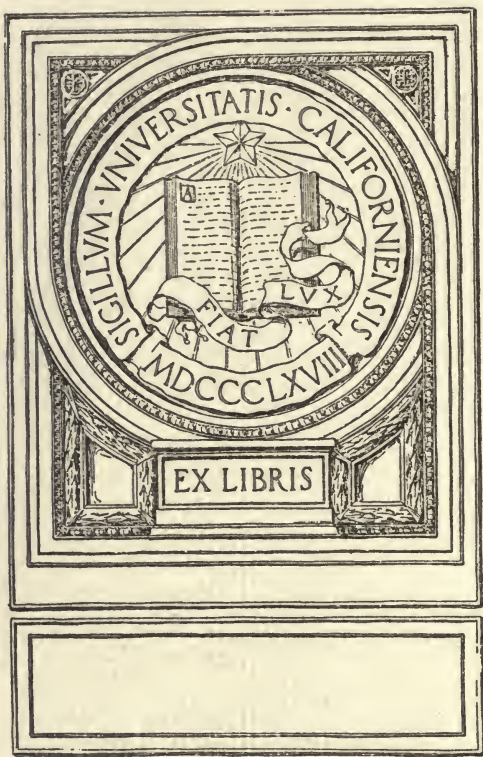


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TABLES OF REFRACTIVE INDICES

VOL. II.

OILS, FATS AND WAXES

COMPILED BY

R. KANTHACK

EDITED BY

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INTRODUCTION.

THIS second volume of the series of books on the Refractive Indices of technical substances deals with Oils, Fats, and Waxes.

The importance of this determination has been brought to the notice of a wide circle of readers by the books of Lewkowitsch, Fryer & Weston, Pickering, Gill, Ingle, Newton, Friend, Leach, and others, and the examination of oils by the Refractometer has been a matter of routine in chemical laboratories for many years, particularly since the Abbe Refractometer and the Butter Refractometer have been available.

In consequence of the commercial importance of the Oil and Fat Industries there are very many sources of reference, and Mr Kanthack's task has been no light one. We have not aimed at placing on record every published determination of the Refractive Index of a given oil, but have endeavoured to give a sufficient body of evidence to establish the limits met with in the case of the commoner oils, and have sought to tabulate at least one value for the rarer oils.

More than 2500 references to the original sources are given, and it is hoped that the Bibliography will also be of service to those who wish to consult the original literature for other properties of the oils in the Tables.

Owing to the way in which the information required is scattered through the chemical literature of the world, it is evident that some publications on the subject, and possibly one or two important ones, may have escaped notice. Readers of this book, who may know of data which should be quoted, are invited to communicate with the publishers, so that the next edition may be rendered as complete as possible.

The limitations of the inferences to be drawn from Refractive Index measurements will be familiar to readers of this book, who are aware of the necessity of confirming the indications of the instrument by other tests.

The increasing interest taken in analysis with the Refracto-

meter was well shown at a largely attended meeting of the Society of Chemical Industry, held in London on 3rd February 1919. There is an increasing tendency to include optical methods in the physical examination of technical products, as these methods have been found to give information which, in many cases, is not given by the Specific Gravity; moreover the determination of the Refractive Index has the advantage of being much more rapidly performed, and also of being a more accurate measurement. For rapid sorting tests the Refractometer has no rival.

Official Publications, such as the British Pharmacopœia and the German Customs Regulations, specify limits of refractive indices, while the British Engineering Standards Association and the American Society for Testing Materials include this measurement in some of their specifications.

The following new applications, not referred to in the Refractive Index Tables, deserve special mention.

An authoritative statement on "The Change of Refractive Indices of Fixed Oils with Temperature" is given by A. F. Joseph in the *Journal of the Society of Chemical Industry*, Vol. 39, 15th March 1920.

An important paper on the "Dispersion of Oils" has been published by Fryer & Weston, and this property has been found to have discriminative value for Tung Oil and Coconut Oil. (The authors' values are given in this volume.) Dispersion measurements obtained with the Abbe Refractometer are sufficiently accurate for use in this connection, according to the experience of the present writer.

The instrument is also used in the analysis of ordinary soaps, soaps containing phenols, or derived from sulphonated oils. For the soaps last mentioned, Pickering (*J. Soc. Chem. Ind.*, 1920, T. 305) found that "the refractive index and fat content are proportional. A graph plotted from these is very useful."

The measurements may gain in value when they are plotted against another physical property, such as the Melting Point, as shown by F. H. Trim in his paper on the analysis of mixtures of refined Arachis, Coconut, and Palm Kernel Oils. (*J. Soc. Chem. Ind.* 1920, T. 307).

J. N. GOLDSMITH.

PREFACE.

It is not the province of a Compiler to accept or reject data according to their aspect of verisimilitude or otherwise. For such complex substances as oils, fats and waxes—many of them inevitably mixed with other bodies from the very nature of their commercial production—seemingly discrepant data cannot be rejected off-hand. Indeed, in many cases, when taken in conjunction with the information supplied in the text of the published source, an abnormal figure may be a useful index to the origin of the fatty substance or to the process by which it was obtained.

The Compiler, who attaches the utmost importance to the accurate determination of the temperature coefficient—far greater importance than it seems to have received in the past—has made a point of stating its value wherever an author has either given it expressly or where two or more readings for different temperatures have enabled the Compiler to calculate it. These latter calculated values are marked by an asterisk appended to the reference numbers in the last column.

From the recent paper of Wright and that of Joseph, to which the Editor refers in the Introduction, and also from the majority of values given in these tables, 0.00037 may be taken as a probable mean value at temperatures not too far removed from 25° and 40° C. There are a number of $\delta n/\delta t$ values which differ widely from the above mean. These temperature coefficients would seem to be at least a check upon the refractive constants given for different temperatures, but in some cases they clearly invite caution. For instance, when the temperature coefficient, as derived from two n_D values, showed a doubtful $\delta n/\delta t$ value, 0.00126 say, the Compiler did not hesitate to reject it.

The advantage of knowing the temperature coefficient between 15° and 40° C. is that it is much easier to take a

refractometer reading at a temperature which has been obtaining steadily for some time, and to reduce the observation to a standard temperature, than it is to establish the required temperature.

The Compiler expresses the hope that the practical utility of these tables may be enhanced by a series of critically accurate determinations of temperature coefficients, so that it may be practicable in future to reduce all data to one or two standard temperatures.

The Compiler takes this opportunity to express his grateful thanks to the Editor for the untiring help which he has given him in what was necessarily a laborious task.

To Messrs Adam Hilger, Limited, the Compiler wishes to express his sincere thanks for having enabled him to perform his task with all the freedom which is needed for scientific research.

R. K.

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	t°C.	n _D	B _D	Refer. No.
<i>Abelmoschus esculentus</i> , see Okra Seed Oil.				
ABURA-GAREI. <i>Cynopselta dubia</i> . Japan.	20	1·4725, 1·4730	70·3, 71·1	157
ABURACHAN SEED OIL. <i>Lindera præcox</i> . Japan. Shinano, hot-drawn.	27	1·4550	43·7	1
<i>Acanthosicyus horrida</i> , see Narras Oil.				
<i>Acer platanoides</i> , see Maple Seed Oil.				
<i>Acer pseudo-platanus</i> , see Sycamore Fruit Oil.				
<i>Accipenser sturio</i> , see Sturgeon Oil.				
ACORN OIL. <i>Quercus agrifolia</i> . Californian, extracted with petroleum ether	15	1·4731	71·3	2
<i>Acrocomia sclerocarpa</i> , see Mocaya Oil.				
ACROCOMIA TOTAL. American Palm Fat. South American.	25	1·4580	48·0	3
F.A. ...	30	1·4460	31·0	3
<i>Acrocomia vinifera</i> , see Muriti Fat.				
<i>Adansonia digitata</i> , see Baobab Oil.				
ADANSONIA GRANDIDIERI. Oil from decorticated seeds.	40	1·4585	48·8	4
<i>Adeps</i> , see Lard.				
<i>Adeps lanæ</i> , see Wool Fat.				
Adjab Fat , see Njave Butter.				
<i>Æsculus hippocastanum</i> , see Horse-chestnut Oil.				
<i>Afrægle panniculata</i> , see <i>Limonia</i> <i>Warnecki</i> .				

NOTES.

	t°C.	n _D	B _D	Refer. No.
AJOWAN SEED OIL. <i>Ptychotis ajowan.</i> (<i>Carium ajowan</i>):				
	35	1·4704	67·0	5
F.A. ...	35	1·4593	50·0	5
AKAJEI OIL. Syn. Sting Ray Oil. <i>Dasyatis akajei.</i> Japanese: "Aka-ei."				
	20	1·4784	80·1	6
AKEBI SEED OIL. <i>Akebia quinata.</i> Japan.				
	27·5	1·46145	53·2	17
AKON WAX.	40	1·4682	63·5	7
AKOON SEED OIL. <i>Calotropis gigantea</i> (<i>Asclepias gigantea</i>). Crude oil, extracted				
	25	1·4678	63·0	8
	40	1·4623	54·5	8
F.A. ...	40	1·4550	43·8	8
Temp. coeff. $\delta n/\delta t$		—0·00037		8*
<i>Alausa pilchardus</i> , see Pilcher Oil.				
<i>Alburnus lucidus</i> , see Whiting Oil.				
<i>Aleurites cordata</i> and <i>Fordii</i> , see Tung Oil.				
<i>Aleurites moluccana</i> , see Candle-nut Oil.				
<i>Aleurites triloba</i> , see Kekuna Oil.				
<i>Aleurites trisperma</i> , see Lumbang Oil, soft.				
Alfalfa Seed Oil , see Lucerne.				
<i>Alfonsia oleifera</i> , see Palm Oil.				
<i>Allanblackia Stuhlmanni</i> , see M'Kanyi Fat.				
ALLOPHYLLUS RACEMOSA SEED FAT. (Syn: <i>Schmidelia racemosa</i>). Asia and Australia. "Hangola Del" (Ceylon).				
	60	1·4629	55·4	3
F.A. ...	60	1·4567	46·2	3

NOTES.

	t C.	n_D	B_D	Refer. No.
ALMOND OIL.				
From seeds of <i>Prunus amygdalus</i> (<i>Amygdalus communis</i> .)				
	15	1·4723—1·4729	70·0—71·0	20
	60	1·4555	44·4	9
F.A. ...	60	1·4461	31·2	9
	30	1·4673	62·2	320
	25	1·4690	64·8	320
	25	1·4685—1·4690	64·0—64·8	10
F.A. ...	50	1·4533	41·3	10
	40	1·4593	50·0	10
	25	1·4635	56·3	10
	40	1·4636—1·4642	56·5—57·5	11
	20	1·4710—1·4715	68·0—68·7	11
	25	1·4687	64·3	12
	15·5	1·4728	70·9	13
	20	1·4701—1·4712	66·5—68·3	14
Commercial oils.	40	1·4642—1·4646	57·5—58·0	15
F.A. of pure oil.	25	1·4644	57·7	15
F.A. of commercial oils ...	25	1·4633—1·4646	56·0—58·0	15
Commercial oils.	15	1·4710—1·4735	68·0—71·9	107
Commercial limits	25	1·4685—1·4691	64·0—65·0	405
<i>Oleum amygdali</i> , B.P. 1914	40	1·4624—1·4640	54·6—57·1	16
	40	1·46403	57·2	17
F.A. ...	40	1·45624	45·5	17
Temp. coeff. $\delta n/\delta t$		—0·0002463		152
		—0·00037		11*
		—0·00036		14
		—0·00034		320
Almond Oil, Wild, see Katappa Oil.				
<i>Alosa sapidissima</i>, see Shad Oil.				
<i>Amanita muscaria</i>, see Toadstool Oil.				
AMOORA OIL.				
From seeds of <i>Amoora rohituka</i> . Evergreen Tree. Bengal.				
	40	1·4688	64·5	18
AMORPHA FRUTICOSA, Seed Oil				
Manchurian.	20	1·4845	90·9	155
<i>Ampelopsis quinquefolia</i>, see				
Vine Oil, Canadian.				
<i>Amygdalus communis</i>, see				
Almond Oil.				
<i>Anacardium occidentale</i>, see				
Cashew Oil.				

NOTES.

	t.C.	n _D	B _D	Refer. No.
ANAJÁ PALM OIL. Syn. Kokerite Palm Oil, Cokerite Palm Oil. <i>Maximiliana regia.</i> (<i>Maximiliana martiana</i>). Ceará and Pará Valleys, Brazil. Kernel Oil	40	1·4512	38·3	19
Andiroba Oil , see Carapa Oil.				
Anethum graveolens , see Dill Oil.				
ANGLER (FISH LIVER) OIL. <i>Lophiomus setigerus.</i>	20	1·4790	81·2	154
Anguila japonica , see Eel Oil.				
"ANIMAL OIL," COMMERCIAL (see also Neatsfoot Oil).				
American White Oil	25	1·4699—1·4824	66·2—87·0	21
Scotch Oil	25	1·4851	92·0	21
Deodorised carcase fat	40	1·4599	50·8	22
F.A.	40	1·4514	38·6	22
Pale Oil.	21	1·4650—1·4710	58·6—68·0	411
ANISE SEED OIL. <i>Pimpinella anisum.</i>				
F.A.	35	1·4738	72·4	5
	35	1·4704	67·0	5
	18	1·4731	71·3	23
From fruit	25	1·4790	81·2	141
From seed only.	25	1·4700	66·4	141
Anser cinereus , see Goose Fat.				
Anthriscus cerefolium , see Chervil Seed Oil.				
Anthyllis , see Woundwort Oil				
AOURA OIL (Tucum Oil). From seeds of Aoura Palm, <i>Astrocaryum vulgare.</i> French Guiana. (Aoura de la Guyane), Maranham, Pará.				
Pulp Oil	40	1·4610	52·5	19
Kernel Oil	40	1·4497—1·4506	36·3—37·5	19
Aoura d'Afrique , see Palm Oil.				
Apis mellifera , see Beeswax.				
Apium graveolens , see Celery Seed Oil.				

NOTES.

	t°C.	n_D	B_D	Refer. No.
APPLE PIP OIL.				
<i>Pirus malus.</i>				
	21	1·47127	68·4	24
	25	1·4726	70·55	140
APRICOT KERNEL OIL.				
From kernels of <i>Prunus armeniaca.</i>				
	30	1·4676	62·6	320
	25	1·4695	65·6	320
	40	1·4635	56·3	18
F.A. ...	25	1·4630	55·6	18
	50	1·4608	52·2	10
	40	1·4649	58·5	10
	25	1·4705	67·2	10
F.A. ...	50	1·4535	41·5	10
	40	1·4595	50·25	10
	25	1·4636	56·5	10
Californian Oil	40	1·4646	58·0	11
	20	1·4725	70·3	11
Mogador Oil	40	1·4640	57·0	11
	20	1·4715	68·7	11
Limits	20	1·4703—1·4719	66·8—69·4	14
	40	1·4640—1·4649	57·0—58·5	15
Average.	20	1·4717	69·1	15
Pure oil F.A. ...	25	1·4645	57·9	15
Commercial oil F.A. ...	25	1·4640—1·4653	57·0—59·0	15
	20	1·4691	65·0	82
F.A. ...	20	1·4626	55·0	82
	40	1·4635—1·4646	56·3—58·0	27
	25	1·4694—1·4704	65·5—67·0	27
Commercial limits	25	1·4691—1·4704	65·0—67·0	405
Mongolian	20	1·4723	70·0	158
Chinese	20	1·4659	60·0	158
Temp. coeff. $\delta n/\delta t$.		—0·00036		14, 15*
		—0·00039		11, 27*
		—0·00038		320
APRICOT KERNEL OIL, SWEET.				
South of France.				
	25	1·4689	64·7	28
F.A. ...	25	1·4618	53·7	28
ARACHIS OIL.				
Syn. Peanut Oil, Groundnut Oil, Earthnut Oil, Katchung Oil.				
From seeds of <i>Arachis hypogæa</i> (Monkey Nuts).				

NOTES.

	t°C	n _D	B _D	Refer. No.
ARACHIS OIL—continued.				
Eastern Asia, West Coast of Africa, U.S.A., Mexico, Brazil.				
	39·2	1·4641	57·3	29
	19·8	1·4718	69·2	29
	15·8	1·4736	72·1	29
	60	1·4545	43·0	9
F.A.	60	1·4461	31·2	9
	30	1·4681	63·3	320
	25	1·4701	66·5	320
	60	1·4564	45·7	30
	15	1·4731	71·3	30
	40	1·4642	57·5	18
	40	1·4620	54·0	31
	25	1·4679	63·1	31
F.A. ...	40	1·4530	40·9	31
American, from fresh nuts ...	20	1·4701	66·5	32
American, from roasted nuts	20	1·4697	65·9	32
American	15·5	1·4707—1·4731	67·5—71·3	13
	40	1·4628	55·3	33
	25	1·4683	63·7	33
	40	1·4620—1·4642	54·0—57·5	12
	25	1·4676—1·4707	62·6—67·5	12
	40	1·4640—1·4653	57·0—59·1	
	20	1·4698	66·1	14
	22	1·4700—1·4750	66·4—74·3	34
	25	1·4680—1·4707	63·2—67·5	35
American standard limits ...	25	1·4690—1·4707	64·8—67·5	35
General limits.	40	1·4626—1·4643	55·0—57·5	220
	20	1·468—1·472	63·2—69·5	282
Refined oil	21	1·4705—1·4745	67·2—73·5	411
Average	15	1·4679—1·4691	63·0—65·0	173
	25	1·4672—1·4704	62·0—67·0	405
	40	1·4644	57·7	453
	40	1·46431	57·6	17
	40	1·4626—1·4643	55·0—57·5	110
B.P. 1914	40	1·4628—1·4645	55·3—57·9	36
		—0·00036		14
Temp. coeff. $\delta n/\delta t$		—0·00044		26*
		—0·00042		29*
		—0·00040		12,*
				320*
		—0·00039		31*
		—0·000365—366		159
		—0·000037		30*
ARBUTE SEED OIL.				
<i>Arbutus unedo.</i>				
	25	1·4729	71·0	37

NOTES.

	t°C.	n _D	B _D	Refer. No.
<i>Arctomys marmota</i> , see Marmot Fat.				
ARGEMONE OIL.				
From seeds of <i>Argemone Mexicana</i> , Mexican (or Prickly) Poppy, Gamboge Thistle.				
West Indies, Mexico, India.				
Bengal	40	1.4675	62.5	18
Indian	32	1.46552	59.4	38
<i>Asclepias gigantea</i> , see Akoon Seed Oil.				
ASPARAGUS SEED OIL.				
From seed of <i>Asparagus officinalis</i> .				
German	25	1.4754	75.0	39
German	25	1.46465	73.75	140
<i>Astrocaryum</i> species, see Murumurú Oil.				
<i>Atropa belladonna</i> , see Belladonna Seed Oil.				
Atta Seed Oil , see Owala Oil.				
<i>Attalea cohune</i> , see Cohune Oil.				
<i>Attalea excelsa</i> , see Maripa Fat.				
<i>Attalea funifera</i> , see Babassú Oil.				
<i>Attalea maripa</i> and <i>spectabilis</i> , see Maripa Fat.				
Attawa Oil , see Owala Oil.				
AVOCADO OIL.				
Extracted from fresh pulp ...	15.6	1.4700	66.4	473
F.A. ...	40	1.4540	42.3	473
BABASSÚ NUT OIL.				
Syn. Bassoba Oil, Curuá Oil, Uaua-assú Oil.				
<i>Attalea funifera</i> .	40	1.4503	37.1	19
<i>Bactris minor</i> , see Mocaya Oil.				
Badam Oil , see Katappa Oil.				
<i>Baillonella djave (toxisperma)</i> , see Njave Oil.				
<i>Balæna</i> and <i>Balænoptera</i> , see Whale Oil.				
<i>Balanites ægyptiaca</i> , see Zachun Oil.				

NOTES.

	t.C.	n _D	B _D	Refer. No.
BALANITES MANGHAMI OIL.				
Portuguese East Africa.				
Pulp Oil	40	1.4605	51.8	40
Kernel Oil	40	1.4640	57.0	40
Bambuk Butter, see Shea Butter.				
Bancoul Nut Oil, see Candlenut Oil.				
BAOBAB OIL.				
Syn. Renialia Oil.				
From <i>Adansonia digitata</i> , <i>Adansonia Za</i> , <i>Adansonia Grandidieri</i> , <i>Adansonia madagascariensis</i> , <i>Adansonia rutrostipa</i> , <i>Adansonia alba</i> , <i>Adansonia Gregori</i> (Australia), <i>Renialia Fony</i> (Madagascar).				
From whole seeds of <i>Adansonia Grandidieri</i> .	40	1.4585	48.8	4
From decorticated seed ...	40	1.4521	39.6	4
BARLEY SEED OIL.				
<i>Hordeum vulgare</i> .				
F.A. ...	30	1.47450	73.5	24
BARLEY MEAL FAT.				
	25	1.4771	78.0	41
"Barroso," see <i>Centrophorus granulosus</i> .				
BASKING SHARK LIVER OIL.				
<i>Cetorhinus maximus</i> .				
See also Shark Liver Oil, Japanese.				
	20	1.4773	78.2	156
BASS OIL.				
From Sea Bass, <i>Centropristes striatus</i> .				
New Jersey, May 1915.	30	1.4731	71.3	385
September 1915.	30	1.4860	93.6	385
From Striped Bass, <i>Roccus lineatus</i> .				
Wanchese, April 1915.	30	1.4748	74.0	385
Potomac River, 1915.	30	1.4895	100.0	385
<i>Bassia butyracea</i> , see Phulwara Butter.				
<i>Bassia djave</i> , see Njave Oil				
<i>Bassia latifolia</i> , see Mowrah Butter.				
<i>Bassia longifolia</i> , see Illipé Butter.				

NOTES.

	t°C.	n _D	B _D	Refer. No
<i>Bassia malabarica</i> , see Irupa Fat.				
<i>Bassia mottleyana</i> , see Katio Oil.				
<i>Bassia Parkii</i> , see Shea Butter.				
<i>Bassia Tallow</i> , see Mowrah, Illipé and Phulwara Butters.				
<i>Bassia toxisperma</i> . see Njave Oil.				
<i>Bassia villosa</i> , see Mowrah Oil.				
Bassoba Oil , see Babassú Oil.				
Batava Oil , see Coumou Oil.				
Bayberry Oil , see Laurel Oil.				
Bayberry Tallow Fat , see Myrtle Wax.				
BEAN OIL.				
From <i>Vicia faba</i> .				
F.A. ...	26	1·47529	74·8	24
	40	1·4731—1·4745	71·1—73·5	34
South China Oil	15	1·4756	75·3	42
Manchurian Oil	15	1·4750	74·3	42
	40	1·4738	72·4	151
	25	1·4792	81·5	151
F.A. ...	38	1·4691	65·0	151
Extracted with benzol ...	25	1·4865	94·5	44
F.A. ...	40	1·4717	69·1	44
Temp. coeff. $\delta n/\delta t$.		—0·00036		151*
BEAN OIL, HARICOT.				
<i>Phaseolus vulgaris</i> . ²				
F.A. ...	45	1·4789	81·0	43
	40	1·4679	63·1	43
BEAN OIL, MINOGO.				
<i>Phaseolus mungo</i> .				
F.A. ...	45	1·4640	57·1	43
	40	1·4623	54·5	43
BEAN OIL, SCARLET RUNNER.				
<i>Phaseolus coccineus</i> .				
F.A. ...	40	1·4760	76·0	43
	40	1·4653	59·1	43
BEAN OIL, BROAD.				
<i>Vicia faba</i> var. <i>major</i> .				
F.A. ...	30	1·4756	75·3	43
	35	1·4679	63·1	43

NOTES.

	t°C.	n_D	B_D	Refer. No.
BEAR'S FAT.				
<i>Ursus arctos.</i>				
Russian, body and kidney fat.	40	1·4613	53·0	45
	25	1·4667	61·2	45
From Novgorod, body fat. ...	50	1·4562	45·5	46
	20	1·4664	60·8	46
F.A. ...	50	1·4506	37·6	46
F.A. ...	40	1·4545	43·0	46
Temp. coeff. $\delta n/\delta t$		—0·00036		45*
		—0·00034		46*
Bébé Oil, see Inukaya Oil.				
BEECHNUT OIL.				
From fruit of Red Beech Tree, <i>Fagus sylvatica</i> (<i>Fagus ame-</i> <i>ricanus</i>).				
	20	1·4715	68·7	32
	15	1·4729—1·4732	71·0—71·4	420
BEEF MARROW FAT.				
	25	1·4628	55·3	21
BEEF SUET.				
	60	1·4527	40·4	47
BEEF TALLOW.				
	60	1·4510	38·1	9
F.A. ...	60	1·4375	19·7	9
	40	1·4583	48·5	48
	60	1·4420	25·6	30
	45	1·4552—1·4555	44·0—44·5	49
	40	1·4546, 1·4547	43·1, 43·3	453
From different parts under different physiological con- ditions				
	40	1·4501—1·4518	36·8—39·2	50
	40	1·4573—1·4587	47·0—49·0	220
BEESWAX.				
From <i>Apis mellifera</i> .				
	40	1·4538—1·4566	42·0—46·0	48
Yellow and bleached	64	1·4452—1·4466	30·0—32·0	51
	40	1·4544—1·4563	42·9—45·9	52
Pure wax (North American, Mexican, Cuban, Haitian, African)				
	67	1·4455	30·4	54
	85	1·4361—1·4388	17·9—21·4	53
	75	1·4398—1·4426	22·7—26·5	53
	65	1·4434—1·4460	27·5—31·0	53
Pure San Domingo.				
	85	1·4415	25·0	53
	75	1·4451	29·9	53
	65	1·4488	35·0	53
	65	1·4452—1·4463	30·0—31·5	55
Unsaponifiable portion ...	75	1·4383—1·4392	20·8—22·0	56

NOTES.

	t C.	n_D	B_D	Refer. No.
BEESWAX—continued.				
Saponifiable portion	75	1.4338—1.4354	14.8—17.0	56
	50	1.4454—1.4470	30.3—32.5	56
F.A. ...	50	1.4460	31.1	56
Temp. coeff. $\delta n/\delta t$.		—0.00037		53
$\delta B/\delta t$.			0.55	52
$\delta n/\delta t$ for saponifiable portion.		—0.00046		56*
From <i>Apis mellifica</i> var. <i>ligustica</i> .				
Ogasawara Island.	40	1.4548	43.4	57
Corean Beeswax, from <i>Apis indica</i> var. <i>japonica</i>.				
	40	1.4577—1.4584	47.6—48.6	58
Beligo Seed Oil, see Kaloempang Bean Oil.				
BELLADONNA SEED OIL.				
From seeds of <i>Atropa belladonna</i> . Kolozsvar Exper. Farm.	25	1.4726	70.5	465
BEN OIL.				
From seeds of Ben Nut Tree, <i>Moringa pterygosperma</i> and <i>Moringa aptera</i> .				
India, Arabia, Syria, Jamaica.				
Commercial oil	40	1.4652	59.0	59
Oil freed from stearin	40	1.4662	60.5	59
Portion solid at 0° C.	40	1.4652	59.0	59
From <i>Moringa pterygosperma</i> , Jamaica	40	1.4593	50.0	59
Beniseed Oil, see Sesamé Oil.				
Bertholletia excelsa, see Brazil Nut Oil.				
Betu Oil, see Zachun Oil.				
Bignonia fomentosa, see Toi Oil.				
BILBERRY OIL.				
<i>Vaccinium myrtillus</i> .	40	1.4730	71.2	60
	25	1.4782	79.8	60
F.A. ...	40	1.4641	57.3	60
Temp. coeff. $\delta n/\delta t$.		—0.00035		60*

NOTES.

	t°C.	n _D	B _D	Refer. No.
BIRD'S FOOT OIL.				
<i>Ornithopus sativus</i> (<i>Ornithopus roseus</i>).	20	1·4751	74·5	61
F.A. ...	50	1·4593	50·0	61
BLUEFISH OIL.				
<i>Pomatomus saltatrix</i> .				
Virginia, May 1915.	30	1·4749	74·1	385
September 1915.	30	1·4760	76·0	385
BOG BUTTER.				
From Irish Peat.	50	1·4404	23·5	62
<i>Bombax pentandrum</i> and <i>Bombax malabaricum</i> , see Kapok Oil.				
<i>Bombus terrestris</i> , see Humble Bee Wax.				
<i>Bombyx mori</i> , see Chrysalis Oil.				
BONE FAT.	60	1·4510	38·1	30
BONE OIL.				
Pure expressed, <i>d</i> ^{15.6} 0·915	18	1·4697, 1·4707	65·9, 67·5	63
BONITA FISH OIL.				
<i>Sarda sarda</i> .	20	1·4672—1·4707	62·0—67·5	64
New Jersey, June 1915.	30	1·4755	75·1	385
BONITO OIL.				
<i>Gymnosarda affinis</i> .	20	1·4843, 1·4820	90·5, 86·4	6
BORNEO TALLOW.				
Syn. Tangkawang Fat, Enak-bang Changi.				
From kernels of <i>Dipterocarpus</i> plants, e.g., <i>Shorea stenoptera</i> , <i>Shorea aptera</i> , <i>Shorea robusta</i> , <i>Shorea compressa</i> , <i>Shorea falcifera</i> , <i>Shorea gysbertiana</i> , <i>Shorea martiniana</i> , <i>Hopea aspera</i> , <i>Pentacme siamensis</i> , <i>Isoptera borneensis</i> , Indo-China and Sunda Is'ands.				
Commercial tallow.	40	1·4559	45·0	65
	40	1·4559—1·4566	45·0—46·0	405

NOTES.

	t.C.	n D	B D	Refer. No.
Teglam Fat. From <i>Shorea aptera</i> . "Enkabang Changi" (Borneo), "Sangkawang" (Singapore).	40	1.4561	45.2	66
Enkabang Fat. "Enkabang Jantung" (Singapore). From fruit of <i>Shorea gysbertiana</i> . Sarawak.	40	1.4559	45.0	65
Native fat, expressed	40	1.4559	45.0	66
Extracted with CS ₂ .	40	1.4567	46.1	66
Crude, extracted.	40	1.4550	43.8	67
Crude, expressed.	40	1.4566	46.1	67
Refined fat.	40	1.4571	46.7	67
Bottlenose Dolphin , see Dolphin Oil.				
Bottlenose Whale , see Sperm Oil.				
Brassica alba , see Mustard Oil, White.				
Brassica arvensis , see Charlock Oil.				
Brassica campestris , see Rape Oil.				
Brassica juncea , see Mustard Seed Oil, Indian.				
Brassica nigra , see Mustard Seed Oil, Black.				
Brassica napus , see Rape Oil.				
Brassica rapa , see Rape Oil.				
BRAZIL NUT OIL. From seeds of <i>Bertholletia excelsa</i> (Uhâ, Neâ, Tuca, Vuvia, Pará Nuts). Amazon and Orinoco forests.	20	1.4699	66.2	32
Extracted with ether.	25	1.4643	57.6	3
F.A. ...	45	1.4528	40.6	3
Brevortia tyrannus , see Menhaden Oil.				
Brindonia indica , see Kokum Butter.				
Broadbean Oil , see Bean Oil, Broad.				
BROOM SEED OIL. Genest, <i>Spartium junceum</i> .	25	1.4745	73.5	457

NOTES.

	t°C	n _D	B _D	Refer. No.
<i>Brosmius brosme</i> , see Brusmer Liver Oil.				
BROWN FISH OIL.				
<i>Phocaena communis</i> .				
Body oil	40	1.4626	55.0	46
	25	1.4676	62.7	46
F.A. ...	40	1.4569	46.5	46
	25	1.4622	54.3	46
Temp. coeff. $\delta n/\delta t$, oil.		—0.00033		46*
F.A. ...		—0.00035		46*
<i>Brucea sumatrana</i> , see Kô-sam Seed Oil.				
BRUSMER LIVER OIL.				
Syn. Cusk Liver Oil.				
<i>Brosmius brosme</i> .				
Norwegian	40	1.4700	66.3	33
	25	1.4754	75.0	33
F.A. ...	40	1.4615	53.3	33
BRYONY OIL.				
From seeds of <i>Bryonia dioica</i> .				
	40	1.4705	67.2	68
	25	1.4757	75.5	68
F.A. ...	40	1.4610	52.5	68
Temp. coeff. $\delta n/\delta t$.		—0.00035		68*
<i>Buchanania latifolia</i> , see Chironji Oil.				
BUCKEYE SEED OIL, MEXICAN.				
From seed of <i>Ungnadia speciosa</i> .				
Texas, cultivated in Australia.				
Australian oil, extracted with ether				
	20	1.4666	61.1	387
F.A. ...	20	1.4607	52.0	387
	31	1.4565	45.9	387
BUCK TALLOW.	60	1.4495	36.0	30
Buffalo Butter Fat , see Butter Fat.				
<i>Bursera pinniculata</i> , see Canari Oil.				
BUTTER FAT from Cow's Milk.				
Clarified butter fat	60	1.4477	33.5	47
	25	1.4590—1.4620	49.5—54.0	69
Suggested upper limit	25	1.4610	52.6	69
	60	1.4450—1.4480	29.7—33.9	9

NOTES.

