18 °C		20 °C		22 °C		24 °C	
D_t	g	G	g	G	g	G	g	G	g	G	g	G	g	G	g	G
1 123	20.4	229	20.5	231	20.7	233	20.9	235	21.1	237	21.3	239	21.4	241	21.6	243
1 124	20.5	231	20.7	233	20.9	235	21.1	237	21.2	239	21.4	241	21.6	243	21.8	245
1 125	20.7	233	20.9	235	21.0	237	21.2	239	21.4	241	21.6	243	21.8	245	21.9	247
1 126	20.8	235	21.0	237	21.2	239	21.4	241	21.6	243	21.7	245	21.9	247	22.1	249
1 127	21.0	236	21.2	239	21.3	241	21.5	243	21.7	245	21.9	247	22.1	249	22.3	251
1 128	21.1	238	21.3	241	21.5	243	21.7	245	21.9	247	22.1	249	22.2	251	22.4	253
1 129	21.3	240	21.5	242	21.7	244	21.8	247	22.0	249	22.2	251	22.4	253	22.6	255
1 130	21.4	242	21.6	244	21.8	246	22.0	249	22.2	251	22.4	253	22.6	255	22.7	257
1 131	21.6	244	21.8	246	22.0	248	22.2	251	22.3	253	22.5	255	22.1	257	22.9	259
1 132	21.8	246	21.9	248	22.1	250	22.3	253	22.5	255	22.7	257	22.9	259	23.1	261
1 133	21.9	248	22.1	250	22.3	252	22.5	255	22.6	257	22.8	259	23.0	261	23.2	263
1 134	22.1	250	22.2	252	22.4	254	22.6	256	22.8	259	23.0	261	23.2	263	23.4	265
1 135	22.2	252	22.4	254	22.6	256	22.8	258	23.0	261	23.2	263	23.3	265	23.5	267
1 136	22.4	254	22.6	256	22.7	258	22.9	260	23.1	263	23.3	265	23.5	267	23.7	269
1 137	22.5	256	22.7	258	22.9	260	23.1	262	23.3	265	23.5	267	23.6	269	23.8	271
1 138	22.7	258	22.9	260	23.0	262	23.2	264	23.4	267	23.6	269	23.8	271	24.0	273
1 139	22.8	260	23.0	262	23.2	264	23.4	266	23.6	268	23.8	271	24.0	273	24.2	275
1 140	23.0	262	23.2	264	23.3	266	23.5	268	23.7	270	23.9	273	24.1	275	24.3	277
1 141	23.1	264	23.3	266	23.5	268	23.7	270	23.9	272	24.1	275	24.3	277	24.5	279
1 142	23.3	266	23.5	268	23.6	270	23.8	272	24.0	274	24.2	277	24.4	279	24.6	281
1 143	23.4	268	23.6	270	23.8	272	24.0	274	24.2	276	24.4	279	24.6	281	24.8	283
1 144	23.6	270	23.8	272	23.9	274	24.1	276	24.3	278	24.5	281	24.7	283	24.9	285
1 145	23.7	272	23.9	274	24.1	276	24.3	278	24.5	280	24.7	283	24.9	285	25.1	287
1 146	23.9	273	24.1	276	24.3	278	24.5	280	24.6	282	24.8	285	25.0	287	25.2	289
1 147	24.0	275	24.2	278	24.4	280	24.6	282	24.8	284	25.0	287	25.2	289	25.4	291
1 148	24.2	277	24.4	280	24.6	282	24.8	284	25.0	286	25.2	289	25.4	291	25.6	295
1 149	24.3	279	24.5	282	24.7	284	24.9	286	25.1	288	25.3	291	25.5	293	25.7	295
1 150	24.5	281	24.7	284	24.9	286	25.1	288	25.5	290	25.5	293	25.7	295	25.9	298
1 151	24.6	283	24.8	286	25.0	288	25.2	290	25.4	292	25.6	295	25.8	297	26.0	300
1 152	24.8	285	25.0	288	25.2	290	25.4	292	25.6	294	25.8	297	26.0	299	26.2	302
1 153	24.9	287	25.1	290	25.3	292	25.5	294	25.7	296	25.9	299	26.1	301	26.3	304
1 154	25.1	289	25.3	292	25.5	294	25.7	296	25.9	299	26.1	301	26.3	303	26.5	306
1 155	25.2	291	25.4	293	25.6	296	25.8	298	26.0	301	26.2	303	26.4	305	26.6	308
1 156	25.4	293	25.6	295	25.8	298	26.0	300	26.2	303	26.4	305	26.6	307	26.8	310
1 157	25.5	295	25.7	297	25.9	300	26.1	302	26.3	305	26.5	307	26.7	309	27.0	312
1 158	25.7	297	25.9	299	26.1	302	26.3	304	26.5	307	26.7	309	26.9	311	27.1	314
1 159	25.8	299	26.0	301	26.2	304	26.4	306	26.6	309	26.8	311	27.0	313	27.3	316
1 160	26.0	301	26.2	303	26.4	306	26.6	308	26.8	311	27.0	313	27.2	315	27.4	318
1 161	26.1	303	26.3	305	26.5	308	26.7	310	26.9	313	27.1	315	27.4	318	27.6	320

Table 1 — Density-composition table for aqueous solutions of nitric acid

D_t is the density (mass per unit volume) of solution (in kg/m³) at a temperature t (in °C) [for many purposes it can be assumed that irrespective of the value of t the reading of a BS density hydrometer at t gives the density D_t, and that the reading of a 60/60 °F relative density hydrometer at t is numerically 0.001 greater than $D_{t/1\,000}$ (see Appendix A)].
g is the mass (in g) of HNO_3 in 100 g mass of solution.
G is the mass (in g) of HNO_3 in a quantity of solution occupying 1 L at the temperature stated at the head of the column.

26 °C		**28 °C**		**30 °C**		**32 °C**		**34 °C**		**36 °C**		**38 °C**		**40 °C**		t
g	G	g	G	g	G	g	G	g	G	g	G	g	G	g	G	D_t
21.8	245	22.0	247	22.2	249	22.4	252	22.6	254	22.8	256	23.1	259	23.3	262	**1 123**
22.0	247	22.2	249	22.4	251	22.6	254	22.8	256	23.0	258	23.2	261	23.5	264	**1 124**
22.1	249	22.3	251	22.5	253	22.7	256	22.9	258	23.2	260	23.4	263	23.7	266	**1 125**
22.3	251	22.5	253	22.7	255	22.9	258	23.1	260	23.3	262	23.6	265	23.8	268	**1 126**
22.5	253	22.7	255	22.8	257	23.0	260	23.2	262	23.5	265	23.7	267	24.0	270	**1 127**
22.6	255	22.8	257	23.0	259	23.2	262	23.4	264	23.6	267	23.9	269	24.1	272	**1 128**
22.8	257	23.0	259	23.2	262	23.4	264	23.6	266	23.8	269	24.0	271	24.3	274	**1 129**
22.9	259	23.1	261	23.3	264	23.5	266	23.7	268	24.0	271	24.2	273	24.5	276	**1 130**
23.1	261	23.3	263	23.5	266	23.7	268	23.9	270	24.1	273	24.4	276	24.6	278	**1 131**
23.3	263	23.5	265	23.6	268	23.8	270	24.1	272	24.3	275	24.5	278	24.8	281	**1 132**
23.4	265	23.6	267	23.8	270	24.0	272	24.2	274	24.4	277	24.7	280	25.0	283	**1 133**
23.6	267	23.8	269	24.0	272	24.2	274	24.4	276	24.6	279	24.9	282	25.1	285	**1 134**
23.7	269	23.9	271	24.1	274	24.3	276	24.5	279	24.8	281	25.0	284	25.3	287	**1 135**
23.9	271	24.1	274	24.3	276	24.5	278	24.7	281	24.9	283	25.2	286	25.4	289	**1 136**
24.0	273	24.2	276	24.4	278	24.6	280	24.9	283	25.1	285	25.3	288	25.6	291	**1 137**
24.2	275	24.4	278	24.6	280	24.8	282	25.0	285	25.3	287	25.5	290	25.8	293	**1 138**
24.4	277	24.6	280	24.8	282	25.0	284	25.2	287	25.4	289	25.7	292	25.9	295	**1 139**
24.5	279	24.7	282	24.9	284	25.1	286	25.3	289	25.6	292	25.8	294	26.1	298	**1 140**
24.7	281	24.9	284	25.1	286	25.3	288	25.5	291	25.7	294	26.0	296	26.3	300	**1 141**
24.8	283	25.0	286	25.2	288	25.4	290	25.7	293	25.9	296	26.1	299	26.4	302	**1 142**
25.0	286	25.2	288	25.4	290	25.6	292	25.8	295	26.1	298	26.3	301	26.6	304	**1 143**
25.1	288	25.3	290	25.5	292	25.7	295	26.0	297	26.2	300	26.5	303	26.7	306	**1 144**
25.3	290	25.5	292	25.7	294	25.9	297	26.1	299	26.4	302	26.6	305	26.9	308	**1 145**
25.5	292	25.7	294	25.9	296	26.1	299	26.3	301	26.5	304	26.8	307	27.1	310	**1 146**
25.6	294	25.8	296	26.0	298	26.2	301	26.5	303	26.7	306	26.9	309	27.2	312	**1 147**
25.8	296	26.0	298	26.2	300	26.4	303	26.6	306	26.9	308	27.1	311	27.4	314	**1 148**
25.9	298	26.1	300	26.3	303	26.5	305	26.8	308	27.0	310	27.3	313	27.5	316	**1 149**
26.1	300	26.3	302	26.5	305	26.7	307	26.9	310	27.2	312	27.4	316	27.7	318	**1 150**
26.2	302	26.4	304	26.6	307	26.9	309	27.1	312	27.3	314	27.6	317	27.9	321	**1 151**
26.4	304	26.6	306	26.8	309	27.0	311	27.2	314	27.5	317	27.7	320	28.0	323	**1 152**
26.5	306	26.7	308	27.0	311	27.2	313	27.4	316	27.6	319	27.9	322	28.2	325	**1 153**
26.7	308	26.9	310	27.1	313	27.3	315	27.6	318	27.8	321	28.1	324	28.3	327	**1 154**
26.9	310	27.1	313	27.3	315	27.5	317	27.7	320	28.0	323	28.2	326	28.5	329	**1 155**
27.0	312	27.2	315	27.4	317	27.6	320	27.9	322	28.1	325	28.4	328	28.7	331	**1 156**
27.2	314	27.4	317	27.6	319	27.8	322	28.0	324	28.3	327	28.5	330	28.8	333	**1 157**
27.3	316	27.5	319	27.7	321	28.0	324	28.2	326	28.4	329	28.7	332	29.0	335	**1 158**
27.5	318	27.7	321	27.9	323	28.1	326	28.3	328	28.6	331	28.9	334	29.1	338	**1 159**
27.6	320	27.8	323	28.1	325	28.3	328	28.5	331	28.7	333	29.0	336	29.3	340	**1 160**
27.8	322	28.0	325	28.2	327	28.4	330	28.7	333	28.9	336	29.2	339	29.5	342	**1 161**

Table 1 — Density-composition table for aqueous solutions of nitric acid

D_t is the density (mass per unit volume) of solution (in kg/m^3) at a temperature t (in °C) [for many purposes it can be assumed that irrespective of the value of t the reading of a BS density hydrometer at t gives the density D_t, and that the reading of a 60/60 °F relative density hydrometer at t is numerically 0.001 greater than $D_{t/1\,000}$ (see Appendix A)].

g is the mass (in g) of HNO_3 in 100 g mass of solution.

G is the mass (in g) of HNO_3 in a quantity of solution occupying 1 L at the temperature stated at the head of the column.

t	10 °C		12 °C		14 °C		16 °C		18 °C		20 °C		22 °C		24 °C	
D_t	g	G	g	G	g	G	g	G	g	G	g	G	g	G	g	G
1 162	26.3	305	26.5	307	26.7	310	26.9	312	27.1	315	27.3	317	27.5	320	27.7	322
1 163	26.4	307	26.6	309	26.8	312	27.0	314	27.2	317	27.4	319	27.7	322	27.9	324
1 164	26.6	309	26.8	311	27.0	314	27.2	316	27.4	319	27.6	321	27.8	324	28.0	326
1 165	26.7	311	26.9	313	27.1	316	27.3	318	27.5	321	27.7	323	28.0	326	28.2	328
1 166	26.9	313	27.1	315	27.3	318	27.5	320	27.7	323	27.9	325	28.1	328	28.3	330
1 167	27.0	315	27.2	317	27.4	320	27.6	322	27.8	325	28.1	327	28.3	330	28.5	332
1 168	27.2	317	27.4	319	27.6	322	27.8	324	28.0	327	28.2	329	28.4	332	28.6	334
1 169	27.3	319	27.5	321	27.7	324	27.9	326	28.1	329	28.4	331	28.6	334	28.8	336
1 170	27.4	321	27.6	323	27.9	326	28.0	328	28.3	331	28.5	333	28.7	336	28.9	339
1 171	27.6	323	27.8	325	28.0	328	28.2	330	28.4	333	28.7	335	28.9	338	29.1	341
1 172	27.7	325	27.9	327	28.2	330	28.4	333	28.6	335	28.8	338	29.0	340	29.2	343
1 173	27.8	327	28.1	329	28.3	332	28.5	335	28.7	337	29.0	340	29.2	342	29.4	346
1 174	28.0	329	28.2	331	28.5	334	28.7	337	28.9	339	29.1	342	29.3	344	29.5	347
1 175	28.2	331	28.4	333	28.6	336	28.8	339	29.0	341	29.3	344	29.5	346	29.7	349
1 176	28.3	333	28.5	336	28.8	338	29.0	341	29.2	343	29.4	346	29.6	348	29.8	351
1 177	28.5	335	28.7	338	28.9	340	29.1	343	29.3	345	29.6	348	29.8	350	30.0	353
1 178	28.6	337	28.8	340	29.1	342	29.3	345	29.5	347	29.7	350	29.9	352	30.1	355
1 179	28.8	339	29.0	342	29.2	344	29.4	347	29.6	349	29.9	352	30.1	355	30.3	357
1 180	28.9	341	29.1	344	29.3	346	29.6	349	29.8	351	30.0	354	30.2	357	30.4	359
1 181	29.1	343	29.3	346	29.5	348	29.7	351	29.9	353	30.2	356	30.4	359	30.6	361
1 182	29.2	345	29.4	348	29.6	350	29.9	353	30.1	355	30.3	358	30.5	361	30.7	363
1 183	29.3	347	29.6	350	29.8	352	30.0	355	30.2	357	30.5	360	30.7	363	30.9	365
1 184	29.5	349	29.7	352	29.9	354	30.1	357	30.4	360	30.6	362	30.8	365	31.0	368
1 185	29.6	351	29.9	354	30.1	356	30.3	359	30.5	362	30.7	364	31.0	367	31.2	370
1 186	29.8	353	30.0	356	30.2	358	30.4	361	30.7	364	30.9	366	31.1	369	31.3	372
1 187	29.9	355	30.2	358	30.4	360	30.6	363	30.8	366	31.0	368	31.2	371	31.5	374
1 188	30.1	357	30.3	360	30.5	362	30.7	365	31.0	368	31.2	371	31.4	373	31.6	376
1 189	30.2	359	30.4	362	30.6	365	30.9	367	31.1	370	31.3	373	31.6	375	31.8	378
1 190	30.4	361	30.6	364	30.8	367	31.0	369	31.3	372	31.5	375	31.7	377	31.9	380
1 191	30.5	363	30.7	366	31.0	369	31.2	371	31.4	374	31.6	377	31.9	379	32.1	382
1 192	30.6	365	30.9	368	31.1	371	31.3	373	31.6	376	31.8	379	32.0	382	32.2	384
1 193	30.8	367	31.0	370	31.2	373	31.5	375	31.7	378	31.9	381	32.2	384	32.4	386
1 194	30.9	369	31.2	372	31.4	375	31.6	378	31.9	380	32.1	383	32.3	386	32.5	389
1 195	31.1	371	31.3	374	31.5	377	31.8	380	32.0	382	32.2	385	32.5	388	32.7	391
1 196	31.2	373	31.5	376	31.7	379	31.9	382	32.1	384	32.4	387	32.6	390	32.8	393
1 197	31.4	375	31.6	378	31.8	381	32.1	384	32.3	387	32.5	389	32.8	392	33.0	395
1 198	31.5	377	31.7	380	32.0	383	32.2	386	32.4	389	32.7	391	32.9	394	33.1	397
1 199	31.7	379	31.9	382	32.1	385	32.4	388	32.6	391	32.8	393	33.1	396	33.3	399
1 200	31.8	382	32.0	384	32.3	387	32.5	390	32.7	393	33.0	396	33.2	398	33.4	401
1 201	31.9	384	32.2	386	32.4	389	32.6	392	32.9	395	33.1	398	33.3	400	33.6	403
1 202	32.1	386	32.3	388	32.6	391	32.8	394	33.0	397	33.3	400	33.5	403	33.7	405
1 203	32.2	388	32.5	390	32.7	393	32.9	396	33.2	399	33.4	402	33.6	405	33.9	408

Table 1 — Density-composition table for aqueous solutions of nitric acid

D_t is the density (mass per unit volume) of solution (in kg/m³) at a temperature t (in °C) [for many purposes it can be assumed that irrespective of the value of t the reading of a BS density hydrometer at t gives the density D_t, and that the reading of a 60/60 °F relative density hydrometer at t is numerically 0.001 greater than $D_{t/1\,000}$ (see Appendix A)].
g is the mass (in g) of HNO_3 in 100 g mass of solution.
G is the mass (in g) of HNO_3 in a quantity of solution occupying 1 L at the temperature stated at the head of the column.

