

Specific Refractive Index Increments of Polymer Solutions. Part I. Literature Values

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Synopsis

The specific refractive index increments of 158 natural and synthetic polymers and copolymers in pure and mixed solvents have been collated. Wherever possible the temperature and wavelength (generally 436 and/or 546m μ) are quoted.

The specific refractive index increment of a solution, dn/dc , is defined as $(n - n_1)/c$, where n , n_1 , and c are, respectively, the indices of refraction for the solution and solvent and the concentration of solute (in grams per milliliter). In macromolecular chemistry a threefold importance is attached to the increment which, it should be noted, is not a characteristic constant of a given polymer, but depends on the temperature, the wavelength of the light, and the nature of the solvent. Firstly, for example, it affords an indirect means of determining the refractive index n_2 of the solute. Accurate values of n_2 for several proteins have been obtained by Putzeys and Brosteaux,¹ who measured dn/dc and \bar{v}_2 , the partial specific volume of the protein in essentially aqueous media and applied the Lorenz-Lorentz (L-L) or Gladstone-Dale (G-D) relations.² For a binary mixture the latter assumes the form

$$dn/dc = \bar{v}_2(n_2 - n_1)$$

Secondly, because of the proportionality between $(n - n_1)$ and c , the concentration changes (between solution and solvent or between solutions differing in concentration) across stationary, diffusing or moving boundaries may be followed by observing the corresponding differences in refractive index. The Schlieren optics method incorporates this as its basis.³ Thirdly, and most pertinently to this and the succeeding paper, a precise knowledge of the specific increment presents a prerequisite to the determination of molecular weights by light scattering,⁴ utilizing eq. (1):

$$Hc/\tau = (1/M) + 2Bc \quad (1)$$

where

$$H = [32\pi^2 n_1^2 (dn/dc)^2] / [3\lambda^4 N_A]$$

and the terms have their customary accepted meaning. As the molecular weight M of the polymer is derived from a plot of Hc/τ against c , an un-

certainty of $\pm 2E\%$ is incurred in M by an error of $E\%$ in dn/dc . Stacey⁵ has drawn attention to the classic case of poly(methyl methacrylate) for which a 7600% discrepancy in M was resolved by noting the use of an incorrect value for dn/dc in methyl ethyl ketone.^{6,7} More recently less serious discrepancies for polyethylene⁸ and isotactic polypropylene⁹ have been resolved and the values of dn/dc rationalized.

The results of a literature survey of dn/dc values are presented in Table I. A very accurate differential refractometer and a conventional light-scattering photometer can often be comparable in cost, and it is hoped that the table may obviate the necessity of measuring dn/dc when M is required on a routine basis for known systems. The following are among the additional uses, to be discussed more fully in Part II,¹⁰ to which the table may be put: (1) dn/dc may be calculated at temperatures and in solvents other than those listed; (2) the composition of copolymers can be ascertained from a knowledge of dn/dc for the relevant homopolymers; (3) dn/dc can be predicted for composite copolymers of the homopolymers tabulated; (4) the refractive indices n_2 of pure polymers may be computed. No attempt has been made to assess the relative reliability of the values. However, it will be seen that for many polymer-solvent systems the specific increments found by different workers under similar conditions (temperature and wavelength) are self-consistent and consequently probably correct. Furthermore, when consistent values of M are obtained for a given polymer from dn/dc values in different solvents, the correctness of these increments is virtually assured. It should be borne in mind that these considerations by no means apply to all the systems quoted and also that dn/dc can only be regarded as constant provided the polymer has a molecular weight greater in general than about 5000.

Key to Table I. In Table I, polymers, preceded by an entry number E-00, are arranged alphabetically, and copolymers and terpolymers appear under one of the parent monomers. The solvent medium, particularly for some biopolymers, is not always easily described. In some cases it is referred to as the (aqueous) dialyzate, while in others definition is afforded by quoting the ionic strength I and the pH. Reference must be made to the original papers to determine more precisely the chemical nature of the salt and buffering agent etc. In the column of dn/dc , figures relating to $\lambda = 436 \text{ m}\mu$ and $\lambda = 546 \text{ m}\mu$ are placed at the extreme left and extreme right, respectively. Values for any other wavelengths (the wavelength given in parentheses) are entered in the middle of the column, as also are those for unspecified wavelengths.

Abbreviations of solvents and other materials cited in the table include: HMG (hexamethylene glycol), DMF (dimethylformamide), DMSO (dimethyl sulfoxide), MEK (methyl ethyl ketone), THF (tetrahydrofuran), ADP (adenosine diphosphate), ATP (adenosine triphosphate), Cadoxen (triethylenediamine cadmium hydroxide), Versene (sodium salt of ethylenediaminetetraacetic acid), Calgon [sodium hexametaphosphate, $\text{Na}_2(\text{Na}_4\text{P}_6\text{O}_{18})$], Freon 113 \equiv Isceon 113 ($\text{Cl}_2\text{FCCF}_2\text{Cl}$).

TABLE I

No.	Polymer	Solvent	dn/dc , ml./g.		Temp., °C.	Ref.
			$\lambda =$ 436 $m\mu$	$\lambda =$ 546 $m\mu$		
E-1	Actin	Aq. MgCl ₂ ; buffer pH 8.0	0.18			11
E-2	Actomyocin	0.5M KI	0.227			12
		Water	0.195	0.191 (578)	0.193	13
E-3	Alkali lignin	Aq. NaOH/NaHCO ₃ ; pH 9.65	0.200		23	14
E-4	Amandin	1.71M NaCl; pH 5.6	0.1697	0.1674 (579), 0.1678 (653)	0.218	15
					0.1686	1
E-5	Amylopectin	0.2N NaOH	0.142			16
		Water	0.156		0.154	16
E-6	Amylopectin acetate	Water	0.155		0.151	17
		1N KOH	0.142		0.142	18
		Ethylenediamine	0.098		0.098	18
		Ethylenediamine hydrate	0.092		0.092	18
		Formamide	0.069		0.069	18
		Acetone	0.118			16
		Acetonitrile	0.128			16
		Chloroform	0.051			16
		Dioxane	0.057			16
		Nitromethane	0.088			16
E-7	Amylose	DMSO	0.0676		0.0659	19
		Aq. KCl		0.146		20
E-8	Amylose acetate	1M KOH		0.146		20
		Nitromethane	0.0875			21
E-9	Amylose tricarbanilate	Acetone	0.2279		0.2164	22
		"	0.2218		0.2094	7
E-10	Araban	2M NaCl		0.130		23

(continued)

TABLE I (continued)

