SECTION VII

SOLUTION PROPERTIES

Viscosity – Molecular Weight Relationships and Unperturbed Dimensions of Linear Chain Molecules

M. Kurata, Y. Tsunashima
Institute for Chemical Research, Kyoto University, Uji, Kyoto, Japan

A. INTRODUCTION

1. The Viscosity – Molecular Weight Relationship

The limiting viscosity number $[\eta]$ of a solution – which has long been called the intrinsic viscosity – is defined as

$$[\eta] = \lim_{c \to 0} \frac{\eta - \eta_0}{\eta_0 c} \qquad \text{(A1)}$$

in terms of the solvent viscosity, η_0, the solution viscosity, η, and the solute concentration, c. The concentration, c, is expressed in grams of solute per milliliter of solution or, more frequently, in grams of solute per 100 milliliters of solution, the limiting viscosity number being given in the reciprocal of these units, *i.e.*, in milliliters per gram or in deciliters per gram. Here, following the IUPAC 1952-recommendations (1), we adopt the former unit. The quantity $[\eta]$ of a polymer solution is a measure of the capacity of a polymer molecule to enhance the viscosity, which depends on the size and the shape of the polymer molecule. Within a given series of polymer homologs, $[\eta]$ increases with the molecular weight M; hence it is a measure of M.

Section C gives the limiting viscosity number – molecular weight relationships for polymers, in various solvents and at various temperatures. The table contains the constants of the equation

$$[\eta] = KM^a \qquad \text{(A2)}$$

which is known as the Mark–Houwink–Sakurada equation. It is now well established that for linear, flexible polymers, under special conditions of temperature or solvent, (usually known as the Flory "theta" temperature or solvent, (2)), the above equation becomes

$$[\eta]_\theta = K_\theta M^{0.50} \qquad \text{(A3)}$$

In the tables, the θ sign in parenthesis (next to the temperature data) indicates that the viscosity constants were obtained under the theta condition. Since Eq. (A3) is approximately valid over the whole molecular weight range, K_θ and $a = 0.50$ may be used without modification, outside of the molecular weight range in which they were determined. However, it must be noted that $[\eta]$ is rather sensitive to temperature in the vicinity of θ, especially when M is higher than 5×10^5.

In ordinary good solvents, the constants K and a obtained are valid only within a rather limited range of M (3,4). It is therefore, quite probable that the tabulated relationships are in error outside the indicated range of M (see eighth column in the table). As for the effect of temperature, however, both K and a mostly become insensitive to the temperature when a exceeds about 0.70, and they may be used in a 10-degree range on either side of temperature at which the constants were determined.

The method of determination of the molecular weight and the number of fractionated samples (Fr.) or whole polymer samples (WP) used to determine the $[\eta]$–M relationship are also given in the ninth and the sixth or seventh columns, respectively. The abbreviations used are as follows:

(A) Methods Yielding the Number-Average Molecular Weight (M_n)

CR	cryoscopy
EG	end-group titration
VOS	vapor pressure osmometry
EB	ebullioscopy
OS	osmotic pressure

(B) Methods Yielding the Weight-Average Molecular Weight (M_w)

LS	light scattering
LLS	low-angle laser light scattering
SE	sedimentation equilibrium
SEC, GPC	size exclusion chromatography gel permeation chromatography
SA	approach to the sedimentation equilibrium (Archibald's method)

(C) Empirical or Semi-Empirical Methods

EM	electron microscopy
GPC	gel permeation chromatography
LV	limiting viscosity number – molecular weight relationship
PR	analysis of polymerization rate (yielding M_n)
DV	diffusion and viscosity
MV	melt viscosity – molecular weight relationship
SD	sedimentation and diffusion
SV	sedimentation and viscosity

Thus, for example, the constants tabulated are for the $[\eta]$–M relationships, expressed in terms of M_n or M_w, if the method is specified as OS or LS, respectively; *i.e.*,

$$[\eta] = K_n M_n^a \qquad \text{(A4)}$$

or

$$[\eta] = K_w M_w^a \qquad \text{(A5)}$$

The values of K_n and K_w, especially the former, are greatly influenced by the molecular weight distribution (MWD) of the polymer samples, and caution must be taken in using these relationships.

To illustrate this effect, let us assume that

(i) Equation (A2) is applicable to the molecule i with molecular weight M_i over the whole range of M; *i.e.*,

$$[\eta]_i = KM_i^a \tag{A6}$$

(ii) The weight fraction w_i of the molecules i in a given sample can be represented by a continuous exponential function,

$$w_i(M_i) = [y^{h+1}/\Gamma(h+1)]\, M_i^h \exp(-yM_i) \tag{A7}$$

$$y = h/M_n = (h+1)/M_w \tag{A8}$$

or by the log-normal function,

$$w_i(M_i) = AM_i \exp[-p^2(\ln M_i/M_0)^2] \tag{A9}$$

where h, A, p, and M_0 are constants, and Γ represents the gamma function.
Then, since $[\eta] = \sum_i w_i[\eta]_i$, we obtain

$$K_n = K\Gamma(a+h+1)/h^a\,\Gamma(h+1) \tag{A10}$$

$$K_w = K\Gamma(a+h+1)/(h+1)^a\,\Gamma(h+1) \tag{A11}$$

for the exponential MWD, and

$$K_n = K(M_w/M_n)^{0.5a(a+1)} \tag{A12}$$

$$K_w = K(M_w/M_n)^{0.5a(a-1)} \tag{A13}$$

for the log-normal MWD (5). The values of K_n/K and K_w/K calculated by these equations are shown in Section B. This table may be used for estimating an error due to MWD in the determination of M.

As an example, let us assume that a given polymer sample has the exponential MWD with $M_w/M_n = 2.0$, while an available $[\eta]$–M_n equation has been obtained for samples with a narrow MWD, *e.g.*, $M_w/M_n = 1.1$. Further, let a be 0.70. Then, to find the correct value of M_n of the given sample from $[\eta]$, we must use Eq. (A4) with $K_n = 1.54K$, instead of the available equation with $K_n = 1.06K$. Use of the latter would lead to an overestimate M'_n which is related to the correct M_n by

$$[\eta] = 1.54KM_n^{0.70} = 1.06KM_n'^{0.70} \tag{A14}$$

The error amounts to about 70%, *i.e.*, $M'_n = 1.7M_n$. Thus, application of the viscosity equation written in M_n is to be restricted to within a narrow class of samples, unless an appropriate correction is made. On the other hand, if an $[\eta]$–M_w equation is available for the same pair of working and reference samples as above, we have

$$[\eta] = 0.951KM_w^{0.70} = 0.991KM_w'^{0.70} \tag{A15}$$

instead of Eq. (A14). Hence, the error M_w amounts to only 6% ($M'_w = 0.94M_w$), which will be negligible for more practical purposes.

Based on the above consideration, we classify the heterogeneity of polymers into four classes, A–D, as shown in the last column of the table in Section B, and indicate it in the tenth column of the tables in Section C, as a measure of the heterogeneity of the reference samples used.

It is desirable that readers select their own relationship by inspecting these data on heterogeneity as well as those on the number of samples and the molecular weight range. Generally speaking, a "good" $[\eta]$–M relationship is one that has been obtained on the basis of M_w for at least four samples of classes A and B (exceptionally C) or on the basis of M_n for those of class A (exceptionally B), whose molecular weights range over at least one half orders of magnitude.

In the "Remarks" column of Section C, we have occasionally indicated by the letter R, a "recommended" relationship for the convenience of readers. In the range of low molecular weight (mostly less than 10^4), the constant a becomes 0.50 irrespective of the solvent. This type of relationship cannot be used, even approximately, at higher molecular weights. This case is noted by the letter L. High conversion polymers are also marked by the letter H, where the $[\eta]$–M relationships are less reproducible due to chain branching than are ordinary ones. The abbreviations used are as follows:

A	Narrow MWD polymers, or well-fractionated polymers, $M_w/M_n \leq 1.25$
B	Ordinary fractionated polymers, $1.30 \leq M_w/M_n \leq 1.75$
C	Poorly fractionated polymers or most probable MWD polymers, $1.8 \leq M_w/M_n \leq 2.4$
D	Wide MWD polymers, $M_w/M_n \geq 2.5$
H	High conversion polymers, including branches
L	Limited to low-molecular-weight polymers
R	Recommended relationship

In Section C, polymers are arranged according to their structure in subgroups. Within each subgroup, the polymers are, in principle, given in alphabetical order. Within each polymer, the solvents are also arranged in alphabetical order, followed by the mixed solvents.

Chain configurational data are occasionally given in the first column. The data given in parentheses refer to only one set of viscosity constants listed in the same row, while the data given without parentheses refer to a series of sets listed in the same and succeeding rows. Thus, for example, the data "N content, 13.9 wt.%" are effective only for the sixth row of cellulose trinitrate, and the data "95%-*cis*, 1%-*trans*, 4%-1,2" are effective for the fourth to eighth rows of polybutadiene.

The tables in Section C are essentially based on the table published by Kurata and Stockmeyer (3). Data were also taken from tables published by Peterlin (7), Meyerhoff (8), Elias (9), and Krause (10), the last one including a number of unpublished data on acrylic and methacrylic polymers. We are also grateful to these authors. Thanks are also due to J. Brandrup and K. Kamide for their help with this compilation.

2. Unperturbed Dimensions of Linear Chain Molecules

The mean-square end-to-end distance $\langle r^2 \rangle$ of a linear chain molecule in solution is usually expressed in terms of two basic quantities, the unperturbed mean-square end-to-end distance $\langle r^2 \rangle_0$ and the expansion factor α; *i.e.*,

$$\langle r^2 \rangle = \langle r^2 \rangle_0 \alpha^2 \tag{A16}$$

The latter quantity α represents the effect of "long-range interactions" which can be described as an osmotic swelling of the chain by the solvent–polymer interactions, while the unperturbed dimension $\langle r^2 \rangle_0$ represents the effect of "short-range interactions" such as bond angle restrictions and steric hindrances to internal rotation. The steric hindrances are also influenced by the torques exerted on the chain by solvent molecules, but the effect is rather small in many cases (11).

For sufficiently long chain, $\langle r^2 \rangle_0$ becomes proportional to $\sum_i n_i l_i^2$ where n_i is the number of the ith-kind bond of length l_i. The quantity C_∞, defined by

$$C_\infty = \lim_{n\to\infty} \langle r^2 \rangle_0 \Big/ \sum_i n_i l_i^2 \tag{A17}$$

is often called the characteristic ratio and it serves as a measure of the effect of short-range interactions.

The freely rotating state is a hypothetical state of the chain in which the bond angle restrictions are retained, but the steric hindrances to internal rotation are released. The mean-square end-to-end distance of the freely rotating chain $\langle r^2 \rangle_{0f}$ can be readily calculated from the given basic structure of the chain. For instance, if the chain consists of only one kind of bond of length l, we obtain

$$\langle r^2 \rangle_{0f} = nl^2[(1+\cos\theta)/(1-\cos\theta)] \tag{A18}$$

where n is the number of bonds and θ is the supplement of the valence bond angle. For vinyl polymer chains, $l = 0.154$ [nm], $\cos\theta = 1/3$, and $n = M/m = 2M/M_u$; and hence

$$(\langle r^2 \rangle_{0f}/M)^{1/2} = 0.308/M_u^{1/2} = 0.218/m^{1/2}\,[\text{nm}] \tag{A19}$$

where M_u is the molecular weight of the repeating unit and m is the average molecular weight per skeletal link. Similar expressions for r_{0f} $(= \langle r^2 \rangle_{0f}^{1/2})$ can be also obtained for more complicated chains. The results are summarized in Section D.

The ratio of $\langle r^2 \rangle_0$ to $\langle r^2 \rangle_{0f}$, then, represents the effect of steric hindrance on the average chain dimensions:

$$\sigma = r_0/r_{0f} = (\langle r^2 \rangle_0/\langle r^2 \rangle_{0f})^{1/2} \tag{A20}$$

The quantity σ is independent of n. Section E gives a list of the unperturbed dimensions of linear chain molecules which were obtained under various conditions of solvent and temperature. The values of $r_0/M^{1/2}$, $r_{0f}/M^{1/2}$, σ and C_∞ are given, together with the experimental values of $S_{0z}/M_w^{1/2}$, a_p, or K_0 from which r_0 was computed. S_{0z} which is the abbreviation of $\langle S^2 \rangle_{0z}^{1/2}$ is the z-average value of the unperturbed radius of gyration, a_p is the persistence length, and K_0 is the viscosity constant corresponding to K_θ in Eq. (A3). The methods used to determine these quantities are also indicated in the tenth column of the tables by using the following abbreviations:

(A) Light scattering

- LT — Zimm's plot in a theta solvent yielding $S_{0z}/M_w^{1/2}$. After a heterogeneity correction is made, the tabulated value of $r_0/M^{1/2}$ $(= 6^{1/2} S_{0w}/M_w^{1/2})$ is obtained.
- LD — dissymmetry method in a theta solvent. Less reliable for heterogeneous samples than the former method.
- LG — Zimm's plot in good solvents yielding $S_z/M_w^{1/2}$. After corrections for the excluded volume effect and heterogeneity are made, the tabulated value of $r_0/M^{1/2}$ is obtained (3,12).

(B) X-ray small-angle scattering

- XS — the persistence length a_p is obtained irrespective of the solvent nature. The tabulated values of $r_0/M^{1/2}$ are the asymptotic values for infinitely high molecular weight (13,14).

(C) Limiting viscosity number

- VT — viscosity – molecular weight relationship in a theta solvent. Equation (A3) $r_0/M^{1/2}$ is calculated by the Flory and Fox relation, $K_0 = \Phi_0 (r_0/M^{1/2})^3$. The following values of Φ_0 were used:
  - 2.7×10^{23} for well-fractionated polymers (class A in Section C)
  - 2.5×10^{23} for ordinary fractionated polymers (class B)
  - 2.1×10^{23} for poorly fractionated or unfractionated polymers (class C or D)
- VG — viscosity – molecular weight relationship in good solvents. K_0 was estimated by using the Kurata–Stockmeyer–Fixman plot (3,4) or other analogous plots (12).
- VWC — viscosity analyzed by the wormlike cylinder model.
- VA — viscosity in good solvents. The correction of excluded volume effect is made by using the Flory–Krigbaum–Orofino theory of the second virial coefficient A_2 or other analogous theories (12).

(D) Method yielding the temperature dependence of r_0.
- ST stress – temperature coefficient of undiluted or swollen samples.
- VTe viscosity – temperature coefficient of the intrinsic viscosity

The polymers are arranged in Section E in the same order as in Section C. For each polymer, smoothed values of $r_0/M^{1/2}$, σ, and C_∞, which were mostly obtained by VT or VG, are given in the first line, followed by some typical values obtained by more direct methods such as LT or XS. The listed values of $r_0/M^{1/2}$ sometimes scatter appreciably, reflecting the difficulty involved, both experimental and theoretical, in the determination of this quantity. Especially in the case of cellulose chains, the right magnitude of r_0 is yet in controversy (542, 549,3,691,696,688,678,686,12). In recent papers, emphasis has often been put on the effect of temperature or solvent on the unperturbed dimensions. These data are put together at the end of the tabulation for each polymer. Section E is also based on the tables published by Kurata and Stockmeyer (3).

B. EFFECT OF MOLECULAR WEIGHT DISTRIBUTION ON THE VISCOSITY CONSTANT K

	$a = 0.5$		$a = 0.6$		$a = 0.7$		$a = 0.8$		$a = 0.9$		$a = 1.0$		
M_w/M_n	K_n/K	K_w/K	K_n/K	K_w/K	K_n/K	K_w/K	K_n/K	K_w/K	K_n/K	K_w/K	K_n/K	K_w/K	Class
MOLECULAR WEIGHT DISTRIBUTION: EXPONENTIAL TYPE (Eq. (A7))													
30	4.87	0.890	6.91	0.897	9.85	0.911	14.18	0.933	20.56	0.963	30	1	D
15	3.46	0.893	4.57	0.900	6.08	0.914	8.16	0.935	11.02	0.964	15	1	D
10	2.83	0.896	3.59	0.903	4.59	0.917	5.91	0.937	7.67	0.965	10	1	D
5	2.03	0.907	2.40	0.913	2.85	0.925	3.42	0.943	4.12	0.968	5	1	D
3	1.60	0.921	1.79	0.926	2.02	0.936	2.29	0.952	2.62	0.973	3	1	D
2	1.33	0.940	1.43	0.943	1.54	0.951	1.68	0.963	1.83	0.979	2	1	C
1.75	1.25	0.948	1.33	0.951	1.42	0.958	1.51	0.968	1.63	0.982	1.75	1	B
1.50	1.18	0.959	1.23	0.961	1.28	0.967	1.35	0.975	1.42	0.986	1.50	1	B
1.25	1.09	0.975	1.12	0.977	1.15	0.980	1.18	0.985	1.21	0.991	1.25	1	A
1.10	1.04	0.989	1.05	0.989	1.06	0.991	1.07	0.993	1.09	0.996	1.10	1	A
MOLECULAR WEIGHT DISTRIBUTION: NORMAL TYPE (Eq. (A9))													
30	3.58	0.654	5.12	0.665	7.57	0.700	11.58	0.762	18.32	0.858	30	1	D
15	2.76	0.713	3.67	0.723	5.01	0.753	7.03	0.805	10.13	0.885	15	1	D
10	2.37	0.750	3.02	0.759	3.94	0.785	5.25	0.832	7.16	0.902	10	1	D
5	1.83	0.818	2.17	0.824	2.61	0.845	3.19	0.879	3.96	0.930	5	1	D
3	1.51	0.872	1.69	0.877	1.92	0.891	2.21	0.916	2.56	0.952	3	1	D
2	1.30	0.917	1.39	0.920	1.51	0.930	1.65	0.946	1.81	0.969	2	1	C
1.75	1.23	0.932	1.31	0.935	1.40	0.943	1.50	0.956	1.61	0.975	1.75	1	B
1.50	1.16	0.951	1.21	0.953	1.27	0.958	1.34	0.968	1.41	0.982	1.50	1	B
1.25	1.09	0.973	1.11	0.974	1.14	0.977	1.17	0.982	1.21	0.990	1.25	1	A
1.10	1.04	0.988	1.05	0.989	1.06	0.990	1.07	0.992	1.08	0.996	1.10	1	A

C. TABLES OF VISCOSITY – MOLECULAR WEIGHT RELATIONSHIPS, $[\eta] = KM^a$

TABLE 1. MAIN-CHAIN ACYCLIC CARBON POLYMERS

Polymer	Solvent	Temp. (°C)	K ($\times 10^3$) (ml/g)	a	No. of samples Fr.	No. of samples W.P.	Mol. wt. range ($\times 10^{-4}$)	Method(s)	Remarks	Refs.
1.1. POLY(DIENES)										
Poly(butadiene)										
linear	Dioxane	12.1	139	0.52	4	–	2.1–23.2	LG	B–C	889
	Toluene	35	16.9	0.765	6	–	2.1–23.2	LG	B–C	889
ring	Toluene	35	11.8–10.6	0.765	3	–	3.8–6.1	LG	B–C	889
98%-*cis*, 2%-1,2	Benzene	30 (θ)	33.7	0.715	9	–	5–50	OS	A,R	15
	Isobutyl acetate	20.5	185	0.50	6	–	5–50	OS	A	15
	Toluene	30	30.5	0.725	9	–	5–50	OS	A	15
95%-*cis*, 1%-*trans*, 4%-1,2	Benzene	30	8.5	0.78	4	–	15–50	LS	A	16
	Cyclohexane	30	11.2	0.75	4	–	15–50	LS	A	16
	5-Methyl-2-hexanone	12.6 (θ)	150	0.50	4	–	15–35	LS	B	17