	t°C.	n _D	B _D	Refer. No.
BUTTER FAT — <i>continued.</i>				
F.A. ...	60	1.4370—1.4390	19.1—21.7	9
Pure Holstein butter (abnormal).	25	1.4613—1.4626	53.0—55.0	70
Belgian butter	35	1.4555—1.4559	44.5—45.0	71
American butter.	40	1.4557—1.4578	44.8—47.7	72
Butter from cows fed with brewer's grains	25	1.4595	50.25	73
Genuine Dutch butter—				
January to December 1898.	40	1.4550—1.4575	43.7—47.3	153
January to December 1899.	40	1.4555—1.4565	44.5—45.9	153
German butter	40	1.4524—1.4549	40.0—43.6	74
Irish winter butter.	45	1.4531—1.4542	41.0—42.5	75
	40	1.4552—1.4571	44.1—46.8	76
F.A. ...	40	1.4471—1.4497	32.6—36.3	76
English farm butter, F.A. ...	45	1.4405	23.7	77
Yeovil butter, F.A. ...	45	1.4391	21.8	77
Commercial Danish butter ...	40	1.4532—1.4540	41.2—42.3	78
Normal butter	40	1.4529—1.4558	40.7—44.9	79
Abnormal butter.	40	1.4528—1.4568	40.6—46.3	79
Standard butter.	40	1.4538—1.4559	42.0—45.0	449
Various.	40	1.4521—1.4529	39.6—40.7	453
Siberian butter.	40	1.4534—1.4558	41.4—44.8	80
“Samli,” East African native butter.	40	1.4538	42.0	160
	40	1.45427	42.7	17
BUTTER FAT from Sheep's Milk.				
Bulgarian	40	1.4542—1.4562	42.5—45.5	81
	40	1.4552	44.0	83
	40	1.4511—1.4516	38.2—38.9	84
BUTTER FAT from Buffalo Milk.				
Bulgarian	40	1.4550—1.4557	43.8—44.8	81
Indian, <i>see</i> Ghee.				
Egyptian	40	1.4538	42.0	83
BUTTER FAT from Goat's Milk.				
Egyptian	40	1.4527—1.4551	40.4—43.8	85
	40	1.4529—1.4549	40.7—43.6	83
	40	1.4499—1.4550	36.5—43.8	27
F.A. ...	40	1.4446—1.4474	29.2—33.0	84
F.A. ...	40	1.4438—1.4475	28.0—33.1	86
BUTTER FAT from Reindeer Milk.				
Samna, genuine Egyptian ...	40	1.4647	58.2	87
Genuine Syrian.	40	1.4536—1.4539	41.7—42.2	83
	40	1.4544—1.4545	42.9—43.0	83

NOTES.

	t°C.	n _D	B _D	Refer. No.
BUTTERFISH OIL.				
<i>Poronotus triacanthus.</i>				
New Jersey, May 1915.	30	1·4732	71·4	385
October 1915.	30	1·4706	67·3	385
BUTTER NUT OIL.				
<i>Juglans cinerea.</i>				
North America.	20	1·4708	67·7	32
<i>Butyrospermum Parkii</i> , see Shea Butter.				
Cabbage Seed Oil , see Rape Seed Oil.				
CACAO BUTTER.				
From Beans of <i>Theobroma cacao</i> .				
West Indies.	60	1·4496	36·1	9
F.A. ...	60	1·4420	25·6	9(91)
	40	1·4565—1·4578	45·9—47·7	88
	60	1·4500	36·7	30
	40	1·4537—1·4578	41·8—47·7	89
	60	1·4496	36·1	89
Pure sample.	40	1·4565	45·9	90
F.A. ...	60	1·4400	23·0	90
F.A. ...	40	1·4475	33·2	91
	40	1·4566—1·4576	46·0—47·5	220
	40	1·4542—1·4563	42·5—45·6	92
F.A. ...	52	1·4538—1·4560	42·0—45·2	92
Ordinary limits	40	1·4566—1·4580	46·0—48·0	405
<i>Oleum theobromatis.</i>				
B.P. 1914.	40	1·4565—1·4575	45·9—47·3	16
	30	1·4579—1·4600	47·9—51·0	419
	40	1·45724	46·9	17
Liquid portion separated from "Samana" cacao butter by slow cooling.	40	1·4596	50·45	93
CACAO SHELL BUTTER.				
From <i>Theobroma cacao</i> .				
	40	1·4570	46·6	90
F.A. ...	40	1·4406	23·8	90
	40	1·4580	48·0	94
Cachalot , see Sperm Oil.				
Coffea arabica , see Coffee Berry Oil.				
Caiaué Oil , see Palm Oil.				
CAJANUS INDICUS.				
	35	1·4691	65·0	43
F.A. ...	35	1·4633	56·0	43

NOTES.

	t°C.	n _D	B _D	Refer. No.
<i>Caju gadelupa</i> , see Pongam Oil.				
Galaba Oil , see Calophyllum Oil.				
CALAMARY OIL.				
Japan, "Ika-abura."				
Mainly from liver of cuttlefish species (<i>Ommastrephus</i> and <i>Loligo</i>).				
Japan, "Surumé."				
Yokohama Fish Oil Co. ...	20	1·4806	83·9	95
CALF'S FOOT OIL.				
	25	1·4652	59·0	21
CALOPHYLLUM SEED OIL.				
From Nuts of <i>Calophyllum inophyllum</i> (<i>Balsamaria inophyllum</i> , <i>Calophyllum tacamahaca</i> , <i>Calophyllum calaba</i>).				
Syn. Laurel Nut Oil (India), Dhomba Oil (India), Poonseed Oil, Tacamahac Fat, Nossi-bé (Réunion), Njamplung Oil, Calaba Oil (Martinique and Guadeloupe).				
Tropical Asia, East Africa, Southern Asia.	40	1·4760	76·0	96
	15	1·4772	78·1	3
F.A. ...	45	1·4654	59·2	3
	40	1·4737	72·3	40
	26·8	1·47925	81·6	41
<i>Calophyllum tomentosum</i> ...	40	1·4740	72·7	40
<i>Calotropis gigantea</i> , see Akoon Seed Oil.				
<i>Camelina sativa</i> , see Dodder Oil.				
Cameline Oil , see Dodder Oil.				
<i>Camellia drupifera</i> , see Sasanqua Oil				
<i>Camellia japonica</i> , see Tsubaki Oil.				
<i>Camellia oleifera</i> , see Sasanqua Oil				
<i>Camellia sasanqua</i> , see Sasanqua Oil.				

NOTES.

	t.C.	n _D	B _D	Refer. No.
Canadian Vine Oil , see Vine Oil, Canadian.				
CANARI OIL.				
Syn. Java Almond Oil.				
From seeds of <i>Canarium</i> <i>commune</i> (<i>Bursera panni-</i> <i>culata</i> , <i>Colophonia mauri-</i> <i>tiana</i>).				
Malabar, Moluccas, Tropical Asia.				
	40	1.4589	49.4	97
Expressed or extracted ...	40	1.4601—1.4602	51.1—51.3	98
F.A. ...	45	1.4493—1.4494	35.7—35.8	98
<i>Canarium commune</i> , see Canari Oil.				
<i>Canarium oleosum</i> , Oil from seeds of <i>Canarium oleosum</i> (<i>Canarium microcarpum</i>).				
Tropical Asia.				
Kernel Oil	20	1.4664	60.8	3
F.A. ...	50	1.4505	37.4	3
Shell Oil	20	1.4584	48.6	3
<i>Canarium microcarpum</i> , see <i>Canarium oleosum</i> .				
<i>Canarium polyphyllum</i> , Seed Oil.				
New Guinea.				
	21	1.4750	74.3	99
	40	1.4575	47.4	100
F.A. ...	49.5	1.4433	27.4	100
<i>Canarium luzonicum</i> , see Pili Nut Oil.				
CANARY SEED OIL.				
<i>Phalaris canariensis</i> .				
	25	1.4715	68.7	140
<i>Canavalia ensiformis</i> , see Fetish Bean Oil.				
CANDELILLA WAX.				
From <i>Euphorbia antisyphe-</i> <i>litica</i> .				
Crude	71.5	1.4555	44.4	54
	70	1.4558	44.9	101

NOTES.

	t _c	n _d	B _d	Refer. No.
CANDLE NUT OIL.				
Syn. Bancoul Nut Oil, Lum- bang Oil.				
From seed kernels of <i>Aleurites</i> <i>moluccana</i> (<i>Jatropha moluc-</i> <i>cana</i>).				
South Sea Islands, Tropical India, Ceylon, China, Java, Philippines.				
Extracted with petroleum spirit.	15	1·4757—1·4760	75·5—76·0	102
	15	1·4774	78·5	103
	25	1·4760	76·0	103
	40	1·4696	65·7	104
American-grown Oil	25	1·4790	81·2	105
	15	1·4750	74·3	25
Philippine	20	1·4772	78·1	413
Hawaii	20	1·4783	80·0	413
Philippine	15	1·4765	76·8	424
<i>Cannabis sativa</i> , see Hemp Seed Oil.				
<i>Capsicum annuum</i> , see Paprica Oil.				
CARAPA OIL.				
Syn. Crabwood Oil.				
Touloucouna Oil.				
Andiroba Oil.				
From seeds of <i>Carapa guiane-</i> <i>ensis</i> , <i>Carapa moluccensis</i> , <i>Carapa Procera</i> , <i>Carapa</i> <i>touloucouna</i> .				
Cold-pressed	20	1·4623	54·5	106
	20	1·4686	64·2	3
	50	1·4536	41·7	3
Crude	40	1·4593, 1·4613	50·0, 53·0	67
Neutralised	40	1·4605	51·7	67
Brazil.	40	1·4593	50·0	19
CARAWAY SEED OIL.				
From <i>Carum Carvi</i> .	35	1·4710	68·0	5
F.A. ...	35	1·4679	63·1	5
"Cardamom Oil," see Hydnocarpus Oil.				
<i>Carium ajowan</i> , see Ajowan Seed Oil.				

NOTES.

	t°C.	n _D	D _D	Refer. No.
<i>Carium Carvi</i> , see Caraway Seed Oil.				
CARNAUBA WAX.				
Exuded from leaves of <i>Corypha cerifera</i> (<i>Copernicia cerifera</i>).				
South America, notably Ceará, Brazil.				
Observed at 91° C.	40	1·4697	66·0	48
Observed at 84° C.	40	1·4672—1·4701	62·0—66·5	52
Observed at 80° C.	40	1·4710	68·0	54
	80	1·4580	48·0	107
m.p. 82-83° C.	90	1·4538	42·0	161
"Carocho," see <i>Scymnus lichia</i> .				
CARP OIL.				
<i>Cyprinus carpio</i> .				
Body fat resulting from different modes of feeding.				
	40	1·4619—1·4675	53·9—62·5	162
Japanese carp.	20	1·4756	75·3	157
<i>Carpiodes cyprinus</i> , see Carp Sucker.				
CARP SUCKER OIL.				
<i>Carpiodes cyprinus</i> .				
Delaware Bay, October 1915.	30	1·4700	66·4	385
<i>Carpiodes thomsonii</i> .				
Lake Erie	30	1·4704	67·0	385
CARROT SEED OIL.				
<i>Daucus carota</i> .				
	35	1·4723	70·0	5
F.A. ...	35	1·4625	54·8	5
<i>Carthamus oxyacantha</i> , see Poli Oil.				
<i>Carthamus tinctorius</i> , see Safflower Oil.				
<i>Carumbium sebiferum</i> , see Chinese Vegetable Tallow.				
<i>Carya amara</i> and <i>ovata</i> , see Hickory Oil.				
<i>Caryocar tomentosum</i> , see Sacha almendras.				
Fat.				
<i>Caryodendron orinocense</i> , see Tacay Oil.				

NOTES.

	t.C.	n_D	B_D	Refer. No.
CASHEW NUT OIL.				
Syn. Acajou Oil.				
From <i>Anacardium occidentale</i> .				
India, West Indies.				
	25	1·4872	62·0	108
	25	1·4651, 1·4646	58·8, 58·1	109
	40	1·4623	54·4	40
	60	1·4545	43·0	91
F.A. ...	60	1·4459	30·9	91
Commercial average ...	25	1·4672	62·0	405
CASTILLE THISTLE SEED OIL.				
<i>Cynara cardunculus</i> .				
	25	1·4733	71·6	111
CASTOR OIL.				
From seeds of <i>Ricinus communis</i> (several varieties).				
India, Indo-China, China, Java, Mexico, North America.				
	37·3	1·4726	70·5	29
	20	1·4791	81·3	29
	14·4	1·4831	88·3	29
	15	1·4795—1·4803	82·0—83·4	112
	60	1·4636	56·5	9
F.A. ...	60	1·4546	43·1	9
	15	1·4803	83·4	30
	25	1·4774	78·3	12
	20	1·4781—1·4790	79·6—81·2	14
	15	1·4790—1·4810	81·2—84·6	113
F.A. ...	60	1·4540—1·4558	42·3—44·9	113
	40	1·4710—1·4723	68·0—70·0	220
	45	1·4703	66·8	453
Firsts and seconds ...	21	1·4793—1·4803	81·7—83·4	411
Calcutta, firsts and seconds ...	21	1·4783—1·4794	80·0—81·9	411
Bombay... ..	21	1·4784	80·1	411
Miscible... ..	21	1·4784—1·4813	80·1—85·2	411
Medicinal Oil	15	1·4790—1·4809	81·2—84·5	107
Ol. Ricini, B.P. 1914	40	1·4695—1·4730	65·6—71·1	36
Average pure oil	40	1·47194	69·5	17
	40	1·4659—1·4723	60·0—70·0	110
Average	25	1·4771	78·0	405
From Kolozsvar Exper. Farm	25	1·4750	74·3	465
Temp. coeff. $\delta n/\delta t$		—0·00040		26*
		—0·00035		248*
		—0·00036		128
CATFISH OIL, CHANNEL.				
	25	1·4741	72·9	444

NOTES.

	t C	n _D	B _D	Refer. No.
CATO OIL. From dried kernels of <i>Chirochiton cumingianus</i> .	30	1·4659—1·4666	60·0—61·0	114
CAYETÉ FAT. Span. "Comadre de azeite." <i>Omphalea megacarpa</i> . Brazil.	40	1·4648	58·4	19
CEDAR NUT OIL. Kamchatka.	15	1·47182	69·2	42
<i>Cedonia vulgaris</i> , see Quince Seed Oil.				
<i>Celastrus senegalensis</i> , see Staff Tree Oil.				
CELERY SEED OIL. <i>Apium graveolens</i> .	35	1·4783	80·0	5
F.A. ...	35	1·4778	79·1	5
CENTRINA SALVIANI LIVER OIL.	15	1·4751	74·5	115
	20	1·4801	83·1	116
CENTROPHORUS GRANULOSUS LIVER OIL. Portug. "Barroso." Portugal.	25	1·4896	102	117
<i>Centropristes striatus</i> , see Bass Oil.				
<i>Cephalotaxus drupacea</i> , see Inukaya Oil.				
CERATOTHECA SESAMOIDES. From seeds, "Bungu." Gold Coast. Extracted with petroleum ether.		1·4656	59·6	415
CERESINE (OZOKERITE). Galician.	40	1·4531	41·0	48
Galician.	78	1·4352	16·7	48
Galician, m.p. 68·7° C. ...	100	1·4268	6·0	48
	90	1·4300—1·4354	10·0—17·0	434
m.p. 57-61° C.	40	1·4468—1·4476	32·2—33·3	52
m.p. 66-73° C.	40	1·4490—1·4539	35·2—42·2	52
Yellow, m.p. 69-71° C. ...	90	1·4316—1·4324	12·0—13·0	161
Half-white, m.p. 68° C. ...	90	1·4312	11·5	161
White, m.p. 68° C.	90	1·4312	11·5	161
Pure refined, m.p. 64·5-69° C.	90	1·4318—1·4330	12·3—13·8	435

NOTES.

	t°C.	n _D	B _D	Refer. No.
CERESINE—continued.				
"Guaranteed pure," m.p. 58-84° C....	90	1.4316—1.4359	12.1—17.7	435
General limits	40	1.4468—1.4539	32.2—42.2	27
General limits	90	1.4414—1.4420	24.8—25.6	436
Unsaponifiable portion	75	1.4313	11.6	56
Temp. coeff. $\delta n/\delta t$		—0.00047		48*
<i>Cervus elaphus</i> , see Stag Fat.				
<i>Cetorhinus maximus</i> , see Basking Shark Liver Oil.				
<i>Chalumpang Oil</i> , see Columpang Oil.				
CHARLOCK OIL.				
Syn. Wild Mustard Oil.				
<i>Brassica arvensis</i> .				
	20	1.4738	72.4	187
F.A. ...	20	1.4625	54.8	187
American, expressed	25	1.4734	71.8	139
Extracted with ether	25	1.4739	72.5	139
Extracted with petroleum spirit	25	1.4729	71.0	139
CHAULMOOGRA OIL.				
From seeds of <i>Taraktogenos Kurzii</i> (<i>Hydnocarpus Kurzii</i> , <i>Hydnocarpus heterophylla</i> *).				
Bengal, Siam.				
	40	1.4724	70.2	118
	25	1.4777—1.4779	78.9—79.2	107
	40	1.4720—1.4774	69.5—78.4	260
<i>Chaulmoogra, False</i> , see <i>Hydnocarpus</i> Oil.				
<i>Chaulmoogra odorata</i> , see <i>Gynocardia</i> Oil.				
<i>Cheiranthus Cheiri</i> , see Wallflower Seed Oil.				
<i>Chelonia mydas</i> , see Turtle Oil, Green.				
* Respecting the identities of <i>Chaulmoogra</i> , <i>Hydnocarpus</i> , <i>Lukrabo</i> , and <i>Gynocardia</i> Oils, see Lewkowitsch, <i>Chemical Technology and Analysis of Oils, Fats, and Waxes</i> (1914), Vol. II., 491; Power and Gornall, <i>J. Chem. Soc.</i> (1904), 843; Rabisch, <i>Ch. Rev.</i> 20 (1913), 267.				

NOTES.

	t C.	n _D	B _D	Refer. No.
CHERRY STONE OIL.				
From <i>Prunus cerasus</i> .				
Stone Oil.	25	1.4641	57.3	149
Kernel Oil.	25	1.4635	56.3	149
Expressed.	25	1.4748—1.4766	74.0—77.1	409
CHERVIL SEED OIL.				
From <i>Anthriscus cerefolium</i> .				
	35	1.4692	65.1	43
F.A. ...	35	1.4580	48.0	43
CHICK PEA OIL.				
From <i>Cicer arietinum</i> .				
	30	1.4717	69.1	43
F.A. ...	40	1.4587	49.1	43
	25	1.4748, 1.4745	74.0, 73.5	163
CHICKEN FAT.				
<i>Gallus domesticus</i> .				
	50	1.4576	47.5	119
F.A. ...	50	1.4499	36.5	119
<i>Chimæra phantasma</i> , see Rat Fish Oil.				
CHINA WOOD OIL.				
Syn. Tung Oil.				
From seeds of <i>Aleurites cordata</i> and <i>Aleurites Fordii</i> .				
"Tung-Yu."				
Average... ..	25	1.5035		192
	20	1.5210		369
	15.6	1.5211—1.5239		369
From Hankow	20	1.5150—5207		364
	25	1.5160		177
	15	1.5099—1.5186		370
Pure, Baron's	15	1.5186		370
	20	1.5149—1.5202		371
	15	1.5170—1.5220		207
Best commercial qualities ...	25	1.5165—1.5195		105
Coleman & Seaton's oil ...	25	1.4938		105
Laboratory expressed from <i>Aleurites Fordii</i> .	25	1.5179—1.5210		105
American grown	25	1.5200, 1.5210		105
	20	1.5182		373
Amer. Soc. for Test. Mat. Limits	25	1.515—1.520		105

NOTES.

	t°C.	n _D	B _D	Refer. No
CHINA WOOD OIL — <i>continued.</i>				
South China Wood Oil (Wuchow)	20	1.5206		374
	15	1.5226		374
	40	1.5080—1.5128		17
Chinese	15	1.5092		424
Temp. coeff. $\delta n/\delta t$		—0.00038 to 0.00044 —0.00040		372* 374*
Chinese Tallow Seed Oil , <i>see</i> Stillingia Oil.				
CHINESE VEGETABLE TALLOW.				
Syn. Stillingia Tallow, <i>Oleum Stillingie.</i>				
From coating on seeds of Chinese tallow tree, <i>Stillingia sebifera</i> (<i>Stillingia sinensis</i> , <i>Croton sebiferum</i> , <i>Sapium sebiferum</i> , <i>Excoecaria sebifera</i> , <i>Carumbium sebiferum</i>).				
“Mu-tsé-shou,” “Pi-yoo.”				
	50	1.4510	38.0	120
	46	1.4524	40.0	120
Crude.	40	1.4560—1.4579	45.2—47.9	67
Refined.	40	1.4573, 1.4571	47.1, 46.7	67
	40	1.4490	35.2	67
	40	1.4556	44.6	8
	50	1.4429	26.9	8
	40	1.4470	32.45	8
	40	1.4538—1.4559	42.0—45.0	110, 220
Prima.	60	1.4481—1.4518	34.0—39.2	464
Secunda.	60	1.4583	48.5	464
	40	1.4546	43.1	471
Temp. coeff. $\delta n/\delta t$		—0.00035		120*
Chinese Wood Oil , <i>see</i> China Wood Oil.				
CHIRONJI OIL.				
From <i>Buchanania latifolia</i> .				
Syn. Chuddapah almonds, Peru palm kernels.				
North-West India.				
	40	1.4584	48.6	18
	40	1.4588	49.3	40
Chisochiton cumingianus , <i>see</i> Cato Oil.				

NOTES.

	t°C.	n_D	B_D	Refer. No.
<i>Chlorophora tenuifolia</i> , see Kanga Butter.				
CHÔ-NO-FUYE OIL. <i>Cælorhynchus japonicus</i> .	20	1·4761	76·1	157
<i>Chrozophora verbascifolia</i> , see Tannoom Oil.				
CHRYSA LIS OIL. From pupæ of silkworm, <i>Bombyx mori</i> .				
Extracted with petroleum ether.	20	1·4757	75·5	121
Crude oil.	60	1·4610	52·5	121
	20	1·4760	76·0	121
Refined oil.	60	1·4600—1·4607	51·0—52·0	121
	20	1·4748	74·0	121
Tussah Oil, Shantung.	20	1·4763	76·5	122
Temp. coeff. $\delta n/\delta t$		—0·000375		121*
<i>Cicer arietinum</i> , see Chick Pea Oil.				
<i>Cinnamomum camphora</i> , see Kusu Oil.				
<i>Citrullus</i> , see Ikpan.				
<i>Citrullus colocynthis</i> , see Colo- cynth Seed Oil.				
<i>Citrus aurantium</i> , see Orange Seed Oil.				
<i>Citrus limetta</i> , see Lime Seed Oil.				
<i>Citrus limonum</i> , see Lemon Pip Oil.				
CLADIUM OIL. From seeds of <i>Cladium</i> <i>mariseus</i> .	15	1·4676	62·6	465
CLOVER OIL, PINK. <i>Trifolium incarnatum</i> .	30	1·4723	70·0	61
F.A. ...	30	1·4620	54·0	61
CLOVER OIL, BASTARD. <i>Trifolium hybridum</i> (<i>Trifolium</i> <i>elegans</i>).	30	1·4757	75·5	61
F.A. ...	40	1·4626	55·0	61

NOTES.

	tC.	n _D	B _D	Refer. No.
CLOVER OIL, RED.				
From seeds of <i>Trifolium pratense</i> (<i>Trifolium sativum</i>).				
	30	1·4732	71·4	61
F.A. ...	40	1·4626	55·0	61
CLOVER OIL, WHITE.				
From seeds of <i>Trifolium repens</i> .				
	30	1·4745	73·5	61
F.A. ...	40	1·4624	54·6	61
CLOVER OIL, YELLOW.				
From seeds of <i>Trifolium agrarium</i> .				
	30	1·4757	75·5	61
F.A. ...	40	1·4666	61·1	61
Clover Oil, Turkish, see Turkish Clover Oil.				
	30	1·4770	77·7	61
F.A. ...	50	1·4574	47·2	61
Clupanodon melanosticta, see Sardine Oil, Japanese.				
Clupea harengus, see Herring Oil.				
Clupea sardinus, see Sardine Oil.				
Clupea sprattus, see Sprat Oil.				
COAL FISH LIVER OIL.				
Syn. Pollock, Saith. <i>Gadus merlangus</i> .				
	25	1·4766	77·0	130
	15	1·4795	82·0	116
Cochlearia officinalis, see Spoonwort Oil.				
COCONUT OIL.				
From kernels of coconut palm, <i>Cocos nucifera</i> and <i>Cocos butyracea</i> .				
	60	1·4410	24·3	9
F.A. ...	60	1·4295	9·4	9
	40	1·4477	33·5	320
Bombay	40	1·4482	34·2	18
	60	1·4420	25·6	30

NOTES.

	t°C.	n _D	B _D	Refer. No.
COCONUT OIL—continued.				
Extracted or expressed ...	20	1·4550, 1·4553	43·7, 44·2	32
F.A. ...	45	1·4321	12·7	77
	40	1·4477—1·4497	33·5—36·3	27
	40	1·4487	34·9	124
	25	1·453 —1·456	40·9—45·2	107
	15·5	1·4587	49·1	13
	40	1·4488	35·0	449
	40	1·4490	35·3	125
	40	1·4486—1·4491	34·7—35·5	220
Ceylon, expressed.	21	1·4566	46·0	411
	40	1·44924	35·6	17
	40	1·4488—1·4495	35·0—36·0	110
	40	1·4474—1·4495	33·0—36·0	405
	40	1·4475	33·2	453
Temp. coeff. $\delta n/\delta t$...		—0·00040		26*
<i>Cocos aculeata</i> , see Mocaya Oil.				
<i>Cocos nucifera</i> and <i>Cocos butyracea</i> , see Coconut Oil.				
<i>Cocos sclerocarpa</i> , see Mocaya Oil				
<i>Cocos syagrus</i> , see Piririma Oil.				
COD LIVER OIL.				
<i>Gadus morrhua</i> .				
	15	1·4800—1·4853	82·9—92·3	112
	60	1·4621	54·2	9
F.A. ...	60	1·4521	39·6	9
	15	1·4810	84·6	30
Medicinal pure ...	15	1·4820	86·4	30
Commercial ...	15	1·4808—1·4821	84·3—86·6	30
F.A. ...	60	1·4620	54·0	30
F.A. from Möller's Cod Liver Oil ...	60	1·4645	57·9	30
F.A. from Medicinal Cod Liver Oil.	60	1·4578	47·7	30
Norwegian, Lofotes, Finmark	15	1·4795—1·4826	82·0—87·5	126
	20	1·4769—1·4802	77·5—83·2	126
Newfoundland ...	15	1·4788—1·4792	80·8—81·5	126
	20	1·4769—1·4772	77·5—78·1	126
Norwegian ...	40	1·4725—1·4729	70·3—71·0	33
	25	1·4781—1·4783	79·7—80·0	33
F.A. ...	40	1·4637—1·4640	56·7—57·0	33
Newfoundland ...	40	1·4708—1·4725	67·7—70·3	33
	25	1·4762—1·4778	76·3—79·0	33
F.A. ...	40	1·4618—1·4631	53·7—55·7	33
	40	1·4714—1·4726	68·5—70·5	127
	25	1·4772—1·4778	78·0—79·0	127

NOTES.

	t.c.	n _D	B _D	Refer. No.
COD LIVER OIL—continued.				
Norwegian	40	1.4697	66.0	127
	25	1.4754	75.0	127
Norwegian freed from stearine	40	1.4710—1.4729	68.0—71.0	127
	25	1.4766—1.4783	77.0—80.0	127
	20	1.4776—1.4825	78.8—87.3	14
	25	1.4761—1.4776	76.2—78.8	129
	20	1.4780—1.4794	79.3—81.9	129
	15	1.4798—1.4813	82.5—85.1	129
West and East Coast Cod Liver Oil, being a mixture of a number of fish-liver oils ...	40	1.4702—1.4717	66.7—69.0	130
	25	1.4758, 1.4772	75.7, 78.0	130
Pure pale oils	15	1.4792—1.4811	81.5—84.8	131
American Oil	15.5	1.4783—1.4814	80.0—85.3	132
	15	1.4822	86.7	133
East Siberian... ..	15	1.4840	90.0	42
American	15	1.4805	83.8	116
Norwegian	15	1.4810	84.6	116
From Hokkaido	20	1.4792, 1.4795	81.5, 82.0	6
Light and dark oils	15	1.4800—1.4840	82.8—90.0	107
Light and dark oils	18	1.4763, 1.4757	76.5, 75.5	134
Light and dark oils	40	1.4723—1.4735	70.0—72.0	410
Average... ..	40	1.4695, 1.4698	65.6, 66.1	453
Scotch crude brown	21	1.4833	88.7	411
Canadian yellow	21	1.4764	76.7	411
Oleum "morrhue," B.P. 1914	40	1.4704—1.4745	67.0—73.5	36
<i>Oleum morrhue</i> , B.P. 1914 ...	18	1.4800—1.4830	82.9—88.2	113
Temp. coeff. $\delta n/\delta t$		—0.00040		26*
		—0.00035 to 52		126*
		—0.00036 to 39		127*
		—0.00037		33,*128
	25-40	—0.00036		129,*130
				248
COD LIVER OIL, BROWN—				
	15	1.4820	86.4	30
Coast	21	1.4794—1.4803	81.9—83.4	411
COD LIVER OIL, LONG—				
<i>Morue longue</i> ...	15	1.4804	83.6	133
<i>Cælorhynchus japonicus</i> , see Chô-no-fuyé Oil.				
COFFEE BERRY OIL.				
By extraction from berries of <i>Caffea arabica</i> .				
From raw berries	25	1.4777—1.4778	78.9—79.1	135
From roasted berries	25	1.4762—1.4768	76.3—77.3	135
From raw Java coffee	25	1.4792	81.5	136

NOTES.

	t°C	n _D	B _D	Refer. No.
COHUNE OIL. From kernels of the Cohune Palm, <i>Attalea cohune</i> , British Honduras, Guatemala, Mexico "Manacca Nut" (Guatemala).	40	1.4490—1.4496	35.2—36.2	220
Cokerite Palm Nut Oil , see Anajá Oil.				
COLOCYNTH SEED OIL. <i>Citrullus colocynthis</i> . Beluchistan, Algiers. Algerian, extracted with carbon tetrachloride.	40 25 15	1.4682 1.4738 1.4773	63.5 72.3 78.2	137 137 137
F.A. ...	45	1.4582	48.3	137
	40	1.4604	51.5	137
	30	1.4637	56.7	137
Temp. coeff. $\delta n/\delta t$, oil		—0.00036		137*
F.A. (30-40° C.) ...		—0.00033		137*
Cololabes saira , see Mackerel Pike Oil.				
Colophonia mauritiana , see Canari Oil.				
Columpang Oil , see Sterculia Oil.				
Colza Oil , see Rape Oil.				
Comadre de azeite , see Cayeté Fat.				
Conepia grandifolia , see Oiticica Oil.				
COOT FAT. <i>Fulica atra</i> . South Finland.	40 25	1.4625 1.4678	54.8 62.9	46 46
F.A. ...	45	1.4523	39.9	46
	35	1.4557	44.7	46
Temp. coeff. $\delta n/\delta t$		—0.00035		46*
Copernicia cerifera , see Carnauba Wax.				
Coregonus , see Whitefish Oil.				