No.	Polymer	Solvent	dn/dc , ml./g.			Temp., °C.	Ref.
			$\lambda = 436 \text{ m}\mu$	$\lambda = 546 \text{ m}\mu$			
E-11	Araban acetate	1% DMF		0.142		23	
	Arachin	MEK		0.0886		24	
E-13	Bovine englobulin	Water		0.192		25	
		Aq. phosphate buffer		0.192		26	
		0.25N KOH		0.227 (589)	23	27	
		0.25N KCl		0.230 (589)	23	27	
		0.25N KOH; 25% ethanol		0.202 (589)	23	27	
		0.25N KOH; 50% ethanol		0.119 (589)	23	27	
		0.25N KOH; 25% acetone		0.227 (589)	23	27	
E-14	Bovine fibrinogen	0.25N KOH; 50% acetone		0.122 (589)	19	27	
		0.3M NaCl	0.1970		25	28	
		Phosphate buffer; $I = 0.45$	0.1953		25	28	
		Phosphate buffer; $I = 0.45$; 0.5M HMG	0.1903		25	28	
		Glycine buffer; $I = 0.45$	0.1949		25	28	
		Glycine buffer; $I = 0.45$; 0.5M HMG	0.1898		25	28	
		Aq.; $I = 0.1$	0.1933		25	29	
		Aq.; $I = 0.2$	0.1940		25	29	
		Aq.; $I = 0.3$	0.1935		25	29	
		Aq.; $I = 0.5$	0.1987		25	29	
E-15	Bovine plasma albumin (oxidized)	0.08M borate + 0.2M NaCl buffer; pH 7	0.195			30	
E-16	Bovine serum albumin	Water	0.1924	0.1854		31	
		"	0.195			32	
		"	0.1954	0.1883		33	
		Aq. $(\text{NH}_4)_2\text{SO}_4$ $1/4$ saturated		0.178 (589)	24	34	
		" $1/2$ saturated		0.150 (589)	24	34	
		" $1/6$ saturated		0.184 (589)	24	34	

	"	1/3 saturated			0.180 (589)	24	34
	"	2/3 saturated			0.177 (589)	24	34
		0.2M acetate butter; pH 4.5		0.1929		25	113
E-17	Bovine serum albumin (Armour recrystallized)			0.0970	0.0949 (578)	20	35
E-18	Butene-1 polysulfone					0.147	36
E-19	Carboxymethyl cellulose Casein					0.149 (589)	37
						0.158 (589)	37
						0.149 (589)	37
						0.125 (589)	37
E-20	Cellulose			0.187		0.184	38
E-21	Cellulose nitrate						
	10.98% N ⁱ			0.1022		0.0998	39
	11.89% N			0.1010		0.0985	39
	12.55% N			0.0968		0.0950	39
	13.94% N			0.0930		0.0903	39
	13.96% N					0.0900	39
E-22	Cellulose triacetate				0.0406	25	40
					0.0496	55	40
E-23	Cellulose tricaproate			0.0442		0.0478	41
						0.147	41
						0.104	41
E-24	Cellulose tricarbamilate					0.2033	41
				0.2176		0.1966	41
E-25	Cellulose trinitrate			0.2069		7	42
				0.102		30	42
				0.107		25	43
						0.103	44
E-26	Cellulose xanthate			0.105		20	260
					0.20		45
					0.212		46
					0.230		47
E-27	Chitosan				0.166		48
E-28	Croglubulin			0.190		37	49

(continued)

TABLE I (continued)

No.	Polymer	Solvent	dn/dc , ml./g.		Temp., °C.	Ref.
			$\lambda = 346 m\mu$	$\lambda = 546 m\mu$		
E-29	Cyclohexene polysulfone	Chloroform	0.1133	0.1104 (578)	20	35
E-30	Deoxyribonucleic acid	Water	0.188			50
		Aq. NaCl; acetate buffer	0.201		20	51
		0.2M NaCl		0.185		52
		1M NaCl		0.174	20	53
E-31	Dextran	Water	0.191			54
		Water		0.151		55
		"		0.154		55
		"		0.151		56
		"		0.15	25	57
E-32	Dialdehyde starch	Water	0.153			58
E-33	Diethylacetamide cellulose xanthate					
	D.S. = 0.40*	90% DMSO		0.144		59
	D.S. = 0.49	90% "		0.098		59
	D.S. = 0.60	90% "		0.144		59
	D.S. = 0.80	90% "		0.144		59
	D.S. = 0.92	90% "		0.098		59
	D.S. = 1.00	90% "		0.096		59
	D.S. = 1.22	90% "		0.079		59
E-34	Digitonin	Water/ethanol (63% w/w ethanol)		0.126		60
E-35	Dodecaoxyethyleneglycol monohexadecyl ether	Water (micelle)			0.1342	25
E-36	Dodecene-1 polysulfone	Chloroform	0.0695	0.0581 (578)	20	35
E-37	Edestin	0.02N KOH		0.179 (589)	17.5	62
		0.05N KOH		0.179 (589)	17.5	62
		0.1N KOH		0.174 (589)	17.5	62

	10% NaCl	0.166 (589)	17.5	62
	0.1N Na ₂ CO ₃	0.168 (589)	17.5	62
	0.1N NH ₄ OH	0.170 (589)	17.5	62
	0.1N acetic acid	0.170 (589)	17.5	62
	0.02N HCl	0.177 (589)	17.5	62
	0.05N HCl	0.168 (589)	17.5	62
	0.1N HCl	0.166 (589)	17.5	62
	Water		0.192	25
	Aq. phosphate; $I = 0.05$; pH 6.4	0.198		26
E-38	Methanol	0.130	25	63
E-39	Methanol	0.147		64
E-40	1M KCNS	0.172	30	65
	Aq.; 0.05M phosphate buffer	0.188	30	65
	100% formic acid ^b	0.1765	25.5	66
	80% formic acid + 20% DMF	0.1515	25.5	66
	60% formic acid + 40% DMF	0.1423	25.5	66
	40% formic acid + 60% DMF	0.1267	25.5	66
	10% formic acid + 90% DMF	0.1223	25.5	66
E-41	1N acetic acid	0.159 (589)	25	67
	0.1N KOH	0.162 (589)	20	67
	60% aq. ethanol	0.144 (589)	25	67
	70% aq. ethanol	0.150 (589)	25	67
	60% aq. <i>n</i> -propanol	0.149 (589)	25	67
	25% aq. acetone	0.172 (589)	25	67
	50% aq. acetone	0.144 (589)	25	67
	75% aq. phenol	0.038 (589)	25	67
E-42	Water (with and without salts)		0.190	15
	Aq. phosphate; pH 7.7	0.1778 (589)	0	69
	Aq. acetate; pH 5.6	0.185 (589)	0	69
E-43	Aq. phosphate buffer		0.185	70
	Glyceraldehyde-3-phosphate dehydrogenase			