26 °C		28 °C		30 °C		32 °C		34 °C		36 °C		38 °C		40 °C		t
g	G	g	G	g	G	g	G	g	G	g	G	g	G	g	G	D_t
27.9	324	28.1	327	28.4	330	28.6	332	28.8	335	29.1	338	29.3	341	29.6	344	**1 162**
28.1	327	28.3	329	28.5	332	28.7	334	29.0	337	29.2	340	29.5	343	29.8	346	**1 163**
28.2	329	28.5	331	28.7	334	28.9	336	29.1	339	29.4	342	29.6	345	29.9	348	**1 164**
28.4	331	28.6	333	28.8	336	29.0	338	29.3	341	29.5	344	29.8	347	30.1	350	**1 165**
28.5	333	28.8	335	29.0	338	29.2	340	29.4	343	29.7	346	30.0	349	30.2	353	**1 166**
28.7	335	28.9	337	29.1	340	29.4	342	29.6	345	29.9	348	30.1	351	30.4	355	**1 167**
28.9	337	29.1	340	29.3	342	29.5	345	29.8	348	30.0	350	30.3	354	30.6	357	**1 168**
29.0	339	29.2	342	29.4	344	29.7	347	29.9	350	30.2	353	30.4	356	30.7	359	**1 169**
29.2	341	29.4	344	29.6	346	29.8	349	30.1	352	30.3	355	30.6	358	30.9	361	**1 170**
29.3	343	29.5	346	29.7	348	30.0	351	30.2	354	30.5	357	30.7	360	31.0	363	**1 171**
29.5	345	29.7	348	29.9	350	30.1	353	30.4	356	30.6	359	30.9	362	31.2	365	**1 172**
29.6	347	29.8	350	30.1	352	30.3	355	30.5	358	30.8	361	31.1	364	31.3	368	**1 173**
29.8	349	30.0	352	30.2	354	30.4	357	30.7	360	30.9	363	31.2	366	31.5	370	**1 174**
29.9	352	30.1	354	30.4	357	30.6	359	30.8	362	31.1	365	31.4	369	31.7	372	**1 175**
30.1	354	30.3	356	30.5	359	30.8	362	31.0	365	31.3	367	31.5	371	31.8	374	**1 176**
30.2	356	30.5	358	30.7	361	30.9	364	31.2	367	31.4	370	31.7	373	32.0	376	**1 177**
30.4	358	30.6	360	30.8	363	31.1	366	31.3	369	31.6	372	31.8	375	32.1	378	**1 178**
30.5	360	30.8	363	31.0	365	31.2	368	31.5	371	31.7	374	32.0	377	32.3	381	**1 179**
30.7	362	30.9	365	31.1	367	31.4	370	31.6	373	31.9	376	32.2	379	32.4	383	**1 180**
30.8	364	31.1	367	31.3	369	31.5	372	31.8	375	32.0	378	32.3	382	32.6	385	**1 181**
31.0	366	31.2	369	31.4	372	31.7	374	31.9	377	32.3	380	32.5	384	32.8	387	**1 182**
31.1	368	31.4	371	31.6	374	31.8	377	32.1	380	32.4	383	32.6	386	32.9	389	**1 183**
31.3	370	31.5	373	31.8	376	32.0	379	32.2	382	32.5	385	32.8	388	33.1	392	**1 184**
31.4	372	31.7	375	31.9	378	32.1	381	32.4	384	32.7	387	32.9	390	33.2	394	**1 185**
31.6	374	31.8	377	32.1	380	32.3	383	32.6	386	32.8	389	33.1	392	33.4	396	**1 186**
31.7	377	32.0	379	32.2	382	32.5	385	32.7	388	33.0	391	33.2	395	33.5	398	**1 187**
31.9	379	32.1	382	32.4	385	32.6	387	32.9	390	33.1	393	33.4	397	33.7	400	**1 188**
32.0	381	32.3	384	32.5	387	32.8	390	33.0	393	33.3	396	33.6	399	33.9	402	**1 189**
32.2	383	32.4	386	32.7	389	32.9	392	33.2	395	33.4	398	33.7	401	34.0	404	**1 190**
32.3	385	32.6	388	32.8	391	33.1	394	33.3	397	33.6	400	33.9	403	34.1	407	**1 191**
32.5	387	32.7	390	33.0	393	33.2	396	33.5	399	33.7	402	34.0	405	34.3	409	**1 192**
32.6	389	32.9	392	33.1	395	33.4	398	33.6	401	33.9	404	34.2	408	34.5	411	**1 193**
32.8	391	33.0	394	33.3	397	33.5	400	33.8	403	34.1	407	34.3	410	34.6	413	**1 194**
32.9	394	33.2	397	33.4	399	33.7	402	33.9	405	34.2	409	34.5	412	34.8	415	**1 195**
33.1	396	33.3	399	33.6	401	33.8	405	34.1	408	34.4	411	34.6	414	34.9	417	**1 196**
33.2	398	33.5	401	33.7	404	34.0	407	34.2	410	34.5	413	34.8	416	35.1	420	**1 197**
33.4	400	33.6	403	33.9	406	34.1	409	34.4	412	34.7	415	34.9	418	35.3	422	**1 198**
33.5	402	33.8	405	34.0	408	34.3	411	34.5	414	34.8	417	35.1	421	35.4	424	**1 199**
33.7	404	33.9	407	34.2	410	34.4	413	34.7	416	35.0	419	35.3	423	35.6	427	**1 200**
33.8	406	34.1	409	34.3	412	34.6	415	34.8	418	35.1	422	35.4	425	35.7	429	**1 201**
34.0	408	34.2	411	34.5	414	34.7	417	35.0	421	35.3	424	35.6	428	35.9	431	**1 202**
34.1	411	34.4	414	34.6	417	34.9	419	35.2	423	35.4	426	35.7	430	36.1	434	**1 203**

Table 1 — Density-composition table for aqueous solutions of nitric acid

D_t is the density (mass per unit volume) of solution (in kg/m^3) at a temperature t (in °C) [for many purposes it can be assumed that irrespective of the value of t the reading of a BS density hydrometer at t gives the density D_t, and that the reading of a 60/60 °F relative density hydrometer at t is numerically 0.001 greater than $D_{t/1\,000}$ (see Appendix A)].

g is the mass (in g) of HNO_3 in 100 g mass of solution.

G is the mass (in g) of HNO_3 in a quantity of solution occupying 1 L at the temperature stated at the head of the column.

t	10 °C		12 °C		14 °C		16 °C		18 °C		20 °C		22 °C		24 °C	
D_t	g	G	g	G	g	G	g	G	g	G	g	G	g	G	g	G
1 204	32.4	390	32.6	393	32.8	395	33.1	398	33.3	401	33.5	404	33.8	407	34.0	410
1 205	32.5	392	32.8	395	33.0	397	33.2	400	33.5	403	33.7	406	33.9	409	34.2	412
1 206	32.7	394	32.9	397	33.1	400	33.4	402	33.6	405	33.8	408	34.1	411	34.3	414
1 207	32.8	396	33.1	399	33.3	402	33.5	404	33.7	407	34.0	410	34.2	413	34.5	416
1 208	33.0	398	32.2	401	33.4	404	33.7	406	33.9	409	34.1	412	34.4	415	34.6	418
1 209	33.1	400	33.3	403	33.6	406	33.8	408	34.0	411	34.3	414	34.5	417	34.8	420
1 210	33.2	402	33.5	405	33.7	408	33.9	411	34.2	413	34.4	416	34.7	419	34.9	422
1 211	33.4	404	33.6	407	33.8	410	34.1	413	34.3	416	34.6	418	34.8	421	35.1	425
1 212	33.5	406	33.8	409	34.0	412	34.2	415	34.5	418	34.7	421	35.0	424	35.2	427
1 213	33.6	408	33.9	411	34.1	414	34.4	417	34.6	420	34.9	423	35.1	426	35.4	429
1 214	33.8	410	34.0	413	34.3	416	34.5	419	34.8	422	35.0	425	35.3	428	35.5	431
1 215	33.9	412	34.2	415	34.4	418	34.7	421	34.9	424	35.2	427	35.4	430	35.7	433
1 216	34.1	414	34.3	417	34.6	420	34.8	423	35.0	426	35.3	429	35.6	432	35.8	436
1 217	34.2	416	34.5	419	34.7	422	34.9	425	35.2	428	35.5	431	35.7	435	36.0	438
1 218	34.4	418	34.6	421	34.8	424	35.1	427	35.3	430	35.6	434	35.9	437	36.1	440
1 219	34.5	420	34.7	423	35.0	426	35.2	429	35.5	433	35.8	436	36.0	439	36.3	442
1 220	34.6	422	34.9	425	35.1	428	35.4	432	35.7	435	35.9	438	36.2	441	36.5	445
1 221	34.8	425	35.0	427	35.3	431	35.5	434	35.8	437	36.1	440	36.3	444	36.6	447
1 222	34.9	427	35.2	430	35.4	433	35.7	436	36.0	439	36.2	443	36.5	446	36.8	449
1 223	35.1	429	35.3	432	35.6	435	35.8	438	36.1	442	36.4	445	36.6	448	36.9	451
1 224	35.2	431	35.5	434	35.7	437	36.0	441	36.3	444	36.5	447	36.8	450	37.1	454
1 225	35.3	433	35.6	436	35.9	439	36.1	443	36.4	446	36.7	449	37.0	453	37.2	456
1 226	35.5	435	35.8	438	36.0	442	36.3	445	36.6	448	36.8	451	37.1	455	37.4	458
1 227	35.6	437	35.9	441	36.2	444	36.4	447	36.7	450	37.0	454	37.3	457	37.5	461
1 228	35.8	440	36.1	443	36.3	446	36.6	449	36.9	453	37.1	456	37.4	459	37.7	463
1 229	35.9	442	36.2	445	36.5	448	36.7	451	37.0	455	37.3	458	37.6	462	37.8	465
1 230	36.1	444	36.4	447	36.6	450	36.9	454	37.2	457	37.4	461	37.7	464	38.0	467
1 231	36.2	446	36.5	449	36.8	453	37.1	456	37.3	459	37.6	463	37.9	466	38.2	470
1 232	36.4	448	36.7	452	36.9	455	37.2	458	37.5	462	37.8	465	38.0	468	38.3	472
1 233	36.5	451	36.8	454	37.1	457	37.4	461	37.6	464	37.9	467	38.2	471	38.5	474
1 234	36.7	453	37.0	456	37.2	459	37.5	463	37.8	466	38.1	470	38.3	473	38.6	477
1 235	36.8	455	37.1	458	37.4	461	37.7	465	37.9	469	38.2	472	38.5	475	38.8	479
1 236	37.0	457	37.3	461	37.5	464	37.8	467	38.1	471	38.4	474	38.7	478	39.0	481
1 237	37.1	459	37.4	463	37.7	466	38.0	470	38.3	473	38.5	477	38.8	480	39.1	484
1 238	37.3	462	37.6	465	37.8	468	38.1	472	38.4	475	38.7	479	39.0	483	39.3	486
1 239	37.4	464	37.7	467	38.0	471	38.3	474	38.6	478	38.9	481	39.1	485	39.4	488
1 240	37.6	466	37.9	470	38.1	473	38.4	477	38.7	480	39.0	484	39.3	487	39.6	491
1 241	37.7	468	38.0	472	38.3	475	38.6	479	38.9	482	39.2	486	39.5	490	39.7	493
1 242	37.9	471	38.2	474	38.5	478	38.7	481	39.0	485	39.3	488	39.6	492	39.9	496

Table 1 — Density-composition table for aqueous solutions of nitric acid

D_t is the density (mass per unit volume) of solution (in kg/m³) at a temperature t (in °C) [for many purposes it can be assumed that irrespective of the value of t the reading of a BS density hydrometer at t gives the density D_t, and that the reading of a 60/60 °F relative density hydrometer at t is numerically 0.001 greater than $D_{t/1\,000}$ (see Appendix A)].
g is the mass (in g) of HNO_3 in 100 g mass of solution.
G is the mass (in g) of HNO_3 in a quantity of solution occupying 1 L at the temperature stated at the head of the column.