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TABLE 1. *cont'd*

Polymer	Solvent	Temp. (°C)	K (× 10^3) (ml/g)	a	No. of samples Fr.	W.P.	Mol. wt. range (× 10^{-4})	Method(s)	Remarks	Refs.
	3-Pentanone	10.3 (θ)	152	0.50	4	–	10–25	LS	B	17
	Toluene	30	33.9	0.688	8	–	10–65	OS	A	18
94%-*cis*, 4%-*trans*, 2%-1,2	Benzene	25	41.4	0.70	8	–	9–120	OS	A	19
	Dioxane	20.2 (θ)	205	0.50	8	–	9–120	OS	A	19
92%-*cis*, 3%-*trans*, 5%-1,2	Benzene	32	10	0.77	13	–	10–160	LS	B,R	20
51%-*trans*, 43%-*cis*, 6%-1,2	Toluene	30	39	0.713	6	–	11–25	OS	A	21
57%-*trans*, 36%-*cis*, 7%-1,2	Tetrahydrofuran	30	25.6	0.74	2	–	1–57	LS	A	733
71%-*trans*, 4%-*cis*, 25%-1,2	Cyclohexane	25	12	0.77	8	–	230–880	LS	C	22
79%-*trans*, 21%-*cis*	Cyclohexane	20	36	0.70	12	–	23–130	LS	B,R	23
97%-*trans*, 3%-1,2	Cyclohexane	40	28.2	0.70	7	–	4–17	LS	B	24
	Toluene	30	29.4	0.753	6	–	5–16	OS	A	25
ca. 100%-*cis*	Benzene	32	14.5	0.76	8	–	18–50	LS	A	26
	Heptane/hexane (1/1, v/v)	20	138	0.53	5	–	?	SD	A	27
65%-1,2, 25%-*trans*, 10%-*cis*	Toluene	25	110	0.62	8	–	7–70	OS	B	28
5°C-emulsion, randomly branched	3-Pentanone	24 (θ)	$M^{2/3}[\eta] = 7.15 + 3.47M$		10	–	10–100	OS	C	29
50°C-emulsion, randomly branched	Benzene	5 (θ)	$M^{2/3}[\eta]^{4/3} = 4.61 + 0.3287M$		16		5–124	OS	C	29
Poly(butadiene-*co*-acrylonitrile), Buna-N rubber										
	Acetone	25	50	0.64	5	–	2.5–10	OS	B	28
	Benzene	25	13	0.55	5	–	2.5–10	OS	B	28
	Chloroform	25	54	0.68	5	–	2.5–10	OS	B	28
	Toluene	25	49	0.64	7	–	2.5–40	OS	B	28
Poly(butadiene-*co*-styrene), Buna-S, GR-S, or SBR rubber										
	Benzene	25	52.5	0.66	24	–	1–160	OS		45
		25	54	0.66	8	–	1–165	OS	B	46
	Cyclohexane	30	31.6	0.70	6	–	5–25	OS	A	47
	2-Pentanone	21 (θ)	185	0.50	6	–	5–25	OS	A	47
	Toluene	25	52.5	0.667	25	–	2.5–50	OS	B	28
		30	16.5	0.78	–	9	3–35	OS		48
		30	37.9	0.71	6	–	5–25	OS	A	47
linear fraction	Toluene	30	21.4	0.74	15	–	3–20	OS	A,R	41
branched fraction	Toluene	30	535	0.48	20	–	20–100	OS	B	41
Poly(1-butenylene-*co*-vinylethylene)										
43%-1,2	1,4-Dioxane	15.7 (θ)	173	0.50	6	–	0.88–22	LLS, SEC, OS	A	890
	Tetrahydrofuran	30	32.3	0.72	6	–	0.88–22	LLS, SEC, OS	A	890
Poly(2-*tert*-butylbutadiene)	Benzene	21	4.2	0.80	–	8	6–90	SD	A	30
	Octane	21	4.2	0.80	–	7	6–35	SD	A	30
Poly(chloroprene)										
Neoprene CG	Benzene	25	2.02	0.89	10	–	6–150	OS	B	31
Neoprene GN	Benzene	25	14.6	0.73	16	–	2–96	OS	B	32
Neoprene W	Benzene	25	15.5	0.71	8	–	5–100	OS	B	33
		25	15.5	0.72	9	–	5–80	LS	B,R	34
	Butanone	25 (θ)	113	0.50	7	–	15–300	LS	A	35
	Butyl acetate	25	37.8	0.62	7	–	15–300	LS	A	35
	Carbon tetrachloride	25	22.1	0.69	7	–	15–300	LS	A	35
	Cyclohexane	45.5 (θ)	107	0.50	7	–	15–70	LS	B	34
type, unspecified	Toluene	25	50	0.615	13	–	4–120	OS	B	28
Poly(isoprene)										
natural rubber	Benzene	30	18.5	0.74	–	4	8–28	OS	C	37
	Cyclohexane	27	30	0.70	–	1	ca. 185	LS, SD	C	38
	4-Methyl-2-pentanone	35	60.7	0.57			5–100	LS	B	698
	2-Pentanone	14.5 (θ)	119	0.50	–	4	8–28	OS	C	37
	Toluene	25	50.2	0.667	20	–	7–100	OS	B,R	39
		35	17.4	0.74			5–100	LS	B	698
synthetic *cis*	Hexane	20	68.4	0.58	5	–	5–80	SD	A	40
	Toluene	30	8.51	0.77	5	–	20–100	LS	A	41
85–91%-*cis*	Toluene	30	20.0	0.728	–	12	14–580	LS	A,R	42
		30	15	0.74	–	16	2–15	PR	A	43
	2,2,4-Trimethylpentane	30	22.2	0.683	–	8	23–580	LS	A	42
	Heptane/propanol (78/22, v/v)	30	37	0.63	–	6	43–580	LS	A	42

TABLE 1. *cont'd*

Polymer	Solvent	Temp. (°C)	K (× 10^3) (ml/g)	a	No. of samples Fr.	No. of samples W.P.	Mol. wt. range (× 10^{-4})	Method(s)	Remarks	Refs.
84%-*cis*, 14%-*trans*, 2%-1,2	Benzene	25	13.3	0.78	20	–	2–80	OS	B	44
		25	11.2	0.78	25	–	2–60	OS	B	44
	Dioxane	34 (θ)	145	0.50	30	–	2–50	OS	B	44
71%-*cis*, 22%-*trans*, 7%-3,4	Cyclohexane	35	20.2	0.73	5	–	2–32	OS	A	786
	Dioxane	35	94	0.53	5	–	2–32	OS	A	786
	4-Methyl-2-pentanone	35	76	0.56	5	–	2–32	OS	A	786
	Toluene	35	17.5	0.74	5	–	2–32	OS	A	786
gutta percha	Benzene	25	35.5	0.71	9	–	0.2–5	OS	A,R	19
	Dioxane	47.7 (θ)	191	0.50	9	–	0.2–5	OS	A	19
	Propyl acetate	60 (θ)	232	0.50	–	3	10–20	OS	C	37
synthetic *trans*	Benzene	32	43.7	0.65	24	–	8–140	LS	C	26
synthetic *trans* (98%)	Benzene	30	18.1	0.722			14–77	LS	B	699
	Cyclohexane	30	16.2	0.736	8	–	14–77	LS	B	699
	Hexane	30	13.8	0.711	7	–	14–77	LS	B	699
	Toluene	30	17.6	0.729			14–77	LS	B	699
98% 1,4-*trans*	Benzene	30	18.1	0.722	6	–	14–69	LS	B	887
	Cyclohexane	30	16.2	0.736	8	–	16–130	LS	B	887
	n-Hexane	30	13.8	0.711	7	–	16–105	LS	B	887
	Toluene	30	17.6	0.729	5	–	14–77	LS	B	887
70% *cis*-1,4, 23% *trans*-1,4 7% 3,4	Cyclohexane	25	20.5	0.730	11	–	1.5–342	LS	A	891
76% *cis*-1,4, 19% *trans*-1,4 5% 3,4	Cyclohexane	25	18.0	0.74	5	–	33–724	LS	A	892
star type 70% *cis*-1,4, 23% *trans*-1,4 7% 3,4 (mol. wt. of arm = various)										
3 arm	Cyclohexane	25	12.5	0.757	–	–	–	LS	–	893
4 arm	Cyclohexane	25	11.6	0.753	–	–	–	LS	–	893
8 arm	1,4-Dioxane	34	75.5	0.493	–	–	–	LS	–	893
	Toluene	34	9.47	0.726	–	–	–	LS	–	893
12 arm	1,4-Dioxane	34	53.9	0.501	–	–	–	LS	–	893
	Toluene	34	5.70	0.741	–	–	–	LS	–	893
16 arm	1,4-Dioxane	34	37.4	0.502	–	–	–	LS	–	893
	Toluene	34	3.04	0.764	–	–	–	LS	–	893
trans 1,4	Benzene	30	18.1	0.722	6	–	14–70	LS	B	894
	Cyclohexane	30	16.2	0.736	6	–	14–70	LS	B	894
	Hexane	30	13.8	0.711	6	–	14–70	LS	B	894
	Toluene	30	17.6	0.729	4	–	14–70	LS	B	894
Poly(isoprene)-*block*-poly(styrene), A_k-B_n										
k/n, (50/50, w/w)	Cyclohexane	35	21.8	0.68	5	–	3–54	OS	A	786
	Dioxane	35	32.6	0.63	5	–	3–54	OS	A	786
	4-Methyl-2-pentanone	35	53.1	0.57	5	–	3–54	OS	A	786
	Toluene	35	14.6	0.73	5	–	3–54	OS	A	786
k/n, (25/75, w/w)	Cyclohexane	35	39.3	0.60	6	–	3–48	OS	A	786
	Dioxane	35	24.8	0.65	6	–	3–48	OS	A	786
	4-Methyl-2-pentanone	35	62.8	0.55	6	–	3–48	OS	A	786
	Toluene	35	14.3	0.72	6	–	3–48	OS	A	786
Poly(isopropenylethylene-*co*-1-methyl-1-vinylethylene) 20–25%-1,2,70–75%-3,4										
	2-Octanol	30.5 (θ)	102	0.50	7	–	1.3–27	LLS, SEC, OS	A	890
	Tetrahydrofuran	30	11.6	0.77	7	–	1.3–27	LLS, SEC, OS	A	890
Poly(1-methyl-1-butylene-*co*-isopropenylethylene) 51%-1,4,49%-3,4										
	2-Octanol	41.3	78	0.52	8	–	1.1–14	LLS, SEC, OS	A	890
	Tetrahydrofuran	30	14.6	0.75	8	–	1.1–14	LLS, SEC, OS	A	890
Poly(1,1,2-trichlorobutadiene)	Benzene	25	31.6	0.66	11	–	25–130	LS		36
1.2. POLY(ALKENES), POLY(ACETYLENES)										
Poly(alkene) C_{10}–C_{18}	Toluene	25	12.7	1.04	12	–	2–18	LS	B	86
Poly(alkene) C_{12}–C_{18}	Cetane	38	21	0.61	10	–	4–700	LS	B	87
Poly(1-butene)	2-Octanol	23.6	60.5	0.52	6	–	2.7–55	LLS, SEC	A	896
	Tetrahydrofuran	25	8.24	0.76	6	–	2.7–55	LLS, SEC	A	896
atactic	Anisole	86.2 (θ)	123	0.50	3	–	10–130	LS	C	81
	Benzene	30	22.4	0.72	11	–	0.03–0.5	EG	B,L	82

TABLE 1. *cont'd*

Polymer	Solvent	Temp. (°C)	K ($\times 10^3$) (ml/g)	a	No. of samples Fr.	No. of samples W.P.	Mol. wt. range ($\times 10^{-4}$)	Method(s)	Remarks	Refs.
	Ethylcyclohexane	70	7.34	0.80	5	–	4–130	LS	C	81
	Phenyl ether	141 (θ)	104	0.50	5	–	2–66	OS	A	700
isotactic	Anisole	89 (θ)	111	0.50	5	–	4–57	OS	B	700
	Decalin	115	9.49	0.73	6	–	4.5–90	LS		83
	Ethylcyclohexane	70	7.34	0.80	4	–	8–94	LS	A	81
	Heptane	35	4.73	0.80	6	–	4.5–90	LS		83
		60	15.0	0.69	6	–	4.5–90	LS		83
	Nonane	80	5.85	0.80	4	–	11–94	LS	A	81
	Phenetole	64.5 (θ)	113	0.50	5	–	4–57	OS	B	700
	Phenyl ether	148 (θ)	103	0.50	5	–	4–57	OS	B	700
	1,2,4,-Trichlorobenzene	135	11.8	0.729				GPC		701
	Cyclohexane/propanol									
	(80/20, v/v)	35	102	0.59	6	–	3–73	LS	B–C	702
	(70/30, v/v)	35	253	0.51	6	–	3–73	LS	B–C	702
	(65/35, v/v)	35	497	0.44	6	–	3–73	LS	B–C	702
Poly(ethylene)										
low pressure	Biphenyl	127.5 (θ)	323	0.50	4	–	2–30	LV	B	58
		130 (θ)	302	0.50	5	–	5.7–27	LS, GPC		703
	1-Chloronaphthalene	125	138	0.58	?	?	?	LS	?	59
		125	18.4	0.78	10	–	5–100	LS		60
		125	43	0.67	10	–	5–100	LS	C,D	61
		129	27.1	0.71	26	–	5–100	LS	D	62
	Decalin	135	67.7	0.67	–	> 10	3–100	LS	D	63
		135	46	0.73	23	–	3–64	LS		64
		135	62	0.70	7	–	2–105	LS	B,R	65,66
		135	58.5	0.725	9	–	0.4–50	OS	B	67,68
		135	62	0.70	7	–	3–120	GPC, LS	B	704
	Decanol	153.3 (θ)	302	0.50	?	–	2–105	LV	B	58
	Diphenyl ether	161.4 (θ)	295	0.50	6	–	2–105	LS	B	65
	Diphenylmethane	142.2 (θ)	315	0.50	?	–	2–105	LV	B	58
	Dodecanol	137.3 (θ)	307	0.50	5	–	2–105	LV	B	58
		138 (θ)	316	0.50	–	8	8–32	LS	F	69
		144.5		0.61	6	–	0.8–59	LS		705
	Octanol	180.1 (θ)	286	0.50	?	–	2–105	LV	B	58
	Tetralin	105	16.2	0.83	4	–	13–57	LS	C	70
		120	23.6	0.78	36	–	5–100	LS		60
		120	32.6	0.77	20	–	0.3–50	LS	B	71
		130	43.5	0.76	6	–	2–30	OS	B	71
		130	51	0.725	9	–	0.4–50	OS	B,R	72
		130	37.8	0.72	–	10	8–17	LS	D	73
	1,2,4-Trichlorobenzene	135	95.4	0.64	4	–	3–45	LS	A	706
		135	51	0.706	19	–	0.8–123	GPC, LS	B	704
		135	51.6	0.691	4	–		GPC		701
	3,5,5-Trimethylhexyl acetate	121		0.55	6	–	1–59	LS		705
	p-Xylene	105	16.5	0.83	4	–	13–50	LS	C	70
		105	17.6	0.83	8	–	1–18	OS	C	74
		105	51	0.725	?	–	0.4–50	LV	B,R	75
	Paraffin wax ($M_n = 390 \pm 10$)									
		150	(42)	(0.65)	9	–	0.04–11	LS	D	76
high pressure	Decalin	70	38.73	0.738	8	–	0.2–3.5	OS	B	77
	p-Xylene	75	135	0.63	–	22	0.2–7.6	OS	D	78
		81	105	0.63	7	–	1–10	OS	D	79
(normal paraffin)	Carbon tetrachloride	20 $[\eta] = -1.14 + 0.104\,M$			–	7	0.024–0.048	CR	A	80
Poly(ethylene-*alt*-tetrafluoroethylene)										
	Diisobutyl adipate	240	2.3	0.71	–	3	54–116	LS	B	898
Poly(ethylene-*co*-isopropylethylene)										
	n-Hexyl acetate	65	171	0.51	6	–	0.92–23	LLS, SEC, OS	A	890
	Tetrahydrofuran	30	71.3	0.64	6	–	0.92–23	LLS, SEC, OS	A	890
Poly(ethylene-*co*-propylene)	Benzene	19.0	201	0.502	6	–	2.8–39	LS	A	897
		21.4	136	0.543	6	–	2.8–39	LS	A	897
	n-Decyl acetate	5.0	162	0.523	6	–	2.8–39	LS	A	897
	n-Heptyl acetate	38.0	156	0.522	6	–	2.8–39	LS	A	897

TABLE 1. *cont'd*

Polymer	Solvent	Temp. (°C)	K ($\times 10^3$) (ml/g)	a	No. of samples Fr.	No. of samples W.P.	Mol. wt. range ($\times 10^{-4}$)	Method(s)	Remarks	Refs.
Poly(ethylene-*co*-propylene-*co*-diene), EPDM rubber										
	Cyclohexane	40	53.1	0.75	20	–	3–30	OS	A	41
Poly(isobutene)	Anisole	105 (θ)	91	0.50	–	–	18–188	LV	B	49
	Benzene	24 (θ)	107	0.50	15	–	18–188	LV	B	49
		25	83	0.53	9	–	0.05–126	OS, CR	B,R	50
		30	61	0.56	9	–	0.05–126	OS, CR	B	50
		40	43	0.60	9	–	0.05–126	OS, CR	B	50
		60	26	0.66	9	–	0.05–126	OS, CR	B	50
	Benzene	25	100	0.504	–	9	1.35–148	SEC, LLS	A–B	1010
	Carbon tetrachloride	30	29	0.68	12	–	0.05–126	OS, CR	B	50
	Chloroform	25	71	0.55	12	–	5.7–490	LS	A(?)	899
	Cyclohexane	10	25.6	0.639	–	6	2.6–110	LV	A–B	901
		20	24.2	0.697	–	6	2.6–110	LV	A–B	901
		30	23.3	0.699	–	6	2.6–110	LV	A–B	901
		40	22.9	0.701	–	6	2.6–110	LV	A–B	901
		50	22.4	0.702	–	6	2.6–110	LV	A–B	901
	Cyclohexane	25	40	0.72	6	–	14–34	OS	B	51
		30	27.6	0.69	7	–	4–71	OS	A,R	52
		30	26.5	0.69	12	–	0.05–126	OS, CR	B	50
	Cyclohexane	25	13.5	0.740	–	18	6.4–161	SEC, LLS	A–B	1010
	Decalin	25	22	0.70	6	–	530–1680	LS	A–B	53,54
	Diisobutylene	20	36	0.64	23	–	1–130	OS	A,R	55,52
		25	130	0.50	5	–	0.4–2.5	OS	A,L	56
	n-Heptane	25	15.8	0.697	–	7	0.84–148	SEC, LLS	A–B	1010
	Isooctane	10	38.1	0.624	–	6	2.6–110	LV	A–B	901
		20	36.8	0.626	–	6	2.6–110	LV	A–B	901
		30	36.2	0.627	–	6	2.6–110	LV	A–B	901
		40	34.6	0.631	–	6	2.6–110	LV	A–B	901
		50	33.6	0.633	–	6	2.6–110	LV	A–B	901
	Phenetole	86 (θ)	91	0.50	4	–	5–188	LV	B	49
	Toluene	0	40	0.60	8	–	1–146	LV	B	50
		15	24	0.65	6	–	1–146	LV	B	50
		25	87	0.56	6	–	14–34	OS	B	51
		30	20	0.67	5	–	1–146	LV	B,R	50
		50	20	0.68	6	–	1–146	LV	B	50
		60	13.5	0.71	4	–	11–146	LV	B	50
		90	12.6	0.72	3	–	46–146	LV	B	50
oligomer–polymer	Benzene	25 (θ)	($M_w > 10^5$)	0.50	19	–	0.011–179	LS	A	904
			($M_w < 10^5$)	Not const.						
	Isoamyl isovalerate	25 (θ)	($M_w > 10^5$)	0.50	19	–	0.011–179	LS	A	904
			($M_w < 10^5$)	Not const.						
Poly(isobutene-*co*-isoprene),	Benzene	22.8 (θ)	115	0.50	5	–	15–72	LS	A	787
butyl rubber	Carbon tetrachloride	25	10.7	0.78	6	–	10–30	OS	A	57
	5-Methyl-3-heptanone	55.5 (θ)	109	0.50	5	–	15–72	LS	A	787
	Toluene	25	66	0.60	5	–	15–30	OS	A	57
		30	21.4	0.678	8	–	10–30	OS	A	57
Poly(methylbutylene)	*n*-Hexyl acetate	60.9	169	0.51	8	–	0.84–60	LLS, SEC, OS	A	890
	Tetrahydrofuran	30	42.2	0.68	8	–	0.84–60	LLS, SEC, OS	A	890
Poly(isopropylethylene-*co*-1-methyl-1-ethylethylene)										
	2-Octanol	26.2	92	0.49	7	–	1.5–28	LLS, SEC, OS	A	890
	Tetrahydrofuran	30	10.3	0.75	7	–	1.5–28	LLS, SEC, OS	A	890
Poly(3-methyl-1-butene)	Diisobutylene	20	42	0.63	6	–	1–20	LS	A	85
Poly(1-methylbutylene-*co*-isopropylethylene)										
	2-Octanol	53.3	74	0.52	8	–	1.1–43	LLS, SEC, OS	A	890
	Tetrahydrofuran	30	29.8	0.68	8	–	1.1–43	LLS, SEC, OS	A	890
Poly(4-methyl-1-pentene)	Biphenyl	194.6 (θ)	152	0.50	7	–	6–30	OS	B	707
	Decalin	130	19.5	0.75	5	–	6–30	OS	B	707
	Diphenyl ether	210.0 (θ)	158	0.50	6	–	6–30	OS	B	707
	Diphenylmethane	176.6 (θ)	160	0.50	6	–	6–30	OS	B	707
Poly(1-octene)	Bromobenzene	25	2.90	0.78	5	–	25–400	LS	A	84
	Cyclohexane	30	5.75	0.78	6	–	25–400	LS	A	84
	Phenetole	50.4 (θ)	65.5	0.50	4	–	60–400	LS	A	84