(continued)

TABLE I (continued)

No.	Polymer	Solvent	dn/dc , ml./g.			Temp., °C.	Ref.
			$\lambda =$ 436 $m\mu$	$\lambda =$ 546 $m\mu$			
E-44	Glycogen	15% Aq. $MgCl_2$	0.136			71	
		Water	0.136			72, 73	
E-45	Guanidated tropomyocin	Water		0.188	25	74	
E-46	Guaran triacetate	Acetonitrile		0.1200	22.5	75	
E-47	Hemicellulose	0.25M NaCl/0.5% Calgon	0.127			76	
		0.5M NaCl/0.5% Versene	0.136			76	
		0.5M NaCl		0.145		76	
		0.36M KOH		0.131		76	
E-48	Hemocyanines	Water			24	77	
		"			23	77	
		"			20	77	
		0.67N KCl			23	77	
		Water	0.194 (589)		15.2	77	
		1N NaCl	0.198 (589)		20	77	
		0.05N HCl	0.197 (589)		20	78	
		0.05N NaOH	0.181 (589)		20	78	
		0.2N acetate; pH 5.05	0.198 (589)		20	78	
			0.197 (589)		20	78	
			0.191	0.1908 (579),	25	1	
				0.1872 (643)			
E-49	Hemoglobin	Aq. phosphate; pH 7.7			0	69	
	Bovine	Aq. acetate pH 5.6	0.1949 (656)		0	69	
		Water	0.1966 (656)		20	79	
	Canine	Water	0.209 (656)		20	79	
	Human	Water	0.203 (656)		20	80	
			0.1942 (656)		20	80	

	Equine	0.01N NH ₄ OH	0.183 (656)	20	81
		Water	0.194 (656)	20	79
		0.2N NaOH; pH 2.5			82
		Weak and strong aq. salt solutions	0.197 (λ_R) ^b		83
		Water			84
	n-Hexyl chloride		0.121	20	35
	"		0.0834	7	35
	"		0.0796		35
	MEK/isopropanol (37:63 v/v)		0.1261	37	35
	"		0.1242	27	35
	"		0.1233	20	35
	MEK/isopropanol (41:58.5 v/v)		0.1208	7	35
	Chloroform		0.0790	20	35
	THF		0.0978		85
	Chloroform		0.054		85
	0.2M NaCl; pH 2.5		0.200		82
	0.2M NaCl; pH 2.5		0.200		82
	Water				86
	Aq. phosphate; pH 7.4		0.1899 (583)	17.5	86
	Aq. phosphate; pH 5.35		0.177 (583)	17.5	86
	Aq. NaCl; $I = 0.1$		0.1815 (589)	20	87
	" $I = 0.2$		0.1958	20	87
	" $I = 0.3$		0.1924	20	87
	" $I = 0.5$		0.2000	20	87
	Water		0.1986	20	87
	"		0.1938	0.1863	33
	"				88
	Water		0.186 (578)		89
	"		0.189 (589)	17.5	33
	"		0.1875 (578)	0.1890	88
	1% aq. NaCl		0.188 (578)		88
	Aq. salt solution (independent of concentration)		0.197 (589)	17.5	89
			0.170	20	90

(continued)

TABLE I (continued)

No.	Polymer	Solvent	dn/dc , ml./g.			Ref.
			$\lambda =$ 346 m μ	$\lambda =$ 546 m μ	Temp., °C.	
E-61	Iodinated fibrinogen	Aq. NH ₄ OH; pH 7.35	0.195			91
E-62	β -Lactoglobulin	Water	0.1926	0.1842 (578)	0.1856	33
		"	0.1890		0.1832	31
		0.1M NaCl	0.189		0.183	25
E-63	Lecithin	0.5M NaCl	0.1892		0.1818	93
		Water	0.1245			94
E-64	Legumin	Ethanol	0.1233			94
		Water			0.198	25
E-65	β -Lipoproteins	Aq. phosphate buffer		0.197		95
		"		0.192		95a
E-66	Lisozyme	Water		0.171 (578)		88
E-67	Magnesium alginate	Water	0.1955		0.1888	31
		Aq. MgCl ₂	0.158		0.157	20-25
E-68	Methacrylic acid (53.7%)/2-dimethylaminoethyl methacrylate (46.3%) copolymer	Water; pH 4.08	0.188		0.157	25
		"	0.187		0.187	25
		"	0.186		0.186	25
		0.1M NaCl; pH 5.61	0.186		0.186	25
E-69	Methyl cellulose	0.1M NaCl; pH 5.48	0.186		0.186	97
		0.1M " pH 5.48	0.193		0.193	25
		0.1M " pH 5.48	0.189		0.189	25
E-70	Methyl methacrylate/2-vinylpyridine/dichlorostyrene terpolymer (37.2:46.5:16.4 mole-%)	Water	0.154			97
		"			0.145	98
E-71	Mucopolysaccharides	Acetic acid	0.171			99
		MEK	0.153			100
E-71	Mucopolysaccharides	Water				101
		0.15M phosphate buffer			0.166	101
		0.15M " + 0.2M NaCl			0.166	101

E-72	Myosin	Water	0.206		20	102
		Aq. dialyzate	0.192		3	103
		Aq. KCl; $I = 0.5$; pH 6.8	0.1910	0.1887		104
		0.5M KCl		0.195	<4	105
		0.5M KCl		0.193	<4	106
		0.6M KCl			12	106
		0.1M KCNS	0.195		<4	106
		0.01M ADP/ATP	0.209		<4	106
		Water	0.195		20	107
		Water (micelle)		0.1353	25	61
E-73	γ -Myosin					
E-74	Nonoxyethyleneglycol mono-hexadecyl ether		0.0732	0.0718 (578)	20	35
E-75	Octene-1 polysulfone	Chloroform		0.1330	20	108
E-76	<i>p</i> -Oligophenylenes ^a			0.1722	20	108
	II Toluene			0.2155	20	108
	III "			0.2151	20	108
	IV "			0.2270	20	108
	V "			0.2608	20	108
	VI "			0.1960	20	108
	VIII "			0.2194	20	108
	II Cyclohexane			0.1903	20	108
	III "			0.2477	20	108
	III' "			0.2515	20	108
	IV "			0.2568	20	108
	V "			0.2625	20	108
	VI "			0.2577	20	108
	VI' "					
	VIII "					
E-77	Ovalbumin	Water	0.1883	0.1820	20	31
		"	0.1935	0.1859 (578)		33
		"		0.1854 (589)	23	109
		"		0.179 (589)	22-23	110

(continued)

TABLE I (continued)