26 °C		28 °C		30 °C		32 °C		34 °C		36 °C		38 °C		40 °C		t
g	G	g	G	g	G	g	G	g	G	g	G	g	G	g	G	D_t
34.3	413	34.5	416	34.8	419	35.0	422	35.3	425	35.6	429	35.9	432	36.2	436	**1 204**
34.4	415	34.7	418	34.9	421	35.2	424	35.5	427	35.8	431	36.1	434	36.4	438	**1 205**
34.6	417	34.8	420	35.1	423	35.4	426	35.6	430	35.9	433	36.2	437	36.5	441	**1 206**
34.7	419	35.0	422	35.2	425	35.5	429	35.8	432	36.1	435	36.4	439	36.7	443	**1 207**
34.9	421	35.1	424	35.4	427	35.7	431	36.0	434	36.2	438	36.5	441	36.9	445	**1 208**
35.0	423	35.3	427	35.5	430	35.8	433	36.1	437	36.4	440	36.7	444	37.0	448	**1 209**
35.2	425	35.4	429	35.7	432	36.0	435	36.5	439	36.6	442	36.9	446	37.2	450	**1 210**
35.3	428	35.6	431	35.9	434	36.1	438	36.4	441	36.7	445	37.0	448	37.4	452	**1 211**
35.5	430	35.8	433	36.0	437	36.3	440	36.6	443	36.9	447	37.2	451	37.5	455	**1 212**
35.6	432	35.9	435	36.2	439	36.5	442	36.8	446	37.0	449	37.4	453	37.7	457	**1 213**
35.8	434	36.1	438	36.3	441	36.6	444	36.9	448	37.2	452	37.5	455	37.9	460	**1 214**
35.9	437	36.2	440	36.5	443	36.8	447	37.1	450	37.4	454	37.7	458	38.0	462	**1 215**
36.1	439	36.4	442	36.7	446	36.9	449	37.2	453	37.5	456	37.9	460	38.2	464	**1 216**
36.3	441	36.5	445	36.8	448	37.1	451	37.4	455	37.7	459	38.0	462	38.3	467	**1 217**
36.4	443	36.7	447	37.0	450	37.3	454	37.6	457	37.9	461	38.1	465	38.5	469	**1 218**
36.6	446	36.8	449	37.1	452	37.4	456	37.7	460	38.0	463	38.3	467	38.7	471	**1 219**
36.7	448	37.0	451	37.3	455	37.6	458	37.9	462	38.2	466	38.5	470	38.8	474	**1 220**
36.9	450	37.2	454	37.4	457	37.7	461	38.0	464	38.3	468	38.7	472	39.0	476	**1 221**
37.0	453	37.3	456	37.6	459	37.9	463	38.2	467	38.5	470	38.8	474	39.2	479	**1 222**
37.2	455	37.5	458	37.8	462	38.1	465	38.4	469	38.7	473	39.0	477	39.3	481	**1 223**
37.4	457	37.6	461	37.9	464	38.2	467	38.5	471	38.8	475	39.2	479	39.5	484	**1 224**
37.5	459	37.8	463	38.1	466	38.4	470	38.7	474	39.0	477	39.3	482	39.7	486	**1 225**
37.7	463	37.9	465	38.2	469	38.5	472	38.9	476	39.1	480	39.5	484	39.8	488	**1 226**
37.8	465	38.1	467	38.4	471	38.7	475	39.0	479	39.3	482	39.6	486	40.0	491	**1 227**
38.0	467	38.3	470	38.6	473	38.9	477	39.2	481	39.5	485	39.8	489	40.2	495	**1 228**
38.1	469	38.4	472	38.7	476	39.0	479	39.3	483	39.6	487	40.0	491	40.3	496	**1 229**
38.3	471	38.6	475	38.9	478	39.2	482	39.5	486	39.8	490	40.1	494	40.5	498	**1 230**
38.5	473	38.8	477	39.0	481	39.3	484	39.6	488	40.0	492	40.3	496	40.7	501	**1 231**
38.6	476	38.9	479	39.2	483	39.5	487	39.8	490	40.1	494	40.5	499	40.8	503	**1 232**
38.8	478	39.1	482	39.4	485	39.7	489	40.0	493	40.3	497	40.6	501	41.0	506	**1 233**
38.9	480	39.2	484	39.5	488	39.8	491	40.1	495	40.5	499	40.8	504	41.2	508	**1 234**
39.1	483	39.4	486	39.7	490	40.0	494	40.3	498	40.6	502	41.0	506	41.3	511	**1 235**
39.3	485	39.5	489	39.8	492	40.1	496	40.5	500	40.8	504	41.1	508	41.5	513	**1 236**
39.4	487	39.7	491	40.0	495	40.3	499	40.6	502	41.0	507	41.3	511	41.7	515	**1 237**
39.6	490	39.9	493	40.2	497	40.5	501	40.8	505	41.1	509	41.5	513	41.8	518	**1 238**
39.7	492	40.0	496	40.3	500	40.6	503	41.0	507	41.3	511	41.6	516	42.0	520	**1 239**
39.9	495	40.2	498	40.5	502	40.8	506	41.1	510	41.5	514	41.8	518	42.2	523	**1 240**
40.0	497	40.3	501	40.7	505	41.0	508	41.3	512	41.6	516	42.0	521	42.3	525	**1 241**
40.2	499	40.5	503	40.8	507	41.1	511	41.4	515	41.8	519	42.1	523	42.5	528	**1 242**

Table 1 — Density-composition table for aqueous solutions of nitric acid

D_t is the density (mass per unit volume) of solution (in kg/m^3) at a temperature t (in °C) [for many purposes it can be assumed that irrespective of the value of t the reading of a BS density hydrometer at t gives the density D_t, and that the reading of a 60/60 °F relative density hydrometer at t is numerically 0.001 greater than $D_{t/1\,000}$ (see Appendix A)].

g is the mass (in g) of HNO_3 in 100 g mass of solution.

G is the mass (in g) of HNO_3 in a quantity of solution occupying 1 L at the temperature stated at the head of the column.

t	10 °C		12 °C		14 °C		16 °C		18 °C		20 °C		22 °C		24 °C	
D_t	g	G	g	G	g	G	g	G	g	G	g	G	g	G	g	G
1 243	38.0	473	38.3	476	38.6	480	38.9	483	39.2	487	39.5	491	39.8	494	40.1	498
1 244	38.2	475	38.5	479	38.8	482	39.0	486	39.3	489	39.6	493	39.9	497	40.2	500
1 245	38.3	477	38.6	481	38.9	484	39.2	488	39.5	492	39.8	495	40.1	499	40.4	503
1 246	38.5	480	38.8	483	39.1	487	39.4	490	39.7	494	40.0	498	40.3	502	40.5	505
1 247	38.7	482	38.9	486	39.2	489	39.5	493	39.8	496	40.1	500	40.4	504	40.7	507
1 248	38.8	484	39.1	488	39.4	491	39.7	495	40.0	499	40.3	502	40.6	506	40.9	510
1 249	39.0	487	39.2	490	39.5	494	39.8	497	40.1	501	40.4	505	40.7	509	41.0	512
1 250	39.1	489	39.4	492	39.7	496	40.0	500	40.3	503	40.6	507	40.9	511	41.2	515
1 251	39.3	491	39.5	495	39.8	498	40.1	502	40.4	506	40.7	510	41.0	513	41.3	517
1 252	39.4	493	39.7	497	40.0	501	40.3	504	40.6	508	40.9	512	41.2	516	41.5	519
1 253	39.6	496	39.9	499	40.1	503	40.4	507	40.7	511	41.0	514	41.3	518	41.6	522
1 254	39.7	498	40.0	502	40.3	505	40.6	509	40.9	513	41.2	517	41.5	520	41.8	524
1 255	39.9	500	40.2	504	40.4	508	40.7	511	41.1	515	41.4	519	41.7	523	42.0	527
1 256	40.0	502	40.3	506	40.6	510	40.9	514	41.2	517	41.5	521	41.8	525	42.1	529
1 257	40.2	505	40.5	508	40.8	512	41.1	516	41.4	520	41.7	524	42.0	528	42.3	531
1 258	40.3	507	40.6	511	40.9	515	41.2	518	41.5	522	41.8	526	42.1	530	42.4	534
1 259	40.5	509	40.8	513	41.1	517	41.4	521	41.7	525	42.0	529	42.3	532	42.6	536
1 260	40.6	512	40.9	515	41.2	519	41.5	523	41.8	527	42.1	531	42.4	535	42.8	539
1 261	40.8	514	41.1	518	41.4	522	41.7	525	42.0	529	42.3	533	42.6	537	42.9	541
1 262	40.9	516	41.2	520	41.5	524	41.8	528	42.1	532	42.4	536	42.8	540	43.1	544
1 263	41.1	519	41.4	523	41.7	526	42.0	530	42.3	534	42.6	538	42.9	542	43.2	546
1 264	41.2	521	41.5	525	41.8	529	42.1	533	42.4	536	42.8	540	43.1	544	43.4	548
1 265	41.4	523	41.7	527	42.0	531	42.3	535	42.6	539	42.9	543	43.2	547	43.6	551
1 266	41.5	526	41.8	529	42.1	533	42.5	537	42.8	541	43.1	545	43.4	549	43.7	553
1 267	41.7	528	42.0	532	42.3	536	42.6	540	42.9	544	43.2	548	43.5	552	43.9	556
1 268	41.8	530	42.1	534	42.4	538	42.8	542	43.1	546	43.4	550	43.7	554	44.0	558
1 269	42.0	533	42.3	537	42.6	540	42.9	545	43.2	548	43.5	553	43.9	556	44.2	561
1 270	42.1	535	42.4	539	42.8	543	43.1	547	43.4	551	43.7	555	44.0	559	44.3	563
1 271	42.3	537	42.6	541	42.9	545	43.2	549	43.5	553	43.9	557	44.2	561	44.5	566
1 272	42.4	540	42.8	544	43.1	548	43.4	552	43.7	556	44.0	560	44.3	564	44.6	568
1 273	42.6	542	42.9	546	43.2	550	43.5	554	43.8	558	44.2	562	44.5	566	44.8	570
1 274	42.7	544	43.1	548	43.4	552	43.7	556	44.0	560	44.3	565	44.6	569	45.0	573
1 275	42.9	547	43.2	551	43.5	555	43.8	559	44.2	563	44.5	567	44.8	571	45.1	575
1 276	43.0	549	43.4	553	43.7	557	44.0	561	44.3	565	44.6	569	45.0	574	45.3	578
1 277	43.2	551	43.5	556	43.8	560	44.1	564	44.5	568	44.8	572	45.1	576	45.5	580
1 278	43.3	554	43.7	558	44.0	562	44.3	566	44.6	570	45.0	574	45.3	579	45.6	583
1 279	43.5	556	43.8	560	44.1	564	44.5	569	44.8	573	45.1	577	45.4	581	45.8	585
1 280	43.6	559	44.0	563	44.3	567	44.6	571	44.9	575	45.3	579	45.6	583	45.9	588
1 281	43.8	561	44.1	565	44.4	569	44.8	573	45.1	578	45.4	582	45.7	586	46.1	590
1 282	43.9	563	44.3	568	44.6	572	44.9	576	45.3	580	45.6	584	45.9	588	46.2	593
1 283	44.1	566	44.4	570	44.7	574	45.1	578	45.4	582	45.7	587	46.1	591	46.4	595
1 284	44.2	568	44.6	572	44.9	576	45.2	581	45.6	585	45.9	589	46.2	593	46.6	598

Table 1 — Density-composition table for aqueous solutions of nitric acid

D_t is the density (mass per unit volume) of solution (in kg/m³) at a temperature t (in °C) [for many purposes it can be assumed that irrespective of the value of t the reading of a BS density hydrometer at t gives the density D_t, and that the reading of a 60/60 °F relative density hydrometer at t is numerically 0.001 greater than $D_{t/1\,000}$ (see Appendix A)].
g is the mass (in g) of HNO_3 in 100 g mass of solution.
G is the mass (in g) of HNO_3 in a quantity of solution occupying 1 L at the temperature stated at the head of the column.

26 °C		28 °C		30 °C		32 °C		34 °C		36 °C		38 °C		40 °C		t
g	G	g	G	g	G	g	G	g	G	g	G	g	G	g	G	D_t
40.4	502	40.7	505	41.0	509	41.3	513	41.6	517	41.9	521	42.3	526	42.7	530	**1 243**
40.5	504	40.8	508	41.1	512	41.4	516	41.8	520	42.1	524	42.5	528	42.8	533	**1 244**
40.7	507	41.0	510	41.3	514	41.6	518	41.9	522	42.3	526	42.6	531	43.0	535	**1 245**
40.8	509	41.1	513	41.5	516	41.8	520	42.1	524	42.4	529	42.8	533	43.2	538	**1 246**
41.0	511	41.3	515	41.6	519	41.9	523	42.3	527	42.6	531	43.0	536	43.3	540	**1 247**
41.2	514	41.5	517	41.8	521	42.1	525	42.4	529	42.8	534	43.1	538	43.5	543	**1 248**
41.3	516	41.6	520	41.9	524	42.3	528	42.6	532	42.9	536	43.3	541	43.7	545	**1 249**
41.5	519	41.8	522	42.1	526	42.4	530	42.7	534	43.1	539	43.5	543	43.8	548	**1 250**
41.7	521	41.9	525	42.3	529	42.6	533	42.9	537	43.3	541	43.6	546	44.0	550	**1 251**
41.8	523	42.1	527	42.4	531	42.7	535	43.1	539	43.4	544	43.8	548	44.2	553	**1 252**
42.0	526	42.3	530	42.6	534	42.9	538	43.2	542	43.6	546	44.0	551	44.3	555	**1 253**
42.1	528	42.4	532	42.7	536	43.1	540	43.4	544	43.8	549	44.1	553	44.5	558	**1 254**
42.3	530	42.6	534	42.9	538	43.2	542	43.6	547	43.9	551	44.3	556	44.7	561	**1 255**
42.4	533	42.7	537	43.1	541	43.4	545	43.7	549	44.1	554	44.5	558	44.8	563	**1 256**
42.6	535	42.9	539	43.2	543	43.5	547	43.9	552	44.3	556	44.6	561	45.0	566	**1 257**
42.8	538	43.1	542	43.4	546	43.7	550	44.1	554	44.4	559	44.8	563	45.2	568	**1 258**
42.9	540	43.2	544	43.6	548	43.9	552	44.2	557	44.6	561	44.9	566	45.3	571	**1 259**
43.1	543	43.4	547	43.7	551	44.0	555	44.4	559	44.7	564	45.1	568	45.5	573	**1 260**
43.2	545	43.5	549	43.9	553	44.2	557	44.5	562	44.9	566	45.3	571	45.7	576	**1 261**
43.4	548	43.7	552	44.0	556	44.4	560	44.7	564	45.1	569	45.4	573	45.8	579	**1 262**
43.6	550	43.9	554	44.2	558	44.5	562	44.9	567	45.2	571	45.6	576	46.0	581	**1 263**
43.7	553	44.0	557	44.4	561	44.7	565	45.0	569	45.4	574	45.8	579	46.2	584	**1 264**
43.9	555	44.2	559	44.5	563	44.9	567	45.2	572	45.6	576	45.9	581	46.3	586	**1 265**
44.0	557	44.4	561	44.7	566	45.0	570	45.4	574	45.7	579	46.1	584	46.5	589	**1 266**
44.2	560	44.5	564	44.8	568	45.2	572	45.5	577	45.9	581	46.3	586	46.7	591	**1 267**
44.4	562	44.7	566	45.0	571	45.3	575	45.7	579	46.1	584	46.4	589	46.8	594	**1 268**
44.5	565	44.8	569	45.2	573	45.5	577	45.9	582	46.2	587	46.6	591	47.0	596	**1 269**
44.7	567	45.0	571	45.3	576	45.7	580	46.0	584	46.4	589	46.8	594	47.2	599	**1 270**
44.8	570	45.2	574	45.4	578	45.8	582	46.2	587	46.6	592	46.9	596	47.3	602	**1 271**
45.0	572	45.3	576	45.7	581	46.0	585	46.3	589	46.7	594	47.1	599	47.5	604	**1 272**
45.1	575	45.5	579	45.8	583	46.2	587	46.5	592	46.9	597	47.3	602	47.7	607	**1 273**
45.3	577	45.6	581	46.0	586	46.3	590	46.7	594	47.0	599	47.4	604	47.8	609	**1 274**
45.5	580	45.8	584	46.1	588	46.5	593	46.8	597	47.2	602	47.6	607	48.0	612	**1 275**
45.6	582	46.0	586	46.3	591	46.6	595	47.0	600	47.4	604	47.8	609	48.2	614	**1 276**
45.8	585	46.1	589	46.5	593	46.8	598	47.2	602	47.5	607	47.9	612	48.3	617	**1 277**
45.9	587	46.3	591	46.6	596	47.0	600	47.3	605	47.7	610	48.1	615	48.5	620	**1 278**
46.1	590	46.4	594	46.8	598	47.1	603	47.5	607	47.9	612	48.3	617	48.7	622	**1 279**
46.3	592	46.6	596	46.9	601	47.3	605	47.7	610	48.0	615	48.4	620	48.8	625	**1 280**
46.4	595	46.8	599	47.1	603	47.4	608	47.8	612	48.2	617	48.6	622	49.0	628	**1 281**
46.6	597	46.9	601	47.3	606	47.6	610	48.0	615	48.4	620	48.8	625	49.2	630	**1 282**
46.7	600	47.1	604	47.4	608	47.8	613	48.1	618	48.5	622	48.9	628	49.3	633	**1 283**
46.9	602	47.2	606	47.6	611	47.9	615	48.3	620	48.7	625	49.1	630	49.5	636	**1 284**

Table 1 — Density-composition table for aqueous solutions of nitric acid

D_t is the density (mass per unit volume) of solution (in kg/m^3) at a temperature t (in °C) [for many purposes it can be assumed that irrespective of the value of t the reading of a BS density hydrometer at t gives the density D_t, and that the reading of a 60/60 °F relative density hydrometer at t is numerically 0.001 greater than $D_{t/1\,000}$ (see Appendix A)].

g is the mass (in g) of HNO_3 in 100 g mass of solution.