NOTES.

	t°C.	n _D	B _D	Refer. No.
COREGONUS LAVARATUS and ALBUS, OIL OF—				
("Lavaret" and "Felchen.")				
Masurian Lakes.				
From raw fish.	40	1·4725	70·3	138
From salted fish.	40	1·4684	63·8	138
CORIANDER SEED OIL.				
<i>Coriandrum sativum.</i>				
	35	1·4710	68·0	5
F.A. ...	35	1·4650	58·6	5
	23	1·4873	96·0	24
F.A. ...	29	1·4698	66·1	24
Corn Oil, see Maize Oil.				
Cornel Oil, see Sanguinella Oil.				
<i>Cornepia moquilea, see Oiticica</i>				
Fat.				
<i>Cornus sanguinea, see Sanguinella</i>				
Oil.				
<i>Corylus avellana, see Hazelnut</i>				
Oil.				
<i>Corypha cerifera, see Carnauba</i>				
Wax.				
COTTON SEED OIL.				
From seeds of <i>Gossypium</i>				
<i>hirsutum</i> (U.S.A.), <i>Gossypium</i>				
<i>barbadense</i> (Egypt), <i>Gossypium</i>				
<i>neglectum</i> and <i>Gossypium</i>				
<i>arboreum</i> (India), <i>Gossypium</i>				
<i>brasilensis</i> , <i>Gossypium</i>				
<i>peruvianum.</i>				
	20	1·4722—1·4741	69·9—72·9	29
Average	25	1·4669—1·4685	61·5—64·0	142
	15	1·4720—1·4752	69·5—74·6	112
	60	1·4570	46·6	47
F.A. ...	60	1·4460	31·0	47
	18	1·4689—1·4705	64·7—67·2	143
	30	1·4691	65·0	320
	25	1·4709	67·8	320
	35	1·4647—1·4660	58·2—60·2	71
	15	1·4750	74·3	30
	15	1·4750	74·3	144
	15·5	1·4737—1·4757	72·2—75·5	13
	40	1·4659	60·0	33
	25	1·4715	68·7	33

NOTES.

	t°C.	n_D	B_D	Refer. No.
COTTON SEED OIL—continued.				
F.A. ...	40	1.4566	46.0	33
American standard limits ...	25	1.4700—1.4725	66.4—70.3	35
Southern Chinese oil, purified	15	1.47425	73.1	42
Winter yellow oil	25	1.47509	74.4	145
Three-year-old sample (1907)	25	1.4767	77.2	146
Original oil (1904)	25	1.4710	68.0	146
American, African, Egyptian, Indian, Turkestan, labora- tory oil	40	1.4651—1.4688	58.8—64.6	147
	25	1.4707—1.4745	67.6—73.5	147
Purified oils	40	1.4648—1.4654	58.4—59.3	147
	25	1.4700—1.4708	66.4—67.7	147
F.A....	40	1.4552—1.4567	44.1—46.2	147
North and South American, Indian and German crude commercial oils... ..	40	1.4646—1.4695	58.0—65.5	147
	25	1.4680—1.4744	63.3—73.4	147
Purified commercial	40	1.4646—1.4655	58.1—59.3	147
	25	1.4699—1.4711	66.3—68.1	147
F.A. ...	40	1.4552—1.4563	44.1—45.6	147
	40	1.4659—1.4666	60.0—61.0	449
	20	1.4722	69.9	14
	19	1.4710—1.4730	68.0—71.1	34
	40	1.4646—1.4653	58.0—59.0	220
	20	1.4748	74.0	148
	25	1.4707—1.4719	67.6—69.4	164
American refined	21	1.4735—1.4745	71.9—73.5	411
Egyptian refined	21	1.4725—1.4730	70.3—71.1	411
	20	1.474—1.476	72.7—76.0	282
	40	1.46535	59.2	17
	40	1.4646—1.4653	58.0—59.0	110
	25	1.4704—1.4723	67.0—70.0	405
	40	1.4639	56.9	453
Temp. coeff. $\delta n/\delta t$		—0.000288		142
		—0.000368		159
		—0.00035 to 38		33*
		—0.00038		320*
		—0.00037		128, 147*
Cotumba Oil, see Katappa Oil.				
COULA OIL.				
Syn. Koumouna Oil, <i>Coula edulis</i> .				
East and West Africa.				
Gaboon	40	1.4602	51.2	165
F.A. ...	40	1.4519	39.4	165

NOTES.

	t°C.	n _D	B _D	Refer. No.
<i>Coumarouna excelsa</i> , see Tonka Butter.				
COUMOU OIL.				
Syn. Batava Oil, Bacaba Oil, Patauaú Oil.				
From kernels of palm trees, <i>Enocarpus batava</i> , <i>Enocarpus bacaba</i> .				
Tropical America.				
	15	1.4691	65.0	3
F.A. ...	45	1.4502	37.0	3
Pará and Maranham Pulp Oil	40	1.4610	52.5	19
CRAB LIVER OIL.				
From Taraba-gani.				
<i>Lithodes camschatica</i> .				
Northern Sea of Japan	20	1.4805, 1.4812	83.8, 85.0	472
Crab Wood Oil , see Carapa Oil.				
<i>Crambe maritima</i> , see Seakale Oil.				
CRANBERRY SEED OIL.				
From <i>Vaccinium vitis idæa</i> .				
	40	1.4754	75.0	60
	25	1.4803	83.4	60
F.A. ...	40	1.4661	60.4	60
Temp. coeff. $\delta n/\delta t$		—0.00033		60*
CRANE FAT.				
<i>Grus cinerea</i> .				
Helsingfors.	45	1.4577	47.6	46
	20	1.4669	61.5	46
Temp. coeff. $\delta n/\delta t$		—0.00037		46*
F.A. ...	45	1.4472	32.8	46
	30	1.4530	40.8	46
<i>Cratægus oxyacantha</i> , see Hawthorn Seed Oil.				
CROAKER OIL.				
<i>Micropogon undulatus</i> .				
Buckroe Beach, Va., April 1915	30	1.4724	70.2	385
Chinoteague Island, Va., September 1915	30	1.4703	66.8	385

NOTES.

	t°C.	n_D	B_D	Refer. No.
CROTON OIL.				
From seeds of <i>Croton tiglium</i> .				
Malabar Coast, Southern Asia.				
China, etc.				
	27	1.4769	77.5	166
	20	1.4781—1.4790	79.6—81.2	14
	40	1.4710	68.0	169
Temp. coeff. $\delta n/\delta t$		—0.00037		128
<i>Croton sebiferum</i> , see Chinese Vegetable Tallow and Stillingia Oil.				
<i>Croton tiglium</i> , see Croton Oil.				
CUCUMBER OIL, WILD—				
<i>Echinocystis oregana</i> .				
Extracted oil.	25	1.4722	69.9	167
Cold-expressed oil.	25	1.4701	66.5	167
<i>Cucumis citrullus</i> , see Water Melon Oil.				
CUMIN SEED OIL.				
From <i>Cuminum cyminum</i> .				
	30	1.4720	69.5	5
F.A. ...	35	1.4748	74.0	5
Cumquat Oil , see Orange Pip Oil.				
<i>Cupressus sempervirens</i> , see Cypress Seed Oil.				
CURCAS OIL.				
Syn. Purging Nut Oil, Physic Nut Oil, Pulza Oil.				
From seeds of <i>Jatropha curcas</i> .				
Tropical America, Portuguese Colonies.				
Portuguese, expressed	25	1.4681—1.4689	63.4—64.7	168
	25	1.4681—1.4820	63.4—86.4	282
	40	1.4636	56.5	170
	25	1.4691	65.0	170
Temp. coeff. $\delta n/\delta t$.		—0.00037		170*
<i>Curcubita maxima</i> , see Hubbard Squash Seed Oil.				
<i>Curcubita peps</i> , see Pumpkin Seed Oil.				
Currant Seed Oil, Red , see Red Currant Seed.				

NOTES.

	t.C.	n_D	B	Refer. No.
Curua Oil , <i>see</i> Babassu Oil.				
Cusk Liver Oil , <i>see</i> Brusmer Liver Oil.				
Cynara cardunculus , <i>see</i> Castille Thistle.				
Cynopselta dubia , <i>see</i> Aburagarei Oil.				
Cynoscion regalis , <i>see</i> Weakfish Oil.				
Cyperus esculentus , <i>see</i> Tiger Nut Oil.				
CYPRESS SEED OIL. From <i>Cupressus sempervirens</i> var. <i>horizontalis</i> . South Europe, Orient, North Africa.	35	1·4857	93·0	171
F.A. ...	40	1·4795	82·0	171
Cyprinus carpio , <i>see</i> Carp Oil.				
Cytisus laburnum , <i>see</i> Laburnum Oil.				
DAB OIL. Species of <i>Limanda</i> . North-east Coast of Houshiu. Japan. "Karei."	20	1·4748	74·0	172
Dahlbergia arborea , <i>see</i> Pongam Oil.				
Damnar Oil, White , <i>see</i> Malabar Fat.				
Daucus carota , <i>see</i> Carrot Seed Oil.				
Dasyatis acajei , <i>see</i> Akajei Oil.				
DATE SEED OIL. From <i>Phoenix dactylifera</i> . Algerian.	40	1·4581	48·2	8
	25	1·4633	56·1	8
F.A. ...	40	1·4480	33·9	8
	25	1·4535	41·5	8
Temp. coeff. $\delta n/\delta t$.		—0·00035		8*
Temp. coeff. $\delta n/\delta t$. F.A. ...		—0·00050		8*

	t°C.	n _D	B _D	Refer. No.
<i>Delphinium elatum</i> , see Larkspur Oil.				
<i>Delphinus globiceps</i> , see Dolphin Oil.				
<i>Delphinus longirostris</i> , see Dolphin Oil.				
<i>Delphinus phocæna</i> , see Porpoise Oil.				
Dhomba Oil , see Calophyllum Seed Oil.				
DIKA FAT.				
Syn. Dika Oil, Dika Butter, Oba Oil, Wild Mango Oil.				
From seed kernels of <i>Irvinghia gabonensis</i> , <i>Irvinghia Barteri</i> , <i>Margifera gabonensis</i> .				
West Coast of Africa. Native names: Udika, Dika, Dita, Oba, Iba (Gaboon).				
	50	1.4505	37.4	3
F.A. ...	50	1.4357	17.4	3
	40	1.4499	36.5	67
F.A. ...	40	1.4380	20.4	67
DILL SEED OIL:				
From <i>Anethum graveolens</i> .				
	35	1.4795	82.0	5
F.A. ...	35	1.4760	76.0	5
<i>Dipteryx odorata</i> , see Tonka Butter.				
<i>Discobatus sinensis</i> , see <i>Uchiwa zamé</i> .				
DJAMMA KERNEL OIL.				
East Africa.	25	1.4729	71.0	174
Djave Butter , see N'jave Butter.				
DODDER OIL.				
Syn. Cameline Oil, German Sesamé Oil.				
From seeds of <i>Myagrum sativum</i> (<i>Camelina sativa</i>).				
South Germany, Belgium, Holland, Hungary, Balkan States, Southern Russia.				
	20	1.4761	76.1	175
F.A. ...	25	1.4658	59.8	175
	21	1.4794	81.9	411

NOTES.

	t.C.	n_D	B_D	Refer. No.
DOGFISH LIVER OIL.				
<i>Squalus acanthias.</i>				
	25	1.4730	71.2	130
	40	1.4675	62.5	130
	15	1.4786	80.5	116
	20	1.4755, 1.4749	75.1, 74.1	176
	25	1.4801	83.1	177
Temp. coeff. $\delta n/\delta t$.		—0.00037		130*
DOGROSE SEED OIL.				
<i>Rosa canina.</i>				
	25	1.4572	46.9	433
Dogwood Oil, see Sanguinella Oil.				
DOLICHOS LAHLAB OIL.				
	45	1.4710	68.0	43
F.A. ...	45	1.4653	59.1	43
DOLPHIN OIL.				
From blubber of Bottlenose Dolphin.				
<i>Delphinus globiceps.</i>				
	15	1.4708	67.7	126
	20	1.4682	63.5	126
<i>Delphinus longirostris.</i>				
Japan: Ma-iruka.				
Head oil	20	1.4524	40.0	6
Body oil	20	1.4717	69	6
Body oil by roasting process ...	20	1.4695	65.5	6
Refined head oil.	20	1.4517	39.0	6
Domba Oil, see Calophyllum Oil.				
DUGONG OIL.				
Syn. Manatee Oil.				
<i>Halicore australis</i> and <i>Halicore indicus.</i>				
	40	1.4607	52.0	33
	25	1.4661	60.3	33
F.A. ...	40	1.4507	37.7	33
Australian Dugong.	30	1.4628	55.3	180
F.A. Solid portion.	60	1.4390	21.7	180
F.A. Liquid portion.	30	1.4567	46.2	180
Temp. coeff. $\delta n/\delta t$.		—0.00036		33*
DUMORI OIL.				
Seed of <i>Dumoria heckelii.</i>				
	40	1.4481	34.0	452
EAGLE RAY LIVER OIL.				
<i>Myliobates aquila.</i>				
	15	1.4760	76.0	115
<i>Myliobates tobiei.</i>				
Japan.	20	1.4773	78.2	181

NOTES.

	t°C	n _D	D _D	Refer. No.
Earthnut Oil , <i>see</i> Arachis Oil.				
Echinocystis oregana , <i>see</i> Cucumber Oil, Wild.				
EEL OIL. <i>Anguilla japonica.</i> Jap. "Unagi."	20	1·4712	68·3	6
EGG OIL (Egg Yolk Fat).	25	1·4713	68·4	182
	15	1·4754	75·0	20
	40	1·4648	58·3	183
Elæis guineensis , <i>see</i> Palm Oil.				
Elæis melanococca , <i>see</i> Palm Oil.				
Elæococca vernicia , <i>see</i> Tung Oil, Japanese.				
ELDERBERRY OIL. From berries and seeds of Red Elderberry, <i>Sambucus race-</i> <i>mosa.</i>				
From flesh juice.	20	1·4770	77·7	184
From seeds	20	1·4850	91·8	184
	40	1·4655	59·4	462
	25	1·4710	68·0	462
Temp. coeff. $\delta n/\delta t$.		0·00037		462*
ELM SEED OIL. <i>Ulmus campestris.</i> German	25	1·4518, 1·4522	39·2, 39·7	140
ELOZY OIL. From seeds of <i>Ximenia ameri-</i> <i>cana</i> (<i>Ximenia russelliana</i>). Trop. America, Asia, Africa, Pacific Isles. "Epinha de meixa, Ameixeiro (Brazil), Haimassoli (Guiana), Croc (St Domingo), Konda nakkera, Pinlaytsi."				
Extracted with acetone ...	40	1·4677	62·8	185
Extracted with ether	40	1·4687	64·3	185
Expressed	40	1·4680	63·2	185
	20	1·4737	72·2	3
F.A. ...	60	1·4596	50·4	3
Engkabang Fat , <i>see</i> Borneo Tallow.				
Equus caballus , <i>see</i> Horse Fat.				

NOTES.

	t°C.	n_D	B_D	Refer. No.
ERGOT OIL.				
<i>Secale cornutum.</i>				
Extracted oil	25	1·4691	65·0	191
	25	1·4685	64·0	192
ERIOBOTRYA JAPONICA SEED OIL.				
From seeds of Japanese Medlar.				
Expressed oil.	45	1·4757	75·5	186
Extracted oil.	45	1·4760	76·0	186
<i>Eriodendron anfractuosum</i> , see Kapok Oil.				
<i>Eruca sativa</i> , see Indian Rape Oil.				
<i>Euphorbia antisiphilitica</i> , see Candelilla Wax.				
EUPHORBIA CERIFERA WAX.	85	1·4545—1·4626	43·0—55·0	451
EUPHORBIA GREGARIA.				
South-west Africa.				
Expressed or extracted oil.	25	1·4732	71·4	188
EURYCOMA LONGIFOLIA.				
	25	1·4688	64·5	189
Evening Primrose Oil , see Primrose Oil, Evening.				
Evergreen Tree Oil , see Amoorra Oil.				
<i>Evonymus europæa</i> , see Spindle Tree Oil.				
<i>Excæcaria sebifera</i> , see Chinese Vegetable Tallow.				
<i>Fagus sylvatica</i> , see Beechnut Oil.				
FENNEL SEED OIL.				
<i>Fœniculum officinale.</i>	35	1·4795	82·0	5
F.A. ...	35	1·4710	68·0	5
FENUGREEK OIL.				
<i>Trigonella fœnum græcum.</i>				
	30	1·4738	72·4	61
F.A. ...	40	1·4626	55·0	61
	22·5	1·4774	78·4	416

NOTES.

	t.C.	n _D	B _D	Refer. No.
FETISH BEAN OIL. <i>Canavalia ensiformis.</i>				
	45	1·4685	64·0	43
F.A. ...	45	1·4593	50·0	43
FEVILLEA CORDIFOLIA. Seed Kernel Oil. "Sequa, Antidote cacoon" (Jamaica), Tropical America, West Indies.				
	40	1·4766	77·1	40
Filbert Oil , see Hazelnut Oil.				
Fir Seed Oils , see Pine Seed Oils.				
Flax Seed Oil , see Linseed Oil.				
FLOUNDER OIL. <i>Pseudopleuronectes americanus.</i> Vineyard Sound, April 1915.	30	1·4935		385
Long Branch, N.J., September 1915	30	1·4820	86·4	385
<i>Fœniculum officinale</i> , see Fennel Oil.				
Fony Oil , see Baobab Oil.				
<i>Fortunella japonica</i> , see Orange Pip Oil.				
<i>Fragaria vesca</i> , see Strawberry Seed Oil.				
<i>Fulica atra</i> , see Coot Fat.				
Fulla Panza Oil , see Owala Oil.				
Fulwa Butter , see Phulwara Butter.				
FUNTUMIA OIL. Syn. Manihot Funtumia Oil. From seeds of <i>Funtumia</i> <i>elastica</i> , Wild Rubber. West Coast of Africa. Rubber Seed Oil.				
	15	1·4788	80·8	190
<i>Gadelupa indica</i> and <i>pinnata</i> , see Pongan Oil.				
<i>Gadus chaleogramus</i> , see Suketo- fura Oil.				
<i>Gadus merlangus</i> , see Coalfish Liver Oil.				

NOTES.

	t°C.	n _D	B _D	Refer. No.
<i>Gadus morrhua</i> , see Cod Liver Oil.				
Galam Butter , see Shea Butter.				
<i>Galega officinalis</i> , see Lagwort Oil.				
<i>Gallus domesticus</i> , see Chicken Fat.				
<i>Garcinia indica</i> , see Kokum Butter.				
GARCINIA MANGOSTANA.				
<i>(Garcinia balansæ).</i>				
Cochin-China, Annam, Réunion, French Guiana.				
Extracted with ether	40	1·4682	63·5	3
F.A. ...	60	1·4564	45·7	3
GARDEN CRESS OIL.				
From seeds of <i>Lepidium sativum</i> .				
	20	1·4718	69·2	175
F.A. ...	25	1·4659	60·0	175
Bengal and Punjab oils ...	40	1·4662	60·5	18
<i>Gasterosterus trachurus</i> , see Sticklebat Oil.				
GHEE (GHI).				
Cow	40	1·4528	40·6	193
	25	1·4586	49	193
Buffalo	45	1·4538	42·0	193
Buffalo	40	1·4555	44·5	193
Buffalo	40	1·4534—1·4535	41·4—41·5	194
Rangoon, Ambala, Ceylon, Malabar Coast, Bombay City	40	1·4534—1·4589	41·4—49·3	195
Indian	40	1·4548—1·4559	43·5—45·0	196
Temp. coeff. $\delta n/\delta t$		—0·000386		193*
Gingelli Oil , see Sesamé Oil.				
GLOBE FISH LIVER OIL.				
<i>Spheroides porphyreus.</i>				
Japan.				
	20	1·4785	80·3	154

NOTES.

	t°C.	n_D	B_D	Refer. No.	
GLUTTON FAT.					
<i>Gulo borealis.</i>					
Lapland.					
Body fat	45	1.4566	46.1	46	
	30	1.4621	54.2	46	
	F.A.	50	1.4446	29.2	46
	45	1.4466	31.9	46	
Kidney fat	50	1.4543	42.7	46	
	45	1.4560	45.2	46	
	F.A.	50	1.4445	29.0	46
	45	1.4464	31.7	46	
Temp. coeff. $\delta n/\delta t$		—0.00037		46*	
Goa Butter, see Kokum Butter.					
Goat Butter Fat, see Butter Fat, Goat.					
GOOSE FAT.					
From <i>Anser cinereus.</i>					
	40	1.4593—1.4597	50.0—50.5	197	
	40	1.4593—1.4626	50.0—55.0	198	
	40	1.4594	50.1	199	
	F.A.	40	1.4518	39.2	199
	40	1.4583, 1.4579	48.5, 47.9	453	
Gossypium, see Cotton Seed Oil.					
GRAPE SEED OIL.					
<i>Vitis vinifera.</i>					
	50	1.4623	54.5	200	
	40	1.4659	60.0	200	
	25	1.4713	68.5	200	
	25	1.4725	70.3	191	
	40	1.4678	62.9	201	
	22	1.4747	73.9	201	
	15	1.4776	78.8	201	
Hot-pressed oil of Puglia grapes.	15	1.4769	77.5	202	
Fresh cold-pressed, laboratory product	17	1.4772	78.1	202	
Oil from seeds of black and white grapes, before distilling	17.5	1.4759	75.8	202	
Oil from seeds which have passed through the still.	17.5	1.4760	76.0	202	
Puglia Seeds, treated hot and extracted	15	1.4769	77.5	450	

	t C.	n _D	B _D	Refer. No.
GRAPE SEED OIL—continued.				
Puglia Seeds, treated cold and extracted	17	1·4778	79·1	450
Puglia Seeds, black and white, treated hot and extracted cold	17	1·4760	76·0	450
	25	1·4710—1·4729	68·0—71·0	405
Californian grown... ..	20	1·4750	74·3	454
Raisin Seed Oil	15	1·4760	76·0	459
Whole Currant Seed Oil ...	15	1·4770	77·7	459
Temp. coeff. $\delta n/\delta t$		—0·00036		200*
	40—25	—0·00038		201*
	25—15	—0·00040		201*
GRAPE SEED OIL, WILD—				
<i>Vitis riparia.</i>				
Extracted with light petroleum spirit	15	1·4781	79·6	203
GREY FISH LIVER OIL.				
	20	1·4703	66·8	470
Grou-grou Oil, see Mocaya Oil.				
Groundnut Oil, see Arachis Oil.				
Gu-gu Oil, see Mocaya Oil.				
<i>Grus cinerea, see Crane Fat.</i>				
HAITIAN FISH OIL.				
<i>Rhinobatis Schlegelii.</i>				
Japan.	20	1·4825	87·3	181
<i>Guizotia abyssinica, see Niger Seed Oil.</i>				
<i>Gulo borealis, see Glutton Fat.</i>				
<i>Gymnosarda affinis, see Bonito Oil.</i>				
HYDNOCARDIA OIL.				
Syn. Krebao Fat.				
From seeds of <i>Gynocardia odorata</i> (<i>Hydnocarpus odorata</i> , <i>Charulmoogra odorata</i>).				
Sikhim, Assam, Chittagong (Bengal), Rangoon.				
Extracted with ether	25	1·4778	79·0	118

NOTES.

	t.C.	n _D	B _D	Refer. No.
HADDOCK OIL.				
<i>Melanogrammus aeglefinus.</i>				
Massachusetts.				
April 1915	30	1·4940		385
August 1915	30	1·4907		385
HADDOCK LIVER OIL.				
<i>Merluccius aeglefinus.</i>				
	40	1·4750	74·3	33
	25	1·4807	84·1	33
F.A. ...	40	1·4663	60·7	33
	40	1·4735	72·0	12
	25	1·4789	81·0	12
Temp. coeff. $\frac{dn}{dt}$		—0·00038		33*
		—0·00036		12*
HAKE LIVER OIL.				
<i>Merluccius communis.</i>				
	25	1·4760	76·0	130
	20	1·4812	85·0	116
HAKUUNBOKU SEED OIL.				
From kernels of <i>Styrax obassia</i> .				
	27·5	1·48925	99·5	1
<i>Halichærus</i> , see Seal Oil.				
<i>Halicore australis</i> and <i>Halicore indicus</i> , see Dugong Oil.				
HANDAL SEED OIL.				
Sudan.				
F.A. ...	60	1·45484	43·4	204
HARE FAT.				
<i>Lepus timidus.</i>				
	40	1·4586	49·0	205
F.A. ...	40	1·4495	36·0	205
Haricot Bean Oil , see Bean Oil, Haricot.				
HAWTHORN SEED OIL.				
Syn. Hip Oil.				
<i>Crataegus oxyacantha.</i>				
	40	1·4704	67·0	206
HAZELNUT OIL.				
<i>Corylus avellana.</i>				
	25	1·4667	61·2	191
	20	1·4686	64·2	32
	25	1·4666—1·4672	61·0—62·0	405
<i>Hedera helix</i> , see Ivy Fat.				

NOTES.

	t°C.	n _D	B _D	Refer. No.
HEDGE MUSTARD OIL.				
From seeds of <i>Raphanus raphanistrum</i> .				
	20	1.4722	69.9	175
F.A. ...	25	1.4658	59.8	175
	18	1.4730	71.1	34
<i>Hedysarum onobrychis</i> , see Turkish Clover Oil.				
<i>Helianthus annuus</i> , see Sunflower Oil.				
HEMP SEED OIL.				
From seeds of <i>Cannabis sativa</i> . Cultivated in France, Belgium, Germany, Northern Italy, Turkey, Algeria, North America, India, Japan.				
	15	1.4770—1.4796	77.7—82.2	207
	40	1.4745	73.5	220
	40	1.47404	72.8	17
Crude.	21	1.4794	81.9	411
	40	1.4689	64.7	453
HENBANE SEED OIL.				
From seeds of <i>Hyoscyamus niger</i> .				
Commercial oil	15	1.4777	78.9	208
Commercial oil bleached with lucidol	15	1.4788	80.8	208
F.A. ...	40	1.4612	52.8	208
HERNANDIA SEED OIL.				
<i>Hernandia peltata</i> . East Africa and Southern Asia.				
	27.2	1.47735	78.3	1
HERRING OIL.				
<i>Clupea harengus</i> . North Sea. Atlantic, New Jersey, June 1915.				
	40	1.4729	71.0	410
	30	1.4733	71.6	385
British.	21	1.4813	85.2	411
British.	15	1.4780	79.4	209
Fresh refuse oil.	15	1.4784	80.1	209
Japanese oil.	20	1.4747	73.8	(?)
British.	40	1.46650	60.9	17

NOTES.

	t°C	n_D	B_D	Refer. No.
HERRING SHARK LIVER OIL. <i>Lamna cornubica.</i> North Sea.	15	1.4830		133
<i>Hevea brasiliensis</i> , see Pará Rubber Seed Oil.				
HICKORY NUT OIL. <i>Carya amara</i> , Swamp Hickory.	20	1.4696	65.7	32
	20	1.4699	66.2	148
<i>Carya Ovata</i> (<i>Hickoria Ovata</i>), Shellback Hickory	20	1.4708	67.7	32
	20	1.4699	66.2	148
Hip Oil , see Hawthorn Oil.				
<i>Hodgsonia Kadam</i> , see Kadam Seed Oil.				
Hog's Fat , see Lard.				
HOI OIL. Norway, Piked dog-fish.	40	1.4689	64.7	33
	25	1.4746	73.7	33
F.A. ...	40	1.4611	52.7	33
Temp. coeff. $\delta n/\delta t$		—0.00038		33*
<i>Hordeum vulgare</i> , see Barley Seed Oil.				
HORN TREFOIL OIL. From seeds of <i>Lotus cornicu-</i> <i>latus</i> (<i>Lotus arvensis</i> , <i>Lotus</i> <i>villosus</i>).	30	1.4729	71.0	61
F.A. ...	45	1.4620	54.0	61
HORSE CHESTNUT OIL. From seeds of <i>Æsculus hippo-</i> <i>castanum</i> . Extracted with ether or benzine.	20	1.4747	73.8	210
	45	1.4643	57.6	211
	40	1.4663	60.7	211
	25	1.4711	68.1	211
Temp. coeff. $\delta n/\delta t$		—0.00034		211*

NOTES.

	t°C.	n _D	B _D	Refer. No.
HORSE FAT.				
<i>Equus caballus.</i>				
	60	1.4550	43.7	30
	40	1.4618	53.7	164
	40	1.4638—1.4696	56.8—65.7	50
Belly fat	25	1.4658	59.8	21
Kidney fat	25	1.4702	66.7	21
Neck fat	25	1.4667	61.2	21
	40	1.4603—1.4716	51.5—68.8	27
	40	1.4613—1.4620	53.0—54.0	410
HORSE OIL.				
Kidney bed	25	1.4702	66.7	21
Neck, after filtration at 12.2°C.	25	1.4671	61.8	21
Neck, after filtration at 8.9°C.	25	1.4671	61.8	21
Neck fat	25	1.4698	66.0	21
HUBBARD SQUASH SEED OIL.				
<i>Curcubita maxima.</i>				
	25	1.4714	68.6	429
HUMAN FAT.				
From adult body.				
	40	1.4590—1.4614	49.6—53.1	212
HUMAN HAIR FAT.				
	28	1.47009	66.5	213
HUMBLE-BEE WAX.				
From <i>Bombus terrestris</i> , <i>Bombus muscarum</i> , <i>Bombus lepidarius</i> .				
	40	1.4590—1.4604	49.5—51.6	52
HYDNOCARPUS OIL.				
Syn. Marotti Oil, False Chaulmoogra Oil.				
From seeds of <i>Hydnocarpus Wightiana</i> , <i>Hydnocarpus inebrians</i> , <i>Hydnocarpus venenata</i> , <i>Munnicksia Wightiana</i> .				
Native names: "Jangli-bádám-kátee, kavateta, niradi-muttee-eny, niradi-vittulúnune, Tamana, Maravetti, Makulu, Toratti."				
India.				
"Cardamom Oil" (temporary false name.)	40	1.4723—1.4739	70.1—72.6	118
	25	1.4775—1.4791	78.6—81.3	118
Crude "Cardamom Oil" ...	40	1.4725—1.4731	70.4—71.3	214
Purified "Cardamom Oil" ...	40	1.4721—1.4730	69.7—71.1	214

NOTES.

	t°C.	n_D	B_D	Refer. No.
HYDNOCARPUS OIL—continued.				
“Marotti Fat”	25	1.4775	78.6	217
“Marotti Fat”	40	1.4742	73.0	118
Philippines, <i>Hydnocarpus venenata</i>	20	1.4770	77.7	216
Temp. coeff. $\delta n/\delta t$		—0.00035		118*
HYDNOCARPUS ALPINA SEED OIL.				
“Kastel, Maratatti, Thorathi, Sannasolti”	40	1.4707	67.5	118
	25	1.4762	76.2	118
	40	1.4709	67.8	218
Temp. coeff. $\delta n/\delta t$		—0.00037		118*
HYDNOCARPUS ALCALÆ.				
Philippines.	30	1.4770	77.7	388
<i>Hydnocarpus anthelminthica</i> , see Lukrabo Oil.				
<i>Hydnocarpus edulis</i> , see Pitjœng Oil.				
<i>Hydnocarpus heterophylla</i> and <i>Kurzii</i> , see Chaulmoogra Oil.				
<i>Hydnocarpus odorata</i> , see Gynocardia Oil.				
<i>Hydnocarpus venenata</i> , see Hydnocarpus Oil.				
<i>Hyoscyamus niger</i> , see Henbane Seed Oil.				
<i>Hyperoodon rostratum</i> , see Sperm Oil.				
IKPAN SEED OIL.				
From “Ikpan Seeds” of <i>Citrullus</i> species.				
From <i>Citrullus naudinianus</i> , “Tchama melon,” “Ugab.” South Africa.				
	20	1.4747	73.8	3
F.A. ...	40	1.4647	58.2	3
From <i>Citrullus vulgaris</i> ...	20	1.4728	70.8	219
F.A. ...	40	1.4632	55.9	219
From <i>Citrullus</i> species ...	15	1.4751	74.5	219
F.A. ...	45	1.4568	46.3	219

NOTES.

	t°C.	n_D	B_D	Refer. No.
<i>Illicium verum</i> , see Star Anise Seed Oil.				
ILLIPE BUTTER. Syn. Mahwah Butter. From seeds of <i>Bassia longifolia</i> . South Indian var. <i>Illipé malabarica</i> (Western ghats); Native names: "Mowa, Mahua, Illipé, Elupa, Ellupi, Ilupai."	40	1.4605—1.4609	51.7—52.3	18
	45	1.4593	50.0	193
	40	1.4613	53.0	193
	40	1.4588	49.3	220
Temp. coeff. $\delta n/\delta t$		—0.00040		
<i>Illipé latifolia</i> , see Mowrah Seed Oil.				
Illupi , see Mowrah Seed Oil.				
Indian Almond Oil , see Katappa Oil.				
INOY KERNEL OIL. From seeds of <i>Poga oleosa</i> . West Africa. "Njore Njole" (Cameroons), "M'poga" (Gaboon).	22	1.4695	65.6	221
Extracted oil	15	1.4700	66.4	3
F.A. ...	45	1.4499	36.5	3
INUKAYA OIL. Syn. Bébé Oil. From seeds of the Inukaya tree, <i>Cephalotaxus drupacea</i> . Cold-drawn oil prepared in laboratory	20	1.4760	76.0	222
INUKUSU OIL. From fruit of <i>Machilus Thunbergii</i> . Japan. "Tabu-no-ki."	25	1.4646	58.0	222

	t°C.	n_D	B_D	Refer. No.
IRUPA FAT.				
From seeds of <i>Bassia malabarica</i> .				
Expressed oil	45	1.4590	49.5	193
	40	1.4613	53.0	193
<i>Irvingia gabonensis</i> , see Dika Fat.				
<i>Isatis tinctoria</i> , see Wood Seed Oil.				
IVY FAT , from seeds of <i>Hedera helix</i> .				
	40	1.4620	54.0	223
	25	1.4656	59.6	416
Jacungu Nut Oil , see Koëme Oil.				
JAMBA OIL.				
From <i>Brassica</i> variety.				
	25	1.4705	67.2	224
	25	1.4705	67.2	12
	40	1.4653—1.4659	59.0—60.0	220
Jangli Almond Oil , see Katappa Oil.				
JAPAN FISH OIL.				
	40	1.4659	60.0	227
Pale oil	18	1.4772	78.1	134
Reddish oil	18	1.4788	80.8	134
Commercial oils	40	1.4633—1.4666	56.0—61.0	110
Limits	21	1.4735—1.4764	71.9—76.7	411
JAPAN WAX.				
Syn. Japan Tallow.				
From berries of species of Sumach Tree, <i>Rhus succedanea</i> (<i>Rhus acuminata</i> , <i>Rhus silvestris</i> , Japan).				
"Urushi-noki" (Japan).				
Japan, China, Indo-China.				
(Observed at 71°C.).				
	40	1.4573	47.0	48
	60	1.4500	36.7	30
	40	1.4577—1.4591	47.6—49.7	52
	40	1.4560	45.2	207
Japan, brown.	21	1.4735—1.4764	71.9—76.7	411
	56	1.4522	39.7	17
	40	1.4577—1.4591	47.6—49.7	110
F.A. ...	50	1.4452	30.0	56
Japanese Medlar , see <i>Eriobotrya</i> .				