No.	Polymer	Solvent	dn/dc , ml./g.		Temp., °C.	Ref.
			$\lambda = 346 \text{ m}\mu$	$\lambda = 546 \text{ m}\mu$		
		0.1N NaOH	0.181 (589)		22-23	110
		"	0.178 (589)		22-23	110
		1% aq. $(\text{NH}_4)_2\text{SO}_4$	0.174 (589)		22-23	110
E-78	Oxyhemoglobin	Weak and strong salt solutions	0.197 (λ_R) ^b			83
E-79	Paramyocin	Water	0.188			111, 112
E-80	Pepsin					
	Mann pepsin	0.2M acetate buffer; pH 5.0	0.1863		25	113
		0.2M " pH 4.5	0.1905		25	113
	Armour pepsin	0.2M acetate buffer; pH 4.5	0.1928		25	113
	Alcohol pepsin	0.2M acetate buffer; pH 5.0	0.1825		25	113
E-81	Polyacetals	1H, 1H, 5H-octafuoropentanol-I		0.156	110	114
E-82	Polyacrylamide	Water	0.149		20-65	115
		"		0.163		116
		Dioxane	0.195 (589)		30	117
		"	0.090		25	118
		0.2N HCl	0.088		25	118
		0.1N HCl	0.146		20-65	115
		Aq. NaCl; $I = 0.100$	0.140 (589)			119
		"	0.158		30	120
		"	0.156		30	120
		"	0.179		30	120
		"	0.186		30	120
		"	0.253		30	120
		"	0.253		30	120
		"	0.261		30	120
E-83	Poly(acrylic acid)					
		D.N. = 0.102 ^d				
		D.N. = 0.105				
		D.N. = 0.335				
		D.N. = 0.344				
		D.N. = 0.947				
		D.N. = 0.959				
		D.N. = 0.994				

E-84	Polyacrylonitrile	γ -Butyrolactone			0.079	25	121		
		DMF			0.083	25	121		
		"			0.089		122		
		"			0.083		123		
		"			0.082	20	124		
		"			0.0874	20	125		
					0.190	25	126, 127		
						25	126		
		E-85	Polyamides (Nylons 6, 66, 610 and Zytel 61)	2,2,3,3-Tetrafluoropentanol			0.192	25	128
				2,2,3,3-Tetrafluoropentanol with 0.1N sodium trifluoroacetate buffer	0.190		-0.016	25	128
Octafluoropentanol					0.0815	25	128		
<i>m</i> -Cresol					0.098	25	128		
95% carbon disulfide					0.099	50	128		
Dichloroacetic acid					0.104	80	128		
"							129		
"							130		
100% formic acid				0.1525			130		
100%					0.157	25	130		
95%					0.150	130			
90%				0.145		25	131		
90%					0.145	25	128		
90%							132		
90%					0.145	25	130		
85%					0.145	25	131		
80%						25	130		
75%				0.141		25	130		
90% formic acid + 0.025M sodium formate					0.147	25	130		
" + 0.05M					0.146	25	130		
" + 0.10M					0.142	25	130		
" + 0.2M					0.142	25	130		
" + 0.5M			0.136	25	130				
" + 0.75M			0.130	25	130				
" + 1.0M			0.124	25	130				
100%			0.136	25	130				

(continued)

TABLE I (continued)

No.	Polymer	Solvent	dn/dc , ml./g.	$\lambda =$	Temp., °C.	Ref.	
				436 m μ			546 m μ
E-86	Polybutadiene (high <i>cis</i>)	95% formic acid + 0.5M sodium formate	0.136		25	130	
		80% " + 0.5M "	0.136		25	130	
		75% " + 0.5M "	0.138		25	130	
		90% " + 0.2M KCl	0.143			132	
		90% " + 0.5M "	0.140			132	
		90% " + 1.0M "	0.136			132	
		90% " + 1.0M "		0.136		25	128
		90% " + 1.5M "	0.131				132
		90% " + 2.0M "	0.126				132
		90% " + 2.0M "		0.126		25	128
		90% " + 2.5M "	0.122				132
		98% " + 2.0M "	0.137				132
		95% " + 2.0M "	0.129				132
		85% " + 2.0M "	0.124				132
		82.5% " + 2.0M "	0.123				132
E-87	Poly-1-butene	Cyclohexane	0.114			133	
		"	0.114			134	
		Heptane	0.126	0.118		135	
E-88	Isotactic poly-1-butene	<i>n</i> -Nonane	0.151	0.141		135	
		"	0.108		80	136	
		<i>n</i> -Nonane	0.092		35	136	
E-89	Poly(<i>n</i> -tert-butylacrylamide)	"	0.108		80	136	
		Methanol	0.092		35	136	
E-89	Poly(<i>n</i> -butyl methacrylate)	"	0.249	0.234		137	
		Acetone	0.1249	0.1257 (366)	25	138	
E-89	MEK	"	0.1059	0.104	23	139	
		"	0.1064 (366)	0.1046	25	138	

	Isopropanol		0.1059		20	140
	"		0.102	0.102	23	139
	"		0.1066		23.7	140
	"		0.1068		25	140
	"		0.1076		31	140
	"		0.1097		45	140
	Carbon disulfide		-0.158			141
	Acetone		0.183			261
E-90	Poly(<i>tert</i> -butyl methacrylate)		0.1773	0.1654 (553), 0.1643 (574)	27	142
E-90a	Poly(<i>p-tert</i> -butylphenylmethacrylate)		0.1660	0.1547 (553), 0.1538 (574)	7	142
E-91	Polycarbonates		0.1943	0.1815 (553), 0.1805 (574)	27	142
	Methylene chloride		0.1889	0.1765 (553), 0.1753 (574)	7	142
	"		0.207			
E-92	Poly- <i>p</i> -chlorostyrene		0.197	0.194	20	143
E-93	Polycyclopentadiene		0.125	0.125	21	144
E-94	Poly- <i>N,N</i> -dimethylacrylamide		0.0394	0.0394	21	144
E-95	Polydimethylsiloxane		0.103	0.150	25	145
	"		-0.1042	0.094	25	145
	"		-0.1037	-0.0947	14.6	146
	"		-0.1029	-0.0941	19.9	147
	"		-0.1027	-0.0933	25.4	147
	"		-0.1023	-0.0933	29.9	147
	Bromocyclohexane			-0.0927	34.8	147
	"			0.078	25	148
	"			0.079	25	148
	"			0.081	25	148
	"			0.090	25	148
	"			0.090	25	148
E-96	Poly(<i>n</i> -docosyl methacrylate)		0.102	0.090	25	149

(continued)

TABLE I (continued)