G is the mass (in g) of HNO_3 in a quantity of solution occupying 1 L at the temperature stated at the head of the column.

t	10 °C		12 °C		14 °C		16 °C		18 °C		20 °C		22 °C		24 °C	
D_t	g	G	g	G	g	G	g	G	g	G	g	G	g	G	g	G
1 285	44.4	570	44.7	575	45.1	579	45.4	583	45.7	587	46.0	592	46.4	596	46.7	600
1 286	44.6	573	44.9	577	45.2	581	45.5	586	45.9	590	46.2	594	46.5	598	46.9	603
1 287	44.7	575	45.0	580	45.4	584	45.7	588	46.0	592	46.4	597	46.7	601	47.0	605
1 288	44.9	578	45.2	582	45.5	586	45.8	590	46.2	595	46.5	599	46.8	605	47.2	608
1 289	45.0	580	45.3	584	45.7	589	46.0	593	46.3	597	46.7	601	47.0	606	47.3	610
1 290	45.2	582	45.5	587	45.8	591	46.2	595	46.5	600	46.8	604	47.2	608	47.5	613
1 291	45.3	585	45.6	589	46.0	593	46.3	598	46.6	602	47.0	606	47.3	611	47.7	615
1 292	45.5	587	45.8	592	46.1	596	46.5	600	46.8	605	47.1	609	47.5	613	47.8	618
1 293	45.6	590	46.0	594	46.3	598	46.6	603	47.0	607	47.3	611	47.6	616	48.0	620
1 294	45.7	592	46.1	597	45.4	601	46.8	605	47.1	610	47.4	614	47.8	618	48.1	623
1 295	45.9	595	46.3	599	46.6	603	46.9	608	47.3	612	47.6	616	47.9	621	48.3	625
1 296	46.1	597	46.4	601	46.7	606	47.1	610	47.4	615	47.8	619	48.1	623	48.4	628
1 297	46.2	600	46.6	604	46.9	608	47.2	613	47.6	617	47.9	621	48.3	626	48.6	630
1 298	46.4	602	46.7	606	47.0	611	47.4	615	47.7	620	48.1	624	48.4	628	48.8	633
1 299	46.5	604	46.9	609	47.2	613	47.5	618	47.9	622	48.2	626	48.6	631	48.9	635
1 300	46.7	607	47.0	611	47.4	616	47.7	620	48.0	624	48.4	628	48.7	633	49.1	638
1 301	46.8	609	47.2	614	47.5	618	47.9	623	48.2	627	48.5	631	48.9	636	49.3	641
1 302	47.0	612	47.5	616	47.7	620	48.0	625	48.3	629	48.7	634	49.0	638	49.4	644
1 303	47.1	614	47.5	619	47.8	623	48.2	628	48.5	632	48.8	636	49.2	641	49.6	646
1 304	47.3	617	47.6	621	48.0	625	48.3	630	48.7	634	49.0	639	49.4	644	49.8	649
1 305	47.4	619	47.8	624	48.1	628	48.5	633	48.8	637	49.2	642	49.5	646	49.9	652
1 306	47.6	622	47.9	626	48.3	630	48.6	635	49.0	639	49.3	644	49.7	649	50.1	654
1 307	47.8	624	48.1	629	48.4	633	48.8	637	49.1	642	49.5	647	49.9	652	50.3	657
1 308	47.9	627	48.2	631	48.6	635	48.9	640	49.3	645	49.7	650	50.0	655	50.4	660
1 309	48.1	629	48.4	633	48.7	638	49.1	643	49.5	647	49.8	652	50.2	657	50.6	662
1 310	48.2	631	48.5	636	48.9	640	49.3	645	49.6	650	50.0	655	50.4	660	50.8	665
1 311	48.4	634	48.7	638	49.1	643	49.4	648	49.8	653	50.2	658	50.5	663	51.0	668
1 312	48.5	636	48.9	641	49.2	646	49.6	650	50.0	655	50.3	660	50.7	665	51.1	671
1 313	48.7	639	49.0	643	49.4	648	49.7	653	50.1	658	50.5	663	50.9	668	51.3	675
1 314	48.8	641	49.2	646	49.5	651	49.9	655	50.3	661	50.7	666	51.1	671	51.5	676
1 315	49.0	644	49.3	649	49.7	654	50.1	658	50.5	664	50.8	668	51.2	674	51.6	679
1 316	49.1	646	49.5	651	49.9	656	50.2	661	50.6	666	51.0	671	51.4	676	51.8	682
1 317	49.3	649	49.7	654	50.0	659	50.4	664	50.8	669	51.2	674	51.6	679	52.0	684
1 318	49.4	652	49.8	656	50.2	662	50.6	667	51.0	672	51.3	677	51.7	682	52.1	687
1 319	49.6	654	50.0	659	50.4	664	50.7	669	51.1	674	51.5	679	51.9	685	52.3	690
1 320	49.8	657	50.1	662	50.5	667	50.9	672	51.3	677	51.7	682	52.1	687	52.5	693
1 321	49.9	659	50.3	664	50.7	670	51.1	675	51.5	680	51.9	685	52.3	690	52.7	696
1 322	50.1	662	50.5	667	50.9	672	51.2	677	51.6	683	52.0	688	52.1	693	52.8	698
1 323	50.3	665	50.6	670	51.0	675	51.4	680	51.8	685	52.2	690	52.6	696	53.0	701

Table 1 — Density-composition table for aqueous solutions of nitric acid

D_t is the density (mass per unit volume) of solution (in kg/m³) at a temperature t (in °C) [for many purposes it can be assumed that irrespective of the value of t the reading of a BS density hydrometer at t gives the density D_t, and that the reading of a 60/60 °F relative density hydrometer at t is numerically 0.001 greater than $D_{t/1\,000}$ (see Appendix A)].
g is the mass (in g) of HNO_3 in 100 g mass of solution.
G is the mass (in g) of HNO_3 in a quantity of solution occupying 1 L at the temperature stated at the head of the column.

26 °C		28 °C		30 °C		32 °C		34 °C		36 °C		38 °C		40 °C		t
g	G	g	G	g	G	g	G	g	G	g	G	g	G	g	G	D_t
47.1	605	47.4	609	47.7	613	48.1	618	48.5	623	48.8	627	49.3	633	49.7	639	**1 285**
47.2	607	47.5	611	47.9	616	48.2	620	48.6	625	49.0	630	49.4	636	49.9	641	**1 286**
47.4	610	47.7	614	48.1	619	48.4	623	48.8	628	49.2	633	49.6	639	50.1	644	**1 287**
47.5	612	47.9	616	48.2	621	48.6	625	48.9	630	49.4	636	49.8	641	50.2	647	**1 288**
47.7	615	48.0	619	48.4	623	48.7	628	49.1	633	49.5	639	50.0	644	50.4	650	**1 289**
47.8	617	48.2	622	48.5	626	48.9	631	49.3	636	49.7	641	50.1	647	50.6	653	**1 290**
48.0	620	48.4	624	48.7	629	49.1	633	49.5	639	49.9	644	50.3	650	50.8	655	**1 291**
48.2	622	48.5	627	48.9	631	49.2	636	49.6	641	50.0	647	50.5	652	51.0	658	**1 292**
48.3	625	48.7	629	49.0	634	49.4	639	49.8	644	50.3	650	50.7	655	51.1	661	**1 293**
48.5	627	48.8	632	49.2	637	49.6	642	50.0	647	50.4	652	50.8	658	51.3	664	**1 294**
48.6	630	48.9	634	49.4	639	49.8	644	50.2	650	50.6	655	51.0	661	51.5	667	**1 295**
48.8	632	49.2	637	49.5	642	49.9	647	50.3	652	50.8	658	51.2	664	51.7	670	**1 296**
48.9	635	49.3	640	49.7	645	50.1	650	50.5	655	51.0	661	51.4	666	51.9	673	**1 297**
49.1	637	49.5	643	49.9	647	50.3	653	50.7	658	51.1	664	51.6	669	52.1	676	**1 298**
49.3	640	49.7	645	50.1	650	50.5	655	50.9	661	51.3	666	51.8	672	52.2	678	**1 299**
49.5	643	49.8	648	50.2	653	50.6	658	51.0	663	51.5	669	51.9	675	52.4	681	**1 300**
49.6	646	50.0	651	50.4	656	50.8	661	51.2	666	51.7	672	52.1	679	52.6	684	**1 301**
49.8	648	50.2	653	50.6	658	51.0	664	51.4	669	51.8	675	52.3	681	52.8	687	**1 302**
50.0	651	50.4	656	50.7	661	51.2	666	51.6	672	52.0	678	52.5	684	53.0	690	**1 303**
50.1	654	50.5	659	50.9	664	51.3	669	51.8	675	52.2	680	52.7	687	53.1	693	**1 304**
50.3	657	50.7	662	51.1	667	51.5	672	51.9	678	52.4	683	52.8	690	53.3	696	**1 305**
50.5	659	50.9	664	51.3	669	51.7	675	52.1	680	52.6	686	53.0	693	53.5	699	**1 306**
50.7	662	51.0	667	51.4	672	51.9	678	52.3	683	52.7	689	53.2	695	53.7	702	**1 307**
50.8	665	51.2	670	51.6	675	52.0	681	52.5	686	52.9	692	53.4	698	53.9	705	**1 308**
51.0	667	51.4	673	51.8	678	52.2	683	52.6	689	53.1	695	53.6	701	54.1	708	**1 309**
51.2	670	51.6	675	52.0	681	52.4	686	52.8	692	53.3	698	53.8	704	54.2	711	**1 310**
51.3	673	51.7	678	52.1	684	52.6	689	53.0	695	53.5	701	53.9	707	54.4	714	**1 311**
51.5	676	51.9	681	52.3	686	52.7	692	53.2	698	53.6	704	54.1	710	54.6	717	**1 312**
51.7	679	52.1	684	52.5	689	52.9	695	53.4	701	53.8	707	54.3	713	54.8	720	**1 313**
51.9	681	52.3	687	52.7	692	53.1	698	53.5	703	54.0	710	54.5	716	55.0	723	**1 314**
52.0	684	52.4	689	52.9	695	53.3	701	53.7	706	54.2	713	54.7	719	55.2	726	**1 315**
52.2	687	52.6	692	53.0	698	53.5	704	53.9	709	54.4	716	54.9	722	55.4	729	**1 316**
52.4	690	52.8	695	53.2	701	53.6	706	54.1	712	54.6	719	55.1	725	55.6	732	**1 317**
52.6	693	53.0	698	53.4	704	53.8	709	54.3	715	54.7	722	55.2	728	55.7	735	**1 318**
52.7	696	53.1	701	53.6	706	54.0	712	54.5	718	54.9	725	55.4	731	55.9	738	**1 319**
52.9	698	53.3	704	53.7	709	54.2	715	54.6	721	55.1	728	55.6	734	56.1	741	**1 320**
53.1	701	53.5	706	53.9	712	54.4	718	54.8	724	55.3	731	55.8	737	56.3	744	**1 321**
53.3	704	53.7	709	54.1	715	54.6	721	55.0	727	55.5	734	56.0	740	56.5	747	**1 322**
53.4	707	53.8	712	54.3	718	54.7	724	55.2	730	55.7	737	56.2	743	56.7	750	**1 323**

Table 1 — Density-composition table for aqueous solutions of nitric acid

D_t is the density (mass per unit volume) of solution (in kg/m³) at a temperature t (in °C) [for many purposes it can be assumed that irrespective of the value of t the reading of a BS density hydrometer at t gives the density D_t, and that the reading of a 60/60 °F relative density hydrometer at t is numerically 0.001 greater than $D_{t/1\,000}$ (see Appendix A)].

g is the mass (in g) of HNO_3 in 100 g mass of solution.

G is the mass (in g) of HNO_3 in a quantity of solution occupying 1 L at the temperature stated at the head of the column.