TABLE 1. *cont'd*

Polymer	Solvent	Temp. (°C)	K ($\times 10^3$) (ml/g)	a	No. of samples Fr.	W.P.	Mol. wt. range ($\times 10^{-4}$)	Method(s)	Remarks	Refs.
Poly(pentenamer)										
80–85%-*trans*,	Cyclohexane	30	56.9	0.68	5	–	3.6–63	LS	B	788
19–12%-*cis*	Isopentyl acetate	38 (θ)	234	0.50	8	–	3.6–63	LS	B	788
	Toluene	30	52.1	0.69	10	–	3.6–63	LS	B	788
Poly(1-phenyl-1-propyne)	Cyclohexane	36 (θ)	–	0.5–0.8	12	–	1.6–145	LS, SE	A	902
		(wormlike behavior)								
	Toluene	25	–	Not const.	12	–	1.6–145	LS, SE	A	902
		(wormlike behavior)								
Poly(propylene)										
	n-Octyl acetate	27.0	175	0.512	6	–	2.8–39	LS	A	897
	3-Nonanol	5.0	113	0.536	7	–	2.3–42	LS, SEC	A	897
	1-Octanol	77.0	110	0.504	7	–	2.3–42	LS, SEC	A	897
atactic	Benzene	25	27.0	0.71	6	–	6–31	OS	A	88
		30	33.8	0.67	6	–	2–34	OS	A	89
	Biphenyl	129 (θ)	128.3	0.50	3		4–71	LV	B	708
	1-Chloronaphthalene	74 (θ)	182	0.50	3	–	4–33	OS	A	90
	Cyclohexane	25	16.0	0.80	6	–	6–31	OS	A	88
		30	20.9	0.76	6	–	2–34	OS	A	89
	Cyclohexanone	92 (θ)	172	0.50	4	–	1.5–33	OS	A	90
	Decalin	135	15.8	0.77	6	–	2–39	OS	A	91
		135	11.0	0.80	6	–	2–62	LS	A,R	88
		135	54.3	0.65	–	10	2–72	LS	D	92
	Isobutyl acetate	58 (θ)	158.5	0.50	3	–	4–71	LV	B	708
	Isopentyl acetate	34 (θ)	168.5	0.50	6	–	2–34	OS	A	89
	Phenyl ether	145	192	0.47	3	–	3.7–21	OS	A	90
		153 (θ)	120	0.50	3	–	3.7–21	OS	A	90
	Tetralin	130	1.24	0.96	–	–	?	?		93
	Toluene	30	21.8	0.725	7	–	2–34	OS	A	89
isotactic	Biphenyl	125.1 (θ)	152	0.50	4	–	5–42	LV	A	94
		125 (θ)	141.0	0.50	5	–	5–50	OS	B	708
	1-Chloronaphthalene	139	21.5	0.67	11	–	10–170	LS		95
		145	4.9	0.80	9	–	5–63	LS	A,R	96
	Decalin	135	11.0	0.80	6	–	2–62	LS	A,R	88
		135	10.0	0.80	4	–	10–100	LS	A,R	97
	Dibenzyl ether	183.2 (θ)	106	0.50	4	–	5–42	LV	A	94
	Diphenyl ether	142.8 (θ)	137	0.50	4	–	5–42	LV	A	94
		145 (θ)	132	0.50	4	–	3–48	OS	A	90
		153	112	0.54	4	–	3–48	OS	A	90
	Tetralin	135	2.5	1.0	5	–	2–11	OS		98
		135	9.17	0.80	9	–	4–54	OS	A,R	96
		135	19.3	0.74	5	–	5–50	OS	B	708
	p-Xylene	85	96	0.63	12	–	?	OS		99
syndiotactic	Heptane	30	31.2	0.71	5	–	9–45	LS	A	100
head-to-head										
94%-*trans*, 6%-1,2	Cyclohexane	30	493	0.39	5	–	0.2–1.1	VOS, OS	L	709
		30	4.16	0.86	5	–	2.1–4.2	VOS, OS		709
89%-*trans*, 11%-1,2	Cyclohexane	30	295	0.43	5	–	0.3–0.8	VOS, OS	L	709
		30	3.82	0.90	3	–	1.7–3.2	VOS, OS		709

1.3. POLY(ACRYLIC ACID) AND DERIVATIVES

Polymer	Solvent	Temp. (°C)	K ($\times 10^3$) (ml/g)	a	No. of samples Fr.	W.P.	Mol. wt. range ($\times 10^{-4}$)	Method(s)	Remarks	Refs.
Poly(acrylamide)	Water	30	6.31	0.80	7	–	2–50	SD	B	101
		30	68	0.66	–	21	1–20	PR	C	102
		30	6.5	0.82	7	–	4–127	OS	B	710
	Aq. NaCl (1 N)	25	19.1	0.71	–	5	49–320	LS	D	905
	Aq. NaCl (0.12 M)	30	5.31	0.79	7	–	15–153	LS	B	972
Poly(*N*-acryloyl-*m*-aminobenzoic acid)										
	N,N-Dimethylacetamide	30	9.1	0.84	8	–	1.3–5.5	VOS, GPC	A–B	908
	N,N-Dimethylformamide	30	8.9	0.83	8	–	1.3–5.5	VOS, GPC	A–B	908
	Dimethyl sulfoxide	30	10.6	0.80	8	–	1.3–5.5	VOS, GPC	A–B	908
Poly(*N*-acryloyl-*o*-aminobenzoic acid)										
	N,N-Dimethylformamide	25	3.74	0.93	7	–	0.7–2.9	VOS, GPC	A–B	909
	Dimethyl sulfoxide	25	3.83	0.92	7	–	0.7–2.9	COS, GPC	A–B	909
	Tetrahydrofuran	25	3.39	0.89	7	–	0.7–2.9	COS, GPC	A–B	909

TABLE 1. *cont'd*

Polymer	Solvent	Temp. (°C)	K ($\times 10^3$) (ml/g)	a	No. of samples Fr.	W.P.	Mol. wt. range ($\times 10^{-4}$)	Method(s)	Remarks	Refs.
Poly(acrylamide-*co*-*N*,*N*,*N*-trimethyl aminoethyl chloride acrylate)										
70% acrylamide	Aq. NaCl (1 N)	25	10.5	0.73	–	6	45–270	LS	D	905
Poly(acrylic acid)	1,4-Dioxane	30 (θ)	76	0.50	–	4	13–82	OS	B	104
–, sodium salt	Aq. NaOH (2 M)	25	42.2	0.64	12	–	4–50	OS	C	105
	Aq. NaCl									
	(0.012 M)	20	–	0.93	7	–	7–180	LV	B	106
	(1 M)	25	15.47	0.90	12	–	4–50	OS	C	105
Poly(acrylic acid)										
–, sodium salt	Aq. NaCl									
	(0.05 M)	25	7.35	0.88	4	–	9.4–60	LLS, GPC	B–C	906
	(0.1 M)	25	14.6	0.80	4	–	9.4–60	LLS, GPC	B–C	906
	(0.3 M)	25	16.9	0.75	4	–	9.4–60	LLS, GPC	B–C	906
	(0.5 M)	25	18.6	0.72	4	–	9.4–60	LLS, GPC	B–C	906
	(1.0 M)	25	41.5	0.63	4	–	9.4–60	LLS, GPC	B–C	906
	Aq. NaBr									
	(1.5 M)	15	145	0.50	4	–	9.4–60	LLS, GPC	B–C	906
	(1.5 M)	15 (θ)	165	0.50	5	–	6–64	LV	C	107
		15 (θ)	124	0.50	4	–	12–83	LS	C	108
	(0.5 M)	15	52.7	0.628	7	–	1–50	LV	C	109
		25	50.6	0.656	7	–	2–80	LV	C,R	110
	(0.1 M)	15	25.4	0.755	7	–	1–50	LV	C	109
		25	31.2	0.755	7	–	2–80	LV	C	110
	(0.05 M)	15	28.1	0.77	7	–	1–50	LV	C	109
	(0.025 M)	15	16.3	0.84	7	–	1–50	LV	C	109
		25	17.6	0.85	7	–	2–80	LV	C	110
	(0.01 M)	15	13.6	0.89	7	–	1–50	LV	C	109
		25	13.2	0.91	7	–	2–80	LV	C	110
	(0.005 M)	15	(44.2)	0.83	7	–	1–50	LV	C	109
	(0.0025 M)	15	(24.9)	0.89	7	–	1–50	LV	C	109
	Aq. NaSCN	30 (θ)	154	0.50	5	–	6–64	LV	C	107
	(1.12 M)	30 (θ)	121	0.50	4	–	12–83	LS	C	111
Poly(acrylonitrile)	γ-Butyrolactone	20	34.3	0.730	5	–	4–40	LV (LS)	A,R	134
(polymerized at – 30°C)		30	57.2	0.67	6	–	4–30	SA	B	135
(polymerized at 60°C)		30	34.2	0.70	5	–	6–30	SA	B	135
		30	40.0	0.69	–	5	15–53	LS	D	136
		50	28.7	0.740	5	–	4–40	LS	A	134
	Dimethylformamide	20	17.7	0.78	5	–	7–30	LS	B	137
		25	16.6	0.81	5	–	5–27	SD	B	138
		25	24.3	0.75	–	4	3–25	LS	C	139
		25	39.2	0.75	–	16	3–100	OS	C	140
		25	52.0	0.690	7	–	5–52	LS	B,R	711
	(Deionized DMF)	25	15.5	0.80	3	5	3–10	LS, SD	B–C	141
		25	57.4	0.73	–	8	0.3–1.5	EG	L	142
		25	39.6	0.75	–	7	4–30	OS	C	143
		25	44.3	0.70	–	7	2–20	LS	C	143
		25	69.8	0.65	–	21	8–140	LS	C	144
(polymerized at – 30°C)		30	29.6	0.74	7	–	4–30	SA	B	135
(polymerized at 60°C)		30	20.9	0.75	7	–	6–30	SA	B	135
		30	33.5	0.72	–	6	16–48	LS	D	136
		35	27.8	0.76	9	–	3–58	DV	B	145
		35	31.7	0.746	12	–	9–76	LS	A,R	134
		50	30.0	0.752	22	–	4–102	LV	A	134
	Dimethylacetamide	20	30.7	0.761	6	–	2–40	LV	A	134
		35	27.5	0.767	6	–	2–40	LV	A	134
		50	27.4	0.764	6	–	2–40	LV	A	134
	Dimethyl sulfoxide	20	32.1	0.750	9	–	9–40	LV	A	134
		50	28.3	0.758	9	–	9–40	LV	A	134
		140	20.9	0.75	–	6	4–40	LS		146
	Ethylene carbonate	50	29.5	0.718	13	–	7–40	LV	A	134
	Ethylene carbonate/water (85/15, w/w)	25	263	0.49	7	–	5.2–52	LS, OS	A–B	951

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TABLE 1. *cont'd*

Polymer	Solvent	Temp. (°C)	K ($\times 10^3$) (ml/g)	a	No. of samples Fr.	No. of samples W.P.	Mol. wt. range ($\times 10^{-4}$)	Method(s)	Remarks	Refs.
	Hydroxyacetonitrile	20	40.9	0.697	8	–	4–34	LV	A	134
		50	35.4	0.707	8	–	4–34	LV	A	134
	Aq. HNO_3 (60%)	0	33.9	0.740	6	–	2–40	LV	A	134
		20	30.7	0.747	5	–	4–40	LV	A	134
Poly(benzyl acrylate)	Butanone	35	0.587	0.883	?		?	OS		337
Poly(butyl acrylate)	Acetone	25	6.85	0.75	–	6	5–27	LS	C	112
Poly(*tert*-butyl acrylate)	Acetone	25	4.7	0.75	5	–	7–31	LS	B	712
	Butanone	25	3.2	0.80	5	–	7–31	LS	B	712
	Hexane	24.2 (θ)	49.0	0.50	5	–	7–31	LS	B	712
	Methanol	25	16.0	0.61	5	–	7–31	LS	B	712
	Pentane	25	22.0	0.57	5	–	7–31	LS	B	712
Poly(1,1-dihydroperfluorobutyl acrylate)										
	Benzofluoride	26.6	13	0.56	7	3	20–200	LS	B	113
	Methyl perfluorobutyrate	26.6	12	0.60	7	3	20–200	LS	B	113
Poly(*N*,*N*-dimethylacrylamide)	Methanol	25	17.5	0.68	–	8	5–122	LS	C	103
	Water	25	23.2	0.81	–	6	5–122	LS	C	103
		40	20.0	0.65	–	4	11–122	LS	C	103
Poly(ethyl acrylate)	Acetone	25	51	0.59	7	–	35–450	LS	B,R	114
		30	20.0	0.66	5	–	16–50	OS	B,R	115
	Benzene	30	27.7	0.67	–	7	5–67	OS	C	116
	Butanone	30	2.68	0.80	5	–	48–700	LS	B–C	117
	Chloroform	30	31.4	0.68	–	5	9–54	OS	C	116
	Ethyl acetate	30	26.0	0.66	–	5	9–54	OS	C	116
Poly(2-ferrocenylethyl acrylate)	Benzene	25	4.68	0.70	–	3	1.4–2.7	VOS, GPC	D	713
Poly(ferrocenylmethyl acrylate)	Benzene	25	6.84	0.75	–	8	0.7–2	VOS, GPC	C–D	714
Poly(hexadecyl acrylate)	Methanol	30	48.7	0.55	–	6	6–70	OS	C	116
	Heptane	20	1.74	0.82	6	–	1–10	LS	B	118
Poly(*N*-isopropylacrylamide)	Tetrahydrofuran	27	9.59	0.65	8	–	10–100	OS	A	975
	Water	20 (θ)	145	0.50	8	–	10–100	OS	A	975
Poly(isopropyl acrylate)	Acetone	30	13.0	0.69	6	–	6–30	LS	B	119
	Benzene	25	14.9	0.70	9	–	7–70	OS	B	120
		25	12.4	0.701	20	–	4–100	LS	B,R	121
		30	11.8	0.71	4	–	7–20	LS	B	119
	Bromobenzene	25	11.3	0.704	20	–	4–100	LS	B	121
		60	11.6	0.698	20	–	4–100	LS	B	121
	Chloroform	30	14.1	0.72	5	–	7–30	LS	B	122
isotactic	2,2,3,3-tetrafluoro-propanol	25	19.7	0.697	7	–	10–65	LS	B	121
atactic		25	17.3	0.703	6	–	8–110	LS	B	121
syndiotactic		25	15.9	0.708	6	–	20–110	LS	B	121
isotactic		60	17.9	0.693	4	–	10–65	LS	B	121
atactic and syndiotactic		60	14.7	0.704	6	–	20–110	LS	B	121
Poly(methyl acrylate)	Acetone	20	(7.40)	(0.76)	–	4	7–32	OS		123
		25	5.5	0.77	8	–	28–160	LS	B,R	124
		25	19.8	0.66	9	–	30–250	LS	B	125
		25	5.20	0.77	11	–	4–183	LS	B	715
		30	28.2	0.52	7	–	4–45	OS	B	126
	Benzene	25	2.58	0.85	4	–	20–130	OS		127
		30	4.5	0.78	7	7	7–160	LS		128
		30	3.56	0.798	6	–	25–190	LS	B,R	129
		30	4.59	0.795	6	–	15–140	OS	B	129
		35	12.8	0.71	–	5	5–30	OS	C	130
	Butanone	20	3.5	0.81	13	–	6–240	LS	A–B,R	128
		25	14.1	0.67	4	–	17–68	LS	B	131
		30	3.97	0.772	6	–	25–190	LS	B	129
		35	(34)	(0.61)	–	3	5–47	LV	C	132
	Dimethyl malonate	30	3.51	0.793	4	–	50–190	LS	B	129
	Ethyl acetate	35	11	0.69	–	8	24–148	LS	A	133
	Isopentyl acetate	62.5 (θ)	68	0.50	6	–	20–160	LS	B	129
	2-methylcyclohexanol	56.0 (θ)	68	0.50	4	–	40–105	LS	B	129
	Toluene	30	7.79	0.697	6	–	25–190	LS	B	129
		35	21	0.60	–	7	12–69	LS	A	133

TABLE 1. *cont'd*

Polymer	Solvent	Temp. (°C)	K (× 10^3) (ml/g)	a	No. of samples Fr.	W.P.	Mol. wt. range (× 10^{-4})	Method(s)	Remarks	Refs.
	Butanone–2-propanol									
	(42/58, v/v)	20 (θ)	81	0.50	5	–	29–140	LS	B	124
	(1/1, v/v)	27.5 (θ)	54.4	0.50	4	–	14–83	LS	C	108
		30 (θ)	72	0.50	4	–	50–190	LS	B	129
branched	(42/58 v/v)	20 (θ)	290	0.40	6	–	37–250	LS	B	125
Poly(1-methylphenyl acrylate)	Butyl acetate	25	14.7	0.63	8	–	2–110	SD	A	346
Poly(morpholinocarbonylethylene)										
	Dimethylformamide	25	18	0.65	?		?	LS	C	338
	Aqueous NaCl (0.1 M)	20	64	0.68	?		?	LS	C	338
Poly(piperidinocarbonylethylene)	Dimethylformamide	25	32	0.56	?		?	LS	C	338
Poly(propyl acrylate)	Butanone	30	15.0	0.687	4	–	71–181	LS	A	117