No.	Polymer	Solvent	dn/dc , ml./g.		Temp., °C.	Ref.
			$\lambda =$ 346 m μ	$\lambda =$ 546 m μ		
				0.0745	25-48	149
				0.084	25	149
				0.0935	29	149
				0.093	35	149
				0.091	50	149
				0.088	65	149
				0.084	75	149
				0.076	85	149
			0.131		25	150
E-97	Poly(ethyl acrylate)	Water		0.102	25	151
E-98	Poly(2-ethylbutyl methacrylate)	MEK		0.105	25	151
		Isopropanol		0.095	115	152
E-99	Polyethylene	<i>n</i> -Decane			81.5	153, 154
		Tetralin		0.100	105	155
				-0.0887	81.5	8
				-0.0805	105	8
		1-Chloronaphthalene		-0.199	90	156, 157
		"		-0.198	90	158
		"		-0.197	100	159
		"		-0.188	105	154, 155
		"		-0.195	110	159
		"		-0.193	120	159
		"		-0.192	125	152
		"		-0.195	125	8, 158
		"		-0.191	125	156
		"		-0.191	130	159
		"		-0.190	135	157, 160
		"		-0.191	140	8

TABLE I (continued)

No.	Polymer	Solvent	dn/dc , ml./g.			Temp., °C.	Ref.
			$\lambda =$ 436 m μ	$\lambda =$ 546 m μ	$\lambda =$ 546 m μ		
E-101	Poly(ethyl methacrylate)	MEK		0.104	23	165	
E-102	Poly(<i>n</i> -Hexyl methacrylate)	MEK/Isopropanol (1:7 v/v)		0.107	23	165	
		MEK	0.105	0.105	23	166	
E-103	Polyisobutylene	Isopropanol	0.108	0.106	32.6	166	
E-104	Polysisoprene (<i>trans</i>)	Cyclohexane	0.117	0.139	25	167	
E-105	Poly- <i>p</i> -isopropylstyrene	MEK	0.198	0.186	169	168	
E-106	Poly- <i>p</i> -isopropylstyrene hydro- peroxide	Chloroform	0.134	0.124	169	169	
		MEK	0.195	0.185	169	169	
		"	0.203	0.191	169	169	
		"	0.200	0.197	169	169	
		"	0.196	0.186	169	169	
		"	0.197	0.184	169	169	
E-107	Poly(<i>p</i> -isopropylstyrene)/graft methyl methacrylate	MEK	0.185	0.176	169	169	
		"	0.186	0.177	169	169	
		"	0.188	0.178	169	169	
		"	0.150	0.143	169	169	
		"	0.181	0.172	169	169	
		"	0.189	0.180	169	169	
E-108	Poly(<i>n</i> -lauryl methacrylate)	<i>n</i> -Butyl acetate	0.092	0.090	23	170	
		Isopropyl acetate	0.107	0.104	13	170	
E-109	Polymethacrylamide	<i>n</i> -Amyl alcohol	0.0744	0.0781	171	171	
		Water	0.209		20-65	115	
		0.1N HCl	0.159 (589)			119	
		0.02N HCl	0.158		20-65	115	
		0.05N HCl		0.137	25	172	
E-110	Poly(methacrylic acid)	0.001N HCl		0.140	25	172	

Water		0.142	25	172
Methanol		0.134	25	172
Ethanol	0.154		25	173
Alcoholic LiBr	0.154		25	173
0.045M HCl		0.162	20	174
0.1M NaF		0.219	20	174
0.1M NaCl		0.213	20	174
0.1M NaBr		0.209	20	174
0.1M NaI		0.197	20	174
0.1M Na ₂ SO ₄		0.210	20	174
0.1M (NH ₄) ₂ MoO ₄		0.169	20	174
Acetone	0.13914		27	6
"	0.107			175
"	0.137	0.134	23 ± 2	176
"	0.129			177
"		0.131		178
"	0.1313	0.1293	25	179
"	0.136	0.134	25	180
Benzene	0.03980		27	6
"		-0.010		181
Butanone		0.111		182
"		0.112	Room	183
"	0.093			175
"		0.111		178
"		0.111	25	184
"		0.111	25	176
"		0.111	28	178
"		0.111	(488)	185
Butanone	0.114			181
"		0.113		181
Butanone/isopropanol (i.r.p.) ^f	0.1090	0.1075	10	186

(continued)

TABLE I (continued)

No.	Polymer	Solvent	dn/dc , ml./g.		Temp., °C.	Ref.
			$\lambda =$ 346 m μ	$\lambda =$ 546 m μ		
		Butanone/isopropanol (i.r.p.) ²	0.1130	0.1114	20	186
		"	0.1167	0.1153	30	186
		"	0.1208	0.1192	40	186
	Butyl chloride		0.0913	0.0898	20	186
	"		0.0948	0.0934	30	186
	"		0.0984	0.0970	40	186
	Butyl acetate		0.0987	0.0970	25	179
	Acetonitrile		0.140	0.137	25	180
	Bromobenzene			-0.058		181
	i-Bromonaphthalene			-0.147		181
	Isomyl acetate		0.0931	0.0911	20	186
	"		0.0945	0.0926	30	186
	"		0.0959	0.0942	40	186
	"		0.0974	0.0957	50	186
	1,2-Dichloroethane		0.050	0.051		185
	Dioxane			0.075		182
	"		0.0720	0.0707	25	179
	"			0.068		181
	Chloroform		0.0631	0.0629	25	179
	"			0.056		178
	Carbon tetrachloride			0.023		181
	Chlorobenzene			-0.026		181
	Ethyl acetate		0.1200	0.1180	25	179
	MEK		0.01385		27	6
	"			0.117	25	187
	"		0.113	0.111	23 \pm 2	176
	"			0.1173	Room	188

	MEK/isopropanol (55:45 v/v)			0.117	25	181
	Nitroethane			0.100		182
	"			0.094	25	184
	THF		0.0887	0.0871	25	179
	Acetone		0.136	0.134	25	189
	Benzene			0.138	25	190
	Toluene		0.129		25	191
	Toluene		0.137			192
	MEK			0.107	23	193
	<i>n</i> -Butanol		0.107	0.080	16.8	193
	Benzene		0.083	0.084	25	44
	Acetone			0.234		194
	1-Chloronaphthalene		-0.228	-0.227	125	195
	"			-0.195	140	8
	1-Chloronaphthalene			-0.189	125	9
	"			-0.2157	145	196
	"			-0.188	140	160, 197
	Hexane		0.0775	0.0775	25	198
	" (m.w.1.) ^g		0.0887	0.0887	46	198
	" (m.w.2.) ^g		0.0895	0.0895	46	198
	" (m.w.1.) ^g		0.101	0.101	57	198
	" (m.w.2.) ^g		0.104	0.104	57	198
	Isooctane		0.0460	0.0460	40	198
	Isoccon 113		0.0655	0.0655	35	198
	Benzene		0.118	0.115	25	198
	Chlorobenzene		-0.0530	-0.0448	25	198
	Methanol (m.w.3.) ^g		-0.0658	-0.0638	25	198
	" (m.w.4.) ^g		0.118	0.118	25	198
	Water		0.115	0.115	25	198
	"		0.0592			199
E-118	Poly(silicic acid)		0.65			200