t	10 °C		12 °C		14 °C		16 °C		18 °C		20 °C		22 °C		24 °C	
D_t	g	G	g	G	g	G	g	G	g	G	g	G	g	G	g	G
1 324	50.4	667	50.8	672	51.2	678	51.6	683	52.0	688	52.4	693	52.8	699	53.2	704
1 325	50.6	670	51.0	675	51.3	680	51.7	685	52.1	691	52.5	696	52.9	701	53.4	707
1 326	50.7	673	51.1	678	51.5	683	51.9	688	52.3	693	52.7	699	53.1	704	53.5	710
1 327	50.9	675	51.3	680	51.7	686	52.1	691	52.5	696	52.9	702	53.3	707	53.7	713
1 328	51.1	678	51.5	683	51.8	688	52.2	694	52.6	699	53.0	704	53.5	710	53.9	716
1 329	51.2	681	51.6	686	52.0	691	52.4	696	52.8	702	53.2	707	53.6	713	54.1	718
1 330	51.4	683	51.8	689	52.2	694	52.6	699	53.0	705	53.4	710	53.8	716	54.2	721
1 331	51.5	686	51.9	691	52.3	697	52.7	702	53.1	707	53.6	713	54.0	718	54.4	724
1 332	51.7	689	52.1	694	52.5	699	52.9	705	53.3	710	53.7	716	54.2	721	54.6	727
1 333	51.9	691	52.3	697	52.7	702	53.1	707	53.5	713	53.9	710	54.3	724	54.8	730
1 334	52.0	694	52.4	699	52.8	705	53.2	710	53.7	716	54.1	721	54.5	727	54.9	733
1 335	52.2	697	52.6	702	53.0	708	53.4	713	53.8	719	54.3	724	54.7	730	55.1	736
1 336	52.4	700	52.8	705	53.2	710	53.6	716	54.0	721	54.4	727	54.9	733	55.3	739
1 337	52.5	702	52.9	708	53.3	713	53.8	719	54.2	724	54.6	730	55.0	736	55.5	742
1 338	52.7	705	53.1	710	53.5	716	53.9	722	54.4	727	54.8	733	55.2	739	55.7	745
1 339	52.9	708	53.3	713	53.7	719	54.1	724	54.5	730	55.0	736	55.4	742	55.9	748
1 340	53.0	710	53.4	716	53.8	721	54.3	727	54.7	733	55.1	739	55.6	745	56.0	751
1 341	53.2	713	53.6	719	54.0	724	54.5	730	54.9	736	55.5	742	55.8	748	56.2	754
1 342	53.4	716	53.8	722	54.2	727	54.6	733	55.1	739	55.5	745	55.9	751	56.4	757
1 343	53.5	719	54.0	725	54.4	730	54.8	736	55.2	742	55.7	747	56.1	754	56.6	760
1 344	53.7	721	54.1	727	54.6	733	55.0	739	55.4	745	55.8	750	56.3	757	56.8	763
1 345	53.8	724	54.3	730	54.7	736	55.1	741	55.6	747	56.0	753	56.5	760	56.9	766
1 346	54.0	727	54.5	733	54.9	739	55.3	744	55.8	750	56.2	756	56.7	763	57.1	769
1 347	54.2	730	54.6	736	55.1	742	55.5	747	55.9	753	56.4	759	56.8	766	57.3	772
1 348	54.4	733	54.8	739	55.2	744	55.7	750	56.1	756	56.6	762	57.0	769	57.5	775
1 349	54.5	735	55.0	742	55.4	747	55.8	753	56.3	759	56.7	765	57.2	772	57.7	778
1 350	54.7	738	55.1	744	55.6	750	56.0	756	56.5	762	56.9	768	57.4	775	57.9	781
1 351	54.9	741	55.3	747	55.7	753	56.2	759	56.6	765	57.1	771	57.6	778	58.0	784
1 352	55.0	744	55.5	750	55.9	756	56.4	762	56.8	768	57.3	774	57.8	781	58.2	787
1 353	55.2	747	55.7	753	56.1	759	56.5	765	57.0	771	57.5	777	57.9	784	58.4	790
1 354	55.4	750	55.8	756	56.3	762	56.7	768	57.2	774	57.6	780	58.1	787	58.6	793
1 355	55.6	753	56.0	759	56.5	765	56.9	771	57.4	777	57.8	783	58.3	790	58.8	797
1 356	55.7	756	56.2	762	56.6	768	57.1	774	57.5	780	58.0	786	58.5	793	59.0	800
1 357	55.9	758	56.4	765	56.8	771	57.3	777	57.7	783	58.2	790	58.7	796	59.2	803
1 358	56.1	761	56.5	768	57.0	774	57.4	780	57.9	786	58.4	793	58.9	799	59.4	806
1 359	56.2	764	56.7	771	57.2	777	57.6	783	58.1	789	58.6	796	59.1	802	59.6	809
1 360	56.4	767	56.9	774	57.3	780	57.8	786	58.3	792	58.7	799	59.2	806	59.8	813
1 361	56.6	770	57.1	776	57.5	783	58.0	789	58.4	795	58.9	802	59.4	809	59.9	816
1 362	56.8	773	57.2	779	57.7	786	58.2	792	58.6	799	59.1	805	59.6	812	60.1	819
1 363	56.9	776	57.4	782	57.9	789	58.5	795	58.8	802	59.3	808	59.8	815	60.3	823
1 364	57.1	779	57.6	785	58.1	792	58.5	798	59.0	805	59.5	811	60.0	818	60.5	826
1 365	57.3	782	57.8	788	58.2	795	58.7	801	59.2	808	59.7	815	60.2	822	60.7	829

Table 1 — Density-composition table for aqueous solutions of nitric acid

D_t is the density (mass per unit volume) of solution (in kg/m³) at a temperature t (in °C) [for many purposes it can be assumed that irrespective of the value of t the reading of a BS density hydrometer at t gives the density D_t, and that the reading of a 60/60 °F relative density hydrometer at t is numerically 0.001 greater than $D_{t/1\,000}$ (see Appendix A)].
g is the mass (in g) of HNO_3 in 100 g mass of solution.
G is the mass (in g) of HNO_3 in a quantity of solution occupying 1 L at the temperature stated at the head of the column.

26 °C		28 °C		30 °C		32 °C		34 °C		36 °C		38 °C		40 °C		t
g	G	g	G	g	G	g	G	g	G	g	G	g	G	g	G	D_t
53.6	710	54.0	715	54.5	721	54.9	727	55.4	733	55.9	740	56.4	746	56.9	753	**1 324**
53.8	712	54.2	718	54.6	724	55.1	730	55.6	736	56.1	743	56.6	750	57.1	756	**1 325**
54.0	715	54.4	721	54.8	727	55.3	733	55.8	739	56.3	746	56.8	753	57.3	759	**1 326**
54.1	718	54.6	724	55.0	730	55.5	736	56.0	742	56.5	749	57.0	756	57.5	763	**1 327**
54.3	721	54.7	727	55.2	733	55.6	739	56.1	746	56.7	752	57.2	759	57.7	766	**1 328**
54.5	724	54.9	730	55.4	736	55.8	742	56.3	749	56.8	755	57.3	762	57.8	769	**1 329**
54.7	727	55.1	733	55.6	739	56.0	745	56.5	752	57.0	759	57.5	765	58.0	772	**1 330**
54.8	730	55.3	736	55.7	742	56.2	748	56.7	755	57.2	762	57.7	768	58.2	775	**1 331**
55.0	733	55.5	739	55.9	745	56.4	751	56.9	758	57.4	765	57.9	771	58.4	778	**1 332**
55.2	736	55.7	742	56.1	748	56.6	754	57.1	761	57.6	768	58.1	775	58.6	782	**1 333**
55.4	739	55.8	745	56.3	751	56.8	758	57.3	764	57.8	771	58.3	778	58.8	785	**1 334**
55.6	742	56.0	748	56.5	754	57.0	761	57.5	767	58.0	774	58.5	781	59.0	788	**1 335**
55.8	745	56.2	751	56.7	757	57.2	764	57.7	770	58.2	777	58.7	784	59.2	791	**1 336**
55.9	748	56.4	754	56.9	760	57.4	767	57.9	773	58.4	780	58.9	787	59.4	795	**1 337**
56.1	751	56.6	757	57.1	763	57.6	770	58.0	777	58.6	784	59.1	791	59.6	798	**1 338**
56.3	754	56.8	760	57.3	767	57.7	773	58.2	780	58.8	787	59.3	794	59.8	801	**1 339**
56.5	757	57.0	763	57.4	770	57.9	776	58.4	783	59.0	790	59.5	797	60.1	805	**1 340**
56.7	760	57.1	766	57.6	773	58.1	779	58.6	786	59.2	793	59.7	800	60.3	808	**1 341**
56.9	763	57.3	769	57.8	776	58.3	783	58.8	789	59.4	796	59.9	804	60.5	811	**1 342**
57.0	766	57.5	772	58.0	779	58.5	786	59.0	793	59.6	800	60.1	807	60.7	815	**1 343**
57.2	769	57.7	775	58.2	782	58.7	789	59.2	796	59.8	803	60.3	810	60.9	818	**1 344**
57.4	772	57.9	778	58.4	785	58.9	792	59.4	799	60.0	806	60.5	814	61.1	821	**1 345**
57.6	775	58.1	782	58.6	788	59.1	795	59.6	802	60.2	810	60.7	817	61.3	825	**1 346**
57.8	778	58.3	785	58.8	792	59.3	799	59.8	806	60.4	813	60.9	820	61.5	828	**1 347**
58.0	781	58.5	788	59.0	795	59.5	802	60.0	809	60.6	816	61.1	824	61.7	832	**1 348**
58.2	784	58.7	791	59.2	798	59.7	805	60.2	812	60.8	820	61.3	827	61.9	835	**1 349**
58.3	788	58.8	794	59.4	801	59.9	808	60.4	816	61.0	825	61.5	831	62.1	839	**1 350**
58.5	791	59.0	797	59.6	805	61.1	812	60.6	819	61.2	826	61.8	834	62.4	842	**1 351**
58.7	794	59.2	801	59.7	808	60.3	815	60.8	822	61.4	830	62.0	838	62.6	846	**1 352**
58.9	797	59.4	804	59.9	811	60.5	818	61.0	826	61.6	833	62.2	841	62.8	849	**1 353**
59.1	800	59.6	807	60.1	814	60.7	822	61.2	829	61.8	837	62.4	845	63.0	853	**1 354**
59.3	804	59.8	810	60.3	818	60.9	825	61.4	833	62.0	840	62.6	848			**1 355**
59.5	807	60.0	814	60.5	821	61.1	828	61.6	836	62.2	844	62.8	852			**1 356**
59.7	810	60.2	817	60.7	824	61.3	832	61.9	839	62.5	847					**1 357**
59.9	813	60.4	820	61.0	828	61.5	835	62.1	843	62.7	851					**1 368**
60.1	816	60.6	824	61.2	831	61.7	839	62.3	846	62.9	855					**1 359**
60.3	820	60.8	827	61.4	834	61.9	842	62.5	850							**1 360**
60.5	823	61.0	830	61.6	838	62.1	845	62.7	853							**1 361**
60.7	826	61.2	834	61.8	841	62.3	849	62.9	857							**1 362**
60.9	830	61.4	837	62.0	845	62.6	853									**1 363**
61.1	833	61.6	840	62.2	848	62.8	856									**1 364**
61.3	836	61.8	844	62.4	852	63.0	860									**1 365**

Table 1 — Density-composition table for aqueous solutions of nitric acid

D_t is the density (mass per unit volume) of solution (in kg/m^3) at a temperature t (in °C) [for many purposes it can be assumed that irrespective of the value of t the reading of a BS density hydrometer at t gives the density D_t, and that the reading of a 60/60 °F relative density hydrometer at t is numerically 0.001 greater than $D_{t/1\,000}$ (see Appendix A)].

g is the mass (in g) of HNO_3 in 100 g mass of solution.

G is the mass (in g) of HNO_3 in a quantity of solution occupying 1 L at the temperature stated at the head of the column.

t	10 °C		12 °C		14 °C		16 °C		18 °C		20 °C		22 °C		24 °C	
D_t	g	G	g	G	g	G	g	G	g	G	g	G	g	G	g	G
1 366	57.5	785	57.9	791	58.4	798	58.9	804	59.4	811	59.9	818	60.4	825	60.9	832
1 367	57.6	788	58.1	794	58.6	801	59.1	807	59.6	814	60.1	821	60.6	828	61.1	836
1 368	57.8	791	58.3	797	58.8	804	59.3	811	59.8	817	60.3	824	60.8	831	61.3	839
1 369	58.0	794	58.5	800	59.0	807	59.4	814	59.9	821	60.5	828	61.0	835	61.5	842
1 370	58.2	797	58.7	804	59.1	810	59.6	817	60.1	824	60.6	831	61.2	838	61.7	846
1 371	58.3	800	58.8	807	59.3	813	59.8	820	60.3	827	60.8	834	61.4	841	61.9	849
1 372	58.5	803	59.0	810	59.5	816	60.0	823	60.5	830	61.0	837	61.6	845	62.1	852
1 373	58.7	806	59.2	813	59.7	819	60.2	826	60.7	833	61.2	841	61.8	848	62.3	856
1 374	58.9	809	59.4	816	59.9	822	60.4	829	60.9	837	61.4	844	62.0	851	62.5	859
1 375	59.1	812	59.6	819	60.1	826	60.6	833	61.1	840	61.6	847	62.2	855	62.7	863
1 376	59.2	815	59.8	822	60.2	829	60.8	836	61.3	843	61.8	851	62.4	858	63.0	866
1 377	59.4	818	59.9	825	60.4	832	60.9	839	61.5	847	62.0	854	62.6	862	63.2	870
1 378	59.6	821	60.1	828	60.6	835	61.1	843	61.7	850	62.2	858	62.8	865	63.4	873
1 379	59.8	825	60.3	832	60.8	838	61.3	846	61.9	853	62.4	861	63.0	869	63.6	877
1 380	60.0	828	60.5	835	61.0	842	61.5	849	62.1	857	62.6	864	63.2	872	63.8	880
1 381	60.2	831	60.7	838	61.2	845	61.7	853	62.3	860	62.8	868	63.4	876	64.0	884
1 382	60.4	834	60.9	841	61.4	848	61.9	856	62.5	863	63.1	871	63.6	880	64.2	887
1 383	60.5	837	61.1	844	61.6	852	62.1	859	62.7	867	63.3	875	63.9	883	64.5	891
1 384	60.7	841	61.2	848	61.8	855	62.3	863	62.9	870	63.5	878	64.1	887	64.7	895
1 385	60.9	844	61.4	851	62.0	858	62.5	866	63.1	874	63.7	882	64.3	890	64.9	899
1 386	61.1	847	61.6	854	62.2	862	62.7	869	63.3	877	63.9	885	64.5	894	65.1	902
1 387	61.3	850	61.8	857	62.4	865	62.9	873	63.5	881	64.1	889	64.7	897	65.3	906
1 388	61.5	853	62.0	861	62.6	868	63.1	876	63.7	884	64.3	892	64.9	901	65.5	910
1 389	61.7	857	62.2	864	62.8	872	63.3	879	63.9	888	64.5	896	65.1	905	65.8	913
1 390	61.9	860	62.4	867	63.0	875	63.3	883	64.1	891	64.7	900	65.4	908	66.0	917
1 391	62.1	863	62.6	871	63.2	879	63.8	887	64.3	895	64.9	903	65.6	912	66.2	921
1 392	62.3	867	62.8	874	63.4	882	64.0	890	64.6	899	65.1	907	65.8	916	66.4	924
1 393	62.5	870	63.0	878	63.6	886	64.2	894	64.8	902	65.4	911	66.0	919	66.6	928
1 394	62.7	873	63.2	881	63.8	889	64.4	897	65.0	906	65.6	914	66.2	923	66.9	932
1 395	62.8	877	63.4	885	64.0	893	64.6	901	65.2	909	65.8	918	66.4	927	67.1	936
1 396	63.0	880	63.6	888	64.2	896	64.8	905	65.4	913	66.0	922	66.7	931	67.3	940
1 397	63.2	883	63.8	892	64.4	900	65.0	908	65.6	917	66.3	926	66.9	934	67.5	944
1 398	63.5	887	64.0	895	64.6	904	65.2	912	65.8	920	66.5	930	67.1	938	67.8	947
1 399	63.7	890	64.2	899	64.8	907	65.4	916	66.1	924	66.7	933	67.3	942	68.0	951
1 400	63.9	894	64.5	902	65.1	911	65.7	919	66.3	928	66.9	937	67.6	946	68.2	955
1 401	64.1	898	64.7	906	65.3	914	65.9	923	66.5	932	67.1	940	67.8	950	68.5	959
1 402	64.3	901	64.9	909	65.5	918	66.1	926	66.7	935	67.4	944	68.0	954	68.7	963
1 403	64.5	905	65.1	913	65.7	921	66.3	930	66.9	939	67.6	948	68.3	958	68.9	967
1 404	64.7	908	65.3	917	65.9	925	66.5	934	67.2	943	67.8	952	68.5	962	69.2	971

Table 1 — Density-composition table for aqueous solutions of nitric acid

D_t is the density (mass per unit volume) of solution (in kg/m^3) at a temperature t (in °C) [for many purposes it can be assumed that irrespective of the value of t the reading of a BS density hydrometer at t gives the density D_t, and that the reading of a 60/60 °F relative density hydrometer at t is numerically 0.001 greater than $D_{t/1\,000}$ (see Appendix A)].
g is the mass (in g) of HNO_3 in 100 g mass of solution.
G is the mass (in g) of HNO_3 in a quantity of solution occupying 1 L at the temperature stated at the head of the column.