1.4. POLY(α-SUBSTITUTED ACRYLIC ACID) AND DERIVATIVES

Polymer	Solvent	Temp. (°C)	K (× 10^3) (ml/g)	a	No. of samples Fr.	W.P.	Mol. wt. range (× 10^{-4})	Method(s)	Remarks	Refs.
Poly(benzyl methacrylate)	Benzene	30	1.03	0.82	–	9	17–120	LS		339
Poly(butyl methacrylate)	Acetone	25	18.4	0.62	5	–	100–600	LS	A	150
	Benzene	30	(4.0)	(0.77)	–	3	8–300	LS		151
	Benzene	25	3.82	0.774	6	–	1270–2070	–	–	912
	Butanone	23	1.56	0.81	10	–	25–260	LS	B	152
		25	9.7	0.68	5	–	11–670	LS	A	150
		30	(1.15)	(0.89)	3	–	67–132	OS	C	153
	Chloroform	20	2.9	0.78	8	–	4–800	LS	B,R	154
		25	4.37	0.80	6	–	8–80	OS		155
	Cyclohexane	25	21.0	0.648	6	–	1230–2450	–	–	912
	Dioxane	25	23.7	0.630	6	–	1330–2070	–	–	912
	Methyl ethyl ketone	25	6.13	0.726	10	–	959–2160	–	–	912
	2-Propanol	21.5 (θ)	29.5	0.50	8	–	30–260	LS	B	152
		21.5 (θ)	38	0.50	9	–	4–800	LS	B,R	154
		23.7 (θ)	36.6	0.50	5	–	40–170	LS	B	156
Poly(*tert*-butyl methacrylate)	Butyl acetate	25	22.0	0.63	6	–	46–870	LS	A	157
anionic	Butanone	25	12.0	0.675	6	–	2.8–107	LLS, SEC	A	917
	Cyclohexane	10.0	62.0	0.499	6	–	2.8–107	LLS, SEC	A	917
	Tetrahydrofuran	30	15.2	0.66	6	–	2.8–107	LLS, SEC	A	917
free radical	Butanone	25	5.91	0.73	4	–	14–155	LLS, SEC	A	917
	Cyclohexane	10.0	46.0	0.505	5	–	6.8–155	LLS, SEC	A	917
	n-Heptane	64.0	62.1	0.476	7	–	3.4–155	LLS, SEC	A	917
	Tetrahydrofuran	30	5.84	0.76	6	–	3.4–155	LLS, SEC	A	917
Poly(2-*tert*-butylphenyl methacrylate)										
	Benzene	25	7.8	0.68	8	–	4–113	LS	B	771
	Butanone	25	9.0	0.64	8	–	4–113	LS	B	771
	Cyclohexane	18.4 (θ)	35.5	0.50	8	–	4–113	LS	B	771
Poly(4-*tert*-butylphenyl methacrylate)										
	Acetone	20	5.75	0.68	15	–	6–350	LS		340
		25	16	0.60	6	–	11–204	LS	B	716
	Bromobenzene	20	4.1	0.71	7	–	15–2500	LS		341
	Carbon tetrachloride	20	4.1	0.71	7	–	20–2500	LS		341
	Chloroform	20	2.4	0.78	15	–	6–300	LS	A–B	342
	Cyclohexane	25	47	0.49	6	–	11–204	LS	B	716
	Tetrahydrofuran	25	9.4	0.68	6	–	7–88	L	B	716
Poly[1-(*N*-carbethoxyphenyl)-methacrylamide]										
	Acetone	Unc.	0.00115	1.35	4	–	26–74	LS		369
	Dimethylformamide	Unc.	This relation not followed		5	–	48–140	LS		369
	Ethyl acetate	Unc.	0.00446	1.25	5	–	26–11	LS		369
Poly(2-chloroethyl methacrylate)	*o*-Dichlorobenzene	35.7 (θ)	47.4	0.50	6	–	3.2–54	LLS, SEC	A–B	914
	Tetrahydrofuran	30	6.83	0.72	6	–	3.2–54	LLS, SEC	A–B	914
Poly(4-chlorophenyl methacrylate)										
	Benzene		9.2	0.66	8	–	10–610	LS	A	343
	Carbon tetrachloride		20.0	0.58	8	–	10–610	LS	A	343
	Dioxane		6.1	0.70	8	–	10–610	LS	A	343
Poly(cyclobutyl methacrylate)	1-Butanol	37.5	49.2	0.494	6	–	4.8–31		A–B	915
Poly(cyclododecyl methacrylate)	Cyclohexane	30	8.84	0.651	7	–	5.1–475		B–C	915
	n-Hexyl acetate	35	35.4	0.494	6	–	5.1–475		B–C	915
	Toluene	30	6.03	0.687	7	–	5.1–475		B–C	915

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TABLE 1. *cont'd*

Polymer	Solvent	Temp. (°C)	K ($\times 10^3$) (ml/g)	a	No. of samples Fr.	W.P.	Mol. wt. range ($\times 10^{-4}$)	Method(s)	Remarks	Refs.
Poly(cyclohexyl methacrylate)	Benzene	30	8.4	0.69	5	–	80–200	LS		344
		25	3.54	0.77	9	–	10–419	LS	A	717
	Butanol	23 (θ)	33.7	0.50	5	–	57–445	LS	B	345
		22.5 (θ)	45.2	0.50			10–125	LS	A	718
		25	31.8	0.533			10–125	LS	A	718
	Butanone	25	5.79	0.68	6	–	57–560	LS	B	345
		30	7.0	0.66	5	–	80–200	LS		344
	Cyclohexane	25	8.8	0.67	9	–	10–419	LS	A	717
Poly(cyclohexylthiolmethacrylate)										
	Cyclohexane	25	8.65	0.63	8	–	4–60	LS	B	719
	Tetrahydrofuran	35	4.07	0.74	8	–	4–60	LS	B	719
Poly(cyclooctyl methacrylate)	2-Butanol	45	43.2	0.488	7	–	6.6–418		A–C	915
	1,4-Dioxane	30	26.0	0.549	8	–	3.1–418		A–C	915
	Toluene	30	8.70	0.677	8	–	3.1–418		A–C	915
Poly(cyclopentyl methacrylate)	Cyclohexane	36	54.8	0.487	8	–	4.6–358		A–B	915
	1,4-Dioxane	30	10.9	0.659	8	–	2.9–358		A–B	915
	Ethyl acetate	30	19.4	0.588	9	–	2.9–358		A–B	915
	Methyl ethyl ketone	30	13.6	0.631	9	–	2.9–358		A–B	915
	Toluene	30	8.38	0.696	9	–	2.9–358		A–B	915
Poly(2,6-dimethylphenyl methacrylate)										
	Chlorobenzene	25	18.4	0.65	4	–	3.4–33	OS, SEC	A	923
	Tetrahydrofuran	25	33.1	0.59	8	–	3.4–82	OS, SEC	A	923
	Tetrahydrofuran/water	25 (θ)	75.0	0.50	4	–	5.7–33	OS, SEC	A	923
	Toluene	25 (θ)	78.0	0.50	9	–	3.4–82	OS, SEC	A	923
Poly(diphenylmethyl methacrylate)										
	3-Heptanone	45	38.6	0.485	9	–	8.7–575	LLS, SEC	A–B	911
	Toluene	25	3.61	0.712	7	–	42–575	LLS, SEC	A–B	911
Poly(decyl methacrylate)	Ethyl acetate	11 (θ)	34.7	0.50	10	–	2.9–92	LS, OS, SEC	B	913
	Tetrahydrofuran	30	4.56	0.73	10	–	2.9–92	LS, OS, SEC	B	913
Poly(dodecyl methacrylate)	Amyl acetate	31	36.6	0.53	10	–	10–135	LS, OS, SEC	B	913
	Tetrahydrofuran	30	1.05	0.64	10	–	10–135	LS, OS, SEC	B	913
Poly(dodecyl methacrylate)	Butyl acetate	23	8.64	0.64	8	–	26–360	LS	A	158
	Isopropyl acetate	13 (θ)	32.2	0.50	7	–	26–360	LS	A	158
	Pentanol	29.5 (θ)	34.8	0.50	7	–	27–240	LS	A	159
Poly(2-ethylbutyl methacrylate)	Butanone	25	2.21	0.77	8	–	48–332	LS	A	160
	2-Propanol	27.4 (θ)	33.7	0.50	8	–	48–332	LS	A	160
Poly(ethyl methacrylate)	Butanone	23	2.83	0.79	10	–	20–263	LS	A	161
	Ethyl acetate	35	8.6	0.71	–	11	65–1200	LS	C	162
	2-Propanol	36.9 (θ)	47.5	0.50	4	–	22–130	LS	B	156
	Butanone-2-propanol (1/7, v/v)	23 (θ)	47.3	0.50	10	–	20–263	LS	A	161
	Ethyl acetate/ethanol (2/9, v/v)	35	47.6	0.53	6	–	78–500	LS	A	162
	(1/6, v/v)	35 (θ)	56.4	0.50	6	–	60–420	LS	A	162
Poly(2-ferrocenylethyl methacrylate)										
	Benzene		3.12	0.76	–	6	2–9	VOS, GPC	C,D	713
Poly(ferrocenylmethyl methacrylate)										
	Benzene	25	27.8	0.58	–	6	0.6–3.6		C,D	714
Poly(hexadecyl methacrylate)	Benzene	21	5.9	0.71	3	–	130–440	SD	B	163
	Carbon tetrachloride	21	2.37	0.78	5	–	130–440	SD	B	163
	Heptane	21	3.92	0.75	5	–	130–440	SD	B	163
		25	35.1	0.56	9	–	20–110	LS		164
Poly[4-(4-hexadecyloxybenzoyloxy)-phenyl methacrylate]										
	Carbon tetrachloride		33.1	0.5	20	–	10–2000	SD		730
Poly(hexyl methacrylate)	Butanone	23	2.12	0.78	8	–	6–41	LS	A	165
	2-Propanol	32.6 (θ)	43.0	0.50	8	–	6–41	LS	A	165
Poly(2-hydroxyethyl methacrylate)										
	Dimethylformamide	30	10.6	0.70	6	–	4–52	LS	A,B	720
	Dimethyl sulfoxide	30	12.9	0.69	5	–	4–52	LS	A,B	720
	Methanol	30	52.4	0.51	7	–	4–52	LS	A,B	720
Poly[1-(2-hydroxyethyl) pyridiniumbenzene sulfonate methacrylate]										
	Aq. KCL (0.5 M)	25	2.62	0.71	–	14	19–950	LS		721

TABLE 1. *cont'd*

Polymer	Solvent	Temp. (°C)	K ($\times 10^3$) (ml/g)	a	No. of samples Fr.	W.P.	Mol. wt. range ($\times 10^{-4}$)	Method(s)	Remarks	Refs.
Poly[1(2-hydroxyethyl) trimethylammoniumbenzene sulfonate methacrylate]										
	Aq. KCl (0.5 M)	25	4.04	0.70	–	8	15–400	LS		721
Poly[*N*-(2-hydroxypropyl) methacrylamide]										
	Aqueous KCl (0.1 M)	25	11.0	0.67	12	–	2–500	LS		722
Poly(D,L-isobornyl methacrylate)	1-Octanol	39.6 (θ)	31.7	0.50	6	–	9–120	GPC		723
	Tetrahydrofuran	30	3.68	0.73	6	–	9–120	GPC		723
Poly(isobutyl methacrylate)	Acetone	25	0.199	0.94	6	–	300–1100	LS	C	166
		25	23.4	0.66	6	–	50–116	OS		724
		60	18.2	0.68	6	–	50–116	OS		724
	Acetone	25	8.41	0.66	6	–	1020–3460	–	–	919
	Benzene	25	3.88	0.74	5	–	1020–3460	–	–	919
	Benzene	25	7.03	0.77	6	–	50–116	OS		724
	Butanone	20	5.56	0.73	6	–	300–1100	LS	C	166
		25	8.61	0.70	7	–	300–1100	LS	C	166
		30	7.47	0.71	6	–	300–1100	LS	C	166
		44	2.18	0.79	6	–	300–1100	LS	C	166
	Carbon tetrachloride	25	4.88	0.72	6	–	1020–3460	–	–	919
	1,4-Dioxane	25	6.89	0.68	6	–	1020–3460	–	–	919
	2-Hydroxymethyl-tetrahydrofuran	25	85.8	0.56	6	–	50–116	OS		724
Poly(5-*p*-methyl methacrylate)	Benzene	25	9.6	0.67	6	–	12–230	LS	B	771
	Cyclohexane	25	11.5	0.65	6	–	12–230	LS	B	771
	2-Pentanone	25 (θ)	43.6	0.50	6	–	12–230	LS	B	771
	Tetrahydrofuran	25	11.5	0.65	6	–	12–230	LS	B	771
Poly(methacrolein)	Dimethylformamide	20	2.8	0.97	–	?	0.5–2	OS, CR	?	204
Poly(methacrylic acid)	*N,N*-Dimethylformamide/ 1,4-dioxane (5/7, v/v)	26.9 (θ)	103	0.50	7	–	27.5–101	LS	–	907
	Methanol	26	242	0.51	6	–	4–20	OS	B	147
	Aq. HCl (0.002 M)	30	66	0.50	7	–	10–90	LV	C	148
	Aq. $NaNO_3$ (2 M)	25	44.9	0.65	6	–	8–70	OS	B	149
Poly(methacrylonitrile)	Acetone	20	95.5	0.56	–	4	35–100	OS	C	202
	Dimethylformamide	29.2	306	0.503	–	15	0.6–8	LV	C,H	203
Poly(2-methoxyethyl methacrylate)										
	Butanone	25	7.34	0.71	12	–	4–220	LS	A–B	725
	Tetrahydrofuran	25	7.57	0.71	12	–	4–220	LS	A–B	725
Poly(methyl butacrylate)	Butanol	13 (θ)	57.0	0.50	4	–	6–60	LS	A	168
	Butanone	30	5.43	0.73	10	–	7–430	LS	A	168
Poly(methyl α-chloroacrylate)	Chloroform	30	3.08	0.78	8	–	20–780	LS	D	726
Poly(methyl ethacrylate)	Benzene	30	2.35	0.82	6	–	16–110	LS	A	168
	Butanone	30	4.29	0.75	10	–	4–200	LS	A	168
	2,6-Dimethyl-4-heptanone	11.4 (θ)	67.6	0.50	10	–	4–200	LS	A	168
Poly(methyl methacrylate)										
atactic	Acetone	20	5.5	0.73	7	–	7–700	SD	A–B,R	169
		20	3.90	0.76	7	–	7–700	SD	A–B	169
		25	7.5	0.70	9	–	8–137	LS	B	170
		25	6.76	0.71	10	–	3–700	SD	A–B	171
		25	7.5	0.70	14	–	2–740	LS, SD	A–B	172
		25	5.3	0.73	7	–	2–780	LS	A–B,R	173
		25	9.6	0.69	4	–	180–350	LS	A–B	174
		25	7.5	0.70	4	6	3–98	LS	B–C	175
		25	2.45	0.80	9	–	6–210	OS	B–C	176
		25	6.59	0.71	6	–	5–41	OS	B	177
		30	7.7	0.70	6	–	6–263	LS	A–B	178
		39	6.40	0.72	6	–	5–41	OS	B	177
		46	6.18	0.72	6	–	5–41	OS	B	177
	Acetonitrile	30	39.3	0.50	6	–	10–86	LV	A–B	178
		45 (θ)	48	0.50	6	–	10–260	LV	A–B,R	179
		50	29	0.54	6	–	10–260	LV	A–B	180
		65	9.8	0.64	5	–	10–260	LV	A–B	180
	Benzene	20	8.35	0.73	7	–	7–700	SD	A–B	169
		20	15.1	0.70	7	–	8–90	SD		181
		25	7.24	0.76	10	–	6–100	OS	B	182
		25	5.5	0.76	11	–	2–740	LS	A–B,R	173

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TABLE 1. *cont'd*

Polymer	Solvent	Temp. (°C)	K ($\times 10^3$) (ml/g)	a	No. of samples Fr.	W.P.	Mol. wt. range ($\times 10^{-4}$)	Method(s)	Remarks	Refs.
		25	3.80	0.79	5	–	24–450	LS		183
		25	83	0.52	7	–	0.03–1	EB	A,L	184
		30	5.2	0.76	9	–	6–250	LS	A–B,R	178
		30	6.27	0.76	5	–	4–73	OS	A	185
		30	104	0.50	9	–	0.02–2	OS	A,L	185
		30	195	0.41	5	–	0.3–2	LS	A–B,L	178
		39	6.74	0.75	6	–	5–41	OS	B	177
		53	6.52	0.76	6	–	5–41	OS	B	177
	Butanone	25	6.8	0.72	9	–	8–137	LS	B,R	170
		25	7.1	0.72	7	–	41–330	LS	A–B	174
		25	6.8	0.72	4	6	3–98	LS	B–C	175
		25	9.39	0.68	15	–	16–910	LS	A–B	186
plasma initiated		25	11 ± 2	0.69			1610–3000	LS		727
	Butyl chloride	35.4 (θ)	50.5	0.50	4	–	13–68	SA	A–B	187
	Chloroform	20	9.6	0.78	18	–	1.4–60	OS		188
		20	4.88	0.82	8	–	6–100	OS	B	182
		20	4.85	0.80	9	–	8–200	SD	A–B,R	169
		20	6.0	0.79	12	–	3–780	LS	A–B	173,189
		25	4.8	0.80	9	–	8–137	LS	B	170
		25	3.4	0.83	6	–	40–330	LS	A–B	174
		25	5.81	0.79	6	–	5–41	OS	B	177
living type		30	4.3	0.80	–	8	13–263	LS	A–B	178
		39	5.02	0.80	6	–	5–41	OS	B	177
		53	3.90	0.79	6	–	5–41	OS	B	177
		Unc.	5.1	0.79	13	–	7–400	LS	B	190
	p-Cymene	159.7 (θ)	57.5	0.50	4	–	6.6–171	LV	A–B	191
	1,2-Dichloroethane	25	17.0	0.68	4	6	3–98	LS	B–C	175
		30	5.3	0.77	–	7	6–263	LS	A–B,R	178
	Ethyl acetate	20	21.1	0.64	8	34	6–110	SD		192
	3-Heptanone	33.7 (θ)	63.1	0.50	4	–	6.6–171	LV	A–B	191
	4-Heptanone	33.8 (θ)	48	0.50	5	–	1–172	LS	A–B,R	179
	Methyl isobutyrate	30	9.9	0.67	6	–	19–260	LV	A–B	178
	Methyl methacrylate	20	16.2	0.65	9	–	1.8–160	LS	A	918
		40	11.3	0.68	9	–	1.8–160	LS	A	918
		60	21.2	0.64	9	–	1.8–160	LS	A	918
	Methyl methacrylate	30	6.75	0.72	3	–	13–170	LV	A–B	178
	Nitroethane	25	5.70	0.74	2	6	10–200	LS	C	193
	3-Octane	72 (θ)	50	0.50	3	–	13–260	LV	A–B	179
	Propanol	84.4 (θ)	67.9	0.50	4	–	6.6–171	LV	A–B	191
	Tetrachloroethane	25	12.8	0.73	6	–	5–41	OS	B	177
		53	12.2	0.73	6	–	5–41	OS	B	177
	2,2,3,3-Tetrafluoro-propanol	25	7.2	0.79	7	–	7–95	LV	A	194
	Tetrahydrofuran	25	7.5	0.72				LS	A	732
	Toluene	25	7.1	0.73	7	–	4–330	LS	A–B	174
		25	8.12	0.71	6	–	5–41	OS	B	177
		25	78	0.50	10	–	0.2–7	OS	A,L	195
		30	7.0	0.71	6	–	19–263	LV	A–B	178
		39	7.24	0.72	6	–	5–41	OS	B	177
		53	6.63	0.73	6	–	5–41	OS	B	177
	Butanone/2-propanol									
	(55/45, v/v)	23	47.0	0.55	6	–	40–300	LS	A–B	174
	(50/50, v/v)	25 (θ)	59.2	0.50	7	–	30–280	LS	A–B	196
		25 (θ)	42.8	0.50	5	–	77–490	LS	A–B	186
	Methanol/toluene (9/5, v/v)	26.2 (θ)	55.9	0.50	3	–	60–300	LS	A–B	156
oligomer-polymer										
atactic, $f_{racem} = 0.79$	Acetonitrile	44.0	–	Not const.	22	–	0.032–283	LS	A	916
	Benzene	30.0	–	Not const.	15	–	0.032–75.8	LS	A	916
	n-Butyl chloride	40.8	–	Not const.	21	–	0.032–283	LS	A	916
isotactic	Acetone	30	23.0	0.63	7	–	5–128	LS	A–B	199
	Acetonitrile	20	130	0.448	5	–	3–19	LV	A	198
		27.6 (θ)	75.5	0.500	5	–	3–19	LV	A	198