NOTES.

	t°C.	n_D	B_D	Refer. No.
Japanese Tea Oil , <i>see</i> Tea Seed Oil.				
JAPANESE WOOD OIL. Syn. Japanese Tung Oil. From fruits of <i>Elæococca-vernica</i> . "Abura-Kiri," "Jani-Kiri."	25 20	1.5099—1.5186 1.5034—1.5083		370 364
From <i>Paulownia imperialis</i> , <i>see</i> Toi Oil.				
JASMINE BLOSSOM "WAX." <i>Jasminum odoratissimum</i> .	84 65 56	1.4452 1.4510 1.4552	30.0 38.0 44.0	225 225 225
Mean temp. coeff. $\delta n/\delta t$... From Shuei flowers, Formosa.	60	—0.00036 1.4622		
Jatropha curcas , <i>see</i> Curcas Oil.				
JATROPHA GLANDULIFERA SEED OIL. "Addalai, Uddalai, Nikumba." India and tropical Africa.	40 25	1.4713 1.4763	68.5 76.5	193 193
Temp. coeff. $\delta n/\delta t$		—0.00033		193*
JATROPHA MAHAFALENSIS. Madagascar.	20	1.4648	58.	226
Java Almond Oil , <i>see</i> Canari Oil, from <i>Canarium commune</i> .				
Java Olive Oil , <i>see</i> Sterculia Oil.				
Jessenia polycarpa , <i>see</i> Sejen Palm Oil.				
Jiconga Nut Oil , <i>see</i> Koëme Oil.				
Joliffa africana , <i>see</i> Koëme Oil.				
Juglans cinerea , <i>see</i> Butternut Oil.				
Juglans regia , <i>see</i> Walnut Oil.				
Kachiau Oil , <i>see</i> Katio Oil.				
Kagoo Oil , <i>see</i> Pongam Oil.				

NOTES.

	t°C.	n _D	B _D	Refer. No.
KALOEM-PANG BEAN OIL.				
Syn. Beligho Seed Oil.				
Pulp Oil... ..	40	1·4680	63·2	40
Kernel Oil	40	1·4658	59·8	40
KANGA BUTTER.				
Syn. Kanya Butter, Sierra Leone Butter, Lamy Butter.				
From seeds of <i>Pentadesma butyracea</i> (<i>Pentadesma Kerstengii</i> , <i>Chlorophora tenuifolia</i> , <i>Sideroxylon densiflorum</i>).				
"Obá" (St Thomé).				
"Matapassa" (Principe).				
Extracted fat	25	1·4617	53·6	3
F.A. ...	60	1·4429	26·9	3
	40	1·4559—1·4566	45·0—46·0	228
F.A. ...	60	1·4408	24·1	228
Kansive Oil, see Payena Oil.				
Kanya Butter, see Kanga Butter.				
KAPOK SEED OIL.				
From seeds of <i>Eriodendron anfractuosum</i> (<i>Bombax pentandrum</i>) and <i>Bombax malabaricum</i> (<i>Bombax ceila</i>).				
East India, West Indies, Indo-China, Ceylon, Java, Mexico, Guiana, Africa.				
	40	1·4602	51·3	229
	25	1·4710	68·0	230
Extracted commercial oils ...	40	1·4630	55·6	231
	40	1·4613—1·4640	53·0—57·0	220
From <i>Eriodendron anfractuosum</i> , Java, East Africa, Ceylon, Ecuador, expressed, extracted.				
	40	1·4627—1·4657	55·1—59·7	232
	25	1·4685—1·4710	64·0—68·0	232, 405
F.A. ...	40	1·4550—1·4577	43·7—47·6	232
From <i>Bombax malabaricum</i> , extracted, expressed.				
	40	1·4622—1·4639	54·3—57·0	232
	15	1·4680—1·4695	63·2—65·6	232
F.A. ...	40	1·4545	43·0	232
From Mexican Kapok, <i>Bombax</i> variety.				
	40	1·4616—1·4642	53·4—57·4	232
	25	1·4668—1·4697	61·4—65·9	232

NOTES.

	t°C.	n_D	B_D	Refer. No.
KAPOK SEED OIL — <i>continued.</i>				
F.A. ..	40	1.4566	46.0	232
	40	1.4643, 1.4651	57.6, 58.7	233
F.A. ...	40	1.4573, 1.4580	47.0, 48.1	233
Temp. coeff. $\delta n/\delta t$		—0.000365		232*
KAPOK WAX.				
	40	1.4618	53.7	234
Karay Oil , <i>see</i> Poli Oil.				
Karei Fish Oil , <i>see</i> Dab Oil.				
Karité Butter , <i>see</i> Shea Butter.				
Kasumbhi Oil , <i>see</i> Poli Oil.				
KATAPPA OIL.				
Syn. Wild Almond Oil, Indian Almond Oil, Jangli Almond Oil, Badam Oil, Cotumba Oil.				
From seeds of <i>Terminalia catappa</i> , "Country Almond."				
India, Madagascar, Malay Archipelago, New Guinea, Fiji, Togoland.				
	20	1.4682	63.5	3
F.A. ...	50	1.4492	35.6	3
Katchung Oil , <i>see</i> Arachis Oil.				
Katiau Oil , <i>see</i> Katio Oil.				
KATIO OIL.				
Syn. Kachiau Oil, Katiau Oil, Ketzian Oil.				
From seeds of <i>Bassia mottleyana</i> .				
Sarawak.				
Dyak native oil	40	1.4616	53.4	66
Extracted oil	40	1.4609	52.3	220
Kaumakka Oil , <i>see</i> Mocaya Oil.				
KAYA OIL.				
From seeds of <i>Torreya nucifera</i> .				
Cold-pressed oil	20	1.4770	77.7	222
Commercial oils	20	1.4760	76.0	222
KEKUNA OIL.				
Syn. "Candle Nut Oil."				
Kukui Oil.				
From Kirimi nuts of <i>Aleurites triloba</i> .				
	40	1.4671	61.8	220

	t°C	n _D	B _D	Refer. No.
Cetjatkil Oil , <i>see</i> Macassar Oil.				
Cetzian Oil , <i>see</i> Katio Oil.				
KICKXIA ELASTICA SEED OIL.				
Extracted oil... ..	40	1·4715	68·8	235
	25	1·4768	77·3	235
Expressed oil... ..	40	1·4719	69·3	235
	25	1·4770	77·7	235
F.A. ...	40	1·4641	57·3	235
	25	1·4698	66·0	235
Extracted with petrol-ether...	15	1·4788	80·8	190
Temp. coeff. $\delta n/\delta t$				
Extracted oil		—0·00037		235*
Expressed oil		—0·00033		235*
F.A. ...		—0·00038		235*
Kilima-Njaro Nut Oil , <i>see</i> Koëme Oil.				
KINGFISH OIL , <i>Menticirrhus americanus</i> .				
Maryland, May 1915	30	1·4663	60·6	385
King Salmon Oil , <i>see</i> Salmon Oil.				
Kirimi Nut Oil , <i>see</i> Kekuna Oil.				
KOEME OIL.				
Syn. Telfairia Oil, Kilima-Njaro Nut Oil.				
From seeds of <i>Telfairia pedata</i> (<i>Joliffa africana</i>).				
South-east Africa, Islands off East African Coast.				
“Koëme de Zanzibar, Jiconga Nuts, Limabu Nuts, M’kungu Nuts.”				
	30	1·4665—1·4672	61·0—62·0	236
	25	1·4678—1·4685	63·0—64·0	236
	15	1·4686	64·2	3
F.A. ...	50	1·4492	35·6	3
	40	1·4623	54·5	40
From <i>Telfairia occidentalis</i> .				
West Africa, extracted with ether	20	1·4763	76·5	3
F.A. ...	50	1·4613	53·0	3
South-west African oil ..	15	1·4751	74·5	3
F.A. ...	45	1·4568	46·3	3
Kokerite Palm Oil , <i>see</i> Anaja Oil.				

NOTES.

	t°C.	n _D	B _D	Refer. No.
KOKUM BUTTER.				
Syn. Goa Butter, Mangosteen Oil.				
From seeds of <i>Garcinia indica</i> (<i>Garcinia purpurea</i>), <i>Mangostana indica</i> , <i>Brindonia indica</i>).				
India.				
Bombay... ..	40	1·4566	46·0	18
	25	1·4628	55·3	237
F.A. ...	25	1·4624	54·5	237
Kon Oil , see Macassar Oil.				
Korong Oil , see Pongam Oil.				
Koumouna Oil , see Coula Oil.				
Krebae Fat , see Gynocardia Oil.				
Kukui Oil , see Kekuna ("Candle Nut Oil"), from <i>Aleurites triloba</i> .				
Kumquat Seed Oil , see Orange Seed Oil.				
KUROMOJI SEED OIL. <i>Lindera serica</i> .	27	1·4680	63·2	1
KUSU OIL. From fruit of <i>Cinnamomum camphora</i> .	25	1·4517	39·0	222
Kusum Oil , see Macassar Oil.				
LABURNUM SEED OIL. From <i>Cytisus laburnum</i> .	40	1·4693	65·3	68
	25	1·4730	71·1	68
Lactuca scariola oleifera , see Lettuce Oil, Egyptian.				
LAGWORT OIL. From <i>Galega officinalis</i> .	30	1·4728	70·8	61
F.A. ...	45	1·4672	62·0	61
Lamna cornubica Liver Oil , see Herring Shark Liver Oil.				
Lamy Butter , see Kanga Butter.				
Lanoline , see Wool Fat.				

NOTES.

	t.C.	n_D	B_D	Refer. No.
LARD (HOG'S FAT).				
	20	1.4686	64.2	29
Pure, average	25	1.4620	54.0	142
Neutral	25	1.4614	53.1	142
Kettle-rendered	25	1.4609	52.3	142
F.A. ...	25	1.4554, 1.4564	44.3, 45.7	142
	60	1.4539	42.1	47
F.A. ...	60	1.4395	22.4	47
	40	1.4584—1.4602	48.6—51.2	164
Neutral	40	1.4593—1.4600	50.0—51.0	449
Bulgarian	40	1.4605—1.4607	51.8—52.0	81
	40	1.4580—1.4598	48.1—50.7	49
Chinese lard	40	1.4615—1.4621	53.3—54.2	65
Japanese lard	40	1.4618—1.4641	53.8—57.3	65
Rendered Chinese lard... ..	15	1.4720	69.5	42
Lard from oily hogs	60	1.4540—1.4560	42.3—45.2	238
F.A. ...	60	1.4448—1.4455	29.4—30.4	238
Dutch lard partly freed from lard oil	40	1.4582—1.4622	48.3—54.3	239
Lard from different parts of hogs fed on milk, chestnuts and acorns	45	1.4560—1.4574	45.2—47.2	240
Do. fed on milk, potatoes and barley	45	1.4555—1.4581	44.4—48.2	240
Lard from wild Philippine hogs	40	1.4583—1.4593	48.5—50.0	241
From maize and copra fed hogs.	40	1.4542—1.4573	42.5—47.0	241
	40	1.4586—1.4607	49.0—52.0	220
Commercial	40	1.4572, 1.4575	46.9—47.3	453
<i>Adeps</i> B.P., suggested standards	60	1.4530—1.4550	40.9—43.7	113
	60	1.4507—1.4540	37.7—42.3	207
	40	1.4573—1.4600	47.1—51.0	242
	40	1.4583—1.4600	47.1—51.0	380
	40	1.4593	50.0	17
	40	1.4580—1.4613	48.0—53.0	110
Temp. coeff. $\delta n/\delta t$		—0.000288		142
		—0.00038		29*
		—0.000363—372		159
		—0.00035		248*
LARD OIL.				
	40	1.4607	52.0	243
	15.5	1.4702—1.4720	66.7—69.5	13
	15	1.4697	65.9	209
	15	1.4694	65.4	207

NOTES.

	t°C.	n_D	B_D	Refer. No
LARD OIL—continued.				
Prime	21	1·4666—1·4725	61·1—70·3	411
	21	1·4676—1·4686	62·6—64·2	411
Temp. coeff. $\delta n/\delta t$		—0·00038		26*
		—0·000288		142
LARKSPUR OIL.				
From seeds of <i>Delphinium elatum</i> .				
		1·4735	72·0	244
F.A. ...		1·4637	56·6	244
Laurel Nut Oil, see <i>Calophyllum inophyllum</i>.				
LAUREL OIL.				
Syn. Bayberry Oil.				
From berries of Laurel Tree, <i>Laurus nobilis</i> .				
	40	1·4735	72·0	191
	25	1·4783	80·0	191
Portion of fat insoluble in alcohol at 0° C.	40	1·4613	53·0	191
Portion of fat soluble in alcohol at 0° C.	40	1·4812	85·0	191
Fat freed from volatile oil ...	40	1·4643	57·6	245
Temp. coeff. $\delta n/\delta t$		—0·00032		191*
Laurel Wax, see Myrtle Wax.				
<i>Laurus nobilis</i>, see Laurel Oil.				
<i>Lecythis zabucajo</i>, see Paradise Nut Oil.				
<i>Leh Oil</i>, see Poli Oil.				
LEMON PIP OIL.				
From <i>Citrus limonum</i> .				
	40	1·4659	60·0	8
	40	1·4712	68·2	8
Temp. coeff. $\delta n/\delta t$		—0·00035		8*
<i>Lens esculenta</i>, see Pigeon Pea Oil.				
LENTIL OIL.				
From seeds of <i>Vicia sepium</i> .				
	40	1·4748	74·0	43
F.A. ...	35	1·4704	67·0	43
<i>Lepidium sativum</i>, see Garden Cress Oil.				

	t°C.	n_D	B_D	Refer. No.
<i>Leptonychotes</i> , see Sea Lion Oil.				
<i>Lepus caniculus</i> , see Rabbit Fat.				
<i>Lepus timidus</i> , see Hare Fat.				
LETTUCE OIL, EGYPTIAN.				
<i>Lactuca scariola oleifera.</i>				
Upper Egypt.				
"Zeit Khass."				
Expressed oil... ..	40	1·4668—1·4680	61·4—63·2	215
LIME FRUIT SEED OIL.				
<i>Citrus limetta.</i>				
West Indies	?	1·4700	66·4	246
LIME TREE SEED OIL.				
<i>Tilia europea.</i>				
German	25	1·4731	71·3	140
Whole fruit.				
LIMONIA WARNECKEI SEED OIL.				
Syn. <i>Afrægle panniculata.</i>				
Africa.				
Togoland	40	1·4578	47·7	165
Total F.A.	40	1·4512	38·3	165
Liquid F.A.	40	1·4531	41·0	165
<i>Lindera præcox</i> , see Aburachan Seed Oil.				
<i>Lindera serica</i> , see Kurumoji Seed Oil.				
<i>Lindera triloba</i> , see Shiromoji Oil.				
LING LIVER OIL.				
<i>Molva vulgaris.</i>				
	40	1·4691	65·0	33
	25	1·4748	74·0	33
F.A. ...	40	1·4609	52·3	33
	40	1·4691	65·0	130
	25	1·4754	75·0	130
	15	1·4784	80·1	116
Temp. coeff. $\delta n/\delta t$		—0·00038		33*
		—0·00042		*

NOTES.

1. The first part of the paper is devoted to a discussion of the general principles of the theory of the structure of the atom. It is shown that the structure of the atom is determined by the laws of quantum mechanics, and that the structure of the atom is a function of the energy of the electrons.

2. The second part of the paper is devoted to a discussion of the structure of the atom in the case of a many-electron atom. It is shown that the structure of the atom is determined by the laws of quantum mechanics, and that the structure of the atom is a function of the energy of the electrons.

3. The third part of the paper is devoted to a discussion of the structure of the atom in the case of a many-electron atom. It is shown that the structure of the atom is determined by the laws of quantum mechanics, and that the structure of the atom is a function of the energy of the electrons.

4. The fourth part of the paper is devoted to a discussion of the structure of the atom in the case of a many-electron atom. It is shown that the structure of the atom is determined by the laws of quantum mechanics, and that the structure of the atom is a function of the energy of the electrons.

5. The fifth part of the paper is devoted to a discussion of the structure of the atom in the case of a many-electron atom. It is shown that the structure of the atom is determined by the laws of quantum mechanics, and that the structure of the atom is a function of the energy of the electrons.

	t C.	n _D	B _D	Refer. No.
LINSEED OIL.				
Syn. Flax Seed Oil.				
From seeds of flax, <i>Linum usitatissimum</i> .				
	15	1.4835—1.4855	89.1—92.7	112
	60	1.4660	60.2	9
F.A. ...	60	1.4546	43.1	9
Old oil	15	1.4840	90.0	30
New oil	15	1.4810	84.6	30
Indian, Central Provinces ...	40	1.4739	72.5	18
English, abnormal	25	1.4784—1.4796	80.2—82.2	247
	40	1.4751	74.5	248
	25	1.4801	83.0	248
	15	1.4840—1.4880	90.0—97.2	144
	20	1.4800—1.4812	82.9—85.0	128
	15.5	1.4833	88.8	13
Indian	25	1.4793	81.7	12
Russian	25	1.4807—1.4815	84.2—85.5	12
La Plata	25	1.4789	81.0	12
North American	25	1.4802	83.2	12
	15	1.4825	87.3	209
From different localities ...	15	1.4823—1.4849	87.0—91.6	249
La Plata	15	1.4816	85.7	250
Expressed	15	1.4830—1.4850	88.2—91.8	250
Extracted	15	1.4825—1.4845	87.3—90.9	250
	20	1.4799—1.4823	82.7—86.9	14
	18	1.4795—1.4810	82.0—84.6	34
	20	1.4720	69.5	251
	15	1.4820	86.4	251
F.A. ...	60	1.4546	43.1	251
General limits	40	1.4742—1.4754	73.0—75.0	220
La Plata	15	1.4843—1.4859	90.5—93.4	252
Indian	15	1.4846—1.4859	91.1—93.4	252
North Russian	15	1.4858—1.4872	93.2—95.8	252
South Russian	15	1.4841—1.4851	90.2—92.0	252
Roumanian	15	1.4848	91.4	252
Indian	15	1.4813	85.2	253
Silesian	15	1.4817—1.4869	85.9—95.2	253
Russian	15	1.4821—1.4834	86.6—88.9	253
Argentine	15	1.4807—1.4808	84.1—84.3	253
American	25	1.4797—1.4802	82.4—83.2	254
Indian, Russian and Argentinian	25	1.4790—1.4815	81.2—85.5	254
	25	1.4805	83.8	177

NOTES.

	t C.	n_D	B_D	Refer. No.
LINSEED OIL — <i>continued</i> .				
Oil from yellow Chinese seeds, extracted with ether ...	40	1·4748	74·0	255
F.A. ...	40	1·4679	63·1	255
Oil from brown Chinese seeds	40	1·4743	73·2	255
F.A. ...	40	1·4666	61·1	255
Limits.	25	1·4789—1·4824	81·0—87·0	256
	20	1·4806—1·4840	84·0—90·0	256
	15	1·4835	89·1	190
Standards recommended by the Am. Soc. for Testing Materials	25	1·4790—1·4805	81·2—83·8	257
Average... ..	25	1·4786	80·4	173
	45	1·4711, 1·4722	68·1, 68·9	453
Canadian	21	1·4770—1·4810	77·7—84·6	411
Baltic	21	1·4823	86·9	411
	40	1·4738	72·4	17
	40	1·4737—1·4748	72·2—74·0	110
<i>Oleum lini</i> , B.P.; suggested standard.	15	1·4825	87·3	113
<i>Oleum lini</i> , B.P. 1914.	40	1·4725—1·4748	70·3—74·0	36, 16
		—0·00041		26*
	25-40	—0·00033		248*
Temp. coeff. $\delta n/\delta t$		—0·00038		128
		—0·00037		159
<i>Lithodes</i> , see Crab Liver Oil.				
LOACH OIL.				
<i>Misgrunus anguillicaudatus</i> .				
	20	1·4740	72·7	258
LOGANBERRY OIL.				
From finely ground pulp, ex- tracted with petroleum ether				
	15·5	1·4811	84·8	259
Long Cod Liver Oil , see Cod Liver Oil.				
Loofah Seed Oil , see Luffa Seed Oil.				
<i>Lophiomus setigerus</i> , see Angler- fish Liver Oil.				
<i>Lopholatilus chamaeleonticeps</i> , see Tile-fish Oil.				
<i>Lopodon</i> , see Sea Lion Oil.				
<i>Lotus corniculatus</i> , see Horn Trefoil Oil.				

NOTES.

	t°C.	n _D	B _D	Refer. No.
LUCERNE OIL.				
Alfalfa Seed Oil.				
<i>Medicago sativa.</i>				
	30	1.4766	77.0	61
F.A. ...	40	1.4659	60.0	61
	17	1.4783	80.0	455
	69	1.4587	49.1	455
Temp. coeff. $\delta n/\delta t$		--0.00038		455*
LUFFA SEED OIL.				
Syn. Loofah Seed Oil.				
From seeds of <i>Luffa ægyptiaca.</i>				
India.				
Bengal	40	1.4660	60.2	18
LUFFA ACUTANGULA.				
Native names.				
"Pikunkai, Turi, Surgi, Peech- angai."				
	40	1.4665	61.0	193
	25	1.4742	73.0	193
Temp. coeff. $\delta n/\delta t$	25-40	—0.00051 (?)		193*
LUKRABO OIL.				
From seeds of <i>Hydnocarpus</i> <i>anthelmintica.</i>				
Siam, Cochin China, Camboja.	40	1.4721	69.8	118
	40	1.4725	70.3	260
LUMBANG BANUCALAG OIL,				
Soft Lumbang Oil.				
<i>Aleurites trisperma.</i>				
		1.4927—1.4929		424
Lumbang Batu Oil, see Candle Nut Oil.				
LUPIN OIL, WHITE.				
From seeds of <i>Lupinus albus</i> (<i>Lupinus sativus</i>).				
	20	1.4742	73.0	61
F.A. ...	50	1.4559	45.0	61
LUPIN OIL, BLUE.				
From seeds of <i>Lupinus angus- tifolius.</i>				
	20	1.4725	70.3	61
F.A. ...	50	1.4566	46.0	61
LUPIN OIL, YELLOW.				
From seeds of <i>Lupinus luteus.</i>				
	20	1.4776	78.7	61
F.A. ...	50	1.4600	51.0	61

NOTES.

	t°C	n _D	B _D	Refer. No.
Lutni Mustard Oil , <i>see</i> Rape Seed Oil.				
Lycopersicum esculentum , <i>see</i> Tomato Seed Oil.				
LYCOPODIUM OIL.				
From <i>Lycopodium</i> spores by extraction with ether.	25	1·4671	61·8	192
LYNX FAT.				
From <i>Lynx europæus</i> . Finland.	45	1·4629	55·5	46
	20	1·4723	70·0	46
F.A. ...	45	1·4582	48·3	46
	35	1·4619	53·9	46
Temp. coeff. $\delta n/\delta t$ Oil ...		—0·00038		46*
F.A. ...		—0·00037		46*
Mabula Panza Oil , <i>see</i> Owala Oil.				
MACASSAR OIL.				
Syn. Kusum Oil, Kon Oil, Ketjatkil Oil, Pongro Oil. From seeds of Paka, <i>Schleicheria trijuga</i> , Kusum Tree (India), Lac Tree of Kolumba (Ceylon oak), Nitas beans.	40	1·4597	50·6	40
Macasuba Oil , <i>see</i> Mocaya Oil.				
Mace Butter , <i>see</i> Nutmeg Butter.				
Machilus Thunbergii , <i>see</i> Inukusu Oil.				
MACKEREL OIL.				
Body oil of <i>Scomber colias</i> , "Saba," Japan	20	1·4811	84·7	6
MACKEREL OIL, SPANISH.				
<i>Scomberomorus maculatus</i> , Massachusetts, June 1915.	30	1·4719	69·4	385
MACKEREL PIKE OIL.				
From <i>Cololabes saira</i> , "Samma" (Japan).	20	1·4760	76·0	6
Macrorhinus , <i>see</i> Sea Elephant Oil.				

NOTES.

	t°C.	n _D	B _D	Refer. No.
MAFURA OIL.				
From seeds of <i>Mafureira oleifera</i> (<i>Trichilia emetica</i>).				
"Umkulu, M'khuklu, Marba, Marwa-Maawa, Guanda."				
	40	1·4624	54·6	261
	30	1·4659	60·1	261
	20	1·4695	65·6	261
F.A. ...	50	1·4504	37·2	261
	40	1·4593	50·0	220
Temp. coeff. $\delta n/\delta t$		—0·000355		261*
MAFURA TALLOW.				
	40	1·4575	47·3	261
F.A. ...	57	1·4425	26·3	261
	40	1·4583	48·5	220
MAGNOLIA FRUIT OIL.				
<i>Magnolia hypoleuca.</i>				
Whole fruit	26·8	1·4739	72·5	1
Fruit flesh	27	1·4693	65·3	1
Seed only	27	1·4754	75·0	1
Mahua Butter, see Mowrah Butter.				
Mahwah Butter, see Illipé Butter.				
MAHUBARANA FAT.				
Brazil.				
	40	1·4535	41·5	19
MAIZE OIL.				
Syn. Corn Oil.				
From germs of Maize Plant, <i>Zea mays</i> .				
	25	1·4733	71·5	262
	15	1·4765	76·8	30
	15	1·4751	74·5	263
	20	1·4761	76·1	264
Commercial, pure, and from mash distillery	15	1·4765—1·4768	76·8—77·3	265
	15·5	1·4757—1·4768	75·5—77·3	13
	20	1·4732—1·4752	71·4—74·6	14
	40	1·4656—1·4662	59·5—60·5	220, 110
Refined	21	1·4715	68·7	411
	40	1·4671	61·8	17
	25	1·4742	73·1	432
Market sample in good condition	22	1·4712	68·3	426
Insol., F.A. ...	22	1·4659	60·0	426
Liquid, F.A. ...	22	1·4674	62·4	426
Larger portion mouldy... ..	23	1·4722	69·9	426

NOTES.

	t C.	n _D	B _D	Refer. No.
MAIZE OIL—continued.				
Insol., F.A. ...	23	1·4653	59·1	426
Liquid, F.A. ...	23	1·4670	61·7	426
All mouldy	23	1·4725	70·3	426
Insol., F.A. ...	24	1·4672	62·0	426
Liquid, F.A. ...	24	1·4665	60·9	426
All very mouldy	23	1·4780	79·4	426
Insol., F.A. ...	23	1·4700	66·4	426
Liquid, F.A. ...	23	1·4750	74·3	426
All mouldy and putrid ...	23	1·4800	82·9	426
	25	1·4729—1·4736	71·0—72·0	405
Temp. coeff. $\delta n/\delta t$		—0·000366		159
		—0·00037		14
MALABAR TALLOW.				
Syn. Piney Tallow, White Damnar Oil.				
From seeds of <i>Vateria indica</i> . India.				
Madras	40	1·4575	47·5	18
MALUKANG BUTTER.				
From seeds of <i>Polygala butyracea</i> .				
Extracted fat	40	1·4553	44·2	67
F.A. ...	40	1·4500	36·7	67
MAMURANA FAT.				
Syn. Manguba Fat.				
From <i>Pachira</i> species. Pará, Brazil.				
	40	1·4574	47·2	19
Manattee Oil, see Dugong Oil.				
Mangosteen Oil, see Kokum Oil.				
Manguba Fat, see Mamurana Fat.				
MANIHOT OIL.				
Syn. Ceará Rubber Seed Oil.				
From seeds of <i>Manihot Glaz-covii</i> (<i>Manihot Ceará</i>).				
Cultivated in East and West Africa.				
	40	1·4678	62·9	267
	15	1·4750	74·3	190
	40	1·4671	61·8	235
	25	1·4724	70·2	235
F.A. ...	40	1·4575	47·3	235
„ ...	25	1·4629	55·4	235
	40	1·4674	62·4	422
Temp. coeff. $\delta n/\delta t$ Oil ...		—0·00035		235*
F.A. ...		—0·00036		235*

NOTES.

	t°C.	n_D	B_D	Refer. No.
MANIHOT DICHOTOMA.	40	1·4661	60·3	422
F.A. ...	40	1·4549	43·6	422
MANIHOT PIAUHYENSIS.	40	1·4681	63·2	422
F.A. ...	40	1·4576	47·5	422
<i>Manihot Funtumia</i> , see Funtumia Oil.				
MANKETTI OIL.				
Syn. Munkwetti Oil, Nsasanana Oil, Umungkwetti Oil, Sanga-sanga Oil.				
From kernels of <i>Ricinodendron Rautanneni</i> .				
South Africa, French Congo, Equatorial West Africa in general.	15	1·4805	83·8	266
F.A. ...	40	1·4694	65·4	266
South-west Africa ...	40	1·4806	84·0	235
	25	1·4857	93·0	235
F.A. ...	40	1·4716	69·0	235
French Congo (<i>Ricinodendron africanum</i>) ...	19·5	1·5028		268
Temp. coeff. $\delta n / \delta t$...		—0·00034		235*
MAPLE SEED OIL.				
From seeds of Norwegian Maple, <i>Acer platanoides</i> .	40	1·4729	71·0	140
<i>Marfim vegetal</i> , see Marins.				
MARGOSA OIL.				
Syn. Veepa Oil, Veppam Fat, Neem Oil.				
From seeds of <i>Melia azadirachta</i> .				
India and Burma.	40	1·4607	52·0	59
	40	1·4620	54·1	40
MARINS.				
Syn. <i>Marfim vegetal</i> .	40	1·4842	90·3	19
MARIPA FAT.				
From kernels of <i>Palma maripa</i> (<i>Attalea maripa</i>).				
West Indies, South America. Also from <i>Attalea excelsa</i> (<i>Maximiliana maripa</i>) and <i>Attalea spectabilis</i> .				
“Urukuri” (Brazil), “Drupas.”				
From <i>Attalea spectabilis</i> ...	30	1·4527	40·4	3
F.A. ...	60	1·4304	10·5	3

NOTES.

	t°C.	n_D	B_D	Refer. No.
MARMOT FAT. From <i>Arctomys marmota</i> .	40	1.4652, 1.4657	59.0, 59.7	269
Marotti Oil , see Hydnocarpus Oil.				
MARQUAQUA NUT OIL. Portuguese East Africa.	40	1.4591	49.7	40
MARROW FAT.	25	1.4628	55.3	21
<i>Maximiliana maripa</i> , see Maripa Oil.				
<i>Maximiliana regia</i> , see Anajá Oil.				
<i>Medicago sativa</i> , see Lucerne Oil.				
Medlar Oil, Japanese , see <i>Eriobotrya japonica</i> .				
<i>Melanogrammus æglefinus</i> , see Haddock Oil.				
<i>Meleagris gallopavo</i> , see Turkey Fat.				
<i>Melia azadirachta</i> , see Margosa Oil.				
MELIA AZEDARACH SEED OIL. From seeds of <i>Melia azedarach</i> , Persian Lilac, Bead Tree.	40	1.4692	65.1	270
MELILOT OIL, WHITE. From seeds of <i>Melilotus albus</i> (<i>Melilotus vulgaris</i>).	30	1.4862	94.0	61
F.A. ...	50	1.4812	85.0	61
MELILOT OIL. From seeds of <i>Melilotus officinalis</i> .	30	1.4760	76.0	61
F.A. ...	50	1.4659	60.0	61

NOTES.

	t.C.	n_D	B_D	Refer. No.
MENHADEN OIL.				
From <i>Brevortia tyrannus</i> .				
	40	1.4731	71.3	33
	25	1.4787	80.7	33
F.A. ...	40	1.4641	57.3	33
	40	1.4735	72.0	271
	15	1.4810—1.4820	84.6—86.4	107
	40	1.4736	72.1	17
Temp. coeff. $\delta n/\delta t$		—0.00033		33*
<i>Menticirrhus americanus</i> , see Kingfish Oil.				
<i>Merluccius æglefinus</i> , see Haddock Liver Oil.				
<i>Merluccius bilinearis</i> , see Silver Hake Oil.				
<i>Merluccius communis</i> , see Hake Liver Oil.				
<i>Mesua ferrea</i> , see Nagas Oil.				
<i>Micropogon undulatus</i> , see Croaker Oil.				
MILK FAT, HUMAN.				
	40	1.4577, 1.4585	47.6, 48.75	272
F.A. ...	40	1.4485, 1.4489	34.6, 35.2	272
MILLET OIL.				
From powdered grains of <i>Paniculum italicum</i> .				
	25	1.4723	70.0	191
MIMUSOPS ELENGI SEED OIL.				
"Mulsari, Magila maram."				
	40	1.4745	73.5	193
	25	1.4704	67.0	193
Temp. coeff. $\delta n/\delta t$		—0.00027 (?)		193*
<i>Mimusops njave</i> , see Njave Oil.				
Minogo Bean Oil , see Bean Oil, Minogo.				
<i>Misgrunus anguillicaudatus</i> , see Loach Oil.				
M'KANYI OIL.				
From seeds of <i>Allanblackia</i> (<i>Stearodendron</i>) <i>Stuhlmanni</i> .				
East Africa, India.				
East African	50	1.4503	37.1	273

	t C.	n D	B D	Refer. No.
M'Konga Oil , <i>see</i> Zachun Oil.				
M'Kungu Nut Oil , <i>see</i> Koëme Oil.				
MOCAYA OIL.				
Syn. Mocaya Butter, Grougrou Oil, Gru-gru Oil, Macasuba Oil, Kaumakka Oil.				
From kernels of <i>Acrocomia sclerocarpa</i> (<i>Cocos sclerocarpa</i> , <i>Cocos aculeata</i> , <i>Bactris minor</i>).				
Paraguay, West Indies.				
"Kaumakka," from Surinam Macasuba Palm (<i>Acrocomia sclerocarpa</i>).				
Trinidad, Gru-gru Oil, hot pressed.	40	1.4502	37.0	274
F.A. ...	40	1.4375	19.7	274
North Brazil, pulp oil ...	40	1.4527	40.5	19
Kernel oil ...	40	1.4504—1.4525	37.2—40.1	19
Mola mola , <i>see</i> Sunfish Liver Oil.				
Molva vulgaris , <i>see</i> Ling Liver Oil.				
MOMORDICA SEED OIL.				
From seeds of <i>Momordica cochinchinensis</i> .				
Expressed.	40	1.4960		468
MOON BEAN OIL.				
<i>Phaseolus lunatus</i> .				
	40	1.4772	78.1	43
F.A. ...	45	1.4704	67.0	43
Moquilla tomentosa , <i>see</i> Oiticeira Fruit Oil.				
Moringa aptera , <i>see</i> Ben Oil.				
Moringa pterygosperma , <i>see</i> Ben Oil.				
Morus alba , <i>see</i> Mulberry Seed Oil.				
Mountain Ash Berry Oil , <i>see</i> Service Berry Oil.				