26 °C		28 °C		30 °C		32 °C		34 °C		36 °C		38 °C		40 °C		t
g	G	g	G	g	G	g	G	g	G	g	G	g	G	g	G	D_t
61.5	840	62.0	847	62.6	855											**1 366**
61.7	843	62.2	851	62.8	859											**1 367**
61.9	846	62.4	854	63.0	862											**1 368**
62.1	850	62.7	858	63.2	866											**1 369**
62.3	853	62.9	861	63.5	869											**1 370**
62.5	857	63.1	865	63.7	873											**1 371**
62.7	860	63.3	868	63.9	877											**1 372**
62.9	864	63.5	872	64.1	880											**1 373**
63.1	867	63.7	876	64.3	884											**1 374**
63.3	871	63.9	879	64.6	888											**1 375**
63.6	874	64.2	883	64.8	891											**1 376**
63.8	878	64.4	887	65.0	895											**1 377**
64.0	882	64.6	890	65.2	899											**1 378**
64.2	885	64.8	894	65.5	903											**1 379**
64.4	889	65.1	898	65.7	906											**1 380**
64.7	893	65.3	901	65.9	910											**1 381**
64.9	896	65.5	905	66.1	914											**1 382**
65.1	900	65.7	909	66.4	918											**1 383**
65.3	904	65.9	913	66.6	922											**1 384**
65.5	908	66.2	916	66.8	926											**1 385**
65.7	911	66.4	920	67.1	930											**1 386**
66.0	915	66.6	924	67.3	933											**1 387**
66.2	919	66.9	928	67.5	937											**1 388**
66.4	922	67.1	932	67.8	941											**1 389**
66.6	926	67.3	936	68.0	945											**1 390**
66.9	930	67.5	939	68.2	950											**1 391**
67.1	934	67.8	943	68.5	953											**1 392**
67.3	938	68.0	947	68.7	957											**1 393**
67.5	941	68.2	951	69.0	961											**1 394**
67.8	945	68.5	955	69.2	965											**1 395**
68.0	949	68.7	959	69.5	970											**1 396**
68.2	953	68.9	963	69.7	974											**1 397**
68.5	957	69.2	967	69.9	978											**1 398**
68.7	961	69.4	971	70.2	982											**1 399**
68.9	965	69.7	975	70.4	986											**1 400**
69.2	969	69.9	979	70.7	990											**1 401**
69.4	973	70.1	983	70.9	994											**1 402**
69.6	977	70.4	988	71.2	999											**1 403**
69.9	981	70.6	992	71.4	1 003											**1 404**

Table 1 — Density-composition table for aqueous solutions of nitric acid

D_t is the density (mass per unit volume) of solution (in kg/m^3) at a temperature t (in °C) [for many purposes it can be assumed that irrespective of the value of t the reading of a BS density hydrometer at t gives the density D_t, and that the reading of a 60/60 °F relative density hydrometer at t is numerically 0.001 greater than $D_{t/1\,000}$ (see Appendix A)].

g is the mass (in g) of HNO_3 in 100 g mass of solution.

G is the mass (in g) of HNO_3 in a quantity of solution occupying 1 L at the temperature stated at the head of the column.

t	10 °C		12 °C		14 °C		16 °C		18 °C		20 °C		22 °C		24 °C	
D_t	g	G	g	G	g	G	g	G	g	G	g	G	g	G	g	G
1 405	64.9	912	65.5	920	66.1	929	66.7	938	67.4	947	68.1	956	68.7	966	69.4	975
1 406	65.1	915	65.7	924	66.3	933	67.0	941	67.6	951	68.3	960	69.0	969	69.6	979
1 407	65.3	919	65.9	928	66.5	936	67.2	945	67.8	954	68.5	964	69.2	973	69.9	983
1 408	65.5	923	66.1	931	66.8	940	67.4	949	68.1	958	68.8	968	69.4	977	70.1	987
1 409	65.7	926	66.4	935	67.0	943	67.6	953	68.3	962	69.0	972	69.7	981	70.4	991
1 410	65.9	930	66.6	938	67.2	947	67.8	957	68.5	966	69.2	976	69.9	985	70.6	995
1 411	66.2	934	66.8	942	67.4	951	68.1	960	68.7	970	69.4	980	70.1	989	70.8	1 000
1 412	66.4	937	67.0	946	67.6	955	68.3	964	69.0	974	69.7	984	70.4	993	71.1	1 004
1 413	66.6	941	67.2	950	67.8	959	68.5	968	69.2	978	69.9	988	70.6	998	71.3	1 008
1 414	66.8	944	67.4	953	68.1	962	68.8	972	69.4	982	70.1	992	70.9	1 002	71.6	1 012
1 415	67.0	948	67.7	957	68.3	966	69.0	976	69.7	986	70.4	996	71.1	1 006	71.8	1 016
1 416	67.2	952	67.9	961	68.5	970	69.2	980	69.9	990	70.6	1 000	71.3	1 010	72.1	1 020
1 417	67.4	956	68.1	965	68.8	974	69.4	984	70.1	994	70.9	1 004	71.6	1 014	72.3	1 025
1 418	67.7	959	68.3	969	69.0	978	69.7	988	70.4	998	71.1	1 008	71.8	1 018	72.6	1 029
1 419	67.9	963	68.5	972	69.2	982	69.9	992	70.6	1 002	71.3	1 012	72.1	1 023	72.8	1 033
1 420	68.1	967	68.8	976	69.4	986	70.1	996	70.8	1 006	71.6	1 016	72.3	1 027	73.1	1 038
1 421	68.3	971	69.0	980	69.7	990	70.4	1 000	71.1	1 010	71.8	1 020	72.6	1 031	73.3	1 042
1 422	68.5	975	69.2	984	69.9	994	70.6	1 004	71.3	1 014	72.1	1 025	72.8	1 035	73.6	1 046
1 423	68.8	978	69.4	988	70.1	998	70.8	1 008	71.6	1 018	72.3	1 029	73.1	1 040	73.8	1 050
1 424	69.0	982	69.7	992	70.4	1 002	71.1	1 012	71.8	1 022	72.6	1 033	73.3	1 044	74.1	1 055
1 425	69.2	986	69.9	996	70.6	1 006	71.3	1 016	72.0	1 027	72.8	1 037	73.6	1 048	74.4	1 060
1 426	69.4	990	70.1	1 000	70.8	1 010	71.6	1 020	72.3	1 031	73.1	1 042	73.8	1 053	74.6	1 064
1 427	69.7	994	70.4	1 004	71.1	1 014	71.8	1 024	72.5	1 035	73.3	1 046	74.1	1 057	74.9	1 069
1 428	69.9	998	70.6	1 008	71.3	1 018	72.0	1 028	72.8	1 039	73.6	1 050	74.3	1 062	75.2	1 073
1 429	70.1	1 002	70.8	1 012	71.5	1 022	72.3	1 033	73.0	1 044	73.8	1 105	74.6	1 066	75.4	1 078
1 430	70.4	1 006	71.1	1 016	71.8	1 026	72.5	1 037	73.3	1 048	74.0	1 059	74.9	1 070	75.7	1 082
1 431	70.6	1 010	71.3	1 020	72.0	1 030	72.8	1 041	73.5	1 052	74.3	1 063	75.1	1 075	76.0	1 087
1 432	70.8	1 014	71.5	1 024	72.3	1 035	73.0	1 045	73.8	1 056	74.6	1 068	75.4	1 079	76.2	1 091
1 433	71.1	1 018	71.8	1 028	72.5	1 039	73.3	1 050	74.0	1 061	74.8	1 072	75.7	1 084	76.5	1 096
1 434	71.3	1 022	72.0	1 032	72.7	1 043	73.5	1 054	74.3	1 065	75.1	1 077	75.9	1 089	76.8	1 101
1 435	71.5	1 026	72.2	1 037	73.0	1 047	73.8	1 058	74.5	1 070	75.3	1 081	76.2	1 093	77.0	1 105
1 436	71.8	1 030	72.5	1 041	73.2	1 052	74.0	1 063	74.8	1 074	75.6	1 086	76.4	1 098	77.3	1 110
1 437	72.0	1 034	72.7	1 045	73.5	1 056	74.3	1 067	75.1	1 078	75.9	1 090	76.7	1 102	77.6	1 115
1 438	72.2	1 039	73.0	1 049	73.7	1 060	74.5	1 071	75.3	1 083	76.1	1 095	77.0	1 107	77.9	1 120
1 439	72.5	1 043	73.2	1 053	74.0	1 064	74.8	1 076	75.6	1 087	76.4	1 099	77.3	1 112	78.2	1 125
1 440	72.7	1 047	73.4	1 058	74.2	1 069	75.0	1 080	75.8	1 092	76.6	1 104	77.5	1 116	78.4	1 129
1 441	72.9	1 051	73.7	1 062	74.5	1 073	75.3	1 085	76.1	1 096	76.9	1 108	77.8	1 121	78.7	1 134
1 442	73.2	1 055	73.9	1 066	74.7	1 077	75.5	1 089	76.4	1 101	77.2	1 113	78.1	1 126	79.0	1 139
1 443	73.4	1 059	74.2	1 070	75.0	1 082	75.8	1 094	76.6	1 105	77.5	1 118	78.4	1 131	79.3	1 144
1 444	73.7	1 064	74.4	1 075	75.2	1 086	76.1	1 098	76.9	1 110	77.7	1 122	78.6	1 136	79.6	1 149
1 445	73.9	1 068	74.7	1 079	75.5	1 091	76.3	1 103	77.1	1 111	78.0	1 127	78.9	1 141	79.9	1 154
1 446	74.2	1 072	74.9	1 084	75.8	1 095	76.6	1 107	77.4	1 119	78.3	1 132	79.2	1 145	80.2	1 159

Table 1 — Density-composition table for aqueous solutions of nitric acid

D_t is the density (mass per unit volume) of solution (in kg/m^3) at a temperature t (in °C) [for many purposes it can be assumed that irrespective of the value of t the reading of a BS density hydrometer at t gives the density D_t, and that the reading of a 60/60 °F relative density hydrometer at t is numerically 0.001 greater than $D_{t/1\,000}$ (see Appendix A)].
g is the mass (in g) of HNO_3 in 100 g mass of solution.
G is the mass (in g) of HNO_3 in a quantity of solution occupying 1 L at the temperature stated at the head of the column.

26 °C		28 °C		30 °C		32 °C		34 °C		36 °C		38 °C		40 °C		t
g	G	g	G	g	G	g	G	g	G	g	G	g	G	g	G	D_t
70.1	985	70.9	996	71.7	1 007											**1 405**
70.4	989	71.1	1 000	71.9	1 011											**1 406**
70.6	993	71.4	1 005	72.2	1 016											**1 407**
70.9	998	71.6	1 009	72.4	1 020											**1 408**
71.1	1 002	71.9	1 013	72.7	1 024											**1 409**
71.4	1 006	72.1	1 017	72.9	1 028											**1 410**
71.6	1 010	72.4	1 021	73.2	1 033											**1 411**
71.8	1 014	72.6	1 026	73.4	1 037											**1 412**
72.1	1 019	72.9	1 030	73.7	1 041											**1 413**
72.3	1 023	73.1	1 034	74.0	1 046											**1 414**
72.6	1 027	73.4	1 038	74.2	1 050											**1 415**
72.8	1 031	73.7	1 043	74.5	1 055											**1 416**
73.1	1 036	73.9	1 047	74.7	1 059											**1 417**
73.3	1 040	74.2	1 052	75.0	1 063											**1 418**
73.6	1 044	74.5	1 056	75.3	1 068											**1 419**
73.9	1 049	74.7	1 061	75.5	1 073											**1 420**
74.1	1 053	75.0	1 065	75.8	1 077											**1 421**
74.4	1 058	75.2	1 070	76.1	1 082											**1 422**
74.6	1 062	75.5	1 074	76.4	1 087											**1 423**
74.9	1 067	75.8	1 079	76.6	1 091											**1 424**
75.2	1 071	76.0	1 083	76.9	1 096											**1 425**
75.5	1 076	76.3	1 088	77.2	1 101											**1 426**
75.7	1 081	76.6	1 093	77.5	1 106											**1 427**
76.0	1 085	76.9	1 097	77.8	1 111											**1 428**
76.3	1 090	77.1	1 102	78.1	1 115											**1 429**
76.5	1 094	77.4	1 107	78.4	1 120											**1 430**
76.8	1 099	77.7	1 112	78.6	1 125											**1 431**
77.1	1 104	78.0	1 117	78.9	1 130											**1 432**
77.4	1 109	78.3	1 122	79.2	1 135											**1 433**
77.7	1 114	78.6	1 127	79.5	1 140											**1 434**
77.9	1 119	78.9	1 131	79.8	1 145											**1 435**
78.2	1 123	79.1	1 136	80.1	1 150											**1 436**
78.5	1 128	79.4	1 141	80.4	1 155											**1 437**
78.8	1 133	79.7	1 146	80.7	1 160											**1 438**
79.1	1 138	80.0	1 151	81.0	1 165											**1 439**
79.3	1 143	80.3	1 156	81.3	1 170											**1 440**
79.6	1 148	80.6	1 161	81.6	1 176											**1 441**
79.9	1 153	80.9	1 166	81.9	1 181											**1 442**
80.2	1 158	81.2	1 172	82.2	1 186											**1 443**
80.5	1 163	81.5	1 177	82.5	1 191											**1 444**
80.8	1 168	81.8	1 182	82.8	1 197											**1 445**
81.1	1 173	82.1	1 187	83.1	1 202											**1 446**

Table 1 — Density-composition table for aqueous solutions of nitric acid

D_t is the density (mass per unit volume) of solution (in kg/m³) at a temperature t (in °C) [for many purposes it can be assumed that irrespective of the value of t the reading of a BS density hydrometer at t gives the density D_t, and that the reading of a 60/60 °F relative density hydrometer at t is numerically 0.001 greater than $D_{t/1\,000}$ (see Appendix A)].

g is the mass (in g) of HNO_3 in 100 g mass of solution.