TABLE 1. *cont'd*

Polymer	Solvent	Temp. (°C)	K (× 10³) (ml/g)	a	No. of samples Fr.	W.P.	Mol. wt. range (× 10⁻⁴)	Method(s)	Remarks	Refs.
		35	46	0.546	5	–	3–19	LV	A	198
		50	26.2	0.602	5	–	3–19	LV	A	198
		27.5 (θ)	76.2	0.50	6	–	13–68	LS	B	728
	Benzene	30	5.2	0.76	5	–	5–128	LS	A–B	199
	p-Cymene	152.1 (θ)	56.6	0.50	4	–	7–131	LV	A–B	191
	3-Heptanone	40.0 (θ)	87.0	0.50	4	–	7–131	LV	A–B	191
	Propanol	75.9 (θ)	76.1	0.50	4	–	7–131	LV	A–B	191
	2,2,3,3-Tetrafluoro-propanol	25	7.05	0.78	11	–	2–100	LV	B	194
	Butanone/2-propanol (1/1, v/v)	30.3 (θ)	90.0	0.50	4	–	7–131	LV	A–B	191
5%-iso, 51%-hetero, 43%-syndiotactic	Acetonitrile/chlorobenzene									
	(4.4/95.6, v/v)	25 (θ)	68.3	0.50	4	–	73–232	LS	A	785
	(91.2/8.8, v/v)	25 (θ)	63.5	0.50	4	–	73–232	LS	A	785
Poly(α-methyleneglutaronitrile)	Dimethylformamide	25	31.6	0.65	–	8		LS	H	731
Poly(methyl phenylacrylate), see 1.9 Other Compounds poly(1-methoxycarbonyl-1-phenylethylene)										
Poly(β-naphthyl methacrylate)	Benzene	20	27.2	0.55	6	–	17–262	LS	B	729
	Tetralin	20 (θ)	47.5	0.50	4	–	57–262	LS	B	729
Poly[4-(4-nonyloxy-phenyl methacrylate], Poly(phenylmethacrylic ester of nonyloxybenzoic acid)										
	Carbon tetrachloride		24.3	0.5	20	–	20–220	SD		730
Poly(octadecyl methacrylate)	Tetrahydrofuran	30	2.5	0.75	–	4	20–170	LS	C,H	200
Poly(octyl methacrylate)	Butanol	16.8 (θ)	26.8	0.50	10	–	33–1250	LS	B	201
	Butanone	23	4.47	0.69	10	–	33–1250	LS	B	201
	Butyl acetone	10.5 (θ)	–	0.45	4	–	62–320	LS	C	920
		20	–	0.53	4	–	62–320	LS	C	920
		30	–	0.54	4	–	62–320	LS	C	920
Poly(*N*-phenyl methacrylamide)	Acetone	20	28.2	0.75	8	–	10–320	LS		370
	n-Propyl acetate	36 (θ)	37.1	0.50	11	–	1.5–93	LS, OS, SEC	B	913
	Tetrahydrofuran	30	8.95	0.67	11	–	1.5–93	LS, OS, SEC	B	913
Poly(2-selenolylmethyl methacrylate)										
	Chlorobenzene	25	36.3	0.56	5	–	3.6–21	VOS, SEC	A–B	922
	Tetrahydrofuran	25	18.1	0.65	5	–	3.6–21	VOS, SEC	A–B	922
Poly(stearyl methacrylate)	Tetrahydrofuran	30	9.0	0.67	12	–	1.5–94	LS	B	733,751
Poly(tetrahydrofurfuryl methacrylate)										
	Acetone	30	24.0	0.66	7	–	16–62	OS	B	734
Poly(tetrahydro-4H-pyranyl 2-methacrylate)										
	Isobutanol	30.4 (θ)	31.9	0.50	6	–	4–85	GPC		735
Poly(2-thiophenmethyl methacrylate)										
	Chlorobenzene	25 (θ)	4.35	0.50	6	–	48–59	SEC	A–B	921
	Tetrahydrofuran	25	6.95	0.72	6	–	48–59	SEC	A–B	921
	Thiophen	25	9.00	0.66	6	–	48–59	SEC	A–B	921
Poly(*N*,*N*,*N*-trimethyl aminoethyl chloride acrylate)										
	Aq. NaCl (1 N)	25	2.3	0.82	–	4	85–510	LS	D	905
Poly(tridecyl methacrylate)	Ethyl acetate	27 (θ)	32.2	0.50	10	–	8.2–138	LS, OS, SEC	B	913
	Tetrahydrofuran	30	4.74	0.71	10	–	8.2–138	LS, OS, SEC	B	913
	Tetrahydrofuran	30	2.93	0.76	6	–	4–85	GPC		735
Poly[2-(triphenylmethoxy)ethyl methacrylate]										
	Mesitylene	47 (θ)	30	0.50				LV		736

1.5. POLY(VINYL ETHERS)

Polymer	Solvent	Temp. (°C)	K (× 10³) (ml/g)	a	Fr.	W.P.	Mol. wt. range (× 10⁻⁴)	Method(s)	Remarks	Refs.
Poly[(hexadecyloxy)ethylene]	Heptane	21	70.8	0.50	6	–	0.5–3	SD	B,L	205
Poly(methoxyethylene)	Benzene	30	76	0.60	13	–	1–45	LS	B	206
	Butanone	30	137	0.56	13	–	1–45	LS	B	206
Poly[(octadecyloxy)ethylene]	Benzene	25	170	0.47	–	7	0.1–1.5	LS	D,H	200
	Tetrahydrofuran	30	224	0.35	–	7	9.4–11	LS	D,H	200
Poly(vinyl methyl ether), see Poly(methoxyethylene)										

1.6. POLY(VINYL ALCOHOL), POLY(VINYL HALIDES)

Polymer	Solvent	Temp. (°C)	K (× 10³) (ml/g)	a	Fr.	W.P.	Mol. wt. range (× 10⁻⁴)	Method(s)	Remarks	Refs.
Poly(chlorotrifluoroethylene)	2,5-Dichlorobenzo-trifluoride	130	6.15	0.74	7	–	7–51	OS	B	234

TABLE 1. *cont'd*

Polymer	Solvent	Temp. (°C)	K ($\times 10^3$) (ml/g)	a	No. of samples Fr.	W.P.	Mol. wt. range ($\times 10^{-4}$)	Method(s)	Remarks	Refs.
Poly(tetrafluoroethylene-*alt*-ethylene), see also Poly(ethylene-*alt*-tetra-fluoroethylene) in group 1.2										
Poly(vinyl alcohol)	Water	25	20	0.76	6	–	0.6–2.1	OS	B	208
		25	300	0.50	4	–	0.9–17	SD		209
		25	140	0.60	3	–	1–7	SD	B	210
		30	66.6	0.64	8	–	0.6–16	OS	B	212
		30	42.8	0.64	–	14	1–80	LS	C	213
		30	45.3	0.64	–	–	1–80	LS	A,R	213
		30	73.4	0.63	7	–	3–12	LV	B	737
		80	94	0.56	–	5	10–46	LS	B	214
	Phenol/water (85/15, v/v)	30	24.6	0.80	–	21	3–12	LV	B	215
	Water/dimethylsulfoxide									
	(100/0, v/v)	30	74.3	0.63	7	–	DP = 815–2830	VG	C	924
	(90/10, v/v)	30	–	Not clear	5	–	DP = 815–3400	VG	C	924
Poly(vinyl bromide)	Cyclohexanone	25	32.8	0.55	7	–	2–10	LS	B	217
	Tetrahydrofuran	25	15.9	0.64	7	–	2–10	LS	B	217
	Methanol/tetrahydrofuran									
	(17/83, v/v)	20	38.8	0.50	7	–	2–10	LS	B	218
Poly(vinyl chloride)	Benzyl alcohol	155.4 (θ)	156	0.50	9	–	4–35	LS	B	219
	Chlorobenzene	30	71.2	0.59	7	–	3–19	SA	B	220
	Cyclohexanone	20	11.6	0.85	–	6	2–10	OS	C	221
		20	13.7	1.0	7	5	7–13	OS	C,D	222
		20	112.5	0.63	5	3	9–15	OS	D,H	222
		25	12.3	0.83	11	–	2–14	OS		223
		25	24	0.77	13	–	3–14	OS		224
		25	204	0.56	?	–	2–15	OS	C	225
		25	174	0.55	6	–	6–22	LS	C	226
		25	8.5	0.75	5	–	4–20	LS	B	227
		25	13.8	0.78	28	–	1–12	LS	A,B,R	228
		30	16.3	0.77	6	–	3–19	SA	B	220
	Tetrahydrofuran	20	3.63	0.92	20	–	2–17	OS	B	229
		25	15.0	0.77	22	–	1–12	LS	A,B	228
		25	16.3	0.766	23	–	2–30	LS	A,B,R	230
		25	49.8	0.69	5	–	4–40	LS	A–B	231
		30	63.8	0.65	9	–	3–32	LS		232
		30	83.3	0.83	7	–	3–19	SA	B	220
		30	219	0.54	16	–	5–30	LS		233
Poly(vinyl fluoride)	Dimethylformamide	90	6.42	0.80	–	9	14–66	SV	D	235
Poly(vinylidene chloride)	Hexamethylphos-phoramide	25	25.8	0.65	–	7	0.8–12	LS	C	738
	1-Methyl-2-pyrrolidone	25	13.1	0.69	–	7	0.8–12	LS	C	738
	Tetramethylene sulfoxide	25	13.9	0.69	–	7	0.8–12	LS	C	738
Poly(vinylidene fluoride)	*N,N*-Dimethylacetamide, *N,N*-dimethylformamide, *N*-methylpyrrolidone, *N,N*-dimethyl-*N,N*-tri-methylene urea	25	45	0.70	–	7	–	LS	–	925

1.7. POLY(VINYL ESTERS)

Polymer	Solvent	Temp. (°C)	K ($\times 10^3$) (ml/g)	a	No. of samples Fr.	W.P.	Mol. wt. range ($\times 10^{-4}$)	Method(s)	Remarks	Refs.
Poly(allyl acetate)	Benzene	27	66	0.53	8	–	0.1–0.3	CR		216
Poly(vinyl acetate)	Acetone	6	$[\eta] = 0.104\,M^{0.50} + 0.00725\,M^{0.90}$		21	–	0.3–150	LS	A	236
		18	24.5	0.67	6	–	4–34	OS	B	237
		20	15.8	0.69	6	–	19–72	LS		238
		25	21.4	0.68	6	–	4–34	OS	B	237
		25	18.8	0.69	?	?	?	LS		239
		25	14.6	0.72	–	6	0.7–1.3	EG	C,L	240
		25	10.8	0.72	10	–	0.9–2.5	EG	B,L	240
		30	17.6	0.68	16	–	2–163	OS	A–B	241
		30	8.6	0.74	8	–	8–66	LS	A–B	242
		30	17.4	0.70	?	–	7–68	OS		243
		30	10.2	0.72	–	8	3–126	LS	C	244
		30	10.1	0.73	11	–	6–150	LS	A	236

TABLE 1. *cont'd*

Polymer	Solvent	Temp. (°C)	K ($\times 10^3$) (ml/g)	a	No. of samples Fr.	W.P.	Mol. wt. range ($\times 10^{-4}$)	Method(s)	Remarks	Refs.
		30	$[\eta] = 0.097 M^{0.50} + 0.00723 M^{0.90}$		22	–	0.3–150	LS	A	236
		46	13.8	0.71	6	–	4–34	OS	A	236
	Acetonitrile	25	16.2	0.71	–	–	24–215	LS	B	246
		30	41.5	0.62	4	–	97–153	LS	A–B	247
	Benzene	30	22	0.65	5	–	34–102	LS	A–B	248
		30	56.3	0.62	24	–	3–86	OS	B	249
		30	56.3	0.62	12	–	7–54	LS	B	250
		35	21.6	0.675	14	–	5–40	LS	A–B	251
	Butanone	25	13.4	0.71	6	–	25–346	LS	A	252
		25	42	0.62	15	–	2–120	SD,LS	A,B	253
		30	10.7	0.71	–	13	3–120	LS	C	244
	Chlorobenzene	25	110	0.50	9	–	0.15–7	OS	A	195
		25	94.4	0.56	6	–	4–34	OS	A	236
		53	53.7	0.60	6	–	4–34	OS	A	236
		67	28.9	0.65	6	–	4–34	OS	A	236
	Chloroform	20	15.8	0.74	?	?	7–68	OS		243
		25	20.3	0.72	5	–	4–34	OS	A	236
		53	14.7	0.74	5	–	4–34	OS	A	236
	Dioxane	25	11.4	0.74	5	–	4–34	OS	B	237
		53, 60	10.2	0.75	5	–	4–34	OS	B	237
	Ethanol	56.9 (θ)	90	0.50	5	–	4–150	OS, LS	A	236
	Ethyl formate	30	32	0.65	4	–	16–154	LS	A–B	247
	3-Heptanone	26.8 (θ)	82.0	0.50	5	–	4–150	OS, LS	A	236
		29 (θ)	92.9	0.50	18	–	5–83	LS	A–B	255
	Methanol	6 (θ)	101	0.50		–	0.3–150	OS, LS, VOS		236,245
		25	38.0	0.59	5	–	4–22	OS	B	237
		30	31.4	0.60	–	13	3–120	LS	C	244
		53	36.6	0.59	5	–	4–22	OS	B	237
	6-Methyl-3-heptanone	66 (θ)	82.0	0.50	9	–	14–83	LS	A–B	255
		66 (θ)	78.0	0.50	3	–	9–150	OS, LS	A	236
	4-Methyl-2-pentanone	30	44.9	0.60	5	–	12–69	LS		247
	Tetrahydrofuran	25	16	0.70	11	–	5–50	GPC	B,C	739
		35	15.6	0.708	9	–	1.7–117	GPC	B	740
	Toluene	25	108	0.53	4	–	4–15	OS	B	237
		67	156	0.49	4	–	4–15	OS	B	237
	1,2,4-Trichlorobenzene	35	33.0	0.623			5–40	LS		251
	Heptane/3-methyl-2-butanone (27.3/72.7, v/v)	25	92	0.50	6	–	25–287	LS	C	244
Poly(vinyl benzoate)	Xylene	32.5 (θ)	62.0	0.50	5	–	10–24	OS	B	334
Poly(vinyl butyrate)	Benzene	30	11.15	0.735	–	4	3–15	OS	C	256
Poly(vinyl caproate)	Benzene	30	15.47	0.689	–	4	3–126	OS	C	256
Poly(vinyl 4-chlorobenzoate)	Water	30	64.0	0.64	7	–	6–35	LV	B	336
	Butanol/butanone (47/53, v/v)	60 (θ)	73	0.50	7	–	6–35	LV	B	336
Poly(vinyl formate)	Acetone	30	29.3	0.63	–	9	3–41	LV	C	257
	Acetonitrile	30	14.1	0.717	–	9	3–41	LV	C	257
	Dioxane	30	20.7	0.68	–	8	3–41	LV	C	257
	Methyl acetate	30	37.6	0.61	–	7	3–24	LV	C	257
	Methyl formate	30	14.1	0.722	–	7	3–24	LV	C	257
Poly(vinyl isobutyrate)	Benzene	30	11.05	0.711	–	4	5–20	OS	C	256
Poly(vinyl isocaproate)	Benzene	30	51.0	0.575	–	4	3–17	OS	C	256
Poly(vinyl pivalate)	Acetone	25	2.88	0.77	4	–	40–217	LS	C	258
	Butanone–methanol (0.897 g/ml)	20	53	0.50	2	–	222–344	LS	C	258
Poly(vinyl sulfate)	Aq. NaCl (0.5 M)	20	0.55	1.06	6	–	1–6	LV	C	261

1.8. POLY(STYRENE) AND DERIVATIVES

Polymer	Solvent	Temp. (°C)	K ($\times 10^3$) (ml/g)	a	Fr.	W.P.	Mol. wt. range ($\times 10^{-4}$)	Method(s)	Remarks	Refs.
Poly(4-acetoxystyrene)	Butyl acetate	26.8 (θ)	52.0	0.50	13	–	15–219	LS	A–B	937
	Dioxane	25	16.7	0.65	22	–	0.91–352	LS	A–B	937
	Isopropyl acetate	19.7 (θ)	52.0	0.50	13	–	15–219	LS	A–B	937
	Tetrahydrofuran	25	17.5	0.64	20	–	0.91–352	LS	A–B	937

TABLE 1. *cont'd*

Polymer	Solvent	Temp. (°C)	K ($\times 10^3$) (ml/g)	a	No. of samples Fr.	W.P.	Mol. wt. range ($\times 10^{-4}$)	Method(s)	Remarks	Refs.
Poly(4-bromostyrene)	Benzene	20 (θ)	95.5	0.53	10	–	3–30	OS	B	347
		26.3 (θ)	50.0	0.50	5	–	84–250	LS	A,R	348
	Chlorobenzene	30	7.43	0.69	5	–	59–400	LS	A	348
	Toluene	30	18.2	0.57	5	–	63–400	LS	A	349
Poly(*p-tert*-butylstyrene)	Benzene	35	7.1	0.74	4	–	1.8–640	LS	A	741
	Benzene	35	6.58	0.739	7	–	1.3–174	LLS, SEC, OS	A	934
	Cyclohexane	25	8.52	0.717	10	–	1.3–240	LLS, SEC, OS	A	934
	Cyclohexane	35	9.9	0.71	4	–	1.8–640	LS	A	741
	1-Hexanol	65.0	64.7	0.480	6	–	16–240	LLS, SEC, OS	A	934
	Cyclohexane	35.0	11.1	0.694	7	–	2.7–45.5	OS, LLS	A	938
	1,4-Dioxane	25.0	21.4	0.604	4	–	9.3–45.5	OS, LLS	A	938
		38.0	14.3	0.644	4	–	9.3–45.5	OS, LLS	A	938
	1-Nitropropane	31.0	60.0	0.489	7	–	2.7–45.5	OS, LLS	A	938
	1-Nitropropane	31 (θ)	61	0.49	4	–	1.8–640	LS	A	741
	3-Nonanol	10.9	66.5	0.490	6	–	16–240	LLS, SEC, OS	A	934
	2-Octanol	32.7	60.8	0.492	6	–	16–240	LLS, SEC, OS	A	934
	2-Octanol	32.7	61.0	0.489	7	–	2.7–45.5	OS, LLS	A	938
	Tetrahydrofuran	30.0	10.4	0.70	7	–	2.7–45.5	OS, LLS	A	938
Poly(2-chlorostyrene)	Butanone	24.5 (θ)	46.8	0.50	7	–	20–80	LS	A,R	742
		25 (θ)	46.0	0.50	5	–	20–100	LS	A,B	743
	Toluene	25	11.5	0.66	6	–	14–101	LS	A,B	743
		30	14.3	0.65	10	–	23–143	LS	A	350
Poly(4-chlorostyrene)	Benzene	30	30.6	0.56	–	8	10–200	LS	C	351
		26.7	29.3	0.56	5	–	34–180	LV	B	744
	Benzene–methanol (4.5/1, v/v)	41.6 (θ)	56.8	0.50	5	–	34–180	LV	B	744
	Butanone	25	29	0.59	7	–	3–140	LS	B,R	352
		30	3.52	0.75	6	–	17–270	OS	B	353
	Chlorobenzene	30	2.19	0.80	6	–	17–270	OS	B	353
	Chloroform	30	14.8	0.65	–	8	10–200	LS	C	351
	Dioxane	30	17.6	0.62	–	8	10–200	LS	C	351
	Ethylbenzene	30	21.8	0.60	6	–	10–180	LS	B	745
	Toluene	20	24.1	0.605	–	7	2–40	LS	B	354
		25	13.2	0.645	–	7	1–244	LS	B	355
		30	13.0	0.64	6	–	3–140	LS	B,R	352
		30	11.8	0.65	7	–	21–140	LS	A	349
		30	5.37	0.71	7	–	17–270	OS	B	353
Poly(4-cyclohexylstyrene)	Heptane	30	32.3	0.54	6	–	4–30	OS	A–B	266
	Toluene	30	10.6	0.69	7	–	2–30	OS	A–B	266
Poly(2,5-dichlorostyrene)	Toluene	21	12.6	0.69	9	–	7–66	LS		356
	Ethanol/ethyl acetate (1/15, w/w)	30.5 (θ)	35.5	0.50	8	–	50–130	LS		357
Poly(3,4-dichlorostyrene)	Chlorobenzene	30	4.39	0.72	7	–	8–51	OS	A	358
	o-Dichlorobenzene	30	4.11	0.73	7	–	8–51	OS	A	358
	Butanol/butyl acetate (1/13, w/w)	32.9 (θ)		0.50	8	–	40–540	LS		359
Poly(2,4-dimethylstyrene)	Benzene	20	3.8	0.79	6	–	3–22	LS	B,C	746
	Butyl acetate	20	10.2	0.68	8	–	3–22	LS	B,C	746
	Cyclohexane	20	14.8	0.65	7	–	3–22	LS	B,C	746
	Toluene	30	9.52	0.70	–	9	5–120	LS	C	333
Poly(1,4-divinylbenzene)	*trans*-Decalin	25.0 (θ)	286	0.32	7	–	0.7–180	LS, SE	Branching	895
Poly(3-fluorostyrene)	Benzene	25	15.3	0.69						747
	Butanone	25	13.8	0.70						747
	Carbon tetrachloride	25	65.6	0.53			0.5–8	LS	C	747
	Chloroform	25	12.8	0.70	–	8	1–15	LS	C	747
Poly(4-fluorostyrene)	Benzene	25	40.8	0.58						747
	Butanone	25	11.1	0.73						747
	Carbon tetrachloride	25	82.8	0.50						747
	Chloroform	25	16.1	0.69	–	8	0.2–13	LS	C	747
Poly(4-hydroxystyrene)	Dioxane	25	20.3	0.66	11	–	3.8–583	LS	–	940
	Ethyl propionate	25	63.7	0.52	11	–	3.8–583	LS	–	940
	Isobutyl acetate	25	59.4	0.53	11	–	3.8–583	LS	–	940
	Tetrahydrofuran	25	37.2	0.60	10	–	3.8–583	LS	–	940
	1-Chloro-*n*-hexane	5.7	91.6	0.468	9	–	5.9–90.3	LS, SEC, OS	A	888