NOTES.

	t.C.	n_D	B_D	Refer. No.
MOWRAH SEED OIL.				
Syn. Mahua Butter.				
From seeds of <i>Bassia latifolia</i> (<i>Illipé latifolia</i> , <i>Bassia villosa</i>).				
Northern India, Bengal.				
"Illipi, Elupa, Kat illipi, Mowa."				
	40	1·4605—1·4609	51·7—52·3	18
	40	1·4613	53·0	193
Crude oil	40	1·4598—1·4614	50·7—53·2	67
Neutralised fat	40	1·4610	52·6	67
Refined fat	40	1·4612—1·4621	52·8—54·2	67
F.A. ...	40	1·4532	41·2	67
	40	1·4578	47·7	220
	40	1·4606—1·4608	51·9—52·2	275
MUCUNA OIL.				
From seeds of <i>Mucuna</i> species (<i>Mucuna urens</i> , <i>Mucuna pruriens</i> , <i>Mucuna cylindrosperma</i> , <i>Mucuna monosperma</i> , <i>Mucuna capitata</i>).				
Dutch Indies, extracted with petroleum-ether				
	25	1·4699	66·2	276
MULBERRY SEED OIL.				
<i>Morus alba</i> .				
Extracted with ether ...	40	1·4684	63·9	277
	25	1·4739	72·5	277
	15	1·4773	78·2	277
F.A. ...	45	1·4630	55·5	277
	40	1·4644	57·8	277
	30	1·4680	63·2	277
Expressed	40	1·4682	63·6	277
	25	1·4735	71·9	277
	15	1·4770	77·7	277
F.A. ...	45	1·4600	51·0	277
	40	1·4615	53·3	277
	30	1·4649	58·5	277
Temp. coeff. $\delta n/\delta t$ Oil		—0·00036		277*
F.A. ...		—0·00035		277*
Munkwetti Oil, see Manketti Oil.				
MURUMURÚ OIL.				
<i>Astrocaryum</i> species.				
North Brazil.				
Pará, kernel oil.	40	1·4501	36·8	19

NOTES.

	t°C	n _D	B _D	Refer. No.
MUSTARD SEED OIL, INDIAN—				
"Rai" from <i>Brassica juncea</i> .				
	40	1.4659	60.0	18
	20	1.4742—1.4757	73.0—75.5	14
	20	1.4723	70.0	187
F.A. ...	20	1.4627	55.1	187
Bombay..	22	1.4721	69.7	278
MUSTARD SEED OIL, BLACK.				
From seeds of <i>Sinapis nigra</i> (<i>Brassica nigra</i>).				
	20	1.4740—1.4746	72.7—73.7	29
Commercial, Californian ...	15	1.4769	77.5	2
Indian	40	1.4656	59.5	18
	15.5	1.4762	76.3	13
Black and white mixed ...	20	1.4742—1.4752	73.0—74.6	128
	20	1.4739	72.5	187
F.A. ...	20	1.4665	60.9	187
	15	1.4700—1.4770	66.4—77.7	107
	15	1.4700—1.4720	66.4—69.5	278
Average	25	1.4717	69.0	405
Temp. coeff. $\frac{\delta n}{\delta t}$		—0.000361		159
MUSTARD SEED OIL, WHITE OR YELLOW.				
From seeds of <i>Sinapis alba</i> (<i>Brassica alba</i>).				
Commercial Californian ...	15	1.4751	74.5	2
Bengal	40	1.4649	58.5	18
	15.5	1.4750—1.4762	74.3—76.3	13
Dutch, English, Italian, Roumanian, Caucasian, Russian, Indian	22	1.4712—1.4731	68.3—71.3	279
	20	1.4704	67.0	187
F.A. ...	20	1.4630	55.6	187
Temp. coeff. $\frac{\delta n}{\delta t}$		—0.000360		159
MUSTARD OILS.				
From <i>Sinapis</i> (<i>Brassica</i>) <i>arvensis</i> , Wild Mustard (Charlock), see Charlock Oil.				
From <i>Sinapis sinensis</i>	20	1.4736	72.1	187
F.A. ...	20	1.4648	58.3	187
<i>Sinapis dissecta</i> .				
	20	1.4725	70.3	187
F.A. ...	20	1.4645	57.9	187

NOTES.

	t°C.	n _D	B _D	Refer. No.
MUTTON TALLOW.				
	60	1.4504	37.2	47
	60	1.4501	36.8	9
F.A. ...	60	1.4374	19.6	9
	60	1.4531	41.0	30
F.A. ...	60	1.4420	25.6	30
	40	1.4545—1.4552	43.0—47.0	410
From kidney suet.	45	1.4540—1.4549	42.3—43.5	49
	40	1.4576—1.4585	47.5—48.7	123
<i>Myagrurn sativum</i> , see Dodder Oil.				
<i>Myliobates aquila</i> , see Eagle Ray Liver Oil.				
<i>Myliobates tobiei</i> , see Eagle Ray Liver Oil.				
<i>Mymusops elengi</i> , see <i>Mimusops elengi</i> .				
<i>Myrica</i> , see Myrtle Wax.				
<i>Myristica argentea</i> , see Papua Nutmeg Butter.				
MYRISTICA GUATEMALENSIS.				
Syn. <i>Virola</i> Fat.				
From seeds of <i>Virola guatemalensis</i> (<i>Myristica guatemalensis</i>).				
“Noix de dragonnier,” African oil-nuts, possibly identical with oil of <i>Virola surinamensis</i>).				
	50	1.4539	42.1	3
F.A. ...	50	1.4486	34.7	3
<i>Myristica officinalis</i> (<i>Myristica moschata</i> , <i>Myristica fragrans</i>), see Nutmeg Butter.				
<i>Myristica platysperma</i> , see <i>Osteophlœum platyspermum</i> .				
MYRISTICA VENEZUELENSIS (<i>Myristica Surinamensis</i>).				
Venezuela.				
“Fruto de cuajo.”				
	40	1.4541	42.4	3
F.A. ...	45	1.4482	34.2	3
	40	1.4557	44.7	220

NOTES.

	t C.	n _D	B _D	Refer. No.
MYRTLE WAX.				
Syn. Laurel Wax, Bayberry Tallow Fat from berries of <i>Myrica</i> species: <i>Myrica cerifera</i> , <i>Myrica carolinensis</i> , <i>Myrica arguta</i> , <i>Myrica carapassana</i> , <i>Myrica quercifolia</i> , <i>Myrica cordifolia</i> , <i>Myrica laciniata</i> , <i>Myrica serrata</i> , <i>Myrica ethiopica</i> , <i>Myrica jalapensis</i> .	80	1.4363	18.2	280
NAGAS OIL.				
From <i>Mesua ferrea</i> , "Nagas Tree, Indian Rose Chestnut, Nāga Késara, Nagkesar (Assam), Iron Wood of Assam."	20	1.4786	80.5	3
F.A. ...	40	1.4679	63.1	3
Nari Oil, see N'jave Oil.				
NARRAS SEED OIL.				
From seeds of <i>Acanthosicyus horrida</i> . Walfish Bay.				
From boiled kernels	20	1.4768	77.3	3
From raw kernels... ..	20	1.4766	77.0	3
F.A. ...	40	1.4581	48.2	3
<i>Nasturtium officinale</i>, see Watercress Seed Oil.				
NEATSFOOT OIL.				
Syn. <i>Oléum bubulum</i> , B.P.				
Pure, $d^{15.6}$ 0.913	18	1.4672—1.4687	62.0—64.3	63
	15	1.4730	71.1	30
	20	1.4678—1.4702	62.9—66.7	281
	20	1.4677—1.4687	62.8—64.3	128
	25	1.4734, 1.4749	71.8, 74.1	21
	20	1.4674—1.4690	62.4—64.8	14
	15	1.4679	63.1	34
	15	1.4680—1.4700	63.2—66.4	207
	20	1.4660—1.4700	60.2—66.4	282
English, filtered	21	1.4670—1.4695	61.7—65.6	411
English, unfiltered	21	1.4676—1.4705	62.6—67.2	411
North American	21	1.4686	64.2	411
South American	21	1.4695	65.6	411
Neem Oil, see Margosa Oil.				

NOTES.

	t°C.	n _D	B _D	Refer. No.
N'GART OIL.				
From fruits of <i>Plukenetia conophora</i> .				
Cameroons.				
	17.5	1.4830	88.2	283
Extracted	15	1.4835	89.1	284
Cold pressed	15	1.4843	90.5	284
	15	1.4834	88.9	285
Expressed	25	1.4807	84.2	286
Extracted from press cakes ...	25	1.4798	82.5	286
<i>Nigella sativa</i> , see Fennel Seed Oil, Small.				
NIGER SEED OIL.				
From achenes of <i>Guizotia oleifera</i> (<i>Guizotia abyssinica</i>).				
Abyssinia, cultivated in East Africa, East and West Indies.				
	40	1.4678	63.0	18
	40	1.4697	65.9	17
F.A. ...	40	1.4616	53.4	17
	40	1.4697	65.9	17
F.A. ...	40	1.4616	53.4	17
Crude oil	15	1.4768	77.3	287
Bleached oil	15	1.4764	76.7	287
F.A. ...	40	1.4605	51.7	287
Arras	25	1.4731	71.3	288
General limits	40	1.4679—1.4688	63.0—64.5	220
Njamlung Oil , see <i>Calophyllum</i> Oil.				
N'JAVE OIL.				
Syn. N'jave Butter, Nari Oil, Noumgou Oil, Adjab Fat.				
From seeds of <i>Mimusops N'jave</i> (<i>Djave</i>), <i>Bassia Djave</i> , <i>Bassia toxisperma</i> , <i>Tieghemella africana</i> , <i>Baillonella toxisperma</i> , <i>Baillonella D'jave</i> , <i>Tieghemella jollyana</i> .				
West Africa, Cameroons, Gaboon, Nigeria.				
Native names: "Noumgou, Adjab, Njabi (Cameroon).				

	t°C.	n_D	B_D	Refer. No.
N'JAVE OIL — <i>continued.</i>				
N'jave, Djave (Gaboon), Bako Nuts, Mahogany Nuts," Gold Coast.	40	1·4607	52·0	289
Crude, hot pressed	40	1·4609	52·4	67
Extracted with ether	40	1·4584	48·6	67
Neutral, laboratory product	40	1·4649	58·5	67
	40	1·4602	51·3	290
	40	1·4605	51·8	220
	50	1·4573	47·0	452
Njore-Njole , <i>see</i> Inoy Oil.				
Noumgou Oil , <i>see</i> N'jave Oil.				
Nsa-sana , <i>see</i> Manketti Oil.				
Nulla Panza Oil , <i>see</i> Owala Oil.				
NUTMEG BUTTER.				
Syn. Mace Butter (Oil).				
From seeds of <i>Myristica officinalis</i> (<i>Myristica moschata</i> , <i>Myristica fragrans</i>).				
Indian Archipelago, Brazil, West Indies, Guiana.				
Commercial, Banda	40	1·4765	76·8	291
Menado	40	1·4748—1·4753	74·0—74·8	291
Penang	40	1·4809—1·4812	84·5—85·0	291
Macassar	40	1·4774	78·5	291
Zanzibar	40	1·4769	77·5	291
Bombay... ..	40	1·4583	48·5	291
	40	1·4700—1·4705	66·4—67·2	292
	60	1·4704	67·0	282
	50	1·4626	55·0	191
	40	1·4666	61·0	191
	40	1·4659—1·4704	60·0—67·0	220
Temp. coeff. $\frac{\delta n}{\delta t}$		—0·00040		191*
NUTMEG OIL, CALIFORNIAN.				
From fruit of <i>Tumion californicum</i> , California... ..	15	1·4766	77·0	2
Nut Oil , <i>see</i> Walnut Oil.				
Oba Oil , <i>see</i> Dika Fat.				
OCTOPOD LIVER OIL.				
From <i>Octopus octopodia</i> .				
	20	1·4835	89·1	472
Odobenus rosmarus , <i>see</i> Walrus Oil.				

NOTES.

	tC.	n _D	B _D	Refer. No.
<i>Ænanthera biennis</i> , see Primrose Oil, Evening.				
<i>Ænocarpus Batava</i> , see Coumou Oil.				
ÆNOCARPUS DISTICHUS. From hard seed and fibrous inner shell. South America.	40	1·4586	49·0	19
OITICEIRA FRUIT OIL. From fruit of <i>Moquilla tomentosa</i> .	30	1·4921		3
F.A. ...	70	1·4857	93·0	3
OITICICA FAT. From species of <i>Cornepia moquilla</i> , but chiefly from <i>Pleurogyne umbrasissima</i> . Brazil.	30	1·4945		419
OJOK OIL. From seeds of <i>Ricinodendron Heudeloti</i> . Cameroons.				
Extracted with ether	17·5	1·5070		283
Expressed oil	17·5	1·5068		283
OKRA SEED OIL. <i>Abelmoschus esculentus</i> . Avery Island, La	25	1·4702	66·7	430
<i>Olea europæa</i> , see Olive Oil.				
<i>Oleum Bubulum</i> , see Neatsfoot Oil.				
OLIVE OIL. From fruits of <i>Olea europæa sativa</i> . Greece, Spain, Italy, South of France, Northern Africa, California, Australia, South Africa, India.				
French	20	1·4695—1·4711	65·6—68·1	29
Italian	15	1·4698	66·1	112
Dalmatian	15	1·4703	66·8	112
	60	1·4548	43·4	47
F.A. ...	60	1·4410	24·3	47,91
	18	1·4684—1·4698	63·8—66·1	63

NOTES.

	tC.	n _D	B _D	Refer. No.
OLIVE OIL—continued.				
Pure Californian	15	1.4710—1.4717	68.0—69.1	2
Commercial Californian oils...	15	1.4695—1.4739	65.6—72.5	2
	20	1.4696—1.4711	65.7—68.1	64
	30	1.4652	59	320
	25	1.4672	62	320
	35	1.4641	57.25	71
Extracted	25	1.4673	62.2	293
Expressed	25	1.4682—1.4688	63.5—64.4	293
Indian oils	40	1.4635	56.4	18
	60	1.4546	43.1	30
	15	1.4715	68.7	30
F.A. ...	60	1.4460	31.0	30
Oil from sardine boxes, after 2, 12, 24 months	25	1.4712, 1.4715	68.3, 68.7	294
	25	1.4725	70.3	294
Original Olive Oil	25	1.4672	62.0	294
Italian oils	15.5	1.4706—1.4718	67.3—69.2	13
Californian oils	15.5	1.4700—1.4718	66.4—69.2	13
Second pressings of Manzanillo olives... ..	15.5	1.4672	62.0	13
Oil containing 44.4% free F.A.	15.5	1.4672	62.0	13
Olive Oil, nearly neutral ...	15.5	1.4711	68.1	13
	25	1.4676	62.6	295
Italian, Sicilian, Mogador, Spanish, Turkish, Crete, Levant, Algerian, Syrian oils	25	1.4657—1.4667	59.7—61.3	12
Spanish extracted with CS ₂ ...	25	1.4667—1.4673	61.2—62.2	12
	20	1.4683—1.4697	63.7—65.9	14
Italian oils	25	1.4672—1.4679	62.0—63.0	296, 405
Edible oils, limits	40	1.4626—1.4633	55.0—56.0	220
	15	1.4670—1.4671	61.7—61.8	34
Portuguese oils	25	1.4660—1.4682	60.2—63.5	297
F.A. ...	40	1.4528	40.6	91
	15	1.4698—1.4716	66.1—68.9	207
	20	1.4670	61.7	143
	40	1.4652, 1.4656	59.0, 59.5	298
Italian oils extracted with CS ₂	25	1.4652—1.4666	59.0—61.0	299
Italian oils bleached by oxidation	25	1.4679	63.0	299
	20	1.467—1.471	61.7—68.0	282
Algerian	21	1.4690—1.4695	64.8—65.6	411
Candia	21	1.4676—1.4705	62.6—67.2	411
Gallipoli	21	1.4695	65.6	411

NOTES.

	t°C.	n_D	B_D	Refer. No.
OLIVE OIL—continued.				
Levant	21	1·4690—1·4700	64·8—66·4	411
Fine Spanish... ..	21	1·4703—1·4705	66·8—67·2	411
	40	1·4603, 1·4604	51·4, 51·6	453
<i>Oleum olivæ</i> , B.P.	20	1·4675—1·4690	62·5—64·8	113
	15	1·4698—1·4713	66·1—68·4	113
B.P. 1914	40	1·4605—1·4635	51·7—56·3	16
		—0·00040		320*
Temp. coeff. $\delta n/\delta t$		—0·000364		152
		—0·000366 to 360		159
		—0·00036		14
		—0·00032		26*
	25-40	—0·00037		248*
OLIVE KERNEL OIL.				
Expressed from fresh kernels	25	1·4682—1·4688	63·5—64·5	293
Extracted from dried pulp of pressed kernels	25	1·4673	62·2	293
<i>Ommatophoca</i> , see Sea Lion Oil.				
<i>Omphalea megacarpa</i> , see Cayeté Fat.				
<i>Oncorrhynchus nerka</i> , see Trout and Salmon, Red.				
<i>Onobrychis</i> , see Hedysarum.				
Opachala Oil , see Owala Oil.				
ORANGE PIP OIL.				
From <i>Citrus aurantium</i> .				
	21	1·4714	68·6	24
F.A. ...	21	1·4574	47·2	24
	40	1·4641	57·3	8
	25	1·4696	65·8	8
F.A. ...	40	1·4546	43·2	8
	40	1·4642	57·5	300
	25	1·4700	66·4	301
Temp. coeff. $\delta n/\delta t$		—0·00037		8*
<i>Citrus aurantium</i> var. <i>junos</i> (Citron).				
	20	1·4720	69·5	417
F.A. ...	40	1·4551	43·9	417
Chinese Citron, <i>Citrus aurantium sinensis</i> .				
	20	1·4722	69·9	417
F.A. ...	40	1·4558	44·9	417
Kumquat, <i>Fortunella japonica</i> .				
	20	1·4730	71·1	417
F.A. ...	40	1·4576	47·5	417

NOTES.

	t°C	n _D	B _D	Refer. No.
<i>rnithopus roseus</i> (<i>sativus</i>), see Bird's Foot Oil.				
<i>rnithopus sativus</i> , see Bird's Foot Oil.				
<i>ryza sativa</i> , see Rice Oil.				
STEOPHLEUM PLATYSPE- MUM.				
Syn. <i>Myristica platysperma</i> . From seed kernels. Brazil.				
	40	1.4501	36.9	302
From depericarped seeds. •	40	1.4503	37.1	19
<i>taria Stelleri</i> , see Sea Lion Oil.				
WALA OIL.				
Syn. Nulla Panza Oil, Fulla Panza Oil, Mabula Panza, Attawa Seed Oil, Opachala Oil.				
From seeds of <i>Pentactethra</i> <i>macrophylla</i> , East and West Coast of Africa (Togo, Cameroons, French Guiana), also Brazil.				
	40	1.4654	59.2	303
Extracted oil... ..	30	1.4728	70.8	3
F.A. ...	30	1.4647	58.2	3
Crude oil	40	1.4637	56.6	304
Refined oil	40	1.4642	57.4	304
F.A. ...	40	1.4637	56.6	304
From Brazil	40	1.4645	57.8	19
zokerite , see Ceresine.				
ZOMBANUI OIL.				
East Africa.				
	25	1.4691	65.0	174
<i>Pachira</i> , see Mamurana Fat.				
PALM OIL.				
From fruit of palm tree, <i>Elæis guineensis</i> (West Coast of Africa), <i>Elæis</i> <i>melanococca</i> (<i>Alfonsia</i> <i>oleifera</i>) (South America, West Indies, Java, North Burma).				
Crude fat	60	1.4501	36.8	47
	60	1.4431	27.1	9

NOTES.

	t°C.	n _D	B _D	Refer. No.
ALM OIL—continued.				
F.A. ...	60	1·4310	11·3	9
	60	1·4510	38·1	30
	40	1·4607—1·4639	52·0—57·0	220
West Coast of Africa, "Aoura d'Afrique"	40	1·4549	43·5	19
Caiaué, Manaos, Brazil ...	40	1·4583	48·5	19
Caiaué, Amazon Valley ...	40	1·4603	51·5	19
	40	1·4530—1·4559	41·0—45·0	110
ALM KERNEL OIL.				
Syn. Palm Nut Oil.				
From kernel of palm tree fruit of <i>Elæis guineensis</i> .				
	60	1·4435	27·7	47
F.A. ...	60	1·4310	11·3	9
	40	1·4499	36·5	320
	60	1·4430	27·0	30
	40	1·4492	35·5	124
	40	1·4495—1·4517	36·0—39·0	27
West African "Aoura d'Afrique"	40	1·4502	36·9	19
Caiaué, Manaos, Brazil ...	40	1·4527	40·5	19
Caiaué, Amazon Valley ...	40	1·4543	42·7	19
	40	1·4495—1·4506	36·0—37·5	220
	40	1·4503	37·1	17
	40	1·4495—1·4510	36·0—38·0	110
<i>alma maripa</i> , see Maripa Fat.				
<i>angium edule</i> , see Pitjoeng Oil.				
<i>aniculum italicum</i> , see Millet Oil.				
<i>apaver somniferum</i> , see Poppy Seed Oil.				
APRICA OIL.				
<i>Capsicum annuum</i> .				
	15	1·4890—1·4900		305
	21	1·4776	78·7	24
F.A. ...	21	1·4714	68·6	24
From seeds	40	1·4685	64·0	306
From placenta	40	1·4754—1·4783	75·0—80·0	306
From pericarp	40		> 105	306
PARADISE NUT OIL.				
From <i>Lecythis zabucajo</i> .				
"Sabucaia nut, Quatelé zabucajo."				
Brazil, Guiana.	15	1·4667—1·4669	61·3—61·5	307

NOTES.

	t C.	n_D	B_D	Refer. No.
PARAFFIN, "LIQUID."				
Paraffinum liquidum	15	1·4716—1·4723	69·0—70·0	20
Paraffinum liquidum Ph.G.	25	1·4774	78·5	247
Paraffinum liquidum Ph.G. S.G. 0·8827	20	1·4797	82·4	437
S.G. 0·8858	20	1·4799	82·9	437
PARAFFIN WAX.				
	60	1·4340	15·1	30
	65	1·4310—1·4335	11·3—14·5	55
m.p. 36-44° C.	40	1·4404—1·4417	23·6—25·3	52
m.p. 45-52° C.	40	1·4416—1·4445	25·1—29·0	52
m.p. 50-60° C.	40	1·4437—1·4458	27·9—30·8	52
"Java" paraffin wax, m.p. 50-51° C.	40	1·4438—1·4441	28·0—28·5	52
American, m.p. 52-53° C.	40	1·4439—1·4455	28·2—30·4	52
American, m.p. 50° C.	90	1·4236	2·0	161
Galician, m.p. 50-57° C.	90	1·4232—1·4236	1·5—2·0	161
"Java," m.p. 60° C.	90	1·4252	4·0	161
German, soft, m.p. 38° C.	90	1·4274	6·8	161
Galician, m.p. 55-57° C.	90	1·4251	3·8	435
American, m.p. 53·7° C.	78	1·4280	7·5	438
	100	1·4185		438
Temp. coeff. $\delta n/\delta t$		—0·00043		438*
From shale (Autun) 3R, m.p. 42·1° C.	78	1·4238	2·3	438
	100	1·4152		438
Temp. coeff. $\delta n/\delta t$		—0·00039		438*
From shale (Autun) 4R, m.p. 46·5° C.	78	1·4246	3·2	438
	100	1·4161		438
Temp. coeff. $\delta n/\delta t$		—0·00039		438*
Indian, m.p. 56·5-60·5° C.	90	1·4232	1·5	439
From ozokerite of Thrall Oil Field	90	1·4220—1·4275	0·0—6·9	436
Paraguay Palm Oil, see Mocaia Oil.				
PARÁ RUBBER SEED OIL.				
From kernels of Pará Rubber Tree, <i>Hevea brasiliensis</i> , Brazil (Amazon district).	27·5	1·4720	69·5	1
	40	1·4666—1·4685	61·0—64·0	220
PARKIA OIL.				
From seeds of <i>Parkia africana</i> . West Africa.	40	1·4651	58·8	308
	25	1·4705	67·2	308
Temp. coeff. $\delta n/\delta t$		—0·00036		

NOTES.

	t°C.	n _D	B _D	Refer. No.
PAROA CAXY OIL. <i>Pentaclethra filamentosa.</i> Pará, Brazil.	40	1·4612	52·8	19
PARSLEY SEED OIL. <i>Petroselinum sativum.</i>	40	1·4619	53·9	309
	35	1·4778	79·1	5
F.A. ...	35	1·4679	79·1	5
<i>Parthenocissus quinquefolia,</i> see Vine Oil, Canadian.				
Pataua' Oil, see Coumou Oil.				
<i>Paulownia imperialis,</i> see Toi Oil.				
PAYENA OIL. Syn. Kansive Oil. From seeds of <i>Payena oleifera.</i> "Kansive" (Burma).	45	1·4610	52·5	193
	40	1·4636	56·5	193
PEA OIL, COMMON. From <i>Pisum sativum.</i>	35	1·4766	77·0	43
F.A. ...	35	1·4659	60·0	43
PEACH KERNEL OIL. <i>Prunus persica.</i>	50	1·4608	52·2	310
	25	1·4701	66·5	164
	30	1·4679	63·1	320
	25	1·4698	66·1	320
Fresh oil	50	1·4608	52·2	10
	40	1·4649	58·5	10
	25	1·4705	67·2	10
Old oil	50	1·4603	51·5	10
	40	1·4570	57·0	10
	25	1·4696	65·7	10
	40	1·4643	57·5	11
	20	1·4710	68·0	11
	25	1·4682	63·5	191
	40	1·4630	55·5	15
F.A. ...	40	1·4613	53·0	15
	40	1·4644	57·7	17
	25	1·4578—1·4704	63·0—67·0	405
Temp. coeff. $\delta n/\delta t$		—0·00037		10*
		—0·00038		320*

NOTES.

	t°C.	n_D^n	B_D	Refer. No.
PEACH PULP AND KERNEL OIL.				
	15	1·4720 — 1·4735	69·5—71·9	207
Peanut Oil, see <i>Arachis</i> Oil.				
PEAR PIP OIL. <i>Pirus communis.</i>				
	21	1·4718	69·2	24
F.A. ...	21	1·4708	67·7	24
	25	1·4727	70·65	140
Pekea Nut Oil, see <i>Sacha almendras</i> Oil.				
<i>Pentaclethra filamentosa</i>, see <i>Paroa caxy</i> Oil.				
<i>Pentaclethra macrophylla</i>, see <i>Owala</i> Oil.				
<i>Pentadesma Kerstengii</i> (<i>Pentadesma butyracea</i>), see <i>Kanga Butter</i> .				
PERILLA OIL. From seeds of <i>Perilla oscimoides</i> . "Ye-no-abura," "Eyoma seed" (Japan). South-eastern Asia, China, Japan, Northern India.				
	15	1·4825	87·3	311
F.A. ...	60	1·4619	53·9	311
	40	1·4753	74·8	312
F.A. ...	60	1·4662	60·5	312
Cold-drawn, prepared in laboratory from black and white seeds	15	1·4835—1·4851	89·1—92·0	313
Commercial oil, from black seeds	15	1·4822—1·4840	86·7—90·0	313
Yokohama	15	1·4870	95·4	25
<i>Petrosilenum sativum</i>, see <i>Parsley Seed Oil</i> .				
<i>Phaseolus coccineus</i>, see <i>Bean Oil, Scarlet Runner</i> .				
PHASEOLUS INAMGENUS SEED OIL.				
	45	1·4646	58·0	43
F.A. ...	44	1·4640	57·1	43

NOTES.

	t C.	n _D	B _D	Refer. No.
<i>Phaseolus mungo</i> , see Bean Oil, Minogo.				
<i>Phaseolus vulgaris albus</i> , see Bean Oil, Haricot.				
<i>Phoca caspica, grœnlandica, lagura, vitulina</i> , see Seal Oil.				
<i>Phoca fœtida</i> , see Seal Oil.				
<i>Phoca fœtida</i> var. <i>saimensis</i> , Vikare Seal Oil, see Seal Oil.				
<i>Phocœna communis</i> , see Brown Fish Oil.				
<i>Phœnix dactylifera</i> , see Date Seed Oil.				
PHULWARA BUTTER.				
From seeds of <i>Bassia (Illipé) butyracea</i> , "Indian Tree Butter," "Phulvara," "Churi, Yel," Himalayas.	40	1·4581	48·2	18
	40	1·4552	44·0	193
Hot-pressed oil	40	1·4656	59·6	8
Crude, extracted	40	1·4643	57·6	8
Refined fat	40	1·4654	59·3	8
F.A. ...	60	1·4499	36·5	8
F.A. ...	40	1·4576	47·5	8
	40	1·4578	47·8	220
<i>Physeter macrocephalus</i> , see Sperm Oil.				
Physic Nut Oil , see Curcas Oil.				
PICRAMNIA FAT.				
From <i>Picramnia lindeniana</i> . Guatemala.				
Extracted	50	1·4608	52·2	314
F.A. ...	50	1·4572	46·9	314
From <i>Picramnia carpenterea</i> . Guatemala.				
"Semilla grasa," "Tarrivi."	50	1·4624	54·6	3
F.A. ...	70	1·4538	42·0	3
PIGEON PEA OIL.				
From <i>Lens esculenta</i> .				
	40	1·4766	77·0	43
F.A. ...	40	1·4698	66·1	43

NOTES.

	t C.	n _D	B _D	Refer. No.
PILCHER OIL.				
Syn. Sardel Oil.				
From <i>Alausa pilchardus</i> .				
F.A. ...	40	1.4711—1.4723	68.2—70.0	315
PILI NUT OIL.				
<i>Canarium luzonicum</i> (<i>Canarium pachyphyllum</i>).				
Pili nuts ("Brea blanca.")				
Philippines.	40	1.4584	48.6	40
	30	1.4620—1.4621	54.0—54.2	114
<i>Pimpinella sativum</i> , see; Anise Seed Oil.				
PINE NUT OIL.				
Syn. Pine Seed Oil, Fir Seed Oil.				
From seeds of pines, viz.: <i>Pinus abies</i> (<i>Picea vulgaris</i> , <i>Abies excelsa</i>), Norway spruce.				
"Red Pine Seed Oil."				
Middle Europe.	35	1.4742	73.0	171
F.A. ...	40	1.4672	62.0	171
	20	1.4773	78.2	179
<i>Pinus cembra</i> .				
Swiss Pine.	40	1.4710	68.0	171
F.A. ...	40	1.4607	52.0	171
<i>Pinus edulis</i> .				
	20	1.4659	60.0	32
<i>Pinus Gerardiana</i> .				
Gerard's Pine.				
Syn. "Neja Nuts, Neeza." Himalayas.	35	1.4679	63.1	171
F.A. ...	40	1.4613	53.0	171
<i>Pinus monophylla</i> .				
(<i>Pinus fremontiana</i>).				
Pinon, Grey Pine, "Brown Oil."				
California.	15	1.4769	77.5	2
	40	1.4643	57.6	178
	25	1.4698	66.1	178
	10	1.4747	73.8	178
F.A. ...	45	1.4550	43.7	178
	25	1.4623	54.5	178

NOTES.

	t°C.	n_D	B_D	Refer. No.
<i>Pinus picea.</i>				
"Pitch Tree Oil," Silver Fir.				
Syn. (<i>Abies pectinata</i> , <i>Abies alba</i> , <i>Abies picea</i> , <i>Abies taxifolia</i>), <i>Oleum abietis seminum</i> .				
Middle Europe.				
	35	1·4879	97·0	171
F.A. ...	35	1·4795	82·0	171
	18	1·4801	83·1	445
<i>Pinus pinea.</i>				
Stone Pine.				
Southern Europe, South Africa.				
	40	1·4685	64·0	171
F.A. ...	40	1·4636	56·5	171
	40	1·4678	62·9	461
<i>Pinus silvestris.</i>				
(<i>Pinus pinaster</i> , <i>Pinus maritima</i>).				
Syn. Scotch Pine.				
	35	1·4704	67·0	171
F.A. ...	40	1·4626	55·0	171
	18	1·4799	82·7	445
Temp. coeff. $\delta n/\delta t$:				
10-25° C.		—0·00031		178*
25-45° C.		—0·00036		178*
F.A. ...		—0·00036		178*
<i>Pinus</i>, see Pine Seed Oil.				
PIRIRIMA OIL.				
<i>Cocos syagrus.</i>				
North Brazil, Pará Valley.				
Blunt fruit	40	1·4505	37·4	19
Pointed fruit... ..	40	1·4496	36·2	19
<i>Pirus communis</i>, see Pear Seed Oil.				
<i>Pirus malus</i>, see Apple Seed Oil.				
PISTACHIO OIL.				
From seeds of Pistachio nuts,				
<i>Pistacia vera</i> (<i>Pistacia lentiscus</i>).				
	25	1·4672	62·0	316, 191
	20	1·4687	64·3	32
	14	1·4697	66·0	317
<i>Pisum sativum</i>, see Pea Oil.				