G is the mass (in g) of HNO_3 in a quantity of solution occupying 1 L at the temperature stated at the head of the column.

t	10 °C		12 °C		14 °C		16 °C		18 °C		20 °C		22 °C		24 °C	
D_t	g	G	g	G	g	G	g	G	g	G	g	G	g	G	g	G
1 447	74.4	1 077	75.2	1 088	76.0	1 100	76.8	1 112	77.7	1 124	78.6	1 137	79.5	1 150	80.5	1 165
1 448	74.7	1 081	75.5	1 093	76.3	1 104	77.1	1 116	78.0	1 129	78.8	1 142	79.8	1 155	80.7	1 169
1 449	74.9	1 085	75.7	1 097	76.5	1 109	77.4	1 121	78.2	1 134	79.1	1 146	80.1	1 160	81.0	1 174
1 450	75.2	1 090	76.0	1 102	76.8	1 113	77.6	1 126	78.5	1 139	79.4	1 151	80.4	1 165	81.3	1 179
1 451	75.4	1 094	76.2	1 106	77.0	1 118	77.9	1 130	78.8	1 143	79.7	1 156	80.7	1 170	81.6	1 184
1 452	75.7	1 099	76.5	1 110	77.3	1 123	78.2	1 135	79.1	1 148	80.0	1 161	80.9	1 175	81.8	1 189
1 453	75.9	1 103	76.7	1 115	77.6	1 127	78.5	1 140	79.4	1 153	80.3	1 166	81.2	1 180	82.2	1 195
1 454	76.2	1 108	77.0	1 120	77.8	1 132	78.8	1 145	79.7	1 158	80.6	1 171	81.6	1 185	82.5	1 200
1 455	76.4	1 112	77.3	1 124	78.1	1 137	79.0	1 150	79.9	1 163	80.9	1 176	81.6	1 191	82.8	1 205
1 456	76.7	1 117	77.5	1 129	78.4	1 142	79.3	1 155	80.2	1 165	81.2	1 182	82.1	1 196	83.1	1 210
1 457	76.9	1 121	77.8	1 133	78.7	1 146	79.6	1 160	80.5	1 173	81.4	1 187	82.4	1 201	83.4	1 215
1 458	77.2	1 125	78.1	1 138	79.0	1 151	79.9	1 165	80.8	1 178	81.7	1 192	82.7	1 206	83.7	1 221
1 459	77.5	1 130	78.3	1 143	79.2	1 156	80.2	1 169	81.1	1 183	82.0	1 197	83.0	1 211	84.0	1 226
1 460	77.7	1 135	78.6	1 148	79.5	1 161	80.4	1 174	81.4	1 188	82.3	1 202	83.3	1 217	84.4	1 232
1 461	78.0	1 140	78.9	1 153	79.8	1 166	80.7	1 179	81.7	1 193	82.6	1 207	83.6	1 222	84.7	1 237
1 462	78.3	1 144	79.2	1 158	80.1	1 171	81.0	1 184	82.0	1 198	82.9	1 213	84.0	1 227	85.0	1 243
1 463	78.5	1 149	79.5	1 163	80.4	1 176	81.3	1 189	82.3	1 203	83.2	1 218	84.3	1 233	85.4	1 249
1 464	78.8	1 154	79.7	1 167	80.7	1 181	81.6	1 194	82.5	1 209	83.5	1 223	84.6	1 238	85.7	1 254
1 465	79.1	1 159	80.0	1 172	80.9	1 186	81.9	1 200	82.8	1 214	83.8	1 228	84.9	1 244	86.0	1 260
1 466	79.4	1 164	80.3	1 177	81.2	1 191	82.2	1 205	83.1	1 219	84.2	1 234	85.2	1 250	86.3	1 266
1 467	75.6	1 168	80.6	1 182	81.5	1 196	82.5	1 210	83.5	1 224	84.5	1 239	85.6	1 255	86.7	1 272
1 468	79.9	1 173	80.9	1 187	81.8	1 201	82.8	1 215	83.8	1 229	84.8	1 245	85.9	1 261	87.0	1 278
1 469	80.2	1 178	81.1	1 192	82.1	1 206	83.1	1 220	84.1	1 235	85.1	1 251	86.2	1 267	87.4	1 284
1 470	80.5	1 183	81.4	1 197	82.4	1 211	83.4	1 225	84.4	1 240	85.5	1 256	86.6	1 273	87.8	1 290
1 471	80.8	1 188	81.7	1 202	82.7	1 216	83.7	1 231	84.7	1 246	85.8	1 262	86.9	1 279	88.2	1 297
1 472	81.1	1 193	82.0	1 207	83.0	1 221	84.0	1 236	85.0	1 252	86.2	1 268	87.2	1 285	88.5	1 303
1 473	81.3	1 198	82.3	1 212	83.3	1 227	84.3	1 241	85.4	1 257	86.5	1 274	87.6	1 291	88.9	1 310
1 474	81.6	1 203	82.6	1 217	83.6	1 232	84.6	1 247	85.7	1 263	86.8	1 280	88.0	1 297	89.3	1 316
1 475	81.9	1 208	82.9	1 222	83.9	1 237	84.9	1 253	86.0	1 269	87.2	1 286	88.4	1 304	89.7	1 323
1 476	82.2	1 214	83.2	1 228	84.2	1 243	85.3	1 259	86.4	1 275	87.5	1 292	88.8	1 310	90.1	1 330
1 477	82.5	1 219	83.5	1 233	84.5	1 248	85.6	1 264	86.7	1 281	87.9	1 298	89.2	1 317	90.5	1 336
1 478	82.8	1 224	83.8	1 238	84.8	1 254	85.9	1 270	87.0	1 287	88.3	1 304	89.5	1 323	90.8	1 343
1 479	83.1	1 229	84.1	1 243	85.2	1 260	86.3	1 276	87.4	1 293	88.6	1 311	89.9	1 330	91.3	1 350
1 480	83.4	1 234	84.4	1 249	85.5	1 265	86.6	1 281	87.8	1 299	89.0	1 317	90.3	1 337	91.8	1 358
1 481	83.7	1 239	84.7	1 254	85.8	1 271	86.9	1 287	88.1	1 305	89.4	1 324	90.7	1 344	92.3	1 366
1 482	84.0	1 245	85.0	1 260	86.1	1 277	87.3	1 293	88.5	1 311	89.8	1 330	91.1	1 351	92.8	1 375
1 483	84.3	1 250	85.4	1 266	86.5	1 282	87.6	1 299	88.9	1 318	90.2	1 337	91.6	1 358	93.3	1 384
1 484	84.6	1 256	85.7	1 272	86.8	1 288	88.0	1 306	89.2	1 324	90.6	1 344	92.0	1 366	93.8	1 393
1 485	84.9	1 261	86.0	1 277	87.1	1 294	88.3	1 312	89.6	1 331	91.0	1 351	92.6	1 375	94.4	1 401

Table 1 — Density-composition table for aqueous solutions of nitric acid

D_t is the density (mass per unit volume) of solution (in kg/m^3) at a temperature t (in °C) [for many purposes it can be assumed that irrespective of the value of t the reading of a BS density hydrometer at t gives the density D_t, and that the reading of a 60/60 °F relative density hydrometer at t is numerically 0.001 greater than $D_{t/1\,000}$ (see Appendix A)].
g is the mass (in g) of HNO_3 in 100 g mass of solution.
G is the mass (in g) of HNO_3 in a quantity of solution occupying 1 L at the temperature stated at the head of the column.

26 °C		28 °C		30 °C		32 °C		34 °C		36 °C		38 °C		40 °C		t
g	G	g	G	g	G	g	G	g	G	g	G	g	G	g	G	D_t
81.4	1 178	82.4	1 192	83.5	1 208											**1 447**
81.7	1 183	82.7	1 197	83.8	1 213											**1 448**
82.0	1 188	83.0	1 203	84.1	1 219											**1 449**
82.3	1 193	83.3	1 208	84.4	1 224											**1 450**
82.6	1 199	83.6	1 214	84.7	1 230											**1 451**
82.9	1 204	84.0	1 219	85.1	1 235											**1 452**
83.2	1 208	84.3	1 225	85.4	1 241											**1 453**
83.5	1 214	84.6	1 230	85.7	1 247											**1 454**
83.8	1 220	84.9	1 236	86.1	1 252											**1 455**
84.2	1 225	85.3	1 242	86.4	1 258											**1 456**
84.5	1 231	85.6	1 247	86.8	1 264											**1 457**
84.8	1 236	85.9	1 253	87.1	1 270											**1 458**
85.1	1 242	86.3	1 259	87.5	1 276											**1 459**
85.5	1 248	86.6	1 265	87.8	1 282											**1 460**
85.8	1 254	87.0	1 270	88.2	1 288											**1 461**
86.1	1 259	87.3	1 276	88.6	1 295											**1 462**
86.5	1 265	87.7	1 283	89.0	1 301											**1 463**
86.8	1 271	88.0	1 289	89.4	1 308											**1 464**
87.2	1 277	88.4	1 295	89.8	1 315											**1 465**
87.5	1 283	88.8	1 302	90.2	1 322											**1 466**
87.9	1 289	89.2	1 309	90.6	1 328											**1 467**
88.3	1 295	89.5	1 315	91.0	1 335											**1 468**
88.7	1 302	90.0	1 322	91.4	1 343											**1 469**
89.1	1 309	90.4	1 329	91.8	1 350											**1 470**
89.5	1 316	90.8	1 333	92.3	1 358											**1 471**
89.8	1 322	91.2	1 342	92.9	1 367											**1 472**
90.2	1 329	91.7	1 350	93.4	1 376											**1 473**
90.6	1 336	92.2	1 358	93.9	1 384											**1 474**
91.1	1 343	92.7	1 367	94.4	1 393											**1 475**
91.5	1 351	93.2	1 376	94.9	1 401											**1 476**
91.9	1 358	93.7	1 384	95.5	1 410											**1 477**
92.0	1 367	94.2	1 393	96.0	1 418											**1 478**
93.0	1 375	94.8	1 401	96.5	1 427											**1 479**
93.5	1 384	95.3	1 410	96.9	1 435											**1 480**
94.1	1 393	95.8	1 418	97.3	1 441											**1 481**
94.6	1 401	96.3	1 429	97.6	1 446											**1 482**
95.1	1 410	96.7	1 435	97.9	1 451											**1 483**
95.5	1 418	97.1	1 442	98.1	1 456											**1 484**
96.0	1 426	97.5	1 447	98.4	1 461											**1 485**

Table 1 — Density-composition table for aqueous solutions of nitric acid

D_t is the density (mass per unit volume) of solution (in kg/m^3) at a temperature t (in °C) [for many purposes it can be assumed that irrespective of the value of t the reading of a BS density hydrometer at t gives the density D_t, and that the reading of a 60/60 °F relative density hydrometer at t is numerically 0.001 greater than $D_{t/1\,000}$ (see Appendix A)].

g is the mass (in g) of HNO_3 in 100 g mass of solution.

G is the mass (in g) of HNO_3 in a quantity of solution occupying 1 L at the temperature stated at the head of the column.

t	10 °C		12 °C		14 °C		16 °C		18 °C		20 °C		22 °C		24 °C	
D_t	g	G	g	G	g	G	g	G	g	G	g	G	g	G	g	G
1 486	85.3	1 267	86.3	1 283	87.5	1 300	88.7	1 318	90.0	1 337	91.3	1 357	93.1	1 383	94.9	1 410
1 487	85.6	1 272	86.7	1 289	87.9	1 306	89.1	1 324	90.4	1 344	91.9	1 366	93.6	1 392	95.4	1 418
1 488	85.9	1 278	87.0	1 295	88.2	1 312	89.5	1 331	90.8	1 351	92.4	1 374	94.1	1 401	95.8	1 426
1 489	86.2	1 284	87.4	1 301	88.6	1 319	89.8	1 338	91.2	1 358	92.9	1 383	94.6	1 409	96.3	1 434
1 490	86.6	1 290	87.7	1 307	88.9	1 325	90.2	1 344	91.7	1 366	93.4	1 392	95.1	1 417	96.8	1 442
1 491	86.9	1 296	88.1	1 313	89.3	1 331	90.6	1 351	92.1	1 374	93.9	1 400	95.6	1 426	97.2	1 449
1 492	87.2	1 302	88.4	1 319	89.7	1 338	91.0	1 358	92.7	1 382	94.4	1 409	96.1	1 434	97.5	1 455
1 493	87.6	1 308	88.8	1 325	90.1	1 345	91.5	1 366	93.2	1 391	94.9	1 417	96.6	1 442	97.8	1 460
1 494	87.9	1 314	89.2	1 332	90.5	1 352	91.9	1 373	93.7	1 399	95.4	1 425	97.0	1 449	98.0	1 465
1 495	88.3	1 320	89.5	1 338	90.9	1 359	92.4	1 381	94.2	1 408	95.9	1 434	97.3	1 455	98.3	1 469
1 496	88.6	1 326	89.9	1 345	91.3	1 366	92.9	1 390	94.7	1 416	96.4	1 442	97.6	1 461	98.5	1 473
1 497	89.0	1 332	90.3	1 352	91.7	1 373	93.4	1 399	95.2	1 425	96.8	1 450	97.9	1 466	98.7	1 477
1 498	89.4	1 339	90.7	1 359	92.1	1 380	93.9	1 407	95.7	1 433	97.2	1 457	98.2	1 470	98.9	1 481
1 499	89.7	1 345	91.1	1 365	92.7	1 389	94.3	1 416	96.1	1 441	97.6	1 462	98.4	1 475	99.1	1 485
1 500	90.1	1 352	91.5	1 372	93.2	1 398	94.9	1 424	96.6	1 449	97.8	1 467	98.6	1 479	99.2	1 489
1 501	90.5	1 358	91.9	1 379	93.7	1 406	95.4	1 432	97.0	1 456	98.1	1 472	98.8	1 483	99.4	1 492
1 502	90.9	1 365	92.4	1 387	94.2	1 414	95.9	1 440	97.4	1 462	98.3	1 476	99.0	1 487	99.5	1 495
1 503	91.3	1 372	92.9	1 396	94.7	1 423	96.4	1 449	97.6	1 468	98.5	1 481	99.2	1 490	99.7	1 498
1 504	91.7	1 379	93.4	1 404	95.1	1 431	96.8	1 456	97.9	1 472	98.7	1 485	99.3	1 493	99.8	1 501
1 505	92.1	1 386	93.9	1 413	95.6	1 439	97.2	1 463	98.2	1 477	98.9	1 488	99.5	1 497	99.9	1 504
1 506	92.6	1 395	94.4	1 421	96.1	1 447	97.5	1 469	98.4	1 482	99.1	1 492	99.6	1 500		
1 507	93.1	1 403	94.9	1 430	96.6	1 456	97.8	1 474	98.6	1 486	99.2	1 495	99.7	1 503		
1 508	93.6	1 411	95.4	1 438	97.0	1 463	98.0	1 478	98.8	1 490	99.4	1 498	99.8	1 505		
1 509	94.1	1 420	95.8	1 446	97.3	1 469	98.3	1 483	99.0	1 494	99.5	1 502	100.0	1 508		
1 510	94.6	1 428	96.3	1 454	97.6	1 474	98.5	1 487	99.2	1 497	99.7	1 505				
1 511	95.1	1 436	96.8	1 462	97.9	1 479	98.7	1 492	99.2	1 498	99.8	1 508				
1 512	95.5	1 444	97.1	1 469	98.1	1 484	98.9	1 495	99.3	1 501	99.9	1 510				
1 513	96.0	1 452	97.5	1 475	98.4	1 488	99.1	1 499	99.5	1 505						
1 514	96.5	1 461	97.8	1 480	98.6	1 493	99.2	1 502	99.6	1 508						
1 515	96.9	1 469	98.0	1 485	98.8	1 497	99.4	1 506	99.7	1 511						
1 516	97.3	1 475	98.2	1 489	99.0	1 501	99.5	1 509	99.8	1 514						
1 517	97.6	1 480	98.4	1 493	99.2	1 504	99.7	1 512	100.0	1 516						
1 518	97.8	1 485	98.7	1 498	99.3	1 507	99.8	1 515								
1 519	98.1	1 490	98.9	1 502	99.4	1 510	99.9	1 517								
1 520	98.3	1 494	99.0	1 505	99.6	1 513										
1 521	98.5	1 498	99.2	1 509	99.7	1 516										
1 522	98.7	1 503	99.3	1 512	99.8	1 519										
1 523	98.9	1 507	99.5	1 515	99.9	1 522										
1 524	99.1	1 510	99.6	1 518												

Table 1 — Density-composition table for aqueous solutions of nitric acid

D_t is the density (mass per unit volume) of solution (in kg/m^3) at a temperature t (in °C) [for many purposes it can be assumed that irrespective of the value of t the reading of a BS density hydrometer at t gives the density D_t, and that the reading of a 60/60 °F relative density hydrometer at t is numerically 0.001 greater than $D_{t/1\,000}$ (see Appendix A)].
g is the mass (in g) of HNO_3 in 100 g mass of solution.
G is the mass (in g) of HNO_3 in a quantity of solution occupying 1 L at the temperature stated at the head of the column.