TABLE 1. *cont'd*

Polymer	Solvent	Temp. (°C)	K ($\times 10^3$) (ml/g)	a	No. of samples Fr.	W.P.	Mol. wt. range ($\times 10^{-4}$)	Method(s)	Remarks	Refs.
Poly(4-iodostyrene)	Dioxane	20	33	0.51	10	6	10–118	LV	B-C	360
Poly((*p*-isopropyl-α-methylstyrene)										
	Tetrahydrofuran	25	45	0.55	8	–	1–63	LS	A-D	748
Poly(*p*-isopropylstyrene)	Toluene	25	12.3	0.69	–	5	14–75	LS	B,C	265
Poly(*o*-methoxystyrene)	Butanone	30	18.6	0.59	5	–	13–35	LS	A–B	362
	Toluene	30	6.40	0.71	5	–	13–35	LS	A–B	362
	Methanol/toluene (25/75, v/v)	30 (θ)	57.5	0.50	4	–	15–30	LS	A–B	362
Poly(*p*-methoxystyrene)	Butanone	30	3.75	0.73	5	–	13–75	LS	A–B	362
		35	8.6	0.68	6	–	1–100	LS	B	352
	Chlorocyclohexane	25	17.7	0.63	16	–	22–220	LS	A	363
	Pentyl acetate	25	55	0.52	16	–	22–220	LS	A	363
	Toluene	25	10.5	0.70	16	–	22–220	LS	A	363
		30	5.28	0.73	5	–	13–75	LS	B	362
		30	18.0	0.62	6	–	1–100	LS	B	352
	Methanol/toluene (28.1/71.9, v/v)	30 (θ)	62.1	0.50	5	–	7–180	LS	B	362
Poly(α-methylstyrene) anionic, (ca. 50%-hetero, ca. 40%-syndio)										
	Benzene	30	10.3	0.72	–	9	4–170	LS	A	319
		30	9.15	0.726	–	6	37.5–685	LS	A	873
	Cyclohexane	34.5 (θ)	73	0.50	–	10	4–750	LS, OS	A	320
		37 (θ)	78	0.50	–	9	9–400	LS	A	321
		38 (θ)	76	0.50	–	6	2–66	LS	A	322
		38.6 (θ)	76.0	0.50	–	9	4–170	LS	A	323
		39	71.3	0.51	–	9	3–140	LS	A	324
	trans-Decalin	9.5 (θ)	67	0.50	–	9	8–750	LS, OS	A	320
	Toluene	25	7.06	0.744	–	9	8–750	LS, OS	A	320
		25	7.81	0.73	–	6	3–60	SD	A	325
		30	10.8	0.71	–	13	2–66	LS	A	322,326
cationic	Benzene	30	24.9	0.647	4	–	14–91	OS	B	327
(10%-hetero, 90%-syndio)	Cyclohexane	32.5 (θ)	66.0	0.50	5	–	2–370	LS	B	328
(19%-hetero, 80%-syndio)		33.3 (θ)	72.7	0.50	8	–	2–18	LS	B	328
	Toluene	30 (θ)	2.2	0.80	6	–	1–100	LS	B	329
	Benzene/methanol (79.4/20.6, v/v)	30	76.8	0.50	4	–	14–91	OS	B	327
		10.0	71.8	0.491	9	–	5.9–90.3	LLS, SEC, OS	A	888
	1-Chloro-*n*-heptane	20.0	94.9	0.459	9	–	5.9–90.3	LLS, SEC, OS	A	888
		27.0	79.6	0.477	9	–	5.9–90.3	LLS, SEC, OS	A	888
	1-Chloro-*n*-octane	43.0	94.8	0.461	9	–	5.9–90.3	LLS, SEC, OS	A	888
		53.0	65.1	0.497	9	–	5.9–90.3	LLS, SEC, OS	A	888
		80.0	74.6	0.484	9	–	5.9–90.3	LLS, SEC, OS	A	888
	n-Hexyl acetate	85.0	86.4	0.474	9	–	5.9–90.3	LLS, SEC, OS	A	888
	Cyclohexane	34.5	74.0	0.493	11	–	2.01–90.3	LLS, SEC, OS	A	888
	trans-Decalin	10.0	83.0	0.480	11	–	2.01–90.3	LLS, SEC, OS	A	888
	n-Butyl chloride	35.5	40.0	0.56	16	–	0.2–130	OS, GPC	B	927
	Carbon tetrachloride	45	19.4	0.67	16	–	0.2–130	OS, GPC	B	927
	Chloroform	25	13.3	0.70	16	–	0.2–130	OS, GPC	B	927
	Tetrahydrofuran	25	11.1	0.69	16	–	0.2–130	OS, GPC	B	927
	Toluene	25	10.1	0.71	16	–	0.2–130	OS, GPC	B	927
	n-Butyl chloride	5	33.6	0.570	8	–	6.0–107	LLS, LS	A	935
		25	27.0	0.590	15	–	5.4–354	LLS, LS	A	935
		50	26.5	0.594	8	–	6.0–107	LLS, LS	A	935
Poly(*m*-methylstyrene)	Benzene	30	7.36	0.76	9	–	8–115	OS	A	330
	Cyclohexane	30	11.76	0.70	7	–	15–83	OS	A	330
	Ethyl acetate	30	17.42	0.64	7	–	15–83	OS	A	330
Poly(*p*-methylstyrene)	Diethyl succinate	16.4 (θ)	70	0.50	6	–	16–200	LS	A	331
	Toluene	30	8.86	0.74	9	–	19–180	LS	A	331
Poly(methylstyrene), position of substituent, unspecified										
	Cyclohexane	20	22	0.68	6	–	11–133	SV	A	332
Poly[(2,3,4,5,6-pentafluorostyrene)]										
	4-Methyl-2-pentanone	20	4.37	0.736	–	21	10–260	OS	C	364
Poly(styrene)	Benzene	20	6.3	0.78	18	–	1–300	SD	A	270
atactic		20	12.3	0.72	7	–	0.6–520	SD	A,R	271

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TABLE 1. *cont'd*

Polymer	Solvent	Temp. (°C)	K ($\times 10^3$) (ml/g)	a	No. of samples Fr.	W.P.	Mol. wt. range ($\times 10^{-4}$)	Method(s)	Remarks	Refs.
		25	22.7	0.72	–	7	0.2–0.8	CR	C,L	272
		25	41.7	0.60	9	–	0.1–1	CR	B,L	272
		25	34.0	0.65	11	–	0.04–0.8	EG	A,L	273
		25	9.52	0.744	6	–	3–61	OS	A	274
		25	9.18	0.743	6	–	3–70	LS	A	275
		25	11.3	0.73	10	–	7–180	OS	A	276
		34	9.8	0.737	10	–	8–80	DV	A	277
	Butanone	25	39	0.58	16	–	1–180	LS	A,R	278
		25	30.5	0.60	5	–	7–150	OS	A	276
		25	19.5	0.635	7	–	12–280	LS	A	279
		30	23	0.62	7	–	40–370	LS	B	280
		34	28.9	0.60	10	–	8–80	DV	A	281,282
		35	17.1	0.64	13	–	4–640	LS	A	752
	Butyl chloride	40.8	15.1	0.659	5	–	29–106	LS	B	283
	n-Butyl chloride	25	17.4	0.662 ($M_w > 3.7 \times 10^4$)	8	–	0.97–67.5	LLS, SEC	A	933
		50	16.2	0.665 ($M_w > 3.7 \times 10^4$)	8	–	0.97–67.5	LLS, SEC	A	933
	Carbon tetrachloride	10	12.6	0.717	–	6	1.8–180	LV	A–B	901
		20	12.0	0.720	–	6	1.8–180	LV	A–B	901
		30	11.4	0.724	–	6	1.8–180	LV	A–B	901
		40	11.2	0.725	–	6	1.8–180	LV	A–B	901
		50	11.0	0.726	–	6	1.8–180	LV	A–B	901
	Chlorobenzene	25.7	7.4	0.749	4	–	62–424	LS	B	283
	Chloroform	25	7.16	0.76	8	–	12–280	LS	A	279
		25	11.2	0.73	5	–	7–150	OS	A	276
		30	4.9	0.794	4	–	19–373	OS	B	284
	Cyclohexane	28	108.0	0.479	7	–	0.6–69	OS	A	285
		34 (θ)	82	0.50	15	–	1–70	LV	A	274
		34 (θ)	90.2	0.503	9	–	0.6–69	OS	A	285
		34.5 (θ)	84.6	0.50	8	–	14–200	LS	A,R	286
		35 (θ)	80	0.50	3	–	8–42	LS	A	287
		35 (θ)	70	0.50	8	–	3–200	SD	B	288
		35 (θ)	76	0.50	10	–	4–137	LS	B	283
		40	41.6	0.554	10	–	4–137	LS	B	283
		45	34.7	0.575	10	–	4–137	LS	B	283
		50	26.9	0.599	10	–	4–137	LS	B	283
		50	36.4	0.584	7	–	4–52	LS	A	289
	cis-Decalin	25	40	0.574	8	–	4.8–2360	LS	A	936
	Decalin (100%-*trans*)	20	149	0.44	7	–	14–200	LS	A	290
		23	98	0.48	7	–	14–200	LS	A	290
		23.8 (θ)	–	0.50	–	–		LS	A	290
		25	67	0.52	7	–	14–200	LS	A	290
		30	61	0.53	6	–	14–200	LS	A	290
		60	22	0.63	4	–	14–200	LS	A	290
	Decalin (73%-*trans*)	18 (θ)	77	0.50	4	–	14–140	LS	A	290
		30	36	0.58	4	–	14–140	LS	A	290
		40	37	0.58	4	–	14–140	LS	A	290
		60	22	0.64	4	–	14–140	LS	A	290
		100	15.7	0.67	6	–	14–200	LS	A	290
	Dichloroethane	25	21.0	0.66	7	–	1–180	LS	A	278
		35	14.3	0.69	11	–	10–500	LS	A	689
	1,2-Dichloroethane	35	14.3	0.69	11	–	9–540	LS	A	752
	Diethyl malonate	34.2 (θ)	71.8	0.50	3	–	39–400	LV	B	291
	Diethyl oxalate	55.8 (θ)	73.0	0.50	3	–	39–400	LV	B	291
	Dimethylformamide	35	31.8	0.603	5	–	0.4–87	LS	A	754
	Dioxane	34	15.0	0.694	10	–	8–80	DV	A	282
	Ethyl acetate/cyclohexane (100/0–10/90)	–	18.2–43.8	0.54–0.67	5	–	11–96	–	A	939
		10	11.0	0.733	–	6	1.8–180	LV	A–B	901
		25	9.32	0.738	–	6	1.8–180	LV	A–B	901
		40	9.07	0.739	–	6	1.8–180	LV	A–B	901
		55	8.79	0.742	–	6	1.8–180	LV	A–B	901
		65	8.90	0.740	–	6	1.8–180	LV	A–B	901

TABLE 1. *cont'd*

Polymer	Solvent	Temp. (°C)	K (× 10³) (ml/g)	a	No. of samples Fr.	No. of samples W.P.	Mol. wt. range (× 10⁻⁴)	Method(s)	Remarks	Refs.
	Ethylbenzene	25	17.6	0.68	5	–	7–150	OS	A	276
	Ethylcyclohexane	70 (θ)	75	0.50	2	–	36–127	LV	B	292
	Methylcyclohexane	70 (θ)	76	0.50	?	?	?	?		293
		70.5 (θ)	69.6	0.50	3	–	39–400	LV	B	291
	4-Methyl-2-pentanone	35	61.9	0.53			5–100	LS	B	698
	Tetrahydrofuran	25	11.0	0.725	–	7	1–100	GPC	A	749
		25	14	0.70				LS	C	756
	Toluene	20	4.16	0.788	10	–	4–137	LS	B	283
		25	7.5	0.75	8	–	12–280	LS	A	279
		25	8.48	0.748	7	–	4–52	LS	A	289
		25	10.5	0.73	6	–	16–100	LS	A,R	294
		25	17	0.69	9	–	1–160	LS	A	278
		25	7.54	0.783	?	?	5–80	OS		295
		25	13.4	0.71	5	–	7–150	OS	A	276
		25	44	0.65	–	9	0.5–4.5	OS		296
		25	(a increases with M)		10	–	0.08–3.7	CR	L	297
		25	100	0.50	8	–	0.05–0.5	CR	A,R,L	298
		30	9.2	0.72	9	–	4–146	LS	A	299
		30	12.0	0.71	8	–	40–370	LS	B	280
		30	11.0	0.725	7	–	8–85	OS	A–B	300
		34	9.7	0.733	10	–	8–80	DV	A	282
		35	12.6	0.71	16	–	3–650	LS	A	752
		35	12.9	0.71			5–100	LS	B	698
	Trichloro benzene	135	1.75	0.67						697
	Benzene/methanol (74/26, v/v)	34 (θ)	89	0.50	10	–	8–80	DV	A	277
	Butanone/methanol									
	(97.5/2.5, v/v)	25	22.4	0.62	8	–	12–280	LS	A	279
	(95.9/5.0, v/v)	25	26.3	0.60	8	–	12–280	LS	A	279
	(92.5/7.5, v/v)	25	35.7	0.57	8	–	12–280	LS	A	279
	(89/11, v/v)	25 (θ)	73	0.50	8	–	12–280	LS	A	279
	Butanone/2-propanol									
	(6/1, v/v)	23 (θ)	73	0.50	9	–	4–146	LS	A	299
	(82.6/17.4, v/v)	34 (θ)	71.8	0.50	10	–	8–80	DV	A	282
	Chloroform/methanol									
	(90/10, v/v)	25	7.7	0.75	8	–	12–280	LS	A	279,278
	(80/20, v/v)	25	12	0.68	8	–	12–280	LS	A	279,278
	(75/25, v/v)	25	46	0.54	8	–	12–280	LS	A	279,278
	(74.7/24.3, v/v)	25 (θ)	73	0.50	8	–	12–280	LS	A	279,278
	Dioxane/methanol									
	(65.1/34.9, v/v)	34 (θ)	72.6	0.50	10	–	8–80	DV	A	282
	Toluene/methanol									
	(90/10, v/v)	25	10.4	0.715	8	–	12–280	LS	A	279
	(80/20, v/v)	25	26	0.612	8	–	12–280	LS	A	279
	(76.9/24.8, v/v)	25	92	0.50	12	–	0.07–3.5	DV	A,L	298,297
	(75.2/24.8, v/v)	34 (θ)	88	0.50	10	–	8–80	DV	A	282
atactic, anionic	Benzene	25	100	0.50	–	7	0.04–1	VOS, EB	A,L	301
		25	7.8	0.75	17	–	40–6000	LS	A,R	750
		30	8.5	0.75	–	12	2.5–150	VOS	A	301
		30	11.5	0.73	–	5	25–300	LS	A	302
		30	9.50	0.74	–	6	31–500	LS	A	649
	Cyclohexane	34 (θ)	74.5	0.50	–	?	?	LS	B	304
		34.5 (θ)	85	0.50	–	12	0.04–150	LS	A,R	301,303
		34.5 (θ)	88	0.50	–	9	31–970	LS	A	649
		34.5 (θ)	88	0.50	17	–	1–6000	LS	A	750
		34.6 (θ)	91	0.50	–	4	25–300	LS	A	302
		35 (θ)	86	0.50	–	7	2–50	LS	A	305
	Cyclohexene	25	16.3	0.68	–	3	20–107	LS	A	306
	Decalin (66%-*cis*)	12.2 (θ)	80	0.50	–	6	2–50	LS	A	303
	Decalin (99%-*trans*)	20.4 (θ)	81	0.50	–	8	31–760	LS	A	649
	Dichloroethane	30	8.38	0.74	–	5	25–300	LS	A	302
	Dioctyl phthalate	22.0 (θ)	80	0.50	–	4	40–160	LS	A	303
	Tetrahydrofuran	25	13.63	0.714	13	–	2–4000	LS, OS, SD	A,R	753

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TABLE 1. *cont'd*

Polymer	Solvent	Temp. (°C)	K (× 10³) (ml/g)	a	No. of samples Fr.	W.P.	Mol. wt. range (× 10⁻⁴)	Method(s)	Remarks	Refs.
	Thiophenol	25	14.6	0.70	6	–	42–842	LS	A	778
	Toluene	20	10.69	0.724	20	–	3–4000	LS, OS, SD	A,R	753
		20	11.2	0.72	–	6	3–24	SD		307
		25	9.77	0.73	–	12	1–104	SD	A,R	308
		25	34.5	0.62	–	25	0.4–230	SD	B	309
		30	8.81	0.75	–	5	25–300	LS	A	302
		30.3	10.4	0.73	–	15	2.6–50	OS, LS	A	310
isotactic	Benzene	30	9.5	0.77	6	–	4–75	OS		311
		30	10.6	0.735	7	–	4–37	OS	A–B,R	312
	Chloroform	30	25.9	0.734	3	–	9–32	OS	C-D	284
	o-Dichlorobenzene	25	17.9	0.677	5	–	2–100	LV	C	313
	Toluene	30	11.0	0.725	7	–	3–37	OS	A–B	312
		30	9.3	0.72	5	–	15–71	LS	A–B,R	314
branched, random type	Butanone	25	(a decreases with M)		5	–	30–200	LS	B-C	315
	Cyclohexane	35 (θ)	(a decreases with M)		9	–	8–300	LS	A	316
	Toluene	30	(a decreases with M)		9	–	8–300	LS	A	316
head-to-head	Tetrahydrofuran	25	53	0.61	8	–		LS	C	756
		35 (not θ)	–	0.465	12	–	0.69–43.6	GPC	B	926
		40	–	0.5	3	–	16.1–43.6	GPC	B	926
		35	–	0.67	12	–	0.69–43.6	GPC	B	926
	Cyclohexane	34.5	53	0.50	8	–	3–27	LLS, GPC	A–B	928
		35	–	0.52	10	–	4.4–27.6	LS	A–B	930
	Tetrahydrofuran	30	12.0	0.68	8	–	3–27	LLS, GPC	A–B	928
		25	–	–	–	–	?–18	LS	A–B	930
	Toluene	25	6.38	0.734	8	–	3–27	LLS, GPC	A–B	928
ring	Cyclohexane	40.0	55.6	0.50	10	–	0.7–44	LS		755
	Toluene	35.0	12.4	0.67	10	–	0.7–44	LS		755
star type										
three branches	Benzene	25	5.7	0.76	5	–	3–96	OS, GPC	A	757
	Cyclohexane	35	36	0.55	5	–	3–96	OS, GPC	A	757
four branches	Cyclohexane	35 (θ)	63.1	0.50	9	–	5–140	OS, LS	A	758
		50	26.5	0.58	9	–	5–140	OS, LS	A	758
	Toluene	35	7.4	0.73	9	–	5–140	OS, LS	A	758
regular H-shaped	Cyclohexane	35 (θ)	66.5	0.50	6	–	11–170	LS	A	759
	Toluene	35	74.7	0.73	6	–	11–170	LS	A	759
star type 3 arm	Cyclohexane	16.6–30.1 (θ) (depend on M_w)	–	–	–	–	–	LS	–	931
	Toluene	35	–	Not const.	–	–	–	LS	–	931
star type 15 arm	Cyclohexane	34.5 (not θ)	30	0.5	4	–	86–302	LS, OS, GPC	A–B	941
20 arm	Cyclohexane	34.5 (not θ)	24	0.5	3	–	26–148	LS, OS, GPC	A–B	941
star type, anionic	Cyclohexane	34 (θ)	g' = 0.94 (3 branches)[a]							304
			g' = 0.82 (4 branches)[a]							304
	Decalin	15	g' = 0.48 (9 branches)[a]							318
	Toluene	25	g' = 0.90 (3 branches)[a]							304
		34	g' = 0.84 (4 branches)[a]							304
Poly(styrenesulfonic acid)	Aq. HCl (0.52 M)	25	(0.344)	(1.0)	3	–	18–46	LV		365
	Aq. NaCl (0.52 M)	25	(0.312)	(1.0)	3	–	18–46	LV		365
–, sodium salt	Aq. NaCl									
	(4.17 M)	25 (θ)	20.4	0.50	4	–	49–228	LS	B	366
	(0.5 M)	25	18.6	0.64	6	–	39–234	LS	B,R	366
	(0.1 M)	25	17.8	0.68	6	–	39–234	LS	B	366
	(0.05 M)	25	13.9	0.72	6	–	39–234	LS	B	366
	(0.02 M)	25	10.1	0.78	6	–	39–234	LS	B	366
	(0.01 M)	25	2.8	0.89	5	–	39–234	LS	B	366
	(0.05 M)	25	2.3	0.93	5	–	49–234	LS	B	366
Aq. KCl	(3.1 M)	25	20.4	0.50	4	–	49–234	LS	B	366

[a] $g' = [\eta]$ of branched molecules/$[\eta]$ of linear molecules with same mol. wt.