NOTES.

	t°C	n _D	B _D	Refer. No.
PITHECOLOBIUM DULCE OIL.				
"Vilati, Amli, Karukapilly." Mexico, India.				
	40	1·4672	62·0	193
	25	1·4720	69·5	193
Temp. coeff. $\delta n/\delta t$		—0·00032		193*
PITJOENG OIL.				
Syn. Samaun Oil. From seeds of <i>Pangium edule</i> (<i>Hydnocarpus edulis</i>). Malay Archipelago and Philippines.				
	40	1·4723—1·4772	70·0—78·0	217
Philippine oil from mature seeds	30	1·4665	60·9	388
F.A. ...	30	1·4582	48·3	388
From immature seeds	30	1·4675	62·5	388
F.A. ...	30	1·4595	50·2	388
<i>Plukenetia conophora</i> , see N'gart Oil.				
PLUM KERNEL OIL.				
<i>Prunus domestica</i> and <i>Prunus</i> <i>damascæna</i> .				
	25	1·4679	63·1	191
	25	1·4692—1·4702	65·1—66·7	409
Ether extract, common plum	20	1·4715	68·7	409
	25	1·4679—1·4685	63·0—64·0	405
<i>Poga oleosa</i> , see Inoy Oil.				
POLI OIL.				
Syn. Polyan Oil, Leh Oil, Kasumbhi Oil, Karay Oil. <i>Carthamus oxyacantha</i> . India.				
Punjab, probably stale... ..	40	1·4711	68·2	18
North-west India	40	1·4755	75·1	319
	28	1·4818	86·0	319
Temp. coeff. $\delta n/\delta t$		—0·00053		319*
Pollock Oil , see Coalfish Oil.				
Polyan Oil , see Poli Oil.				
<i>Polygala butyracea</i> , see Malu- kang Butter.				
<i>Polygalon gesneri</i> , see Turkish Clover Oil.				

NOTES.

July 20, 1881. ...

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	t°C.	n _D	B _D	Refer. No.
<i>Pomatomus saltatrix</i> , see Blue-fish Oil.				
PONGAM OIL.				
From Pongam beans.				
<i>Pongamia glabra</i> (<i>Dahlbergia arborea</i> , <i>Gadelupa indica</i> , <i>Caju gadelupa</i> , <i>Gadelupa pinnata</i>).				
India, Ceylon, Malacca Northern Australia, Seychelles, South China.				
Native names: "Kanooga manoo, Kanoogoo, Kanuga-Karra, Kanuga - Chettu, Kanji, Kannygoo Korung Oil, Kagoo Oil, Ung (Malabar).				
Indian oil	40	1.4723	70.0	59
Extracted with ether (in laboratory)	40	1.4772	78.0	59
	25	1.4770	77.7	3
F.A. ...	50	1.4637	56.6	3
Pongro Oil , see Macassar Oil.				
Poonseed Oil , see Calophyllum Oil.				
POPPY SEED OIL.				
From seeds of <i>Papaver somniferum</i> var. <i>album</i> and <i>nigrum</i> .				
Levant, Egypt, India, South Russia, North of France.				
	15	1.4783	80.0	112
	60	1.4586	48.9	9
F.A. ...	60	1.4506	37.5	9
	25	1.4751	74.5	164
North-west Provinces, India	40	1.4681	63.4	18
	25	1.4736	72.0	320
	15	1.4766—1.4770	77.1—77.8	13
Commercial oils (Oeillette and Levant)				
	15	1.4764	76.7	321
Levant and German oils ...	15	1.4774	78.4	321
Pure Indian oil	15	1.4772	78.1	321
	25	1.4729	71.0	12
Chinese oil, purified	15	1.4774	78.4	42
French "Huile d'oeillette"	25	1.4739—1.4742	72.5—73.0	322
	20	1.4741—1.4754	72.9—75.0	14

NOTES.

	t C.	n_D	B_D	Refer. No.
POPPY SEED OIL—continued.				
Exotic oils	25	1.4733—1.4736	71.5—72.0	288
	15	1.4765—1.4780	76.8—79.4	107
Limits (1914)	25	1.4729—1.4752	71.0—74.5	123
	40	1.4679—1.4688	63.0—64.5	220
Average... ..	25	1.4730—1.4741	71.2—72.8	173
	40	1.4698	66.1	17
	25	1.4729—1.4748	71.0—74.0	405
Temp. coeff. $\delta n/\delta t$		—0.000369		159
		—0.00037		14
PORGY OIL.				
<i>Stenotomus chrysops.</i>				
Rhode Island, May 1915 ...	30	1.4736	72.1	385
<i>Poronotus triacanthus, see</i> Butterfish Oil.				
PORPOISE OIL.				
<i>Delphinus phocaena.</i>				
	40	1.4568	46.3	130
	25	1.4625	54.8	130
	25	1.4622	54.3	46
Temp. coeff. $\delta n/\delta t$		—0.00038		130*
Poulp Liver Oil, see Octopod Liver Oil.				
PRIMROSE OIL, EVENING.				
<i>Enanthera biennis.</i>				
Extracted with ether	40	1.4722	69.9	418
<i>Prunus amygdalus, see</i> Almond Oil.				
<i>Prunus armeniaca, see</i> Apricot Kernel Oil.				
<i>Prunus cerasus, see</i> Cherry Kernel Oil.				
<i>Prunus domestica, see</i> Plum Kernel Oil.				
<i>Prunus persica, see</i> Peach Kernel Oil.				
<i>Pseudopleuronectes ameri-</i> <i>canus, see</i> Flounder Oil.				
PSORALEA CORYLIFOLIA SEED OIL				
"Bavanchi, Bakuchi, Kargura aristi."				
	40	1.4732	71.5	193
	25	1.4781	79.5	193
Temp. coeff. $\delta n/\delta t$		—0.00033		

NOTES.

	t°C.	n _D	B _D	Refer. No
<i>Ptychotis ajowan</i> , see Ajowan Seed Oil.				
Pulza oil , see Curcas Oil.				
PUMPKIN SEED OIL. <i>Curcubita pepis.</i>				
	25	1.4724—1.4739	70.2—72.5	318
<i>Pyrus cedonia</i> , see Quince Seed Oil.				
<i>Quercus agrifolia</i> , see Acorn Oil.				
QUINCE SEED OIL. From <i>Cedonia vulgaris</i> (<i>Pyrus cedonia</i>). Extracted with ether.	25	1.4714	68.5	191
QUISQUALIS INDICA OIL. Philippines. Extracted with ether from dried meat of nut	30	1.4585	48.8	390
RABBIT FAT (TAME). <i>Lepus caniculus.</i>	40	1.4580	49.0	205
F.A. ...	40	1.4495	36.0	205
RADISH SEED OIL. <i>Raphanus sativus.</i> Limits of four varieties : <i>Raph- anus sativus albus</i> , <i>niger</i> , <i>radiola</i> and <i>oleifera</i> ...	20	1.4710—1.4722	68.0—69.9	324
F.A. ...	20	1.4625—1.4630	54.8—55.6	324
Assam	40	1.4642	57.5	18
Average limits	25	1.4640—1.4646	57.0—58.0	405
<i>Raia clavata</i> , see Ray Liver Oil.				
<i>Raia kenojei</i> , see Ray Liver Oil.				
RAPE SEED OIL. Syn. Colza Oil. From varieties of <i>Brassica</i> species. General definitions and classi- fications: Lewkowitsch, <i>Chemical Technology of Oils, Fats and Waxes</i> , 5th Ed., 1914, Vol. II., 243.	15	1.4750	74.3	442
	25	1.4726	70.5	442
	40	1.4680	63.2	442
	15	1.4720—1.4757	69.5—75.5	112

NOTES.

	t°C.	n _D	B _D	Refer. No.
RAPE SEED OIL—continued.				
Crude oil	18	1.4722—1.4736	69.9—72.1	63, 143
Refined oil	18	1.4726—1.4740	70.5—72.7	63, 143
	60	1.4667	61.2	9
F.A. ...	60	1.4491	35.4	9
	25	1.4710	68.0	164
Crude and refined, $d^{15.6}_4$ 0.913—				
0.917	18	1.4722—1.4736	69.9—71.4	63
	20	1.4722—1.4735	69.9—71.9	64
	15	1.4745	73.5	30
Indian oils	40	1.4654	59.2	18
	40	1.4649—1.4654	58.5—59.2	18
American	15.5	1.4748—1.4753	74.1—74.8	13
Austrian	40	1.4657—1.4658	59.7—59.8	325
	25	1.4708—1.4710	67.7—67.9	325
Expressed oil	15	1.4745—1.4753	73.5—74.9	250
Extracted oil... ..	15	1.4739—1.4753	72.6—74.8	250
	20	1.4721—1.4742	69.7—73.0	14
	18	1.4710—1.4735	68.0—71.9	34
American refined	21	1.4735—1.4745	71.9—73.5	411
Refined Stettin	21	1.4735—1.4754	71.9—75.0	411
Refined East Indian	21	1.4745—1.4754	71.9—75.0	411
From ten <i>Brassica oleracea</i>				
varieties	20	1.4723—1.4739	70.0—72.5	324
F.A. ...	20	1.4634—1.4651	56.2—58.8	324
From four <i>Brassica rapa</i>				
varieties	20	1.4723—1.4728	70.0—70.8	324
F.A. ...	20	1.4627—1.4644	55.1—57.7	324
From five <i>Brassica napus</i>				
varieties	20	1.4710—1.4726	68.0—70.5	324
F.A. ...	20	1.4625—1.4647	54.8—58.2	324
	15	1.4740—1.4760	72.7—76.0	207
	40	1.4649—1.4654	58.5—59.2	123
	25	1.4710—1.4729	68.0—71.0	123, 405
	40	1.4677	62.8	17
	40	1.4652—1.4659	59.0—60.0	110
F.A. ...	40	1.4572	46.9	91
Indian oils from <i>Brassica</i>				
<i>campestris</i> var. <i>glauca</i> ...	40	1.4654	59.2	18
Indian oils from <i>Brassica</i>				
<i>napus</i> (Lutni mustard) ...	25	1.4710	68.0	12
	40	1.4650	58.8	18
From <i>Eruca sativa</i>	40	1.4653	59.2	18
	20	1.4723	70.0	187
F.A. ...	60	1.4643	57.6	187
	40	1.4655	59.4	453

NOTES.

	t C.	n_D	B_D	Refer. No.
RAPE SEED OIL—continued.				
Temp. coeff. $\delta n/\delta t$		—0·000362 to 364		159
		—0·00034		325*
	25-40	—0·00035		248*
Mean, 15-65° C.		—0·00031		442*
<i>Raphanus raphanistrum</i> , see Hedge Mustard Oil.				
<i>Raphanus sativus</i> , see Radish Oil.				
RASPBERRY SEED OIL.				
<i>Rubus idæus</i> .				
	40	1·4691	65·0	206
RAT FISH OIL.				
<i>Chimæra phantasma</i> .				
	20	1·4728	70·8	326
RAVISON OIL.				
Syn. Black Sea Rape Oil.				
From seeds of wild variety of <i>Brassica</i> .				
	25	1·4710	68·0	164
	25	1·4729	71·0	12
	25	1·4732	71·5	328
	20	1·4748	74·0	328
Refined	21	1·4749—1·4774	74·1—78·4	411
East Indian	21	1·4745—1·4754	73·5—75·0	411
Japanese	21	1·4735	71·9	411
Average limits	25	1·4710—1·4729	68·0—71·0	405
Temp. coeff. $\delta n/\delta t$		—0·00032		328*
RAY LIVER OILS.				
From <i>Raia clavata</i> .				
	15	1·4860	93·6	133
From <i>Raia kenogei</i> , common Japanese Ray				
	20	1·4843	90·5	181
From <i>Dasyatis akajei</i> , see Akajei. See also Uchiwazamé.				
From <i>Scoliodon laticaudus</i> (Japanese Ray).				
	20	1·4843	90·5	472
From <i>Mobula japonica</i> , see also Uchiwazamé.				
	20	1·4855	92·7	472
From <i>Trigon pastinaca</i> . (French "Pastenague") ...				
	15	1·4752	74·6	133
Ray, Eagle , see Eagle Ray Liver Oil.				

NOTES.

	t _c	n _D	B _D	Refer. No.
RED CURRANT SEED OIL. From seeds of <i>Ribes rubrum</i> .	40	1.4672	62.0	206
Reindeer Butter Fat , see Butter Fat.				
Renialia Oil , see Baobab Oil.				
Rhinobatys Schlegelii , see Guitar Fish Oil.				
RHUS GLABRA SEED OIL (SUMAC). Extracted with ether from decorticated seeds	15	1.4823	86.9	329
		1.4828	87.8	329
Temp. coeff. $\frac{\delta n}{\delta t}$		—0.00035		329*
From berries, Kansas	20	1.4710	68.0	425
Rhus succedanea , see Japan Wax.				
Ribes rubrum , see Currant Seed Oil, Red.				
RICE OIL. From rice meal of <i>Oryza sativa</i> . Extracted with petroleum ether	20	1.4742	73.0	327
From Italian rice	25	1.4711	68.2	191
Liquid oil	25	1.4709	67.8	330
Solid rice fat... ..	50	1.4557	44.7	330
From rice germ	25	1.4710—1.4717	68.0—69.0	405
From rice bran:				
North Japan.	20	1.4704	67.0	463
Korea.	20	1.4714	68.5	463
South Japan.	60	1.4565	45.9	463
Ricinodendron africanum , see Manketti Oil.				
Ricinodendron Heudeloti , see Ojok Oil.				
Ricinodendron Rautannenii , see Manketti Oil.				
Ricinus communis , see Castor Oil.				
Roccus lineatus , see Bass Oil, Striped.				

NOTES.

	t.C.	n_D	B_D	Refer. No.
<i>Rosa canina</i> , see Dog Rose Seed Oil.				
ROSIN OIL.				
d^{15} , 0.908	20	1.5274—1.5415		440
$d^{15.6}$, 0.97-0.98	18	1.5350—1.5490		143
Refined	20.5	1.5392		443
Light oil	20.5	1.5378, 1.5400		443
“Green” oil”	20.5	1.4817		443
d^{15} , 0.908	15	1.5035		444
Doub. rect. d^{15} , 0.856	15	1.4748		444
Dark brown	15	1.4821—1.5136		441
Light brown	15	1.5378—1.5455		441
Light yellow	15	1.5452—1.5548		441
Rubber Seed Oil , see Pará Rubber Seed Oil.				
<i>Rubus idæus</i> , see Raspberry Seed Oil.				
RYE SEED OIL.				
<i>Secale cereale</i> , Germs.	28	1.4767	77.1	24
F.A. ...	26	1.4711	68.0	24
	25	1.4775	78.5	432
RYE MEAL FAT.	25	1.4766—1.4778	77.0—79.0	41
RYE BRAN FAT.	25	1.4806—1.4824	84.0—87.0	41
Sabucaia Nut Oil , see Paradise Nut Oil.				
SACHA ALMENDRAS OIL.				
Syn. Sawari Nut Oil, Suari Nut Oil, Pekea Nut Oil. <i>Caryocar tomentosum</i> (<i>Caryocar butyrosom</i> , <i>Caryocar nuciferum</i>). Iquitos, Peru.	40	1.4567	46.2	19
SAFFLOWER OIL.				
Syn. Saffron Oil. From seeds of <i>Carthamus tinctorius</i> , Bengal, Hyderabad, Cawnpore, Bombay, Punjab, East Africa, Egypt, Caucasus, Turkestan. Central Provinces and Bombay	40	1.4692	65.2	18
From Caucasus and Turkestan	16	1.4770	77.7	331
Extracted with ether	25	1.4769	77.5	191

NOTES.

	t°C	n _D	B _D	Refer. No.
SAFFLOWER OIL — <i>continued</i> .				
Mombo, East Africa, extracted with ether	40	1.4691	65.0	332
Western India, Bazaar sample	40	1.4679	63.0	333
Expressed in laboratory ...	40	1.4685	64.0	333
Extracted with ether	40	1.4685	64.0	333
General limits	40	1.4679—1.4691	63.0—65.0	220
General limits	25	1.4766—1.4772	72.0—78.0	405
From Kolozsvar Exp. Farm.	25	1.4735	71.9	465
Saith Oil , <i>see</i> Coalfish Oil.				
SAKÉ OIL.				
	20	1.4660	60.2	334
<i>Salmo iridens</i> , <i>see</i> Trout.				
SALMON OIL.				
<i>Salmo salar</i> .				
British Columbia, etc.				
	40	1.4720	69.5	443
	25	1.4772	78.0	443
	40	1.4714	68.5	110
Californian	21	1.4814	85.3	411
Temp. coeff. $\delta n/\delta t$		—0.00035		443*
SALMON, OIL OF RED.				
<i>Oncorhynchus nerka</i> .				
Refined oil	20	1.4775	78.6	157
See also Trout, variety of <i>Oncorhynchus nerka</i> .				
SALMON OIL, KING.				
	25	1.4788	80.8	444
SALMON OIL, SILVER.				
	25	1.4753	74.8	444
Samaun Oil , <i>see</i> Pitjoeng Oil.				
Sambucus racemosa , <i>see</i> Elderberry Oil.				
Sanga-sanga Oil , <i>see</i> Manketti Oil.				
SANGUINELLA OIL.				
Syn. Dogwood Oil, Cornel Oil.				
From seeds of Dogwood, <i>Cornus sanguinea</i> .				
	25	1.4672—1.4679	62.0—63.0	296
Sapindus rarak , <i>see</i> Soap Tree Oil.				

	t°C.	n _D	B _D	Refer. No.
SAPINDUS TRIFOLIATUS NUT OIL.				
Syn. Soap Nut Tree Oil.				
Nat. "Retha, Purandi, Uruvanguikai."				
South India.				
	40	1.4691	65.0	193
	25	1.4748	74.0	193
Temp. coeff. $\delta n/\delta t$		-0.00037		193*
Sapium sebiferum , see Chinese Vegetable Tallow and Stillingia Oil.				
Sarda Sarda , see Bonita Oil.				
SARDINE OIL.				
<i>Clupea sardinus</i> .	25	1.4763	76.5	295
	25	1.4852	92.1	294
SARDINE OIL, JAPANESE.				
<i>Clupanodon melanosticta</i> .				
"Ma-iwashi" (Japan).				
	15	1.4790	81.2	30
	20	1.4802—1.4808	83.2—84.3	336
	18	1.4817	85.9	134
	40	1.4633—1.4666	56.0—61.0	337
SASANQUA OIL.				
Commercial Tea Seed Oil.				
From seeds of <i>Thea sasanqua</i> (<i>Camellia drupifera</i> , <i>Thea oleosa</i> , <i>Camellia oleifera</i>).				
Cold-pressed oil from Amakusa seed, extracted oil from Tokyo seeds	20	1.4691	65.0	222
	40	1.4618	53.8	338
Sawari Fat, Sawari Nut Oil , see Sacha almendras Oil.				
Scarlet Runner Bean Oil , see Bean Oil, Scarlet Runner.				
Schleicheria trijuga , see Macassar Oil.				
Schmidelia racemosa , see <i>Allophyllus racemosa</i> .				
Scomber colias, Scomber scombrus , see Mackerel Oil.				

NOTES.

	t C.	n _D	B _D	Refer. No.
<i>Scomberomorus maculatus</i> , see Mackerel Oil, Spanish.				
<i>Scymnus borealis</i> , see Shark Liver Oil.				
SCYMNUS LICHIA LIVER OIL. "Carocho." Portugal.	25	1·4857	93·0	339
SEA ELEPHANT OIL. Syn. Elephant Seal.	40	1·4684	63·8	227
<i>Macrorhinus leoninus</i> , <i>Macro-</i> <i>rhinus angustirostris</i> .	21	1·4739—1·4762	72·5—76·3	411
SEAKALE OIL. From seeds of <i>Crambe mari-</i> <i>tima</i> .	20	1·4715	68·7	175
F.A. ...	25	1·4673	62·2	175
SEA LION OIL. <i>Otaria Stelleri</i> . "Ashika" (Japan).	20	1·4783	80·0	6
	20	1·4786	80·5	116
SEAL OIL. From <i>Phoca vitulina</i> , <i>Phoca</i> <i>groenlandica</i> , <i>Phoca lagura</i> , <i>Phoca caspica</i> , <i>Leptony-</i> <i>chotes Weddelli</i> , <i>Stenor-</i> <i>rhynchus leptonyx</i> , <i>Lopodon</i> <i>carcinophagus</i> , <i>Ommato-</i> <i>phoca rossi</i> , <i>Macrorhinus</i> <i>leninus</i> , <i>Macrorhinus an-</i> <i>gustirostris</i> .	60	1·4619	53·9	30
Pale oil	15	1·4784	80·1	30
Superf. Newfoundland... ..	20	1·4770	77·7	126
	15	1·4791	81·3	126
	40	1·4685	64·0	33
	25	1·4740	72·7	33
F.A. ...	40	1·4591	49·7	33
Pale oil	15	1·4795	82·0	209
	25	1·4762	76·2	130

NOTES.

	t°C.	n _D	B _D	Refer. No.
SEAL OIL—continued.				
Commercial oils	40	1·4685	64·0	130
	25	1·4742	73·0	130
	35	1·4756	75·3	46
	20	1·4817	85·9	46
	F.A. ...	35 1·4673, 1·4687	62·3, 64·3	46
	F.A. ...	20 1·4748, 1·4749	74·0, 74·1	46
Liver Oil	15	1·4776	78·7	116
	15	1·4730—1·4790	71·1—81·2	207
Water-white oil	40	1·4691	65·0	340
	25	1·4748	74·0	340
	18	1·4758, 1·4771	75·6, 77·9	134
Oil from Sakhalin... ..	20	1·4795	82·0	341
Water-white	21	1·4754—1·4774	75·0—78·4	411
Straw-yellow	21	1·4745—1·4785	73·5—80·3	411
	40	1·4702	66·7	17
Temp. coeff. $\delta n/\delta t$		—0·00042		126*
		—0·00040		46*
		—0·00038		130°, 340°
		—0·00037		30°, 33°
From <i>Phoca fœtida</i> , Vikare Seal, Germ. Ringelrobbe. Bay of Finland.	40	1·4756	75·3	46
	20	1·4817	85·9	46
	F.A. ...	40 1·4674	62·3	46
	F.A. ...	20 1·4748	74·0	46
Winter and summer fat.				
Adult male	20	1·4795, 1·4811	82·0, 84·8	469
Adult female	20	1·4804, 1·4818	83·6, 88·0	469
Summer-fat of young male ...	20	1·4799	82·8	469
Temp. coeff. $\delta n/\delta t$		—0·00030		46*
Temp. coeff. F.A. ...		—0·00037		46*
From <i>Phoca fœtida</i> var. <i>Saimensis</i> . Finland.	35	1·4774	78·4	46
	20	1·4824	87·0	46
	F.A. ...	35 1·4687	64·3	46
	F.A. ...	20 1·4749	74·1	46
Temp. coeff. $\delta n/\delta t$		—0·00033		46*
Temp. coeff. F.A. ...		—0·00042		46*
From <i>Halichærus grypus</i> , Grey Seal.				
Winter and summer fat, according to sex and age ...	20	1·4734—1·4789	71·8—81·0	469

NOTES.

	t.C.	n _D	B _D	Refer. No.
Northern Fur Seal. Robbin Island, Japan.	20	1.4772—1.4790	78.1—81.2	456
	20	1.4772	78.1	470
<i>Secale cereale</i> , see Rye Seed Oil.				
<i>Secale cornutum</i> , see Ergot Oil.				
SEJEN PALM OIL. Syn. Unamo Palm Oil. <i>Jessenia polycarpa</i> . Colombia.	20	1.4682	63.5	342
SERENOA SERRULATA FAT. South Carolina, Florida.				
Crude fat	40	1.4461	31.2	343
Extracted with ether	40	1.4547	43.3	343
SERVICE BERRY OIL. Syn. Mountain Ash Berry Oil. From seeds of <i>Sorbus acuparia</i> .	15	1.4753	74.8	344
SESAMÉ OIL. Syn. Beniseed Oil, Gingelli Oil, Teel Oil. From seeds of <i>Sesamum indicum</i> .	20	1.4735—1.4748	71.9—74.0	29
Fresh and old French oils ...	15	1.4748—1.4762	74.0—76.3	112
	60	1.4561	45.3	9
F.A. ...	60	1.4461	31.2	9
	25	1.4704—1.4711	67.0—68.2	164
	35	1.4678	63.0	71
	15	1.4746	73.7	30
Official American standard limits... ..	25	1.4704—1.4717	67.0—69.1	72
African, Levant and Indian oils	40	1.4647—1.4656	58.2—59.5	345
	25	1.4699—1.4707	66.2—67.5	345
F.A. ...	40	1.4559—1.4574	45.0—47.2	345
F.A. ...	25	1.4614—1.4620	53.2—54.0	345
	30	1.4695	65.6	320
	25	1.4716	69.0	320
	15.5	1.4742	73.0	13
	15	1.4742	73.0	321
	40	1.4657	59.7	33
	25	1.4710	68.0	33
F.A. ...	40	1.4566	46.0	33
Indian, Levant and African oils extracted with ether or petroleum ether.	40	1.4649—1.4663	58.5—60.6	346
	25	1.4704—1.4718	67.0—69.2	346
	40	1.4562—1.4578	45.5—47.7	346
	25	1.4620—1.4633	54.0—56.0	346

NOTES.

	tC.	n _D	B _D	Refer. No.
SESAMÉ OIL—continued.				
Purified Chinese oil	15	1.4741	72.9	42
	40	1.4659—1.4666	60.0—61.0	449
	20	1.4716—1.4733	68.9—71.6	14
	23	1.4725—1.4730	70.3—71.1	34
	40	1.4653—1.4662	59.0—60.5	220
	40	1.4647—1.4663	58.2—60.6	123
	25	1.4699—1.4718	66.2—69.2	123
B.P., 1914	40	1.4650—1.4675	58.6—62.5	36
	20	1.4750—1.476	74.3—76.0	282
	40	1.4665	60.9	17
	40	1.4656—1.4659	59.5—60.0	110
General limits	25	1.4698—1.4723	66.0—70.0	405
	40	1.4643, 1.4640	57.6, 57.1	453
Temp. coeff. $\delta n/\delta t$		—0.00037		158, 14
		—0.00036		123
		—0.00035		33°, 346°
	25-30	—0.00042		320*
		—0.000345		345*
	25-40	—0.00034		248*
Sesame Oil, German, see Dodder Oil.				
SEVUM PREPARATUM, B.P.				
Syn. Prepared Tallow.				
<i>Sevum preparatum</i> , B.P.... ..	60	1.4491—1.4510	35.4—38.1	113
SHAD OIL.				
<i>Alosa sapidissima.</i>				
New Caledonia—				
Male, April 1915	30	1.4709	67.8	385
Female, April 1915	30	1.4710	68.0	385
Female, May 1915	30	1.4719	69.4	385
Female, spent, June 1915 ...	30	1.4725	70.3	385
SHARK LIVER OIL.				
From <i>Scymnus borealis</i> .				
	15	1.4783	80.0	30
	40	1.4770	77.7	33
	25	1.4825	87.3	33
Pale refined	21	1.4725	70.3	411
	40	1.4685	64.0	17
	20	1.4708	67.7	470
Japanese Shark Liver Oils :				
Ai-zamé, <i>Centrophorus spec.</i>	20	1.4925—1.4930		427
Imori-zamé, <i>Pristiurus pilosus</i>	20	1.4912		427
Heratsuno-zamé	20	1.4850	91.8	427

NOTES.

	t°C.	n_D	B_D	Refer. No.
SHARK LIVER OIL—continued.				
Japanese Shark Liver Oils—contd.				
Frill Shark, <i>Chlamydoselachus anguineus</i> , Sagami Sea ...	20	1·4716—1·4725	68·9—70·3	427
Mamiji - zamé, <i>Lepidorhinus foliaceus</i>	20	1·4850	91·8	427
Tsumaguro sagami-zamé, <i>Centrophorus astromarginatus</i> , Sagami Sea	20	1·4845	90·9	427
Birodo-zamé, <i>Zameus squamulosus</i> , Sagami Sea, female	20	1·4808	84·3	427
From Suruga Sea, male ...	20	1·4762	76·3	427
Tarō-zamé, <i>Centrophorus acus</i>	20	1·4869	95·2	427
Kinbei - zamé, <i>Lepidorhinus kinbei</i>	20	1·4817	85·9	427
Kantsubo-zamé (Yoroi-zamé), <i>Dalatias licha</i>	20	1·4791	81·3	427
Yumo-zamé, <i>Centroscymnus oustonii</i>	20	1·4790	81·2	427
Kuroko-zamé, <i>Centroscyllium ritteri</i>	20	1·4758	75·6	427
Basking Shark (Uba-zamé), <i>Cetorhinus maximus</i> ...	20	1·4772—1·4815	78·1—85·5	427
Higezuno, <i>Cirrhigaleus barbifer</i>	20	1·4702	66·7	427
Crow Shark (Karasu-zamé), <i>Etmopterus frontimaculatus</i>	20	1·4750	74·3	427
Fujikujira, <i>Etmopterus lucifer</i> , from Misaki	20	1·4724	70·2	427
Onden-zamé, <i>Somniosus microcephalus</i> (? identical with <i>Læmargus microcephalus</i>). Arctic Seas, Cape Oregon, France, Japan	20	1·4740	72·7	427
Hokkaido-abura-zamé (? <i>Squalus mitsukurii</i> , <i>Squalus sucklii</i>)	20	1·4729, 1·4748	71·0, 74·0	427
Kagura - zamé, <i>Hexanchus corinus</i> , from Sagami ...	20	1·4740	72·7	427
Nagahera-zamé, <i>Scylliorhinus macrorhynchus</i> , from Izu...	20	1·4725	70·3	427
Blue Shark, Mackerel Shark, Ao-zamé, <i>Isuropsis glauca</i>	20	1·4741	72·9	427
Togari - tsuno - zamé, <i>Squalus japonicus</i> .				
From mother fish	20	1·4775	78·6	427
From fœti	20	1·4842	90·3	427
Abura - zamé, <i>Heptanchrias deani</i> , Southern Seas of Japan.				

NOTES.

	t.C.	n _D	B _D	Refer. No.
SHARK LIVER OIL—continued.				
Japanese Shark Liver Oils—contd.				
Extracted with petroleum-ether	20	1.4795	82.0	427
Melted out	20	1.4734	71.8	427
Dochi-zamé (Yamori), <i>Triakis scyllium</i> , South - western Seas of Japan	20	1.4778	79.1	427
Mejiro - zamé (Wani - zamé), Shirafuka, <i>Carcharhinus japonicus</i>	20	1.4775	78.6	427
Nanuka - zamé, <i>Cephaloscyllium umbratile</i>	20	1.4780	79.4	427
Thresher Shark (Onaga-zamé), <i>Alopias vulpes</i> , Prov. of Awa	20	1.4786	80.5	427
Gaikotsu - zamé, Gotō - zamé, <i>Pristiurus eastmani</i> , Southern Seas of Japan ...	20	1.4772	78.1	427
Yoshikiri - zamé, <i>Prionace glaucus</i>	20	1.4841	90.2	427
Saw Shark (Nogogiri-zamé), <i>Pristiophorus japonicus</i> ...	20	1.4809	84.5	427
Porbeagle (Nezumi - zamé), <i>Lamna cornubica</i> , Pacific coasts of Japan... ..	20	1.4829	88.0	427
Hoshi-zamé, <i>Cynias manazo</i>	20	1.4808	84.3	427
Cat Shark, <i>Heterodontus japonicus</i>	20	1.4781	79.6	427
Tiger Shark (Tora - zamé), <i>Halaelurus torazamé</i> , from Hokkaido	20	1.4845	90.9	427
Hammer - headed Shark, <i>Shyrna zygæna</i> , Suruga Sea.	20	1.4849	91.6	427
Angel Fish	20	1.4823, 1.4833	86.9, 88.7	427
Ebisu-zamé, <i>Heptanchrias maculatus</i> .	20	1.4800	82.9	472
SHARK EGG OIL.				
From eggs of Kinbei-zamé, <i>Lepidorhinus kinbei</i>	20	1.4769	77.5	428
SHEA BUTTER.				
Syn. Bambuk Butter, Karité Butter, Galam Butter.				
From seeds of <i>Bassia Parkii</i> (<i>Butyrospermum Parkii</i>).				