26 °C		28 °C		30 °C		32 °C		34 °C		36 °C		38 °C		40 °C		t
g	G	g	G	g	G	g	G	g	G	g	G	g	G	g	G	D_t
96.5	1 433	97.8	1 453	98.6	1 465											**1 486**
97.0	1 442	98.0	1 457	98.8	1 469											**1 487**
97.3	1 448	98.3	1 462	99.0	1 473											**1 488**
97.6	1 453	98.5	1 466	99.2	1 476											**1 489**
97.9	1 459	98.7	1 470	99.3	1 480											**1 490**
98.1	1 463	98.9	1 474	99.5	1 483											**1 491**
98.4	1 468	99.1	1 478	99.6	1 486											**1 492**
98.6	1 472	99.2	1 481	99.7	1 489											**1 493**
98.8	1 476	99.4	1 485	99.9	1 492											**1 494**
99.0	1 480	99.5	1 488	100.0	1 495											**1 495**
99.2	1 483	99.7	1 491													**1 496**
99.3	1 487	99.8	1 494													**1 497**
99.5	1 490	99.9	1 497													**1 498**
99.6	1 493															**1 499**
99.7	1 496															**1 500**
99.9	1 499															**1 501**
100.0	1 501															**1 502**
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Table 1 — Density-composition table for aqueous solutions of nitric acid

D_t is the density (mass per unit volume) of solution (in kg/m^3) at a temperature t (in °C) [for many purposes it can be assumed that irrespective of the value of t the reading of a BS density hydrometer at t gives the density D_t, and that the reading of a 60/60 °F relative density hydrometer at t is numerically 0.001 greater than $D_{t/1\,000}$ (see Appendix A)].
g is the mass (in g) of HNO_3 in 100 g mass of solution.
G is the mass (in g) of HNO_3 in a quantity of solution occupying 1 L at the temperature stated at the head of the column.

t	**10 °C**		**12 °C**		**14 °C**		**16 °C**		**18 °C**		**20 °C**		**22 °C**		**24 °C**		
D_t	g	G	g	G	g	G	g	G	g	G	g	G	g	G	g	G	
1 525	99.2	1 513	99.7	1 521													
1 526	99.4	1 516	99.9	1 524													
1 527	99.5	1 519	100.0	1 527													
1 528	99.6	1 522															
1 529	99.8	1 525															
1 530	99.9	1 528															
1 531	100.0	1 531															

Table 1 — Density-composition table for aqueous solutions of nitric acid

D_t is the density (mass per unit volume) of solution (in kg/m^3) at a temperature t (in °C) [for many purposes it can be assumed that irrespective of the value of t the reading of a BS density hydrometer at t gives the density D_t, and that the reading of a 60/60 °F relative density hydrometer at t is numerically 0.001 greater than $D_{t/1\,000}$ (see Appendix A)].
g is the mass (in g) of HNO_3 in 100 g mass of solution.
G is the mass (in g) of HNO_3 in a quantity of solution occupying 1 L at the temperature stated at the head of the column.

26 °C		**28 °C**		**30 °C**		**32 °C**		**34 °C**		**36 °C**		**38 °C**		**40 °C**		t
g	G	g	G	g	G	g	G	g	G	g	G	g	G	g	G	D_t
																1 525
																1 526
																1 527
																1 528
																1 529
																1 530
																1 531

Appendix A Correction of readings taken on BS hydrometers

For many purposes it may be assumed that a reading taken at a temperature t (in °C) on a BS density hydrometer gives the density of the liquid D_t (in kg/m^3) at t.

When a relative density hydrometer is used in a liquid at t the reading may be assumed to give the relative density of the liquid at t relative to water at 60 °F. Multiplying the reading thus obtained by 1 000 and applying the correction given in Table 2 will convert the reading to D_t (in kg/m^3) at t before entering Table 1.

Table 2 — Corrections to be applied to obtain density at t

Relative density t/60 °F × 1 000	Correction to give density at t
	kg/m^3
1 000	– 1.0
1 100	– 1.1
1 200	– 1.2
1 300	– 1.3
1 400	– 1.4
1 500	– 1.5

NOTE The sign being negative the quantity noted is to be subtracted to obtain the density at t.

Occasions may however arise when greater accuracy is necessary. Additional corrections can then be applied for:

a) the scale error of the hydrometer;

b) the difference between the temperature of the liquid and the standard temperature of the hydrometer;

c) the difference between the surface tension of the liquid and that for which the hydrometer is adjusted.

These corrections are considered in detail as follows.

1) *Corrections for scale errors.* The maximum permissible errors allowed on BS hydrometers are given in Table 7. When these errors are too large to be ignored hydrometers furnished with National Measurement Accreditation Service certificates of calibration should be obtained and the corrections given thereon should be applied.

2) *Temperature corrections.* When the hydrometer reading is taken at a temperature t other than the standard temperature t_s (20 °C or 15 °C) then the reading is in error due to the difference in the volume of the hydrometer between t_s and t.

Appropriate corrections for making allowance for this temperature effect are given in Table 3.

Table 3 — Temperature corrections for BS hydrometers

Standard temperature t_s of hydrometer		Hydrometer reading at temperature t		
20 °C	15 °C	1 000	1 250	1 500
Temperature t of liquid		Correction (0.1 kg/m^3)		
°C	°C			
10	5	+ 3	+ 3	+ 4
15	10	+ 1	+ 2	+ 2
20	15	0	0	0
25	20	– 1	– 2	– 2
30	25	– 3	– 3	– 4
35	30	– 4	– 5	– 6
40	35	– 5	– 6	– 8
	40	– 6	– 8	– 9

NOTE 1 When the sign is positive the correction is to be added to the hydrometer reading and when negative to be subtracted from it.

NOTE 2 Table 3 is based on the value 0.000 025 per degree Celsius for the coefficient of cubical expansion of the hydrometer.

3) *Surface tension corrections*

i) *For hydrometers that are used in an overflow vessel so as to ensure that the acid surface is truly clean.* Using this means the highest accuracy can be achieved.

Values of the surface tensions of clean surfaces of aqueous solutions of nitric acid at 20 °C are given in Table 4. These are derived from data given in the International Critical Table (1928) Vol. IV, page 464, supplemented by determinations carried out at the National Physical Laboratory. It is unlikely that the values at other temperatures over the range 10 °C to 40 °C differ by more than 4 mN/m from the values at 20 °C.

Table 4 — Surface tensions of aqueous solutions of nitric acid at 20 °C

Density of solution at 20 °C	Surface tension of solution at 20 °C
kg/m^3	mN/m
1 000	73
1 050	72
1 100	71
1 150	70
1 200	69
1 250	67
1 300	64
1 350	62
1 400	58
1 450	52
1 500	44

When the highest accuracy is required hydrometers adjusted for the high surface tension value 75 mN/m should be used for nitric acid solutions having densities in the range 1 000 kg/m^3 to 1 300 kg/m^3, and hydrometers adjusted for the medium surface tension value 55 mN/m should be used for solutions having densities above 1 300 kg/m^3. An indication of possible errors, in the form of corrections which may be applied on account of the difference between the surface tension of the nitric acid solution and the surface tension for which the hydrometer is graduated, is given in Table 8 of BS 718:1979.

It should be observed that it is of little advantage to apply these surface tension corrections unless corrections for scale errors and temperature are also applied.

ii) *For hydrometers used without special precautions for obtaining a clean acid surface.* In these circumstances the surface tensions of aqueous solutions are usually less than the surface tension values given in Table 4 for clean surfaces. Also, since the values depend to a great extent on the degree of contamination of the surface, the effective surface tension is erratic. Hence, when using ordinary hydrometer jars without overflow, it is not possible to assign a reliable value to the surface tension of the acid solution without measuring it. Under these conditions surface tension corrections are usually ignored. It may, however, be assumed that under ordinary conditions of cleanliness the values lie between 40 mN/m and 70 mN/m. It is therefore appropriate to use a BS hydrometer adjusted for 55 mN/m. The error then introduced by ignoring surface tension is unlikely to exceed the values given in Table 5.

Table 5 — Maximum errors introduced by ignoring surface tension when reading BS hydrometers, adjusted for 55 mN/m, in aqueous solutions of nitric acid in an ordinary hydrometer jar

Density of acid solution (in kg/m^3)	BS hydrometers adjusted for 55 mN/m				
	L20	L50	M50	M100	S50
	Maximum error (kg/m^3)				
1 000 to 1 500	± 0.2	± 0.3	± 0.7	± 1.0	± 0.8

It is of interest to examine the overall effect of ignoring corrections under a), b) and c) when using BS hydrometers adjusted for the medium surface tension value. In Table 6 the hydrometers are assumed to be floating in nitric acid solution of density between 1 000 kg/m^3 and 1 500 kg/m^3 at a temperature differing by ± 10 degrees Celsius from the standard temperature of the hydrometer.

Table 6 — Maximum errors due to omission of all corrections to BS hydrometers adjusted for 55 mN/m

Series	L20	L50	M50	M100	S50
Value of one sub-division (kg/m^3)	0.2	0.5	1.0	2.0	2.0
	kg/m^3	kg/m^3	kg/m^3	kg/m^3	kg/m^3
a) Maximum permissible scale corrections	± 0.2	± 0.5	± 1.0	± 2.0	± 2.0
b) Temperature corrections for ± 10 °C	± 0.4	± 0.4	± 0.4	± 0.4	± 0.4
c) Maximum estimated surface tension corrections	± 0.2	± 0.3	± 0.7	± 1.1	± 0.8
Maximum value of total corrections	± 0.8	± 1.2	± 2.1	± 3.5	± 3.2
Error in grams in determined strength of solution of density 1 250 kg/m^3 at 30 °C (42.1 g of HNO_3 per 100 g of solution or 526 g of HNO_3 per 1 L of solution) corresponding to total corrections above.					
	g	g	g	g	g
HNO_3 in 100 g of solution	± 0.2	± 0.2	± 0.3	± 0.5	± 0.5
HNO_3 in 1 L of solution	± 2	± 3	± 5	± 9	± 8
NOTE It is assumed above that a BS density hydrometer was used. If a relative density hydrometer had been used without correction from Table 2, the errors in strength resulting from the neglect of *all corrections,* would be between the values, in grams, given below.					
	g	g	g	g	g
HNO_3 in 100 g of solution	+ 0.3 + 0.1	+ 0.4 0	+ 0.5 – 0.2	+ 0.8 – 0.3	+ 0.7 – 0.3
HNO_3 in 1 L of solution	+ 5 – 1	+ 7 0	+ 8 – 2	+ 11 – 5	+ 11 – 5

Example of application of hydrometer corrections

Hydrometer used: density hydrometer L50 range 1 400 kg/m^3 to 1 450 kg/m^3 at 20 °C adjusted for 55 mN/m, ascertained scale error + 0.5 kg/m^3 (i.e. maximum permissible positive error).

Temperature of acid solution	27 °C
Uncorrected hydrometer reading using overflow technique	1 404.5 kg/m^3
Corrections	
For scale error	– 0.5 kg/m^3
For temperature (from Table 3)	– 0.3 kg/m^3
For surface tension (from Table 8 of BS 718:1979)	+ 0.1 kg/m^3
Then density of acid solution at 27 °C	1403.8 kg/m^3

By interpolation in Table 1 a solution of density 1 403.8 kg/m^3 at 27 °C contains 70.2 g of HNO_3 in 100 g of solution and 1 L of solution contains 986 g of HNO_3.

If the corrections for scale error, temperature and surface tension had been ignored, the values would have been 70.4 g and 989 g respectively.

Appendix B BS hydrometers available for use in conjunction with the tables

BS 718 affords a choice of hydrometers suitable for use in aqueous solutions of nitric acid. They may have scales of density at 20 °C or 15 °C.

The choice of the hydrometer series will depend on the accuracy required and the amount of solution available. Table 7 gives the essential features of the various series of instruments suitable for aqueous solutions.

To use the hydrometers given in Table 7 to the best advantage (see Appendix A) it is recommended that they should be used in an overflow vessel as described in BS 718. Hydrometers adjusted for the high surface tension value 75 mN/m should be used for nitric acid solutions having densities in the range 1 000 kg/m^3 to 1 300 kg/m^3 and hydrometers adjusted for the medium surface tension value 55 mN/m should be used for solutions having densities above 1 300 kg/m^3. If considered necessary, adjustments for the surface tension of the acid solution may also be made.

For work of lower accuracy hydrometers adjusted for the medium surface tension category (55 mN/m) may be used without adopting the overflow technique (see Table 5).

Table 7 — BS Hydrometers available for use in aqueous solutions of nitric acid

Series	Maximum total length	Nominal range of each hydrometer		Number of scale divisions and value of the scale interval		Minimum scale length (nominal range)	Bulb diameter		Volume below lowest graduation line of nominal range		Extension of scale at each end beyond upper and lower nominal limits	Maximum permitted error at any point on the scale
							min.	max.	min.	max.		
	mm	kg/m^3	g/mL	kg/m^3	g/mL	mm	mm	mm	mL	mL		kg/m^3
L20	335	20	0.020	100 × 0.2	100 × 0.000 2	105	36	40	108	132	5 to 10	± 0.2
L50	335	50	0.050	100 × 0.5	100 × 0.000 5	125	23	27	50	65	2 to 5	± 0.5
M50	270	50	0.050	50 × 1	50 × 0.001	70	20	24	30	45	2 to 5	± 1.0
M100	250	100	0.100	50 × 2	50 × 0.002	85	18	20	18	26	2 to 5	± 2.0
S50	190	50	0.050	25 × 2	25 × 0.002	50	18	20	18	26	2 or 3	± 2.0

Appendix C Examples of the use of Table 1 in conjunction with BS hydrometers

NOTE In these examples it has been assumed that either:

a) the readings on BS density hydrometers (or relative density hydrometers corrected to read density) have been corrected as described in Appendix A; or

b) the corrections are not significant to the accuracy required.

The hydrometer readings are therefore assumed to indicate the density of the acid solution (in kg/m^3) at the temperature of determination.

C.1 To determine the strength of an aqueous solution of nitric acid

Suppose that the temperature of the solution is 28 °C and the density at that temperature (see note) is 1 096 kg/m^3. Then in Table 1 under the temperature 28 °C and opposite D_t = 1 096 will be found g = 17.6 and G = 193, indicating that the solution contains 17.6 g of HNO_3 in 100 g of solution and 193 g of HNO_3 in 1 L of solution at 28 °C.

C.2 To make up a solution containing 15.1 g of HNO_3 in 100 g of solution

In Table 1 under t = 20 °C the value of D_t corresponding to g = 15.1 g is 1 085 kg/m^3. Water should therefore be mixed with a more concentrated solution of nitric acid, checking the density of the diluted acid with a BS hydrometer during the dilution, until the hydrometer indicates that the density is approaching 1 085 kg/m^3. At this stage and before making the final adjustment, the temperature of the solution is taken. Suppose it is 28 °C; then from Table 1 the value of D_t corresponding to g = 15.1 g in the column headed 28 °C is 1 081 kg/m^3. The solution at 28 °C should therefore be adjusted so that a BS hydrometer indicates that its density is 1 081 kg/m^3 (see note). The solution thus obtained will contain 15.1 g of HNO_3 in 100 g of solution.

C.3 To make up a solution containing 235 g of HNO_3 in 1 L of solution at 20 °C

From Table 1 under the heading 20 °C it is found that a solution containing 235 g of HNO_3 per litre has 21.0 g of HNO_3 per 100 g of solution. Therefore the required solution is made up as in **C.2** using g = 21.0.

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Publications referred to

BS 718, *Specification for density hydrometers.*

BS 733, *Pyknometers*[2)].

ISO 650, *Relative density 60/60 °F hydrometers for general purposes*[2)].

ISO 1768, *Glass hydrometers — Conventional value for the thermal cubic expansion coefficient (for use in the preparation of measurement tables for liquids)*[2)].

ISO 2990, *Nitric acid for industrial use — Evaluation of nitric acid concentration by measurement of density*[2)].

[2)] Referred to in the foreword only.

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