(continued)

TABLE I (continued)

No.	Polymer	Solvent	dn/dc , ml./g.			Temp., °C.	Ref.
			$\lambda =$ 436 m μ	$\lambda =$ 546 m μ			
E-119	Polystyrene	Benzene	0.1151			201	
		"	0.113			28	202
		"		0.110		25	162
		"		0.115			203
		"		0.106			181
		Butanone	0.226			25	204
		"	0.231				185
		"		0.220			182
		"		0.214		20	205
		"		0.230		67	206
		"		0.220			181
		"		0.226		25	207
		"		0.223		30	221
		Bromobenzene		0.042			181
		1-Bromonaphthalene		-0.051			181
		Carbon tetrachloride		0.161		25	204
"			0.144		182		
"			0.146		181		
Decalin		0.118		25	204		
Dioxane			0.171		182		
"			0.176		208		
"			0.168		181		
Chlorobenzene			0.079		181		
1,2-Dichloroethane		0.168			185		
"			0.155		185		
"			0.161	20	206		
"			0.167	67	206		

Cyclohexane				0.179	40	206
"		0.1795		0.1682	20	209
"		0.1798		0.1685	21	209
"		0.1801		0.1687	22	209
"		0.1804		0.1690	23	209
"		0.1810		0.1695	25	209
"		0.1825		0.1709	30	209
"		0.1840		0.1723	35	209
"		0.1855		0.1738	40	209
"		0.1870		0.1752	45	209
"				0.171	35	210
"				0.219		211
MEK		0.229				212
"		0.229			20	213
"		0.231		0.220	25	213
"		0.231	0.208 (589)	0.218		214
"			0.220 (589)			214
"		0.2258		0.2138	7.5	209
"		0.2275		0.2155	15	209
"		0.2287		0.2167	20	209
"		0.2298		0.2178	25	209
"		0.2309		0.2189	30	209
"		0.2321		0.2201	35	209
"		0.2333		0.2213	40	209
"		0.2345		0.2225	45	209
Benzene/methanol (22.2:77.8 v/v)				0.145	25	210
" (3.27:1 v/v)				0.122	25	162
" (80:20 v/v)				0.137		215
" (7.6 mole-% methanol)		0.114			20	216
" (16.1 ")		0.124			20	216
" (29.1 ")		0.154			20	216
Benzene/isopropanol (35.8:64.2 v/v)				0.159	25	213
" (65:35 v/v)				0.154		215
Benzene/cyclohexanol (61.6:38.4 v/v)				0.108	25	210

(continued)

TABLE I (continued)

No.	Polymer	Solvent	dn/dc , ml./g.		Temp., °C.	Ref.
			$\lambda =$ 346 m μ	$\lambda =$ 546 m μ		
		Benzene/cyclohexanol (9.1 mole-% cyclohexanol)	0.119		20	216
		" (18.2 ")	0.121		20	216
		" (18.2 ")	0.134		70	216
		" (0.372 ")	0.124		20	216
		" (0.372 ")	0.134		70	216
		" (0.571 ")	0.134		70	216
		Benzene/(CH ₂ Cl) ₂ CHOH (33:67 v/v)		0.112		215
		Benzene/ethanol (5.7 mole-% ethanol)	0.115		20	217
		" (10.9 ")	0.119		20	217
		" (10.9 ")	0.131		70	217
		" (37.9 ")	0.162		20	217
		" (37.9 ")	0.151		70	217
		Benzene/1-hexanol (7.3 mole-% 1-hexanol)	0.119		20	217
		" (15.1 ")	0.126		20	217
		" (15.1 ")	0.135		70	217
		" (23.4 ")	0.136		20	217
		" (32.2 ")	0.148		20	217
		" (32.2 ")	0.144		70	217
		Benzene/1-dodecanol (1.9 mole-% 1-dodecanol)	0.116		20	217
		" (5.4 ")	0.122		20	217
		" (10.3 ")	0.132		20	217
		Benzene/1-octadecanol (0.59 mole-% 1-octadecanol)	0.115		20	217
		" (0.85 ")	0.116		20	217
		" (0.85 ")	0.134		70	217

Benzene/polyoxyethylene 420 (2.1 mole-% polyoxyethylene)	0.115	20	217
“ (4.1)	0.125	20	217
Benzene/polyoxyethylene 2100 (0.39 mole-% polyoxyethylene)	0.117	20	217
“ (0.59)	0.120	20	217
Benzene/cyclohexane (17.1 mole-% cyclohexane)	0.137	20	216
“ (17.1)	0.155	70	216
“ (34.7)	0.155	20	216
“ (34.7)	0.172	70	216
“ (55.2)	0.170	20	216
“ (55.2)	0.186	70	216
“ (76.4)	0.183	20	216
“ (76.4)	0.197	70	216
“ (90)	0.189	20	216
“ (90)	0.202	70	216
“ (95.2)	0.191	20	216
Benzene/n-hexane (12 mole-% n-hexane)	0.141	20	217
“ (21.4)	0.160	20	217
“ (21.4)	0.174	70	217
“ (36.8)	0.188	20	217
“ (36.8)	0.199	70	217
“ (44.9)	0.197	20	217
“ (44.9)	0.205	70	217
Benzene/n-dodecane (3.8 mole-% n-dodecane)	0.123	20	217
“ (3.8)	0.139	70	217
“ (7.3)	0.131	20	217
“ (7.3)	0.145	70	217
“ (13.6)	0.140	20	217
“ (13.6)	0.149	70	217

(continued)

TABLE I (continued)