1.9. OTHER COMPOUNDS

Polymer	Solvent	Temp. (°C)	K (× 10³) (ml/g)	a	Fr.	W.P.	Mol. wt. range (× 10⁻⁴)	Method(s)	Remarks	Refs.
Poly(2-acrylamino-2-methylpropanesulfonamide)										
	Water	25	12.3	0.757	10	–	85–122	OS, LS	B	1011
	Water/1,4-dioxane (81.5/18.5, v/v)	25 (θ)	172	0.50	10	–	85–122	OS, LS	B	1011

TABLE 1. *cont'd*

Polymer	Solvent	Temp. (°C)	K (× 10^3) (ml/g)	a	No. of samples Fr.	W.P.	Mol. wt. range (× 10^{-4})	Method(s)	Remarks	Refs.
Poly(allylammonium chloride)	Aqueous NaCl (0.05 M)	25	2.40	0.975	9	–	4.1–18	LS	–	900
	(0.2 M)	25	7.18	0.815	7	–	2.8–18	LS	–	900
	(0.5 M)	25	7.19	0.794	6	–	2.8–18	LS	–	900
	(1.0 M)	25	13.9	0.714	9	–	4.1–18	LS	–	900
Poly[(biphenyl-4-yl)-ethylene]	Benzene	20	21.4	0.619	5	–	7–170	LS	B	264
		30	29.5	0.59	6	–	1–110	LV	B	264
		75	27.7	0.589	5	–	7–170	LS	B	264
Poly(*tert*-butyl crotonate)	Butyl chloride	25	7.7	0.82	–	11	0.2–32	OS, GPC	A	760
	Toluene	25	7.7	0.82	10	–	0.6–35	OS, GPC	A	760
Poly(carbanilinoxyethylene), (Poly(vinyl carbanilate))	Dioxane	20	13.7	0.68	11	–	6–200	LS	A	335
	Dioxane/methanol (28/72, v/v)	20 (θ)	64.5	0.51	5	–	6–200	LS	A	335
Poly(dibutyl itaconate)	Toluene	25	5.70	0.70	8	–	20–105	LS	B	762
Poly(dicyclohexyl itaconate)	Tetrahydrofuran	25	23.3	0.58	5	–	5–56	OS	B	761
	Toluene	25	13.1	0.623	10	–	5–56	OS	B	761
Poly(didecyl itaconate)	Toluene	25	8.01	0.64	11	–	13–82	LS	B	762
Poly(diethyl fumarate)	Benzene	30	1.62	0.87	10	–	?–20	OS, GPC	A–B	1009
Poly(didodecyl itaconate)	Toluene	25	11.7	0.59	–	–	–	LS	–	945
Poly(diethyl itaconate)	Toluene	25	1.48	0.80	–	8	5–61	LS	B	762
Poly[di(ethylcyclohexyl) itaconate]	Toluene	25	2.62	0.73			16–170	LS	B	763
Poly(dihexadecyl itaconate)	Toluene	25	11.4	0.60	–	–	–	LS	–	945
Poly(dihexyl itaconate)	Toluene	25	3.71	0.72	–	8	12–122	LS	B	762
Poly(diicosayl itaconate)	Toluene	25	14.3	0.56	–	–	–	LS	–	945
Poly(diisopropyl fumarate)	Benzene	30	0.753	0.98	11	–	4.7–30	OS, GPC	A–B	1009
		(Wormlike behavior)								
Poly(dimethyl itaconate)	Benzene	25	5.15	0.68	–	8	4–120	LS	B	762
Poly[di(methylcyclohexyl) itaconate]	Toluene	25	2.02	0.76			13–102	LS	B	763
Poly(dioctyl itaconate)	Toluene	25	3.67	0.71	–	8	11–163	LS		762
Poly(diphenylmethylene)	Benzene		218	0.328	?		1–90	?		267
Poly(diphenyl itaconate)	Toluene	25	4.47	0.69	9	–	5.7–57	LS	–	943
Poly(dioctadecyl itaconate)	Toluene	25	13.1	0.59	–	–	–	LS	–	945
Poly(dipropyl itaconate)	Toluene	25	1.62	0.78	–	6	13–109	LS		762
Poly[di(propylcyclohexyl itaconate]	Pentyl acetate	25	14.0	0.56			16–91	LS	B	763
	Toluene	25	2.23	0.73			16–91	LS	B	763
Poly(ditetradecyl itaconate)	Toluene	25	9.91	0.61	–	–	–	LS	–	945
Poly(diundecyl itaconate)	Toluene	25	10.01	0.61	–	4	9–250	LS		762
Poly(1-methoxycarbonyl-1-phenylethylene)	Benzene	30	35.6	0.566	8	–	6–40	LS	A	361
	Chloroform	30	12.7	0.661	8	–	6–40	LS	A	361
	Ethylbenzene	15 (θ)	51.4	0.507	8	–	6–40	LS	A	361
Poly(monodecyl itaconate)	Tetrahydrofuran	25	–	Not const.	11	–	3.3–72.4	LS, SEC	A	1006
		(Wormlike behavior)								
Poly(monododecyl itaconate)	Tetrahydrofuran	25	11.2	0.65	9	–	1.7–233	LS, SEC	A	949
		(Wormlike behavior)								
Poly[bis(phenylethyl) itaconate]	Toluene	25	5.26	0.66	8	–	9.0–45	LS	–	943
Poly[bis(phenyl-*n*-propyl) itaconate]	Toluene	25	5.97	0.65	12	–	6.5–52	LS	–	943
Poly(9-vinyladenine)	Aq. NaCl (0.1 M)/ $NaAs(CH_3)_2$(0.1 M); pH7	26	241	0.35	3	–	9–51	OS		830
		40	29.2	0.53	3	–	9–51	OS		830
Poly(1-vinyl-3-benzylimidazolium chloride)	Aq. NaCl (0.2 M)	25	5.89	0.74	4	–	18–130	LS	B	813
	Methanol/$N(CH_3)_4$Br(0.01 M)	25	13.4	0.63	5	–	18–160	LS	B	813
Poly(4-vinylbenzyl trimethylammonium chloride)	Aq. NaCl (0.5 M)	25	19.6	0.67	4	–	1–21	OS, GPC		764
	(0.1 M)	25	18.6	0.70	4	–	1–21	OS, GPC		764
	(0.01 M)	25	7.87	0.85	4	–	1–21	OS, GPC		764
	(0.002 M)	25	5.77	0.88	4	–	1–21	OS, GPC		764

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TABLE 1. *cont'd*

Polymer	Solvent	Temp. (°C)	K ($\times 10^3$) (ml/g)	a	No. of samples Fr.	No. of samples W.P.	Mol. wt. range ($\times 10^{-4}$)	Method(s)	Remarks	Refs.
Poly(vinylcarbazole)	Benzene	25	30.5	0.58	11	–	0.7–45	LS	A	367
	Bromobenzene	25	5.14	0.76	7	–	7–49	GPC	A–B	765
	Chlorobenzene	30	5.23	0.755	6	–	7–57	GPC	A–B	766
		45	4.44	0.776	6	–	7–57	GPC	A–B	766
	Chloroform	25	5.93	0.74	7	–	7–49	GPC	A–B	765
		25	13.6	0.67	8	–	3–45	LS	A	367
	Cyclohexanone	25	20.0	0.61	9	–	2–45	LS	A	367
	1,2-Dichlorobenzene	25	11.0	0.68	7	–	4–44	GPC	A–B	767
	1,3-Dichlorobenzene	25	5.6	0.75	6	–	7–49	GPC	A–B	767
	Nitrobenzene	25	9.25	0.69	6	–	7–49	GPC	A–B	765
		30	7.19	0.716	6	–	7–57	GPC	A–B	766
		45	6.03	0.739	6	–	7–57	GPC	A–B	766
	Tetrachloroethane	25	12.9	0.68	9	–	2–45	LS	A	367
	Tetrahydrofuran	25	14.4	0.65	10	–	1–45	LS	A	367
	Toluene	37 (θ)	76.2	0.50	7	–	4–107	OS	A	368
Poly(*N*-vinyl-3,6-dibromo carbazole)										
	p-Chloro-*m*-cresol	112.9 (θ)	30.2	0.50	7	–	4.8–125	–	–	942
	o-Chlorophenol	60.0 (θ)	27.5	0.50	8	–	4.8–125	–	–	942
Poly(1-vinylimidazole)	Aq. NaCl (0.1 M)	25	122	0.51	5	–	9–90	LS	B	813
	(5.0 M)	25 (θ)	121	0.50	8	–	5–90	LS	B	813
	Aq. NaSCN (0.1 M)	25 (θ)	105	0.50	5	–	9–90	LS	B	813
	Methanol/$N(CH_3)_4$Br(0.01 M)	25	48.5	0.63	6	–	9–130	LS	B	813
protonated	Aq. HCl (0.1 M)/NaCl (1 M)	25 (θ)	169	0.50	5	–	9–90	LS	B	813
Poly(5-vinyl-2-methylpyridine)	Butanone	25	13.9	0.65	5	–	13–88	LS	A	375
		25	19	0.64	15	–	6–100	LS	A	376
	Dimethylformamide	25	13.0	0.76	6	–	4–40	OS	A–B	377
	Methanol	25	18.0	0.83	8	–	4–40	OS	A–B	377
		25	18.6	0.70	9	–	7–80	LS	A	376
		25	8.0	0.76	9	–	13–88	LS	A	375
Poly(1-vinylnaphthalene)	Benzene	20	2.20	0.82	4	–	4–17	LS	B	264
		75	1.03	0.88	4	–	4–17	LS	B	264
Poly(2-vinylnaphthalene)	Benzene	17	1.7	0.80	11	–	10–100	LS		268
		20	6.90	0.719	6	–	6–68	LS	B	264
		75	8.69	0.695	6	–	6–69	LS	B	264
	Decalin/toluene (13/10, w/w)	30.2 (θ)		0.50	8	–	10–100	LS		269
Poly(3-vinylpyrene)	Chloroform	25 (θ)	51.0	0.500	9	–	3–50	LS	A	768
	1,2-Dichlorobenzene	25	11.7	0.655	9	–	3–50	LS	A	768
	Tetrahydrofuran	25	31.8	0.547	9	–	3–50	LS	A	768
Poly(2-vinylpyridine)	Benzene	25	6.6	0.72	3	–	3–11	LS		769
		25	17.0	0.64	14	–	3–93	LS	B,C	371
	Benzene	10	151	0.445	5	–	9.4–196	LS, OS	A	944
	Benzene	10	149	0.43	5	–	9.4–196	LS, OS	A	952
		11.4 (θ)	81	0.50	5	–	9.4–196	LS, OS	A	952
		12	56.0	0.53	5	–	9.4–196	LS, OS	A	952
		15	31.8	0.59	5	–	9.4–196	LS, OS	A	952
	Butanone	25	97.2	0.47	14	–	3–93	LS	B,C	207
	Dimethylformamide	25	14.7	0.67	14	–	3–93	LS	B,C	371
	Dioxane	25	30.9	0.58	14	–	3–93	LS	B,C	371
	Methanol	25	11.3	0.73	14	–	3–93	LS	B,C	371
	Methyl ethyl ketone	25	93.3	0.480	5	–	9.4–196	LS, OS	A	944
	Pyridine	25	9.84	0.727	5	–	9.4–196	LS, OS	A	944
	2-Propanol	25	18.4	0.67	5	–	9.4–196	LS, OS	A	952
	Pyridine	25	9.9	0.73	4	–	9.4–196	LS, OS	A	952
	Pyridine	25	13.8	0.69	14	–	3–93	LS	B,C	207
	Ethanol/water (92/8, w/w)	25	12.2	0.73	14	–	3–93	LS	B,C	371
Poly(2-vinylpyridine 1-oxide)	Benzyl alcohol	25	9.35	0.73	14	–	1.3–34	LS	A–B	946
	1-Butanol	25	7.78	0.72	14	–	1.3–34	LS	A–B	946
	Chloroform	25	15.8	0.64	14	–	1.3–34	LS	A–B	946
	Methanol	25	7.55	0.72	14	–	1.3–34	LS	A–B	946

TABLE 1. *cont'd*

Polymer	Solvent	Temp. (°C)	K (× 10³) (ml/g)	a	No. of samples Fr.	No. of samples W.P.	Mol. wt. range (× 10⁻⁴)	Method(s)	Remarks	Refs.
	1-Propanol	25	10.3	0.70	14	–	1.3–34	LS	A–B	946
	2-Propanol	25	12.0	0.68	14	–	1.3–34	LS	A–B	946
Poly(4-vinylpyridine)	Ethanol	25	(1.51)	(0.52)	–	3	1–4	SD	C	372
		25	25.0	0.68	8	–	10–185	LS	A–B	373
	Water	25	22.0	0.687	8	–	10–185	LS	A–B	373
	Butanone/2-propanol	25	38.0	0.57	7	–	7–224	LS	B	374
	Ethanol/water (92/8, w/w)	25	12.0	0.73	7	–	7–224	LS	B	374
Poly(vinylpyrrolidone)	Chloroform	25	19.4	0.64	4	2	2–23	LS	B	378
	Methanol	30	23	0.65	–	6	2–23	LS	B	378
	Water	20	64	0.58	3	–	1–9	SD	B	379
		25	67.6	0.55	15	–	0.7–10	LS	B,R	378
		25	4.1	0.85	–	5	1–4	SD	C,D	211
		30	14	0.70	9	–	1–20	SD	B	381
		30	39.3	0.59	6	–	8–110	OS	A,R	383
	Acetone/water (66.8/33.2, v/v)	25 (θ)	75.0	0.50	–	3	1.2–108	LS	B	384
	Aq. Na_2SO_4 (0.55 M)	25 (θ)	58.0	0.500	5	–	9–46	OS	B	770
Poly(1-vinyl-2-pyrrolidone)										
high *M*	Aq. sodium acetate (0.1 M)	25	8.86	0.74 (Mixed)			4–220	–	–	948
low *M*	Aq. sodium acetate (0.1 M)	25	64	0.53 (Mixed)			0.2–4	–	–	948
Poly(vinylsulfonic acid)	Aq. KBr (0.347 M)	5.7 (θ)	68.8	0.50	5	–	4–39	LS	B	259
		15	30.8	0.61	5	–	8–39	LS	B	259
		30	24.5	0.75	5	–	8–39	LS	B	259
		50	26.6	0.76	5	–	8–39	LS	B	259
	Aq. KCl	5.5 (θ)	68.2	0.50	5	–	4–39	LS	B	259
	(0.349 M)	25	16.7	0.79	5	–	4–39	LS	B	259
	(0.650 M)	26.0 (θ)	79.5	0.50	5	–	4–39	LS	B	259
	(1.001 M)	44.5 (θ)	80.3	0.50	5	–	4–39	LS	B	259
	Aq. NaBr	−0.6 (θ)	95.5	0.50	5	–	4–39	LS	B	259
	(0.346 M)	10	26.8	0.73	5	–	8–39	LS	B	259
		20	25.1	0.76	5	–	8–39	LS	B	259
		30	22.0	0.79	5	–	8–39	LS	B	259
	(1.008 M)	40.1 (θ)	94.5	0.50	5	–	4–39	LS	B	259
	Aq. NaCl									
	(1.003 M)	32.4 (θ)	96.1	0.50	5	–	4–39	LS	B	259
	(0.5 M)	20	21.5	0.65	–	6	0.3–3	SD	C	260
Poly(vinyltrimethylsilane)	Cyclohexane	25	8.2	0.71	5	–	59–213	LS	B	610

1.10. COPOLYMERS

Polymer	Solvent	Temp. (°C)	K (× 10³) (ml/g)	a	No. of samples Fr.	No. of samples W.P.	Mol. wt. range (× 10⁻⁴)	Method(s)	Remarks	Refs.
Poly(acrylonitrile-*co*-butadiene), see also Poly(butadiene-*co*-acrylonitrile) in group 1.1										
(18/82, w/w, random)	Toluene	25	251	0.50	7	–	0.06–1.26	OS	A	590
(26/74, w/w, random)	Toluene	25	260	0.50	5	–	0.15–0.40	OS	A	590
Poly(acrylonitrile-*co*-glycidyl methacrylate)	Dimethylformamide	30	175	0.65	?	?	?	?		591
Poly(acrylonitrile-*co*-methyl acrylate)	Dimethylformamide	20	17.9	0.79	6	–	2–21	LS	B	592
Poly(acrylonitrile-*stat*-methyl acrylate), (91.5/8.5, w/w)	Dimethylformamide	25	21.3	0.743	11	–	2–53	LS		772
	Ethylene carbonate/water (82.5/17.5, w/w)	25 (θ)	152	0.502	8	–				772
Poly(acrylonitrile-*co*-styrene) (38.3/61.7, mol/mol,)	Butanone	30	36	0.62	16	–	15–120	LS	B	593
	Tetrahydrofuran	25	21.5	0.68	4	–	10–78	LS	B	594
azeotropic (62.6/37.4, mol/mol, random)	Butanone	30	53	0.61	11	–	19–56	LS	B	595
	Dimethylformamide	30	12	0.77	11	–	19–56	LS	B	595
Poly(acrylonitrile-*stat*-styrene) (27.4/72.6, mol/mol)	Dimethylformamide	30	12.0	0.74	6	–	14–58	LS	B	773