NOTES.

	t°C	n _D	B _D	Refer. No.
SHEA BUTTER —continued.				
Native Names: "Kade" (Hausa), "Kedempó" (Kachi), "Krankee."				
Crude oil	40	1.4642—1.4664	57.5—60.7	67
F.A. ...	40	1.4571	46.7	67
Refined	40	1.4665	61.0	67
F.A. ...	40	1.4565	45.9	67
	40	1.4625—1.4636	55.8—56.5	220
SHIRIMOJI SEED OIL.				
<i>Lindera triloba.</i>	27.3	1.4732	71.4	1
<i>Shorea gysbertiana</i> , see Enkabang Fat.				
<i>Sideroxylon densiflorum</i> , see Kanga Butter.				
SILVER HAKE OIL.				
<i>Merluccius bilinearis.</i>				
Lake Como, N.J., May 1915	30	1.4797	82.4	385
Silver Salmon Oil, see Salmon Oil.				
<i>Sinapis arvensis</i> , see Mustard Oils.				
<i>Sinapis alba</i> , see Mustard Seed Oil, White.				
<i>Sinapis dissecta</i> , see Mustard Oils.				
<i>Sinapis nigra</i> , see Mustard Seed Oil, Black.				
<i>Sinapis sinensis</i> , see Mustard Seed Oils.				
SIOER FAT.				
From seeds of <i>Xanthophyllum lanceolatum</i> (<i>Skaphium lanceolatum</i>).				
Sumatra.	40	1.4549	43.6	347
F.A. ...	55	1.4424	26.2	347
SKATE LIVER OIL.				
From <i>Squalina vulgaris</i> .				
	15	1.4830	88.2	209
	40	1.4745	73.5	12
	25	1.4798	82.5	12
	20	1.4712	68.3	470
Temp. coeff. $\delta n/\delta t$		—0.00035		12*
Japanese skate-liver oil, see Suketo-fura.				

NOTES.

	t°C.	n _D	B _D	Refer. No.
Soja Bean Oil , <i>see</i> Soya Bean Oil.				
Sorbus acuparia , <i>see</i> Service Berry Oil.				
SOYA BEAN OIL.				
Syn. Soy Bean Oil, Soja Bean Oil, Chinese Bean Oil.				
From seeds of <i>Dolichos soja</i> (<i>Soja hispida</i>), "Sachura Bean" China, Manchuria, Korea, Japan, Formosa, Indo-China, India, Ceylon, West Coast of Africa, Brit. Guiana, South Africa, U.S.A., Australia, Italy, Russia.				
English oils	25	1·4748—1·4756	74·0—75·2	353
Danish oils	25	1·4748—1·4750	74·0—74·2	353
Commercial oils from China, Japan, Russia	25	1·4723—1·4750	70·0—74·2	353
Crude and purified	40	1·4680	63·2	348
F.A.	40	1·4620	54·0	348
Refined oils	20	1·4750, 1·4755	74·3, 75·1	349
Commercial oils	20	1·4750	74·3	349
Crude oils	20	1·4745, 1·4750	73·5, 74·3	349
F.A.	27·5	1·4650—1·4655	58·6—59·4	349
Oil probably from two different species	20	1·4737—1·4786	72·2—80·5	350
	20	1·4757—1·4798	75·5—82·5	350
Crude or refined	40	1·4680	63·2	351
	15	1·4731—1·4745	71·3—73·5	34
	25	1·4837	89·4	177
General limits	40	1·4675—1·4682	62·5—63·5	220
Refined	21	1·4754—1·4774	75·0—78·4	411
Oil in soy bean cheese	25	1·4742, 1·4746	73·0, 73·7	352
	15	1·4755—1·4759	75·1—75·8	207
Average... ..	40	1·4678	63·0	110
Average... ..	25	1·4742	73·0	173
Average... ..	20	1·4768	77·3	458
General limits	15	1·4765—1·4775	76·8—78·6	282
General limits	25	1·4742—1·4748	73·0—74·0	405
SOY OIL (JAPANESE).				
From rice products.	20	1·4650, 1·4633	58·6, 56·0	334
Soya Bean Oil , <i>see</i> Soja Bean Oil.				
Spanish Mackerel Oil <i>see</i> Mackerel Oil, Spanish.				

NOTES.

	t°C.	n_D	B_D	Refer. No.
<i>Spartium junceum</i> , see Broom Seed Oil.				
SPERM OIL.				
From head cavities and blubber of the sperm whale or cachalot (<i>Physeter macrocephalus</i>).				
A liquid wax.				
	15	1·4675	62·5	30
	20	1·4646—1·4655	58·0—59·4	128
	15·6	1·4649—1·4669	58·5—61·5	354
Head matter	40	1·4488	35·0	355
Body matter	40	1·4517	39·0	355
	25	1·4573	47·0	355
	40	1·4581	48·2	17
Temp. coeff. $\delta n/\delta t$		—0·00037		355*
	25—40	—0·00035		248*
From Bottlenose Whale.				
<i>Hyperoodon rostratum</i> .				
ARCTIC SPERM OIL.				
	40	1·4511—1·4515	38·2—38·7	355
	25	1·4567—1·4571	46·2—46·7	355
Arctic deodorised.	21	1·4600—1·4676	51·0—62·6	411
Temp. coeff. $\delta n/\delta t$		—0·00038		355*
SOUTHERN SPERM OIL.				
	40	1·4507	37·7	355
	25	1·4564	45·7	355
	21	1·4656—1·4760	59·5—76·0	411
Temp. coeff. $\delta n/\delta t$		—0·00036		355*
<i>Spheroides porphyreus</i> , see Globe Fish Liver Oil.				
SPEAR FISH LIVER OIL.				
<i>Tetrapturus mitsukurii</i> .				
<i>Kurokawa-kajiki</i> , <i>Tetrapturus spec.</i>	20	1·4794	81·9	472
	20	1·4773	78·2	472
SPINDLE TREE OIL.				
From the arillus and seed of <i>Evonymus europæa</i> .				
	40	1·4607	52·0	206
SPOONWORT OIL.				
From seeds of <i>Cochlearia officinalis</i> .				
	20	1·4739	72·5	175
F.A. ...	25	1·4670	61·7	175

NOTES

	t°C.	n _D	B _D	Refer. No.
SPRAT OIL. From <i>Clupea sprattus</i> .	25	1·4763	76·5	295
<i>Squalina vulgaris</i> , see Skate Liver Oil.				
<i>Squalus acanthias</i> , see Dog Fish Liver Oil.				
SQUALUS BOREALIS LIVER OIL.	15	1·4704	67·0	133
STAG FAT. From <i>Cervus elaphus</i> .	40	1·4555	44·5	356
STAPHYLEA OIL.	25	1·4717	69·1	465
<i>Stearodendron Stuhlmannii</i> , see M'Kanyi Fat.				
<i>Stenorrhynchus</i> , see Sea Lion Oil.				
<i>Stenotomus chrysops</i> , see Porgy Oil.				
STERCULIA OIL. Syn. Oil of Java Olives, Columpang Oil. From seeds of <i>Sterculia foetida</i> . Dutch Indies, India, Indo- China, Malay Archipelago, Guayana, Philippines. "Kaloempang Beans," "Beligno seeds," "Bois puant." Oil expressed from whole fruit Philippines	40 30	1·4654 1·4679—1·4685	59·2 63·0—64·0	357 114
STERCULIA APPENDICULATA SEED OIL. East Africa. Usambara F.A. ...	20 40	1·4729 1·4630	71·0 55·6	3 3
STICKLEBAT OIL. From <i>Gasterosterus trachurus</i> .	20 15	1·4797 1·4826	82·4 87·5	126 126
Temp. coeff. $\delta n / \delta t$		—0·00058		126*

NOTES.

	t°C.	n_D	B_D	Refer. No.
STILLINGIA OIL.				
From seeds of <i>Stillingia sebifera</i> (<i>Croton sebiferum</i> , <i>Sapium sebiferum</i>).				
"Tsé - iéou," "Ting - yu" (Chinese), "Bi-yoo."				
	35	1.4754	75.0	358
	23.5	1.4825	87.3	359
	20	1.4835	89.1	359
	40	1.4768	77.4	8
	25	1.4818	86.0	8
F.A. ...	40	1.4654	59.2	8
	25	1.4707	67.6	8
	40	1.4772	78.1	220
Average... ..	25	1.4818	86.0	405
Temp. coeff. $\delta n/\delta t$		—0.00030		359*
		—0.00033		8*
Stillingia Tallow , see Chinese Vegetable Tallow.				
Sting Ray Oil , see Akajei.				
STRAWBERRY SEED OIL.				
From <i>Fragaria vesca</i> .				
	25	1.4790	81.2	360
	40	1.4795	82.0	206
<i>Styrax obassia</i> , see Hakuunboku Seed Oil.				
Suari Nut Oil , see Sacha almendras.				
SUKETO-FURA LIVER OIL.				
Syn. Suketo-Tara Liver Oil, Japanese Skate Liver Oil. <i>Gadus chaleogrammus</i> . Japan.				
	20	1.4798	82.5	6
SUN FISH LIVER OIL.				
<i>Mola mola</i> . Japan.				
	20	1.4786	80.5	326
SUNFLOWER OIL.				
From seeds (achenes) of <i>Helianthus annuus</i> . Mexico, Russia, Hungary, India, China.				
	60	1.4611	52.7	9

NOTES.

	t C.	n_D	B_D	Refer. No.
SUNFLOWER OIL—continued.				
F.A. ...	60	1.4531	41.0	9
Average... ..	15.5	1.4739	72.5	13
	25	1.4737	72.2	320
Russian oil	25	1.4723	70.0	12
	40	1.4659—1.4679	60.0—63.0	220
	15	1.4760—1.4790	76.0—81.2	207
Average... ..	25	1.4736	72.1	173
Average... ..	25	1.4736	72.0	405
	40	1.4721	69.7	17
Temp. coeff. $\delta n/\delta t$		—0.000369 to 364		159
SWORD FISH LIVER OIL.				
Japan: "Makajiki," <i>Xiphias gladius</i> .	20	1.4798	82.5	472
SYCAMORE SEED OIL.				
From seeds of <i>Acer pseudo-platanus</i> .	40	1.4674	62.4	140
Tacamahac Fat, see Calophyllum Oil.				
TACAY OIL.				
<i>Caryodendron orinocense</i> . Colombia.				
Extracted with ether	20	1.4744	73.3	342
TALLOW.				
See also Beef Tallow, Mutton Tallow.				
Chinese Tallow.	60	1.4503	37.1	361
F.A. ...	50	1.4439	28.2	56
	40	1.4573—1.4587	47.0—49.0	110
Tallow Seed Oil, see Stillingia Oil.				
Tangkawang Fat, see Borneo Tallow.				
Taraktogenos Kurzii, see Chaulmoogra Oil.				
TARIRI FAT.				
	70	1.4538	42.0	3
	50	1.4624	54.6	3
Temp. coeff. $\delta n/\delta t$		—0.00043		3*
TEA OIL.				
Distinct from Commercial Tea Seed Oil (Sasanqua Oil). From <i>Thea sinensis</i> .				
Japanese oil	20	1.4707	67.5	362
	27.6	1.4669	61.6	1
Limits	21	1.4705—1.4715	67.2—65.7	411

NOTES.

	tC.	n _D	B _D	Refer. No.
Teel Oil , <i>see</i> Sesamé Oil.				
Teglam Fat , <i>see</i> Borneo Fat.				
Telfairia Oil , <i>see</i> Koëme Oil.				
Terminalia catappa , <i>see</i> Katappa Oil.				
Thalassochelys corticata , <i>see</i> Turtle.Oil.				
Thea japonica , <i>see</i> Tsubaki Oil.				
Thea oleosa , <i>see</i> Sasanqua Oil.				
Thea sasanqua , <i>see</i> Sasanqua Oil.				
Thea sinensis , <i>see</i> Tea Seed Oil.				
Theobroma cacao , <i>see</i> Cacao Butter.				
THESPESIA POPULNEA SEED OIL.				
“Puvaras.”				
Expressed	40	1·4742	73·0	193
	25	1·4792	81·5	193
Temp. coeff. $\frac{dn}{dt}$		—0·00033		193*
THISTLE OIL, BLESSED.				
From seeds of <i>Cnicus benedictus</i> .	25	1·4718	69·2	467
THON OIL.				
From seeds of <i>Vcandzeia subterranea</i> .	40	1·4626	55·0	43
F.A. ...	45	1·4566	46·0	43
THUJA OCCIDENTALIS.				
North America, Siberia.	35	1·4795	82·0	171
F.A. ...	40	1·4736	72·1	171
Thynnus vulgaris , <i>see</i> Tunny Fish Liver Oil.				
Tieghemella africana , <i>see</i> Njave Oil.				
TIGER NUT OIL.				
From rhizome of <i>Cyperus esculentus</i> .				
Southern Europe.	40	1·4609	52·4	220

NOTES.

	t°C.	n _D	B _D	Refer. No.
TILEFISH OIL. <i>Lopholatilus chamæleonticeps.</i> Atlantic, Dec. 1915.	30	1·4753	74·8	385
<i>Tilia europæa</i> , see Lime Tree Seed Oil.				
TOADSTOOL OIL. From <i>Amanita muscaria.</i> By digestion with petroleum- ether.	20	1·4600—1·4700	51·0—66·4	363
TOI OIL. From seeds of <i>Paulownia</i> <i>imperialis</i> (<i>Bignonia</i> <i>tomentosa</i>). Japan: "Abura Toi."	20	1·5050		364
TOMATO SEED OIL. <i>Lycopersicum esculentum.</i>	20	1·4730	71·1	365
	40	1·4679	63·0	206
	25	1·4715	68·7	366
F.A. ...	25	1·4655	59·4	366
	25	1·4715—1·4725	68·7—70·3	421
	25	1·4729—1·4736	71·0—72·0	405
	15	1·4745	73·5	459
TONKA BUTTER. From bean of <i>Dipteryx odorata</i> (<i>Coumarouna excelsa</i>).	40	1·4573	47·0	367
Extracted with ether	30	1·4668	61·4	207
<i>Torreya nucifera</i> , see Kaya Oil.				
<i>Touloucouna Oil</i> , see Carapa Oil.				
Train , see Whale Oil.				
TRICHILIA OIL. From seeds of <i>Trichilia.</i> Mexico. Native name: "Napahuito," "Napaguito."				
Seed oil... ..	30	1·4731	71·3	3
Husk oil	40	1·4706	67·3	3
Pulp oil... ..	30	1·4736	72·1	3
F.A. ...	50	1·4586	48·9	3

NOTES.

	t°C	n _D	B _D	Refer. No.
<i>Trichilia emetica</i> , see Mafura Fat.				
TRICHILIA SUBCORDATA. East African.				
	43	1·4600	51·0	368
<i>Trifolium agrarium</i> , <i>Trifolium hybridum</i> , <i>Trifolium incarnatum</i> , <i>Trifolium pratense</i> , <i>Trifolium repens</i> , see Clover.				
<i>Trigon pastinacea</i> , see Ray Liver Oil.				
<i>Trigonella fœnum græcum</i> , see Fenugreek Oil.				
<i>Trionyx sinensis</i> , see Turtle Oil, Snapping.				
TROUT. <i>Salmo iridens</i> .				
	20	1·4736	72·1	258
Japanese variety of <i>Oncorhynchus nerka</i>	20	1·4796	82·2	258
TROUT LIVER OIL.				
	15	1·4801	83·1	116
TSUBAKI OIL. From seeds of <i>Thea japonica</i> (<i>Camellia japonica</i>). Never called "Tea oil" in Japan. Cold-drawn oil Commercial oil Oil from decorticated seed ... From Seven Islands of Iza ...				
	20	1·4682—1·4691	63·5—65·0	222
	20	1·4679—1·4691	63·1—65·0	222
	20	1·4687	64·3	222
	20	1·4685—1·4696	64·0—65·7	423
<i>Tucum Oil</i> , see Aoura Oil.				
<i>Tulucuna Oil</i> , see Carapa Oil.				
<i>Tumion californicum</i> , see Nutmeg Oil, Californian.				
TUNG OIL , see China Wood Oil.				
TUNNY FISH LIVER OIL. <i>Thynnus vulgaris</i> (<i>Thynnus Schlegelii</i>).				
	20	1·4837	89·4	6
TURKEY FAT. <i>Meleagris gallopavo</i> .				
	50	1·4566	46·0	119
F.A. ...	50	1·4470	32·5	119

NOTES.

	t°C.	n _D	B _D	Refer. No.
TURKISH CLOVER OIL.				
From seeds of <i>Hedysarum onobrychis</i> (<i>Onobrychis sativa</i> , <i>Onobrychis viciae folia scopuli</i> , <i>Onobrychis montana</i> , <i>Onobrychis vulgaris</i> , <i>Polygalon Gesneri</i>).	30	1.4770	77.7	61
F.A. ...	50	1.4574	47.2	61
TURTLE OIL.				
Body fat of <i>Thalassochelys corticata</i> .	30	1.4677	62.8	375
	50	1.4665	60.9	376
Green Turtle Oil.				
<i>Chelonia mydas</i> .	20	1.4769	77.5	172
Snapping-Turtle Oil.				
<i>Trionyx sinensis</i> . Japan, "Suppon."	20	1.4737	72.2	6
Uaua-Assú Oil, see Babassú Oil.				
UCHIWA-ZAMÉ OIL.				
<i>Discobatus sinensis</i> (species of Japanese Ray).	20	1.4826	87.5	181
UCUHUBA OIL.				
<i>Virola bicuhyba</i> . Pará and Madeira River, Brazil.	40	1.4600	50.9	19
	40	1.4588	49.2	476
<i>Ulmus campestris</i> , see Elm Seed Oil.				
Umunkwetti Nut Oil, see Manketti Oil.				
Unamo Palm Oil, see Sejen Palm Oil.				
<i>Ungnadia speciosa</i> , see Buckeye Seed Oil.				
UROPHYCES TRENIUS.				
	25	1.4760	76.0	130
UROPHYCES CHUSS.				
	20	1.4812	85.0	132
<i>Ursus arctos</i> , see Bear's Fat.				
<i>Vaccinium myrtillus</i> , see Bilberry Oil.				

NOTES.

	t C.	n _D	B _D	Refer. No.
<i>Vaccinium vitis idæa</i> , see Cranberry Seed Oil.				
<i>Vateria indica</i> , see Malabar Tallow.				
Veepa Oil , see Margosa Oil.				
Veppam Fat , see Margosa Oil.				
VERNONIA ANTHELMINTICA OIL, SEED OIL.				
“Vapachi,” “Kattugirakam.”				
Expressed oil... ..	40	1.4707	67.5	193
	25	1.4754	75.0	193
Temp. coeff. $\frac{\delta n}{\delta t}$		—0.00032		193*
VETCH OIL.				
From seeds of <i>Vicia sativa</i> .				
	30	1.4795	82.0	43
F.A.	35	1.4704	67.0	43
<i>Vicia faba</i> , see Bean Oil.				
<i>Vicia faba</i> var. <i>major</i> , see Bean Oil, Broad.				
<i>Vicia sativa</i> , see Vetch Oil.				
<i>Vicia sepium</i> , see Lentil Oil.				
VIGNA CATJANG OIL.				
	40	1.4672	62.0	43
F.A. ...	40	1.4620	54.0	43
Vikare Seal Oil , see Seal Oil.				
<i>Phoca foetida</i> var. <i>saimensis</i> .				
VINE OIL, CANADIAN—				
Virginia Creeper.				
<i>Parthenocissus quinquefolia</i> (<i>Ampelopsis quinquefolia</i>).				
Fruit oil	15	1.4722	69.9	202
Seed oil... ..	15	1.4778	79.1	202
Fruit oil	15	1.4761	76.1	466
<i>Viola bicuhyba</i> , see Ucuhuba Oil.				
Virola Fat , see <i>Myristica guatemalensis</i> .				
<i>Vitis riparia</i> , see Grape-seed Oil, Wild.				
<i>Vitis vinifera</i> , see Grape-seed Oil.				
<i>Voandzeia subterranea</i> , see Thon Oil.				

NOTES.

	t°C.	n _D	B _D	Refer. No
WALLFLOWER SEED OIL.				
<i>Cheiranthus Cheiri.</i>				
	40	1·4690	64·8	377
F.A. ...	40	1·4605	51·7	377
Crystallised F.A.	40	1·4536	41·7	377
WALNUT OIL.				
Syn. Nut Oil.				
From nuts of <i>Juglans regia.</i>				
Californian	15	1·4804	83·6	2
Punjab	40	1·4690	64·8	18
American	25	1·4770	77·7	32
Bulgarian, cold-drawn	40	1·4704—1·4710	67·0—68·0	81
General limits	15	1·4708—1·4725	67·7—70·3	207
General limits	40	1·4688—1·4707	64·5—67·5	220
	40	1·4705	67·2	17
General limits	40	1·4691—1·4707	65·0—67·5	110
General limits	40	1·4691—1·4710	65·0—68·0	405
Extracted cold with ether ...	25	1·4740	72·7	460
Japanese	20	1·4799	82·7	82
Cross between <i>Juglans nigra</i> and <i>Juglans cinerea.</i>	22	1·4765	76·8	378
Japanese Walnut Oil.				
From seeds of <i>Juglans sieboldiana.</i>				
	20	1·4799	82·7	82
WALRUS OIL.				
<i>Odobœnys rosmarus.</i>				
	40	1·4702	66·7	17
WATER CRESS SEED OIL.				
From seeds of <i>Nasturtium officinale.</i>				
	20	1·4704	67·0	175
F.A. ...	25	1·4621	54·2	175
WEAKFISH OIL.				
<i>Cynoscion regalis.</i>				
Ocean City, Md., May 1915...	30	1·4717	69·1	385
Long Branch, N.J., September 1915	30	1·4830	88·2	385
WHALE OIL.				
<i>Balœna mysticetus</i> (Greenland or Right Whale), <i>Balœna australis</i> (Southern) Whale, <i>Balœnoptera longimana</i> , <i>Balœnoptera musculus</i> (Common Rorqual - Fin- back Oil, Finner Whale				

NOTES.

	t°C.	n_D	B_D	Refer. No.
WHALE OIL — <i>continued.</i>				
Oil), <i>Balænoptera borealis</i> (Northern Rorqual), <i>Balænoptera hyperoodon</i> (Bottlenose Whale), <i>Balænoptera Sibaldii</i> (Blue Whale), <i>Neobalæna marginata</i> , <i>Rhachianectus glauca</i> .				
	15	1.4760	76.0	30
	40	1.4633	56.0	33
	25	1.4691	65.0	33
F.A. ...	40	1.4547	43.3	33
	40	1.4634—1.4678	56.2—63.0	325
	25	1.4679—1.4724	63.1—70.2	325
	40	1.4587	49.1	379
	40	1.4659—1.4713	60.0—68.4	227
Average	40	1.4679	63.1	227
F.A. ...	40	1.4578	47.7	227
Japanese	40	1.4659	60.0	227
Japanese, yellow	21	1.4715	68.7	411
Dark oil	18	1.4706	67.3	134
Crude oil	18	1.4716	68.9	134
	18	1.4755	75.1	134
Filtered	21	1.4735—1.4764	71.9—76.7	411
Unfiltered	21	1.4705—1.4735	67.2—71.9	411
	40	1.4663	60.6	17
	40	1.4633—1.4653	56.0—59.0	110
Temp. coeff. $\delta n/\delta t$		—0.000386		33*
		—0.00030		325*
WHEAT OIL.				
(Not identical with Wheat Meal Oil.)				
From germs of wheat grains.				
	25	1.4751	74.5	263
	60	1.4646	58.0	380
Crude oil extracted with ether	30	1.4754	75.0	380
	20	1.4788	80.7	380
	40	1.4745	73.5	380
Oil purified with alcohol	30	1.4794	81.8	380
	20	1.4833	88.6	380
	25	1.4767	77.2	432
Temp. coeff. $\delta n/\delta t$:				
Crude oil		—0.00035		380*
Purified oil		—0.00039		380*
WHEAT BRAN OIL.				
Extracted	25	1.4742—1.4754	73.0—75.0	41

NOTES.

	tC.	n _D	B _D	Refer. No.
WHEAT MEAL OIL.				
	25	1.4840—1.4868	90.0—95.0	41
	25	1.4851—1.4870	92.0—95.4	182
	25	1.4851	92.0	381
WHITE FISH OIL.				
Species of <i>Coregonus</i> .	25	1.4763	76.5	382
WHITING OIL.				
<i>Alburnus lucidus</i> .	22	1.4795	82.0	382
WHITING LIVER OIL.				
	40	1.4736	72.0	12
	25	1.4789	81.0	12
Temp. coeff. $\delta n/\delta t$		—0.00035		12*
WOAD SEED OIL.				
<i>Isatis tinctoria</i> .	15	1.4751	74.5	175
F.A. ...	25	1.4710	68.0	175
Wood Oil, China, see Tung Oil.				
Wood Oil, Japanese, see Japanese Wood Oil.				
Wood Oil, Japanese, see Tung Oil.				
WOOL FAT.				
Syn. Wool Wax.	60	1.4650	58.6	30
Distilled wool fats (Pure oleins)	20	1.4948, 1.4991		383
Crude	40	1.4786	80.5	323
Pure	40	1.4781—1.4822	79.6—88.5	323
Pure wool-wax	50	1.4764, 1.4760	76.6, 76.0	56
Lanoline	50	1.4763	76.4	56
Unsaponifiable portion, pure	50	1.4895, 1.4950		56
Unsaponifiable, commercial ...	50	1.4930, 1.4950		56
F.A. in saponifiable portion...	50	1.4559	45.0	56
WOUNDWORT OIL.				
<i>Anthyllis vulneraria</i> .	30	1.4756	75.3	61
F.A. ...	50	1.4640	57.1	61
<i>Xanthophyllum lanceolatum</i> , see Sioer Fat.				
<i>Ximenia americana (russelliana)</i> , see Elozy Oil.				

NOTES.

	t C.	n_D	B_D	Refer. No.
ZACHUN OIL.				
Syn. Betu Oil, M'konga Oil.				
From seeds of <i>Balanites</i>				
<i>egyptiaca</i> .				
"Heghi" (Egypt, Soudan),				
North Africa, India, Burma.				
	40	1.4632	55.9	384
	25	1.4686	64.2	384
Temp. coeff. $\delta n / \delta t \dots \dots$		-0.00036		384*
Zea Mais, see Maize Oil.				

NOTES.

APPENDIX I.

	t.C.	n_D	B_D	Refer. No.
GLYCEROL (Glycerine).				
Pure d^{17} 1.261.	20	1.4705	67.2	407
	30	1.4680	63.2	407
	48	1.4631	55.7	407
Mean temp. coeff. $\delta n/\delta t$.		—0.00026		407
Pure S.G. 1.2615.	18	α 1.47099	66.5	408
	20	α 1.47063	67.3	408
	22	α 1.47021	66.7	408
		—0.00020		
Chem. pure. $\delta n/\delta t$.	16.5	α 1.448775	35.0	445
	20.3	α 1.447735	33.5	445
		—0.000265		445
Purest, $d^{12.6}$ 1.2585.	12.5	1.4703	66.8	446
	12.8			
Anhydrous glycerine, $d^{12.14}$ 1.2691.	12.5	1.4758	75.6	446
	12.8			
100 per cent. glycerine, S.G. 1.262.	17.5	1.4727	70.7	447
	20	1.47289	71.0	396
	40	1.46866	64.3	396
	80	1.45830	48.5	396
Temp. coeff. (S.G. 126).		—0.00024		
Glycerides.				
MONOGLYCERIDES.				
α -MONOBUTYRIN d^{17} 1.008.	26	1.4524	40.0	394
α -MONOISOBUTYRIN.	40	1.4386	21.2	394
α -MONOPALMITIN.	75	1.4418	25.4	394
α -MONOOLEIN.	40	1.4659	60.1	394
α -MONOSTEARIN.	75	1.4443	28.8	394
DIGLYCERIDES.				
α - α -DIBUTYRIN.	40	1.4331	14.0	394
α - α -DIISOBUTYRIN.	40	1.4300	10.0	394
α - β -DIBUTYRIN.	40	1.4362	18.0	394
α - β -DIISOBUTYRIN.	40	1.4312	11.5	394
α - α -DIOLEIN.	40	1.4651	58.8	394
α - β -DIOLEIN.	40	1.4635	56.3	394
α - α -DIPALMITIN.	75	1.4406	23.8	394
α - β -DIPALMITIN.	75	1.4391	21.8	394
α - α -DISTEARIN.	75	1.4418	25.3	394
α - β -DISTEARIN.	75	1.4415	25.0	394

NOTES.