No.	Polymer	Solvent	dn/dc , ml./g.		Temp., °C.	Ref.
			$\lambda =$ 346 m μ	$\lambda =$ 546 m μ		
	Benzene/ <i>n</i> -docosane	(1.3 mole-% <i>n</i> -docosane)	0.122		20	217
	"	(1.3 ")	0.140		70	217
	"	(4.3 ")	0.135		20	217
	"	(4.3 ")	0.147		70	217
	"	(9.7 ")	0.147		20	217
	"	(9.7 ")	0.150		70	217
	Butanone/methanol	(11.3:88.7 v/v)		0.214	25	210
	Butanone/isopropanol	(11.4:88.6 v/v)		0.211	25	210
	Dioxane/methanol	(28.6:71.4 v/v)		0.191	25	210
	Chlorobenzene/isopropyl ether	(68.0:32.0 v/v)		0.192	25	210
	Carbon tetrachloride/methanol	(18.3:81.7 v/v)		0.162	25	210
	THF/methanol	(28.7:71.3 v/v)		0.179	25	210
	MEK/isopropanol	(85.0:15.0 v/v)		0.219		215
	MEK/(CH ₂ Cl) ₂ CHOH	(46.0:54.0 v/v)		0.165		215
	Diethyl fumarate/CH ₂ Cl CH ₂ OH	(80.0:20.0 v/v)		0.152		215
	Water (dispersion)			0.250	25	150
	"			0.241		218
	Toluene		0.111		25	207
	"			0.109	20	124
	"		0.111		25	204
	"			0.104	20	205
	"			0.118	67	206
	"		0.112			211
	"		0.195		20	212
	"		0.112		25	219
	"			0.109		208

		0.111		0.109	Room	214
"				0.111	25	220
"				0.110	20	220
"					30	221
"		0.118		0.1079	25	222
"		0.1118		0.1091	25	223
"		0.1129			30	224
"		0.111			30	120
"		0.197				
Isotactic polystyrene				0.0625	25	225
E-120 Polystyrene- <i>p</i> -sulfonic acid (potassium salt), D.N. = 1.0 ^d				0.110	25	225
E-121 Polytetrahydrofuran				0.102	30	225
					145	226
E-122 Polytrifluoroethoxyethylene		0.152		0.026	22	227
E-123 Polyurethanes		0.148		0.150	22	227
				0.145	22	227
E-124 Poly(vinyl acetate)				0.095	20	124
						228
Acetonitrile		0.104				229
Benzene			0.104			203
Butanone			0.030			230
Dioxane				0.080		229
Ethyl formate						229
Methanol				0.028		228
MEK				0.095		231
"						232
Methyl isobutyl ketone				0.080	25	229
Methyl isopropyl ketone/heptane (i.r.p.) ^f (3:1, 4:1, and 6:1 v/v)				0.068		233
				0.075	25	234
Water				0.151		234
"				0.153		234
E-125 Poly(vinyl acetate), partially al- coholized to poly(vinyl alcohol) $\alpha = 0.840^*$ $\alpha = 0.857$						

(continued)

TABLE I (continued)

No.	Polymer	Solvent	dn/dc , ml./g.		Temp., °C.	Ref.
			$\lambda =$ 436 $m\mu$	$\lambda =$ 546 $m\mu$		
	$\alpha = 0.871$	Water		0.154		234
	$\alpha = 0.876$	"		0.154		234
	$\alpha = 0.883$	"		0.155		234
	$\alpha = 0.935$	"		0.159		234
	$\alpha = 0.964$	"		0.161		234
E-126	Poly(vinyl alcohol)	Water		0.150	20	235
		"	0.144		20	236
		"	0.168	0.164 (578)	30	237
E-127	Poly(vinyl bromide)	THF		0.112		238
		"		0.112 (644)		238
E-128	Poly(vinyl <i>n</i> -butyl ether)	Butanone	0.0792		25	239
E-129	Poly(vinyl carbanilate)	Dioxane	0.159	0.155	20	240
E-130	Poly(vinyl chloride)	Acetone		0.138	20	124
		Aq. NH_4OH ; pH 9-10 (latex)		0.200		241
		THF	0.1124		20	242
E-131	Poly(vinyl ethyl ether)	Butanone	0.0736		25	239
E-132	Poly(vinyl isopropyl ether)	Butanone	0.0827		25	239
E-133	Poly(vinyl methyl ether)	Butanone	0.0944		25	239
E-134	Poly-4-vinylpyridine	Methanol	0.267		25	243
		Isopropanol	0.224		25	243
		Butanone/isopropanol (85:15 w/w)	0.221		25	243
		" (86:14 w/w)	0.224		25	243
E-135	Polyvinylpyrrolidone	Methanol		0.176	25	162
		Water		0.135	25	162
		"	0.185			244
		Chloroform	0.108			244

E-136	Potassium alginate	Aq.; in presence of KCl	0.160	0.189	0.159	20-25	96
E-137	Potato X virus	Water	0.195				245
E-138	Ribonucleoprotein	Water	0.1886				246
E-139	Rubber	n-Hexane	0.100		0.1802	25	247
		Chloroform	0.0308		0.095	25	247
		Toluene	0.0988		0.0339	25	247
		Cyclohexene	0.0992		0.0943	25	247
		"	0.0953		0.0947	27	247
		"	0.0914		0.0909	17	247
		"	0.0669		0.0869	7	247
		Decalin	0.1305		0.0605	25	248
		Cyclohexane			0.1238	25	248
		"			0.124	27	248
		"			0.117	7	248
E-140	Serum albumin	Weak and strong salt solutions		0.186(λ_R) ^b			82
		Aq. NaCl	0.165		0.186	20	249
E-141	Sodium alginate	Aq.; in presence of NaCl	0.154		0.163	20-25	96
E-142	Sodium carboxymethyl cellulose	0.5N NaCl	0.158				250
		"	0.136				250
		Aq. NaCl	0.147				172
		Cadoxen	0.148		0.145	25	251
		"	0.164		0.145	25	251
		"	0.162		0.162	25	251
		"	0.175		0.161	25	251
		"	0.171		0.171	25	251
		"			0.168	25	251
E-143	Sodium polyphosphate	0.1N NaBr		0.109			252
		0.25N "		0.105			252
		0.35N "		0.102			252
		0.40N "		0.101			252
E-144	Sorbitan monostearate	Benzene	-0.0515				253
		"	-0.0420				253

(continued)

TABLE I (continued)

No.	Polymer	Solvent	dn/dc , ml./g.			Ref.
			$\lambda = 436 m\mu$	$\lambda = 546 m\mu$	Temp., °C.	
E-145	Styrene/acrylonitrile copolymer (61.7 mole-% styrene)	Butanone	0.203		30	254
E-146	Styrene/butadiene copolymer (70 mole-% styrene)	Cyclohexane	0.124			134
E-147	Styrene/butyl acrylate copolymer (40 mole-% styrene)	Water (dispersion)		0.166	25	150
E-148	Styrene/maleic acid copolymer (50 mole-% styrene)	Aqueous HCl, from 0.000M to 0.006M	0.180		25	255
E-149	Styrene/ α -methylstyrene copolymer					
	75 mole-% styrene	Benzene		0.116	25	190
	50 "	Benzene		0.123	25	190
E-150	Styrene/methyl methacrylate copolymer					
	Unfractionated block copolymer					
		Butanone	0.184			185
		1,2-Dichloroethane	0.135			185
		Toluene	0.075			185
		α -Dichlorobenzene	0.018			185
		Bromoforn	-0.025			185
		1-Chloronaphthalene	-0.075			185
	Fractions					
	25% styrene	Butanone	0.144			185
	25% "	1,2-Dichloroethane	0.076			185
	25% "	Toluene	0.028			185
	60% styrene	Butanone	0.184			185