TABLE 1. *cont'd*

Polymer	Solvent	Temp. (°C)	K ($\times 10^3$) (ml/g)	a	No. of samples Fr.	W.P.	Mol. wt. range ($\times 10^{-4}$)	Method(s)	Remarks	Refs.
(38.5/61.5, mol/mol)	Dimethylformamide	30	16.2	0.73	6	–	22–106	LS	B	773
(47.5/52.5, mol/mol)	Dimethylformamide	30	17.2	0.73	6	–	14–78	LS	B	773
Poly(acrylonitrile-*alt*-styrene) (1/1, mol/mol)										
	Butanone	30	24.3	0.67	10	–	5–100	LS	B	774
	Dimethylformamide	30	7.63	0.76	9	–	8–100	LS	B	774
	Butanone/methanol (63.6/36.4, v/v)	30 (θ)	140	0.50	10	–	5–100	LS	B	774
Poly(acrylonitrile-*co*-vinylidene chloride) 58 wt.% AN										
	γ-Butyrolactone	25	112	0.576	8	–	4.2–50	LS	–	961
	Dimethylacetamide	25	99.9	0.603	8	–	4.2–50	LS	–	961
	Dimethylformamide	25	102	0.591	8	–	4.2–50	LS	–	961
	N-methyl-2-pyrrolidone	25	114	0.595	8	–	4.2–50	LS	–	961
	70 wt.% HNO_3	25	142	0.521	8	–	4.2–50	LS	–	961
Poly(*p*-aminobenzoic acid-*stat*-6-aminohexanoic acid) (1/1, mol/mol)										
	Dichloroacetic acid	30	23.7	1.13	4	–	12–60	LS		775
	Trifluoroacetic acid	30	132.5	0.99	4	–	12–60	LS		775
Poly(butadiene-*co*-methacrylamide) (90/10, w/w, random)										
	Toluene	25	437	0.50	5	–	0.09–0.11	OS	A	590
Poly(butadiene-*co*-2-methyl-5-vinylpyridine)										
	Toluene	25	309	0.50	5	–	0.08–1.04	OS	A	590
Poly(butadiene-*co*-styrene), see also Poly(butadiene-*co*-styrene) in group 1.1 (84/16 mol/mol, random)										
	Benzene	25	39.4	0.70	4	–	2–51	OS	A	596
	Dibutyl phthalate	56	472	0.40	6	–	2–51	OS	A	596
	2-Pentanone	23.8 (θ)	167	0.50	5	–	7–51	OS	A	596
Poly(butyl itaconate-*co*-dibutyl itaconate), (40/60, mol/mol, random)										
	Acetone	25	575	0.32	6	–	9–70	LS	B	597
	Methanol	25	354	0.32	7	–	11–110	LS	B	597
	m-Xylene	25	1040	0.21	7	–	11–110	LS	B	597
Poly(butyl methacrylate-*alt*-styrene)										
	Butanone	25	5.3	0.76	10	–	32–320	LS	B	776
Poly(butyl methacrylate-*stat*-styrene) (1/1, mol/mol)										
	Butanone	25	4.9	0.77	10	–	15–208	LS	B	776
		35	5.98	0.75	8	–	22–56	LS	B	777
	Cyclohexane	35	7.88	0.70	6	–	34–50	LS	B	777
Poly(*tert*-butylphenyl methacrylate)-*stat*-vinylpyrrolidone)										
(33.7/66.3, mol/mol)	Benzene	25	118	0.53	5	–	33–96	OS	C	779
	Chloroform	25	105	0.57	5	–	33–96	OS	C	779
(60.4/39.6, mol/mol)	Benzene	25	130	0.55	4	–		OS	C	779
	Chloroform	25	247	0.51	4	–		OS	C	779
Poly(*p*-*tert*-butylstyrene)-*block*-poly(dimethyl-siloxane)-*block*-poly(*p*-*tert*-butylstyrene) 28 wt.% PBS										
	Methyl ethyl ketone	10	252	0.39	4	–	12–129	OS, GPC	C–D	957
		15	58.9	0.50	4	–	12–129	OS, GPC	C–D	957
		20	40.5	0.54	4	–	12–129	OS, GPC	C–D	957
		31	19.3	0.61	4	–	12–129	OS, GPC	C–D	957
		38	10.7	0.66	4	–	12–129	OS, GPC	C–D	957
	Benzene	35	15.4	0.66	4	–	9.3–128	OS, LS	B	960
	Methyl ethyl ketone	15 (θ)	58.9	0.50	4	–	9.3–128	OS, LS	B	960
		20	40.5	0.54	4	–	9.3–128	OS, LS	B	960
		31	19.3	0.61	4	–	9.3–128	OS, LS	B	960
Poly(*p*-chlorostyrene-*stat*-methylmethacrylate), (52/48, mol/mol)										
	Benzene	27	7.94	0.72	9	–	15–120	LS	C	598
	Benzene/hexane (60/40, v/v)	22.3 (θ)	64	0.50	8	–	15–120	LS	C	598
Poly(4-chlorostyrene)-*block*-poly(styrene)-*block*-poly(4-chlorostyrene), $A_k–B_n–A_k$										
$2k/n$, (33/67, mol/mol)	Carbon tetrachloride	40	6.24	0.76	–	5	14–61	OS	A	780
	Cumene	40	5.88	0.76	–	5	14–61	OS	A	780
$2k/n$, (50/50, mol/mol)	Carbon tetrachloride	40	6.63	0.74	–	10	19–74	OS	A	780
	Cumene	40	5.76	0.75	–	10	19–74	OS	A	780
Poly(diethyl fumarate-*co*-isobutene)										
50/50, mol/mol	Benzene/petrol ether	20	340	0.44	4	–	1–14	SD	C	599
Poly(diethyl fumarate-*co*-vinylcarbazole)										
	Benzene	25	14.6	0.67	6	–	2–13	LS	B	789

TABLE 1. *cont'd*

Polymer	Solvent	Temp. (°C)	K ($\times 10^3$) (ml/g)	a	No. of samples Fr.	W.P.	Mol. wt. range ($\times 10^{-4}$)	Method(s)	Remarks	Refs.
Poly(p-diethylphosphonomethylstyrene-*co*-styrene), (1/4, mol/mol, random)										
	Benzene	20	1.95	0.90	5	–	15–50	SV	B	
	Tetrachloroethane	20	0.0836	1.18	11	–	9–51	SV	B	
Poly(dimethyl itaconate-*co*-styrene)										
(75/25, w/w)	Toluene	25	6.6	0.68	6	–	6–22	LS	A	683
(67/33, w/w)		25	9.0	0.67	6	–	4–19	LS	A	683
(59/41, w/w)		25	9.7	0.67	8	–	5–38	LS	A	683
(49/51, w/w)		25	11.7	0.67	7	–	6–24	LS	A	683
(29.5/70.5, w/w)		25	12.8	0.67	8	–	7–36	LS	A	683
(27/73, w/w)		25	10.9	0.69	8	–	6–40	LS	A	683
(0/100, w/w)		25	11.45	0.712	12	–	3–58	LS	A	683
Poly(dimethyl siloxane-*co*-diphenylsiloxane)										
(54/45, mol/mol)	Benzene	25	40.7	0.60	5	–	7–57	OS	A	596
	Dimethyl phthalate	82.5	512	0.31	5	–	11–57	OS	A	596
	Ethanol/toluene (37/63, w/w)	29.5 (θ)	78	0.50	5	–	7–35	OS	A	596
(66/34, mol/mol)	Benzene	25	15.6	0.68	4	–	3.7–100	LS	A	596
	Hexane	36 (θ)	141	0.44	4	–	3.7–100	LS	A	596
	Benzene/2-propanol (44/56, w/w)	42 (θ)	74	0.50	4	–	3.7–100	LS	A	596
Poly(divinylstyrene-*co*-styrene), see also Poly(styrene), branched, random type, in group 1.8.										
	Benzene	25	37.2	0.70	5	–	5–80	SD		602
	Octane	21	162	0.50	6	–	5–80	SD		602
Poly(ethyl acrylate-*stat*-methyl methacrylate), (80/20, mol/mol)										
	Acetone	25	62	0.57	10	–	65–800	LS	B	114
Poly(ethyl methacrylate-*alt*-styrene)										
	Butanone	25	9.3	0.72	9	–	19–470	LS	B	776
Poly(ethyl methacrylate-*stat*-styrene)										
(1/1, mol/mol)	Butanone	25	12.0	0.70	10	–	3–185	LS	B	776
Poly(ethylene-*co*-α-methyl-styrene), $[(ET)_m(MS)_n]_p$										
$m/n = 3/4$	Cyclohexane	30	92	0.56	5	–	0.7–6	SA	B	604
	Dioxane	30	76	0.58	5	–	0.7–6	SA	B	604
	Toluene	30	32	0.68	5	–	0.7–6	SA	B	604
	Butanone/cyclohexane (60/40, v/v)	30 (θ)	135	0.50	5	–	0.7–6	SA	B	604
$m/n = 5/4$	Cyclohexane	30	65	0.60	5	–	0.8–7	SA	B	604
	Dioxane	30	89	0.56	5	–	0.8–7	SA	B	604
	Toluene	30	37	0.66	5	–	0.8–7	SA	B	604
	Butanone/cyclohexane (75/25, v/v)	30 (θ)	140	0.50	5	–	0.8–7	SA	B	604
$m/n = 5/7$	Cyclohexane	30 (θ)	112	0.50	4	–	1.5–7	SA	B	604
	Dioxane	30	123	0.49	4	–	1.5–7	SA	B	604
	Toluene	30	56	0.58	4	–	1.5–7	SA	B	604
Poly(hexadecyl methacrylate-*co*-methyl methacrylate)										
(25/75, mol/mol, random)	Heptane	25	85.0	0.38	8	–	4–47	LS	A	605
	Propyl acetate	25	17.1	0.62	8	–	4–47	LS	A	605
(38/62, mol/mol, random)	Chloroform	25	36.3	0.57	8	–	16–195	LS	A	605
	Heptane	25	6.9	0.65	8	–	4–47	LS	A	605
	Propyl acetate	25	53.6	0.50	8	–	4–47	LS	A	605
(50/50, mol/mol, random)	Chloroform	25	53	0.54	8	–	10–154	LS	A	605
	Heptane	25	32.0	0.52	8	–	4–47	LS	A	605
	Propyl acetate	25	91.3	0.43	8	–	4–47	LS	A	605
Poly(1-hexene-*co*-sulfur dioxide), see Poly[sulfonyl(butylethylene) in group 3.10.										
Poly(isobutene-*co*-isoprene), see group 1.2.										
Poly(isoprene)-*block*-poly(styrene), see group 1.1.										
Poly(maleic acid-*alt*-styrene)										
DN[b] = 9.5	Aq. NaCl (0.02 M)	25	395	0.59	7	–	29–130	LV	B	842
0.50		25	37.3	0.67	7	–	29–130	LV	B	842
0.20		25	0.51	0.87	7	–	29–130	LV	B	842
0.10		25	0.01	0.98	7	–	29–130	LV	B	842
Poly(methacrylic acid-*co*-methyl)methacrylate) (7.4/92.6, w/w)										
	Acetone	20	3.4	0.74	9	–	26–105	LS		607

[b] DN–Degree of neutralization

TABLE 1. *cont'd*

Polymer	Solvent	Temp. (°C)	K ($\times 10^3$) (ml/g)	a	No. of samples Fr.	W.P.	Mol. wt. range ($\times 10^{-4}$)	Method(s)	Remarks	Refs.
Poly(4-methoxystyrene-*stat*-styrene)										
(24.4/75.6, mol/mol)	Toluene	25	7.0	0.75	9	–	4–42	OS	B	781
(26.4/73.6, mol/mol)	Butanone	25,50	40	0.585	8	–	7–80	LV	B	782
	Toluene	25	18.6	0.68	8	–	7–80	LV	B	782
(46.2/53.8, mol/mol)	Toluene	25	7.3	0.755	13	–	3.5–70	OS	B	781
(53.0/47.0, mol/mol)	Butanone	25 (θ)	100	0.49	7	–	7–80	LV	B	782
	Toluene	25	37	0.615	7	–	7–80	LV	B	782
(74.0/26.0, mol/mol)	Toluene	25	8.2	0.755	9	–	5–35	OS	B	781
(75.6/34.4, mol/mol)	*tert*-Butylbenzene	25 (θ)	83	0.49	6	–	7–80	LV	B	782
	Toluene	25	16.9	0.673	7	–	7–80	LV	B	782
Poly(methyl acrylate-*stat*-methylmethacrylate)										
(17/83, w/w)	Butanone	25	11.7	0.70	4	–	56–208	LS	B	131
(29/71, w/w)		25	11.1	0.63	4	–	37–137	LS	B	131
(67/33, w/w)		25	36.6	0.60	4	–	71–187	LS	B	131
Poly(methyl acrylate-*co*-styrene)										
(22/78, mol/mol, random)	Benzene	30	8.93	0.744	16	–	2.6–80	LS	A	129
	Butanone	30	21.1	0.640	12	–	2.6–80	LS	A	129
	2-Methylcyclohexanol	43.5 (θ)	77	0.50	8	–	2.6–80	LS	A	129
(33/67, mol/mol, random)	Benzene	30	7.18	0.759	9	–	6.6–36	LS	A	129
	Butanone	30	11.4	0.696	4	–	6.6–36	LS	A	129
	2-Methylcyclohexanol	35.0 (θ)	76	0.50	7	–	6.6–36	LS	A	129
(47/53, mol/mol, random)	Butanone	30	10.7	0.724	9	–	6.7–24.4	OS	A	129
(50/50, mol/mol, random)	Ethyl acetate	35	41.6	0.57	9	–	18–116	LS	A	133
(59/41, mol/mol, random)	Benzene	30	6.15	0.780	6	–	7–40	LS	A	129
	Butanone	30	11.3	0.703	4	–	12–40	LS	A	129
	2-Methylcyclohexanol	36.6 (θ)	76	0.50	6	–	7–40	LS	A	129
(76/24, mol/mol, random)	Benzene	30	7.42	0.766	6	–	7.2–28	LS	A	129
	Butanone	30	9.16	0.728	5	–	8.9–28	LS	A	129
	2-Methylcyclohexanol	29.4 (θ)	75	0.50	5	–	6.5–24	LS	A	129
Poly(methyl methacrylate-*co*-*p*-isopropylstyrene), 2/3, mol/mol, *graft*										
	Butanone	25	0.021	1.11	–	6	31–65	LS		611
Poly(methyl methacrylate-*co*-2-methyl-5-vinylpyridine) (85/15, mol/mol, random)										
	Acetic acid	25	170	0.51	3	–	37–150	LV	B	612
Poly(methyl methacrylate-*co*-styrene)										
(10/90, mol/mol, random)	1-Chlorobutane	40.8	16.6	0.609	5	–	20–82	LS	B	613
(30/70, mol/mol, random)	1-Chlorobutane	30	17.6	0.67	9	–	5–55	LS	B	614
	Cyclohexanol	64.0 (θ)	71.6	0.51	4	–	5–55	LS	B	614
	Toluene	30	8.32	0.75	10	–	5–55	LS	B	614
(44/56, mol/mol, random)	1-Chlorobutane	30	24.9	0.63	10	–	5–81	LS	B	614
	Cyclohexanol	64.0 (θ)	70.0	0.51	4	–	10–81	LS	B	614
	Toluene	30	13.2	0.71	11	–	4.8–81	LS	B	614
(50/50, mol/mol, random)	Butanone	25	15.4	0.675	11	–	5–227	LS	B	615
(52/48, mol/mol, random)	1-Chlorobutane	40.8	49.0	0.575	5	–	18–115	LS	B	613
(71/29, mol/mol, random)	1-Chlorobutane	30	24.9	0.63	10	–	4.8–81	LS	B	614
	Cyclohexanol	68.0 (θ)	97.3	0.47	5	–	15–106	LS	B	614
	Toluene	30	11.4	0.70	8	–	7–106	LS	B	614
(94/6, mol/mol, random)	1-Chlorobutane	40.8	27.6	0.617	5	–	20–100	LS	B	613
nearly equimolar, three blocks (MSM)	Cyclohexanol	81.0 (θ)	$\lim_{M_w \to 0} [\eta]_\theta / M^{1/2} = 63$		–	7	3.4–147	LS	B	616
PS% 86.1–90.4, *graft* (S on *M*; $M_{PS} = 0.7$–1.0×10^4)										
	Benzene	25	$[\eta] = 0.00918 M_{PS}^{0.743} g^{0.77}$				83–121	LV		617
	Butanone	25	$[\eta] = 0.0390 M_{PS}^{0.58} g^{0.59}$				53–285	LV		617
graft	Bromoform	–	56	0.6	6	–	180–320	LV		618
Poly(methyl methacrylate)-*block*-poly(styrene), A_k–B_n, *k*/*n*, (54/46, w/w)										
	Butanone	30	9.4	0.69	6	–	5.8–93	LS	A	783
	1-Chlorobutane	30	22.4	0.60	6	–	5.8–93	LS	A	783
	Toluene	30	7.3	0.73	6	–	5.8–93	LS	A	783
Poly(2-methyl-1-pentene-*co*-sulfur dioxide), see Poly[sulfonyl(1-methyl-1-propylethylene)], group 3.10.										
Poly(α-methylstyrene-*co*-styrene)										
	Benzene	20	14.4	0.69	5	–	18–80	SV	A	332
Poly(1-octadecane-*alt*-maleic acid)										
	Ethyl acetate	25	55	0.48	6	–	2.4–9.9	LS	–	956

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TABLE 1. *cont'd*

Polymer	Solvent	Temp. (°C)	K ($\times 10^3$) (ml/g)	a	No. of samples Fr.	No. of samples W.P.	Mol. wt. range ($\times 10^{-4}$)	Method(s)	Remarks	Refs.
Poly(octyl methacrylate-*alt*-styrene)										
	Butanone	25	7.4	0.72	11	–	12–450	LS	B	776
Poly(octyl methacrylate-*stat*-styrene), (1/1, mol/mol)										
	Butanone	25	7.8	0.71	10	–	10–198	LS	B	776
Poly(styrene)-*block*-poly(butadiene)-*block*-poly(styrene) 50 wt.%-PS										
	Toluene	30	71.3	0.62	7	–	5.7–140	OS, LS	A–B	958
Poly(styrene)-*block*-poly(4-chloro-styrene)-*block*-poly(styrene), B_n–A_k–B_n										
$k/2n$, (33/67, mol/mol)	Carbon tetrachloride	40	6.10	0.77	–	4	20–82	OS	A	780
	Cumene	40	3.99	0.79	–	4	20–82	OS	A	780
$k/2n$, (50/50, mol/mol)	Butanone	30	8.14	0.72	–	8	31–89	OS	A	780
	Carbon tetrachloride	40	5.58	0.76	–	8	31–89	OS	A	780
	Cumene	40	6.84	0.74	–	8	31–89	OS	A	780
	Toluene	30	4.62	0.79	–	8	31–89	OS	A	780
$k/2n$, (66/34, mol/mol)	Carbon tetrachloride	40	5.94	0.74	–	4	15–54	OS	A	780
	Cumene	40	5.21	0.75	–	4	15–54	OS	A	780
Poly(styrene-*co*-sulfur dioxide), see Poly[sulfonyl(phenylethylene)], group 3.10.										
Poly(styrene)-*graft*-poly(methyl methacrylate), MMA content, 13 wt.%										
	Bromoform		(16.5)	(0.58)	5	–	17–196	SD	A	784
Poly(styrene)-*block*-poly(dimethylsiloxane) 12-62% PS										
	Methyl ethyl ketone	25	Various	Various	Various	–	Various	OS, GPC	B-C	955
Poly(styrene-*co*-monoethyl maleate)										
	Acetone	26.4 (θ)	51.1	0.50	9	–	20–180	LS	A	317
	Dioxane	25	11.2	0.702	9	–	20–180	LS	A	317
	Tetrahydrofuran	25	7.50	0.695	9	–	20–180	LS	A	317
–, sodium salt	Aq. NaCl									
	(0.005 M)	25	5.8	0.87	4	–	40–130	LS	A	317
	(0.01 M)	25	5.5	0.85	5	–	40–180	LS	A	317
	(0.03 M)	25	6.3	0.80	5	–	40–180	LS	A	317
	(0.05 M)	25	11	0.73	5	–	40–180	LS	A	317
	(0.075 M)	25	10	0.71	5	–	40–180	LS	A	317
	(0.15 M)	25	15	0.65	5	–	40–180	LS	A	317
	(0.3 M)	25	21	0.60	5	–	40–180	LS	A	317
	(0.6 M)	25	55	0.50	5	–	40–180	LS	A	317
Poly(styrene)-*block*-poly(2-vinylpyridine) 50 wt.%-PS										
	Benzene	10	35.2	0.605	4	–	6.5–153	LS, OS	A	944
	Methyl ethyl ketone	25	31.9	0.587	4	–	6.5–153	LS, OS	A	944
	Pyridine	25	9.02	0.734	4	–	6.5–153	LS, OS	A	944

TABLE 2. MAIN-CHAIN CARBOCYCLIC POLYMERS

Polymer	Solvent	Temp. (°C)	K ($\times 10^3$) (ml/g)	a	No. of samples Fr.	No. of samples WP	Mol. wt. range M ($\times 10^4$)	Method	Remarks	Refs.
Poly(acenaphthenylene)	Benzene	25	30.04	0.594	11	–	2–100	OS	B	262
		25	2.82	0.74	4	–	4–100	LS	A,B	263
	Ethylene chloride	25	20.0	0.54	6	–	6–125	LS	A,B	263
	Dioxane	25	11.5	0.61	7	–	6–145	LS	A,B	263
	Methylene chloride	25	6.92	0.66	5	–	6–145	LS	A,B	263
	Toluene	25	6.76	0.66	17	–	3–175	LS	A,B	263
Poly(4,7-dimethylindene)	Benzene	25	3.5	0.77	9	–	5.8–140	LS	C,D	811
Poly(6-methylindene)	Benzene	25	34	0.60	13	–	30–1320	LS	C,D	811