TRIGLYCERIDES.	t°C	n_D	B_D	Refer. No.
TRIACETIN (Acetin).				
d_{15}^{15} 1.1603.	41	1.4220	0.0	395
	30	1.4268	6.0	395
	15	1.4328	13.6	395
Temp. coeff. $\delta n/\delta t$		—0.00042		395*
$\delta\beta/\delta t$			—0.52	395
TRIBUTYRIN.				
(Butyrin).	60	1.42015		396
	40	1.42785	7.3	396
	20	1.43587	17.6	396
	40	1.4276	7.0	78
Prepared by Guth.	40	1.4316	12.0	394
	68	1.4220	0.0	395
	60	1.4260	5.0	395
	55	1.4276	7.0	395
	50	1.4298	9.7	395
	45	1.4316	12.0	395
	40	1.4335	14.5	395
Mean temp. corr. $\delta n/\delta t$		—0.00041		395*
Mean temp. corr. $\delta\beta/\delta t$	*		—0.514	395
Mean temp. corr. $\delta n/\delta t$		—0.00039		396
TRIIISOBTYRIN.	40	1.43015	10.2	394
TRICAPRIN.				
(Caprin).	60	1.43697	19.1	396
	40	1.44461	29.2	396
		—0.00038		396*
TRICAPROIN.				
(Caproin).	60	1.42715	6.45	396
	40	1.43502	16.4	396
	20	1.44265	26.5	396
Temp. corr. $\delta n/\delta t$		—0.000385		396*
TRICAPRYLIN.				
(Caprylin).	60	1.43316	14.1	396
	40	1.44069	23.9	396
	20	1.44817	34.2	396
Temp. coeff. $\delta n/\delta t$		—0.000375		396*
TRIFORMIN.				
(Formin).				
Liquid, pure.				
d_{18} 1.320	18	1.4412	24.6	398

NOTES.

	t°C.	n_D	B_D	Refer. No.
TRILAURIN.				
(Laurin).				
From laurel oil.	60	1.44039	23.5	396
	75	1.4348	16.2	395
	60	1.4410	24.3	395
	40	1.4481	34.0	395
Synthetic	75	1.4349	16.3	395
	60	1.4309	24.0	395
	50	1.4445	29.0	395
	40	1.4481	34.0	395
	36	1.4495	36.0	395
Temp. coeff. $\delta n/\delta t$		—0.00038		395*
	40	1.4474	33.0	78
TRIMYRISTIN.				
(Myristin).				
	60	1.44285	26.9	396
	40	1.4499	36.5	78
TRIOLEIN.				
(Olein).				
	40	1.4636	56.5	394
	40	1.46525	59.0	78
	8	1.46974	65.9	395
	70	1.4523	39.9	399
	80	1.4466	32.0	395
	60	1.4545	43.0	395
	55	1.4562	45.5	395
	32	1.4646	88.0	395
	20	1.4691	65.0	395
	18	1.4697	66.0	395
Mean temp. coeff. $\delta n/\delta t$...		—0.000377		395*
Mean temp. coeff. $\delta\beta/\delta t$...			—0.548	395
TRIPALMITIN.				
(Palmitin).				
	80	1.43807	20.5	396
	100	1.4285	8.1	395
	84	1.4354	17.0	395
	80	1.4371	19.2	395
	75	1.4392	22.0	395
	70	1.4408	24.1	395
	65	1.4426	26.5	395
	60	1.4446	29.2	395
	55	1.4466	32.0	395
	80	1.4380	20.4	280
	65	1.44225	26.0	78
	70	1.4402	23.3	399
Mean temp. coeff. $\delta n/\delta t$...		—0.00040		396*
Mean temp. coeff. $\delta\beta/\delta t$...			—0.517	396
Mean temp. coeff. $\delta n/\delta t$...	70	—0.00025		399
TRIPETROSELININ.				
(Petroselinin)				
	40	1.4619	53.9	309

NOTES.

	t C.	n_D	B_D	Refer. No.
TRISTEARIN.				
(Stearin)	80	1·43919	22·9	396
	100	1·43117	11·5	395
	79	1·4392	22·0	395
	75	1·4411	24·5	395
	70	1·4425	26·3	395
	65	1·4445	29·0	395
	55	1·4481	34·0	395
	65	1·4445	29·0	78
	70	1·4413	24·7	399
Temp. coeff. $\delta n/\delta t$		—0·00037		395*
Temp. coeff. $\delta\beta/\delta t$			—0·5	395
Temp. coeff. $\delta n/\delta t$		—0·00025		399
 Fatty Acids.				
ACETIC ACID.				
Pure conc. d^{20} 1·0514.	20	1·37173		402
Anhydrous.	20	1·37215		474
BRASSIDIC ACID.				
	57·1	α 1·44615		401
		β 1·45459		401
BUTYRIC ACID.				
	20	1·39906		396
	20	1·39879		400
	19·1	1·40016		401
	20	1·39754		402
	20	1·39506		475
CAPRIC ACID.				
	40	1·42855	8·2	394
	20	1·41375		402
CAPROIC ACID.				
<i>n</i> -caproic acid from sweet orange oil	20	1·41635		396
	30	1·43078	11·0	403
CAPRYLIC ACID.				
	20	1·42855	8·2	396
CEROTIC ACID.				
	79	H α 1·43637	18·3	401
		H β 1·44400	28·3	401
CHEIRANTHIC ACID.				
	40	1·4535	41·5	394
DATURIC ACID.				
(Margaric acid.)	60	1·4342	15·4	405

	t° C.	n _D	B _D	Ref. No.	
ELAIDIC ACID.	79·4	H α 1·43583	17·5	401	
		H β 1·44425	28·7	401	
	40	1·4499	36·5	453	
ERUCIC ACID.	55·4	H α 1·44704	32·5	401	
		H β 1·45543	44·3	401	
	40	1·4534	41·4	453	
LAURIC ACID.	60	1·42665	5·8	396	
	78·5	H α 1·41749		401	
	78·5	H β 1·42474		401	
	m.p. 43° C. 76	1·4236	2·0	406	
MARGARIC ACID. m.p. 59·9-60° C. b.p. (100 mm.) 227° C., <i>d</i> ⁶⁰ 0·8532.	60	1·4342	15·4	404	
MYRISTIC ACID.	60	1·43075	11·0	496	
	76·5	1·4248	3·5	406	
OLEIC ACID, "fairly pure."	60	1·4471	32·6	30	
	50	1·4509	37·9	30	
	40	1·4528	40·6	30	
	30	1·4585	48·8	30	
	20	1·4620	54·0	30	
	77	1·4407	24	406	
	70	1·4415	25·0	399	
	11·8	H α 1·46214	54·2	401	
	11·8	H β 1·47115	68·1	401	
	78·4	H α 1·43752	19·7	401	
	78·4	H β 1·44606	31·0	401	
	Mean temp. coeff. $\delta n/\delta t$...		—0·00037		30*
	PALMITIC ACID. m.p. 62·2° C., <i>d</i> ^{62·2} 0·8553 Mean temp. coeff. $\delta n/\delta t$...	80	1·42693	6·1	496
74·5		1·4284	8·0	406	
62·2		1·4324	13·0	404	
		0·000275		404*	
78·5		1·42936	9·2	401	
78·5		H α 1·42719	6·5	401	
		H β 1·43458	15·9	401	
60		1·434	15·1	30	
70	1·4304	10·5	399		
PETROSELENIC ACID.	40	1·4533	41·3	309	
RICINOLEIC ACID.	60	1·4546	43·1	47	
	40	1·4639	56·9	453	

NOTES.

	t° C.	n _D [*]	B _D	Ref. No.
STEARIC ACID.	80	1·43003	10·0	396
	79·6	1·43143	11·8	401
	79·6	H _α 1·42924	9·0	401
	79·6	H _β 1·43664	18·6	401
	60	1·4361	17·9	30
m.p. 69·3° C., <i>d</i> ^{59·3} . 0·8473	69·3	1·4322	12·8	404
	70	1·4335	14·5	399
	71	1·4325	13·3	406
	40	1·4450—1·4476	29·8—33·3	27
TIGLIC ACID.	76	H _β 1·44536	30·3	401
		H _α 1·43297	13·8	401
VALERIC ACID.	20	1·40426		402
COMMERCIAL FATTY ACIDS (“Oleines”).				
Arachis Oil, F.A.	21	1·4666	61·1	411
Castor Oil, F.A.				
Firsts... ..	21	1·4705	67·2	411
Seconds	21	1·4705	67·2	411
Cotton Oil, F.A.				
White	25	1·4659	60·0	142
Yellow	25	1·4664	60·8	142
Linseed Oil, F.A.	21	1·4686	64·2	411
Maize Oil, F.A.	21	1·4650	58·6	411
Rape Oil, F.A.	21	1·4715	68·7	411
Soy Bean Oil, F.A.	21	1·4670	61·7	411
Australian oleines.	15	1·4620	54·0	209
Oleo Oil.	25	1·4604	51·6	142
95 per cent. Oleines.				
American, pale	21	1·4632—1·4676	55·9—62·6	411
brown	21	1·4621—1·4696	54·2—65·7	411
Australian, pale	21	1·4626—1·4676	55·0—62·6	411
brown	21	1·4614—1·4671	53·1—61·8	411
Belgian, pale... ..	21	1·4626	55·0	411
brown	21	1·4626—1·4687	55·0—64·3	411
Dutch, pale	21	1·4616—1·4621	53·4—54·2	411
brown	21	1·4636	56·5	411
English, pale	21	1·4644	57·7	411
brown	21	1·4645—1·4700	57·9—66·4	411
French, white	21	1·4646—1·4650	58·0—58·6	411
brown	21	1·4636—1·4666	56·5—61·1	411

* Excepting where stated otherwise.

NOTES.

APPENDIX II.

The Refractive Properties of Treated Oils.

I. HYDROGENATED (Hardened) OILS.

	m.p.	Solidif. p.	n_D^{40}	B^{40}	Ref. No.
ARACHIS OIL.					
Original oil.			1.4638	56.8	150
	51.2° C.	36.5° C.	1.4594	50.1	150
	44.2° C.	30.2° C.	1.4609	52.3	150
	46.1° C.	32.1° C.	1.4597	50.5	150
	53.5° C.	38.8° C.	1.4587	49.0	150
	43.7° C.	27.7° C.	1.4605	51.7	150
			n_D^{55}	B^{55}	
Original edible oil.			1.4567	46.2	207
Hydrogenated oil.	34.7° C.		1.4547	43.3	207
			n_D^{40}	B^{40}	
Original oil.			1.4638	56.8	207
F.A. from original.			1.4577	47.6	207
Hardened oil.			1.4594	50.1	207
F.A. from hardened oil.			1.4544	42.9	207
CHRYSALIS OIL.					
			n_D	B	
Original oil.			1.4610	52.5	121
Hardened oil.			1.4484	34.5	121
COCONUT OIL.					
			n_D^{40}	B^{40}	
Original oil.	25.6° C.	20.4° C.	1.4505	37.4	150
Hardened oil.	44.5° C.	27.7° C.	1.4495	35.9	150
			n_D^{55}	B^{55}	
Original oil.			1.4429	26.9	207
Hardened oil.	24.7° C.		1.4425	26.3	207
			n_D^{40}	B^{40}	
Original oil.			1.4505	37.4	207
Hardened oil.			1.4494	35.9	207
COD-LIVER OIL.	41.9° C.	31.9° C.	1.4581	48.2	234
COTTON SEED OIL.					
Hydrogenated oil.	38.5° C.	25.4° C.	1.4618	53.8	207
F.A. from hydrogenated oil.			1.4582	48.3	207
			n_D^{55}	B^{55}	
Original oil.			1.4588	49.2	207

Hydrogenated.	1	2	3	4	5	6	7	8	10 hrs.
m.p. °C.	28.2	31.3	34.3	37.9	40.8	43.8	45.6	47.3	55.9
n_D^{55}	1.4577	1.4568	1.4557	1.4549	1.4540	1.4527	1.4518	1.4510	1.4496
B^{55}	47.6	46.3	44.7	43.6	42.3	40.4	39.2	38.1	36.1

NOTES.

	m.p.	n_D^{40}	B^{40}	Ref. No.	
COTTON SEED OIL — <i>continued.</i>					
Hardened with nickel, platinum or palladium catalysers.		1.4562—1.4579	45.5—47.8	339	
		n_D^{60}	B^{60}		
KAPOK SEED OIL.	55° C.	1.4517	39	372	
LINSEED OIL.					
Original oil.		n_D^{55} 1.4730	B^{55} 71.1	207	
Hydrogenated oil.		1.4610	52.5	207	
MAIZE OIL.					
Original oil.		1.4615	53.3	207	
Hydrogenated oil.		1.4514	38.6	207	
MENHADEN OIL.					
Hydrogenated oil.		n_D^{40} 1.4529	B^{40} 40.7	375	
PALM OIL.					
Original oil.		n_D^{55} 1.4523, 1.4523	B^{55} 39.9, 39.9	207	
Hydrogenated oil.		1.4517, 1.4494	39.0, 35.8	207	
SESAME OIL.					
Original oil.		n_D^{40} 1.	B^{40}		
Hydrogenated oil.		1.4604	51.5	150	
Original oil.		1.		207	
Hydrogenated oil.		1.4512	38.4	207	
F.A. from hydrogenated oil.		1.4557	44.7	207	
SOYA BEAN OIL.					
Hydrogenated oil.	68° C.	n_D^{60} 1.4538	B^{60} 42.0	372	
Original oil.		n_D^{55} 1.4617	B^{55} 53.6	207	
Hydrogenated oil.		1.4538	42.0	207	
SPERM OIL.					
Original oil.		n_D^{60}	B^{60}		
Hydrogenated oil.		1.4449	29.5	372	
	m.p.	solidif. p.	n_D^{40}	B^{40}	Ref. No.
WHALE OIL.	45.1° C.	33.9° C.	1.4587	49.1	150
Hydrogenated oil.	45.4° C.	33.7° C.	1.4587	49.1	150
Hydrogenated oil.	52.2° C.		n_D^{60} 1.4448	B^{60} 29.5	372
Original oil.					375
Hardened oil.					375
Original oil.			n_D^{55} 1.4615	B^{55} 53.3	207
Hydrogenated oil.			1.4550	43.7	207
Original oil.			n_D 1.4587	B^{40} 49.1	207

NOTES.

	n	B^{40}	Ref. No.
WHALE OIL—continued.			
Hydrogenated oil.	1.4555	44.4	207
	n_D^{40}	B^{40}	
Original oil.	1.4678	62.9	227
Hydrogenated oil.	1.4563	45.6	227
F.A. from original oil.	1.4578	47.7	227
F.A. from hydrogenated oil.	1.4563	45.6	227
	n^{40}	B^{40}	
Hardened oils.	1.4544—1.4602	42.8—51.2	431
Original oil.	1.4687, 1.4679	64.4, 63.0	448
Hardened oil.	1.4714	68.5	448

II. POLYMERISED (Heated) OILS.

COTTON SEED OIL.	$n_D^{15.5}$	$B^{15.5}$	Ref. No.
Original oil.	1.4633	56.0	382
Heated 10 min. at 200° C.	1.4636	56.5	382
Heated 20 min. at 300° C.	1.4643	57.5	382
LINSEED OIL.		n_D^{25}	B^{25}
Original Baltic oil, S.G. ^{15.5} 0.9351.		1.4808	84.3 391
Oil heated at 250° C. in atmosphere of CO ₂ .			
	12	56	77 hrs.
	n_D^{25} 1.4835	1.4936	1.4970 391
	S.G. ^{15.5} 0.9423	0.9664	
Raw Linseed.	S.G. ¹⁵ 0.933	n_D^{19} 1.4881	392
Thickened in CO ₂ at 260-280° C.		„ 1.4915	392
Portion soluble in acetone.		„ 1.4846	392
Raw Linseed oil.		n_D^{25} 1.479	393
Heated in closed vessel traversed by current of CO ₂ .			
	20 hrs. at 200° C.	n_D^{25} 1.480	393
	40 hrs. at 200° C.	1.482	393
	15 hrs. at 260° C.	1.486	393
	30 hrs. at 260° C.	1.489	393
	10 hrs. at 300° C.	1.492	393
	20 hrs. at 300° C.	1.496	393
Boiled Linseed oils.	n_D^{21} 1.4833—1.4850		411
OLIVE OIL.			
Raw oil, S.G. ¹⁵ 0.9154.		n_D^{19} 1.4704	B^{19} 67.0 392
Thickened 28 hrs. at 260° C.		n_D^{18} 1.4720	B^{19} 69.5 392
POPPY SEED OIL.			
Raw, S.G. ¹⁸ 0.92418.		n_D^{20} 1.4737	B^{20} 72.2 392
Thickened 28 hrs. at 260° C.		n_D^{22} 1.4792	B^{22} 81.5 392

NOTES.

CHINA WOOD OIL.

Raw.	$n_D^{12.5}$ 1.5174	392	
Thickened, soluble in acetone.	$n_D^{11.5}$ 1.5114	392	
Raw.	n_D^{25} 1.515	393	
Oil heated in closed vessel traversed by slow current of CO ₂ .	2 hrs. at 200° C ² .	n_D^{25} 1.468	393
	4 hrs. at 200° C ² .	1.446	393
	10 min. at 260° C ² .	1.511	393
	20 min. at 260° C ³ .	1.504	393

III. BLOWN (Thickened, Oxidised, Ozonised) OILS.

	n_D^{15}	B ¹⁵	Ref. No.
CASTOR OIL.			
Original oil.	1.4800	82.9	209
Blown 24 hrs. at 100° C.	1.4817	85.9	209
COD-LIVER OIL, MEDICINAL.			
Original oil.	1.4820	86.4	209
Blown 48 hrs. at 100° C.	1.4865	94.5	209
COTTON SEED OIL.			
Original oil.	1.4745	73.5	209
Blown 24 hrs. at 100° C.	1.4759	75.8	209
HERRING OIL.			
Original oil.	1.4780	79.4	209
Blown 18 hrs. at 100° C.	1.4805	83.8	209
Fresh herring refuse oil,			
Original.	1.4784	80.1	209
Blown 24 hrs. at 100° C.	1.4795	82.0	209
LARD OIL.			
Original oil.	1.4697	65.9	209
Blown 24 hrs. at 100° C.	1.4713	68.4	209
LINSEED OIL.			
Original oil.	1.4825	87.3	209
Blown 24 hrs. at 100° C.	1.4843	90.5	209
Blown 48 hrs. at 100° C.	1.4862	94.0	209
Original.	1.4817	85.9	209
Blown 24 hrs. at 100° C.	1.4840	90.0	209
OLIVE OIL.			
Original oil.	1.4695	65.6	209
Blown 24 hrs. at 100° C.	1.4701	66.5	209
RAPE OIL.			
Original oil.	1.4748	74.0	209
Blown 24 hrs. at 100° C.	1.4758	75.6	209

NOTES.

	n_D^{15}	B^{15}	Ref. No.
SEAL OIL.			
Original pale oil.	1·4795	82·0	209
Blown 24 hrs. at 100° C.	1·4820	86·4	209
SHARK LIVER OIL.			
Original oil.	1·4750	74·3	209
Blown 24 hrs. at 100° C.	1·4762	76·3	209
SKATE LIVER OIL.			
Original oil.	1·4830	88·2	209
Blown 24 hrs. at 100° C.	1·4843	90·5	209
ARCTIC SPERM.			
Original oil.	1·4670	61·7	209
Blown 24 hrs. at 100° C.	1·4677	62·8	209
WHALE OIL.			
Original oil.	1·4762	76·3	209
Blown 24 hrs. at 100° C.	1·4773	78·2	209
WHALE OIL, FILTERED.			
Original oil.	1·4740	72·7	209
	1·4740	72·7	209
	1·4732	71·4	209
Blown 24 hrs. at 100°C.	1·4782	79·8	209
	1·4765	76·8	209
	1·4777	78·9	209

NOTES.

APPENDIX III.

Dispersion of Oils.

WITH two or three important exceptions the dispersion values of oils lie too close together for use in analyses. The most interesting results were obtained with Tung Oil and Coconut Oil. In America Holley and Brier's method, which is stated to have been in successful use for the last six years, is not based directly on the numerical values for the dispersion but depends on the inversion of the spectrum colours shown by Tung Oil when examined in the Pulfrich Refractometer. An addition of not less than 15 per cent. of pure Linseed Oil to the Tung Oil under examination should restore the normal position of the colour bands. If less than 15 per cent. is required, the oil is considered adulterated, while very pure oils have required as much as 22 per cent.; the quality varies in different years. (Holley, *Paint Vehicles, Japans and Varnishes*, 1920.) As, however, Fryer & Weston point out in their important communication on the "Dispersion of Oils," *Analyst*, 1918, pages 311-317, it should be preferable to measure the dispersion. The Abbe Refractometer can be used for this purpose, although the Pulfrich, of course, gives more accurate readings.

Szalágyi's measurements (Ref. No. 453) of the dispersion of commercial oils in 1914 were followed, in 1918, by Fryer & Weston's work, in which the selection of the samples was carefully made, and their figures are, in the present writer's opinion, to be adopted when they differ from the earlier figures.

Fryer & Weston show the effect of oxidisation and heating on the dispersion, and also the effect of Fatty Acids; some of their results are tabulated below. It should be pointed out, however, that Szalágyi finds that the dispersion of the Fatty Acids of Castor Oil is lower than the dispersion of the oil, while, in the case of Niger Seed Oil and Almond Oil, Fryer & Weston found that the Fatty Acids gave slightly higher values.

J. N. G.

NOTES.

FRYER & WESTON
Dispersion at 40° C.

SZALÁGYI
Dispersion at 45° C.

OIL.	n_D	$n_F - n_D$	$\frac{n_D - 1}{n_F - n_D}$	n_D	$n_F - n_D$	$\frac{n_D - 1}{n_F - n_D}$
Tung.	1·51256	0·01904	26·9			
Linseed.	1·47379	0·01032	45·8	1·47224	0·01018	45·1
Perilla.	1·47527	0·00984	48·3			
Hemp.	1·47404	0·00980	48·4	1·46889	0·00962	48·7
Walnut.	1·47054	0·00985	47·8			
Poppy.	1·46984	0·00978	48·0			
Niger.	1·46968	0·00935	50·2			
Niger Fatty Acids.	1·46160	0·00951	48·6			
Sunflower.	1·47211	0·00973	48·5			
Maize.	1·46711	0·00938	49·8			
Cotton.	1·46535	0·00910	51·1	1·46394	0·00953	48·7
Sesamé.	1·46650	0·00908	51·3	1·46398	0·00917	50·6
Rape.	1·46770	0·00936	50·0	1·46553	0·00933	49·9
Peach Kernel.	1·46439	0·00910	51·0			
Almond.	1·46403	0·00890	52·1			
Almond Fatty Acids.	1·45624	0·00915	49·9			
Arachis.	1·46431	0·00878	52·9	1·46444	0·00949	48·9
Olive.	1·46184	0·00862	53·6	1·46040	0·00877	52·5
Castor.	1·47194	0·00897	52·7	1·47027	0·00904	52·0
Ricinolic Acid.	...	...	...	1·46393	0·00870	53·3
Cacao Butter.	1·45724	0·00853	53·6			
Palm Kernel.	1·45034	0·00812	55·4			
Coconut.	1·44924	0·00751	59·8	1·44746	0·00739	60·5
Lard.	1·45928	0·00851	53·8	1·45716	0·00818	55·9
Lard.	...	...	...	1·45753	0·00882	51·9
Butter Fat.	1·45427	0·00830	54·7	1·45213	0·00830	54·4
Butter Fat.	...	...	...	1·45296	0·00784	57·6
Menhaden.	1·47361	0·00979	48·4			
Herring.	1·46650	0·00902	51·7			
Shark Liver.	1·46849	0·00955	49·0			
Seal.	1·47018	0·00962	48·9			
Whale.	1·46630	0·00918	50·8			
Walrus.	1·47023	0·00950	49·5			
Cod Liver.	...	...	...	1·46984	0·00988	47·5
Sperm Oil.	1·45814	0·00864	53·0			
Spermaceti at 56° C.	1·44066	0·00740	59·5			

NOTES.

FRYER & WESTON
Dispersion at 40° C.

OIL.	n_D	$n_F - n_D$	$\frac{n_D - 1}{n_F - n_D}$	n_D	$n_F - n_D$	$\frac{n_D - 1}{n_F - n_D}$
Effect of Oxidation						
Original Linseed.	1·47379	0·01032	45·8			
Film exposed 28 hours.	1·47496	0·01057	44·8			
Original Niger.	1·46968	0·00932	50·4			
Film exposed 50 hours.	1·47155	0·00963	48·9			
Effect of Heating						
Linseed heated to 200° C. for 8 hours.	1·48212	0·00702	68·7			
Niger heated to 200° C. for 8 hours.	1·47547	0·00913	52·1			
Original Tung.	1·51278	0·02102	24·4			
Tung, 5 mins. at 290° C.	1·50412	0·01468	34·4			

ADDENDUM.

SIMEON & GOLDSMITH.
Dispersion at 40° C.

OIL.	n_D	$n_F - n_D$	$\frac{n_D - 1}{n_F - n_D}$
Soya Bean.	1·4712	·00955	49·3
Tea Seed.	1·4618	·00853	54·1

APPENDIX IV.

TABLE OF APPROXIMATE TEMPERATURE CORRECTION FOR
FATTY OILS TO REDUCE OBSERVATIONS TO A
STANDARD TEMPERATURE.

Multiples of $\frac{\delta n}{\delta t} = 0.00037$.

FACTOR:	1	2	3	4
	·00037	·00074	·00111	·00148
	5	6	7	8
	·00185	·00222	·00259	·00296
	9	10	11	12
	·00333	·00370	·00407	·00444
	13	14	15	16
	·00481	·00518	·00555	·00592
	17	18	19	20
	·00629	·00666	·00703	·00740
	21	22	23	24
	·00777	·00814	·00851	·00888

The correction is subtracted from the observed value of the refractive index if the temperature of observation is below the standard temperature, when higher it is added.

APPENDIX V.

**TABLES FOR CONVERSION OF BUTTER REFRACTO-
METER READINGS INTO REFRACTIVE INDICES
AND VICE VERSA.**

MANY workers have used, and still use, the arbitrary scale of the butter refractometer instead of refractive indices to record their measurements. We have therefore had prepared these tables, by means of which the butter refractometer readings can be readily converted into refractive indices.

They are derived by interpolation from Pulfrich's original equivalents. Although they have been independently arrived at, they prove to be identical with the similar table of Leach, and those of Fryer and Weston, with the exception of a very few differences of one unit in the fourth place of decimals.

TABLE FOR THE MUTUAL CONVERSION OF n and B READINGS.

0.0	1.4220	7.1	1.4277	14.4	1.4334	21.8	1.4391	29.4	1.4448	37.4	1.4505
0.1	1	7.2	8	14.5	5	22.0	2	29.6	9	37.5	6
0.2	2	7.4	9	14.6	6	22.1	3	29.7	1.4450	37.7	7
0.4	3	7.5	1.4280	14.7	7	22.2	4	29.9	1	37.8	8
0.5	4	7.6	1	14.9	8	22.4	5	30.0	2	37.9	9
0.6	5	7.7	2	15.0	9	22.5	6	30.1	3	38.1	1.4510
0.7	6	7.9	3	15.1	1.4340	22.6	7	30.3	4	38.2	1
0.9	7	8.0	4	15.3	1	22.7	8	30.4	5	38.3	2
1.0	8	8.1	5	15.4	2	22.9	9	30.6	6	38.5	3
1.1	9	8.2	6	15.5	3	23.0	1.4400	30.7	7	38.6	4
1.2	1.4230	8.4	7	15.6	4	23.2	1	30.8	8	38.7	5
1.4	1	8.5	8	15.8	5	23.3	2	30.9	9	38.9	6
1.5	2	8.6	9	15.9	6	23.4	3	31.0	1.4460	39.0	7
1.6	3	8.7	1.4290	16.0	7	23.5	4	31.2	1	39.2	8
1.7	4	8.9	1	16.2	8	23.7	5	31.4	2	39.3	9
1.9	5	9.0	2	16.3	9	23.8	6	31.5	3	39.5	1.4520
2.0	6	9.1	3	16.4	1.4350	23.9	7	31.6	4	39.6	1
2.1	7	9.2	4	16.6	1	24.1	8	31.8	5	39.7	2
2.2	8	9.4	5	16.7	2	24.2	9	31.9	6	39.9	3
2.4	9	9.5	6	16.8	3	24.3	1.4410	32.1	7	40.0	4
2.5	1.4240	9.6	7	17.0	4	24.5	1	32.2	8	40.1	5
2.6	1	9.8	8	17.1	5	24.6	2	32.3	9	40.3	6
2.7	2	9.9	9	17.2	6	24.7	3	32.5	1.4470	40.4	7
2.8	3	10.0	1.4300	17.4	7	24.8	4	32.6	1	40.6	8
3.0	4	10.1	1	17.5	8	25.0	5	32.8	2	40.7	9
3.1	5	10.3	2	17.6	9	25.1	6	32.9	3	40.9	1.4530
3.2	6	10.4	3	17.8	1.4360	25.2	7	33.0	4	41.0	1
3.3	7	10.5	4	17.9	1	25.4	8	33.2	5	41.1	2
3.5	8	10.6	5	18.0	2	25.5	9	33.3	6	41.3	3
3.6	9	10.7	6	18.2	3	25.6	1.4420	33.5	7	41.4	4
3.7	1.4250	10.9	7	18.3	4	25.8	1	33.6	8	41.5	5
3.8	1	11.0	8	18.4	5	25.9	2	33.7	9	41.7	6
4.0	2	11.1	9	18.5	6	26.1	3	33.9	1.4480	41.8	7
4.1	3	11.3	1.4310	18.7	7	26.2	4	34.0	1	42.0	8
4.2	4	11.4	1	18.8	8	26.3	5	34.2	2	42.1	9
4.3	5	11.5	2	18.9	9	26.5	6	34.3	3	42.3	1.4540
4.5	6	11.6	3	19.1	1.4370	26.6	7	34.4	4	42.4	1
4.6	7	11.8	4	19.2	1	26.7	8	34.6	5	42.5	2
4.7	8	11.9	5	19.3	2	26.9	9	34.7	6	42.7	3
4.8	9	12.0	6	19.5	3	27.0	1.4430	34.9	7	42.8	4
5.0	1.4260	12.2	7	19.6	4	27.1	1	35.0	8	43.0	5
5.1	1	12.3	8	19.7	5	27.3	2	35.1	9	43.1	6
5.2	2	12.4	9	19.8	6	27.4	3	35.3	1.4490	43.3	7
5.4	3	12.5	1.4320	20.0	7	27.5	4	35.4	1	43.4	8
5.5	4	12.7	1	20.1	8	27.7	5	35.6	2	43.6	9
5.6	5	12.8	2	20.3	9	27.8	6	35.7	3	43.7	1.4550
5.7	6	12.9	3	20.4	1.4380	27.9	7	35.8	4	43.9	1
5.9	7	13.0	4	20.5	1	28.1	8	36.0	5	44.0	2
6.0	8	13.2	5	20.6	2	28.2	9	36.1	6	44.2	3
6.1	9	13.3	6	20.8	3	28.3	1.4440	36.3	7	44.3	4
6.2	1.4270	13.5	7	20.9	4	28.5	1	36.4	8	44.4	5
6.4	1	13.6	8	21.1	5	28.6	2	36.5	9	44.6	6
6.5	2	13.7	9	21.2	6	28.7	3	36.7	1.4500	44.7	7
6.6	3	13.8	1.4330	21.3	7	28.9	4	36.8	1	44.9	8
6.8	4	14.0	1	21.4	8	29.0	5	37.0	2	45.0	9
6.9	5	14.1	2	21.6	9	29.2	6	37.1	3	45.2	1.4560
7.0	6	14.2	3	21.7	1.4390	29.3	7	37.2	4	45.3	1

45.5	1.4562	53.7	1.4618	62.4	1.4674	71.1	1.4730	80.5	1.4786	90.3	1.4842	
45.6		3 53.9		9 62.5		5 71.3		1 80.6		7 90.5		3
45.7		4 54.0	1.4620	62.6		6 71.4		2 80.8		8 90.7		4
45.9		5 54.2		1 62.8		7 71.6		3 81.0		9 90.9		5
46.0		6 54.3		2 62.9		8 71.8		4 81.2	1.4790	91.1		6
46.2		7 54.5		3 63.1		9 71.9		5 81.3		1 91.2		7
46.3		8 54.6		4 63.2	1.4680	72.1		6 81.5		2 91.4		8
46.4		9 54.8		5 63.4		1 72.2		7 81.7		3 91.6		9
46.6	1.4570	55.0		6 63.5		2 72.4		8 81.9		4 91.8	1.4850	
46.7		1 55.1		7 63.7		3 72.5		9 82.0		5 92.0		1
46.9		2 55.3		8 63.8		4 72.7	1.4740	82.2		6 92.1		2
47.0		3 55.4		9 64.0		5 72.9		1 82.4		7 92.3		3
47.2		4 55.6	1.4630	64.2		6 73.0		2 82.5		8 92.5		4
47.3		5 55.7		1 64.3		7 73.2		3 82.7		9 92.7		5
47.5		6 55.9		2 64.5		8 73.3		4 82.9	1.4800	92.9		6
47.6		7 56.0		3 64.7		9 73.5		5 83.1		1 93.0		7
47.7		8 56.2		4 64.8	1.4690	73.7		6 83.2		2 93.2		8
47.9		9 56.3		5 65.0		1 73.8		7 83.4		3 93.4		9
48.0	1.4580	56.5		6 65.1		2 74.0		8 83.6		4 93.6	1.4860	
48.2		1 56.6		7 65.3		3 74.1		9 83.8		5 93.8		1
48.3		2 56.8		8 65.4		4 74.3	1.4750	83.9		6 94.0		2
48.5		3 56.9		9 65.6		5 74.5		1 84.1		7 94.1		3
48.6		4 57.1	1.4640	65.7		6 74.6		2 84.3		8 94.3		4
48.8		5 57.3		1 65.9		7 74.8		3 84.5		9 94.5		5
48.9		6 57.4		2 66.1		8 75.0		4 84.6	1.4810	94.7		6
49.1		7 57.6		3 66.2		9 75.1		5 84.8		1 94.8		7
49.2		8 57.7		4 66.4	1.4700	75.3		6 85.0		2 95.0		8
49.4		9 57.9		5 66.5		1 75.5		7 85.2		3 95.2		9
49.5	1.4590	58.0		6 66.7		2 75.6		8 85.3		4 95.4	1.4870	
49.7		1 58.2		7 66.8		3 75.8		9 85.5		5 95.6		1
49.8		2 58.3		8 67.0		4 76.0	1.4760	85.7		6 95.8		2
50.0		3 58.5		9 67.2		5 76.1		1 85.9		7 96.0		3
50.1		4 58.6	1.4650	67.3		6 76.3		2 86.0		8 96.1		4
50.2		5 58.8		1 67.5		7 76.5		3 86.2		9 96.3		5
50.4		6 58.9		2 67.7		8 76.7		4 86.4	1.4820	96.5		6
50.5		7 59.1		3 67.8		9 76.8		5 86.6		1 96.7		7
50.7		8 59.2		4 68.0	1.4710	77.0		6 86.7		2 96.9		8
50.8		9 59.4		5 68.1		1 77.2		7 86.9		3 97.0		9
51.0	1.4600	59.5		6 68.3		2 77.3		8 87.1		4 97.2	1.4880	
51.1		1 59.7		7 68.4		3 77.5		9 87.3		5 97.4		1
51.3		2 59.8		8 68.6		4 77.7	1.4770	87.5		6 97.6		2
51.4		3 60.0		9 68.7		5 77.9		1 87.6		7 97.8		3
51.6		4 60.2	1.4660	68.9		6 78.1		2 87.8		8 98.0		4
51.7		5 60.3		1 69.1		7 78.2		3 88.0		9 98.1		5
51.9		6 60.5		2 69.2		8 78.4		4 88.2	1.4830	98.3		6
52.0		7 60.6		3 69.4		9 78.6		5 88.3		1 98.5		7
52.2		8 60.8		4 69.5	1.4720	78.7		6 88.5		2 98.7		8
52.3		9 60.9		5 69.7		1 78.9		7 88.7		3 98.9		9
52.5	1.4610	61.1		6 69.9		2 79.1		8 88.9		4 99.1	1.4890	
52.7		1 61.2		7 70.0		3 79.2		9 89.1		5 99.2		1
52.8		2 61.4		8 70.2		4 79.4	1.4780	89.2		6 99.4		2
53.0		3 61.5		9 70.3		5 79.6		1 89.4		7 99.6		3
53.1		4 61.7	1.4670	70.5		6 79.8		2 89.6		8 99.8		4
53.3		5 61.8		1 70.7		7 80.0		3 89.8		9 100.0	1.4895	
53.4		6 62.0		2 70.8		8 80.1		4 90.0	1.4840			
53.6		7 62.2		3 71.0		9 80.3		5 90.2		1		

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