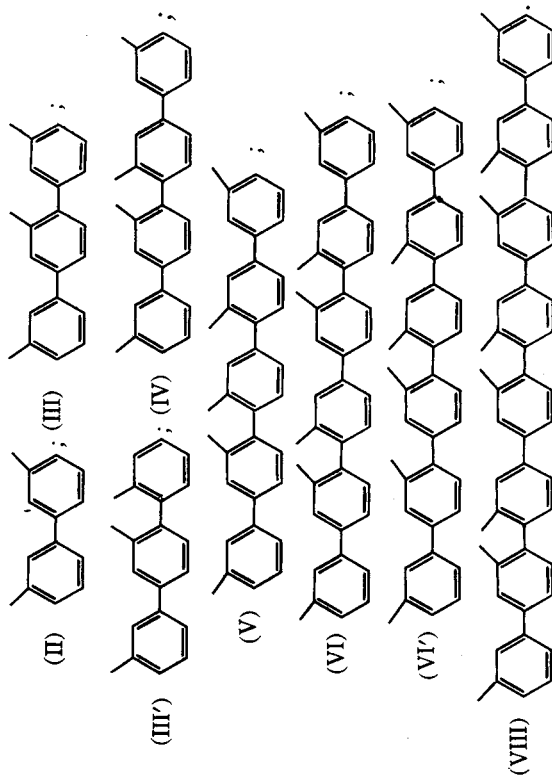
60%	"	<i>o</i> -Dichlorobenzene	0.0135	0.017	185
60%	"	Toluene	0.070	0.071	185
76% styrene		Butanone	0.203	0.193	185
76%	"	<i>o</i> -Dichlorobenzene	0.021	0.024	185
76%	"	Toluene	0.092	0.091	185
72% styrene		Butanone	0.198	0.190	185
72%	"	<i>o</i> -Dichlorobenzene	0.030	0.031	185
72%	"	Toluene	0.090	0.087	185
46.4% w/w styrene		Butanone		0.172	182
46.4%	"	Carbon tetrachloride		0.098	182
46.4%	"	Dioxane		0.133	182
46.4%	"	Nitroethane		0.148	182
7% styrene		Butanone	0.123	0.119	185
19%	"	"	0.137	0.132	185
25%	"	"	0.144	0.139	185
33%	"	"	0.153	0.148	185
40%	"	"	0.161	0.154	185
44%	"	"	0.166	0.158	185
74%	"	"	0.202	0.190	185
75%	"	"	0.202	0.193	185
72%	"	"	0.198	0.190	185
73%	"	"	0.200	0.190	185
77%	"	"	0.205	0.194	185
80%	"	"	0.208	0.198	185
83%	"	"	0.211	0.200	185
Block copolymer					
70% styrene		Butanone		0.195	181
70%	"	Dioxane		0.139	181
70%	"	Carbon tetrachloride		0.116	181
70%	"	Benzene		0.074	181
70%	"	Chlorobenzene		0.051	181
70%	"	Bromobenzene		0.015	181

(continued)

TABLE I (continued)

No.	Polymer	Solvent	dn/dc , ml./g.			Ref.
			$\lambda = 436 m\mu$	$\lambda = 546 m\mu$	Temp., °C.	
	70% styrene	1-Bromonaphthalene		-0.096	181	
	Statistical copolymer					
	68% styrene	Butanone		0.185	181	
	68% "	Dioxane		0.136	181	
	68% "	Carbon tetrachloride		0.103	181	
	68% "	Benzene		0.068	181	
	68% "	Chlorobenzene		0.045	181	
	68% "	Bromobenzene		0.010	181	
	Mixtures of 65% PS + 35% PMMA					
		Butanone		0.180	181	
		Dioxane		0.133	181	
		Benzene		0.065	181	
		Chlorobenzene		0.044	181	
		Bromobenzene		0.007	181	
		1-Bromonaphthalene		-0.088	181	
E-151	Thyroglobulin	Water	0.1949		23	
		"	0.1948		32	
E-152	Tobacco mosaic virus	Water		0.183	21.5	
E-153	Trifluoronitrosomethane/tetrafluoroethylene copolymer	Freon 113		0.033	257	
E-154	Tropomyosin	Water	0.180		258	
		"		0.188	74	
E-155	Trypsinogen	Aq. phosphate buffer	0.19		259	
E-156	Turnip yellow virus	Aq. phosphate buffer		0.196	26	
E-157	Xylan	DMSO		0.064	262	
		"		0.062	263	

^a D.S. is degree of substitution.
^b λ_{ϵ} denotes an appreciable red band of the spectrum obtained with a tungsten lamp and red filter, utilized here because hemoglobin absorbs very strongly in the visible and ultraviolet regions.
^c Compounds are polyphenyls methylated as follows:



^d D.N. is degree of neutralization.

^e α is degree of alcoholysis.

^f i.r.p. denotes an isorefractive pair.

^g m.w.1 denotes molecular weight = 0.96×10^6 ; m.w.2 denotes molecular weight = 0.20×10^6 ; m.w.3 denotes molecular weight = 1.22×10^6 ; m.w.4 denotes molecular weight = 1.25×10^6 .

^h There is ambiguity in the values presented for gelatin in reference 66, as only five values of dn/dc are quoted for six different solvent media. We have assumed that the figure for (5% formic acid + 95% DMF) was omitted by oversight and have tabulated the remaining data accordingly.
ⁱ Values of dn/dc quoted with c expressed as weight fraction.

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Résumé

Les incréments des indices de réfraction spécifiques de 158 polymères et copolymères naturels et synthétiques dans les solvants purs et en mélange ont été rassemblés. Là où ce fut possible, la température et la longueur d'onde (généralement 436 ou/et 546 $m\mu$) ont été annotées.

Zusammenfassung

Spezifische Brechungsindexinkremente von 158 natürlichen und synthetischen Polymeren und Kopolymeren in reinen Lösungsmitteln und Lösungsmittelgemischen wurden zusammengestellt. Wo es möglich ist, sind Temperatur und Wellenlänge (allgemein 436 und/oder 546 $m\mu$) angegeben.

Received June 1, 1965

Prod. No. 1230