
Appendix A: Table A.2

COMMENTS TO TABLE A.2

Documentation for the sources of data used for the HSP correlations is given in the following. The quality of the entries is sometimes less than desired because of the data being too few, too limited in scope and range of HSP, or for other reasons discussed in the text, such as the influence of molecular weight (molecular volume) of the test solvents in the given study. All entries have been included (with some apologies) as they have some value in terms of estimating, however.

POLYMERS 1–109

These polymers are listed in Reference 1 with suppliers. This report from the Scandinavian Paint and Printing Ink Research Institute updates an earlier one from 1982. The institute no longer exists. See also [Reference 2](#).

POLYMER 110

This is an intermediate value for the permeation of chemicals through Challenge® materials [3]. See also Table 13.1 and Figure 13.2. Improved values are found below in 141 and 142. This correlation was based on few data to help locate additional solvents for testing. Results from tests with these then resulted in the correlations below.

POLYMERS 111–112

These are correlations of true solubilities for the DOW epoxy Novolacs 438 and 444.

POLYMERS 113–114

These are correlations of the chemical resistance of coatings based on inorganic zinc silicate and a two component epoxy produced by Hempel's Marine Paints. Data taken from resistance tables.

POLYMER 115

The data are solubilities determined for PVDF with the correlation being previously published in [4].

POLYMER 116

Data for coal tar pitch generated for the solubility of the solids not dissolved in some cases where the solution was darkened with only partial solution.

POLYMERS 117–140

Permeation correlations for chemical protective clothing described in detail in Reference 5. See also Chapter 13, Table 13.1.

POLYMERS 141–142

Final permeation correlations for Challenge[®] 5100 and 5200 materials. Data from Reference 3 where there is considerable discussion. See also Chapter 13, Table 13.1, and Figure 13.2.

POLYMERS 143–144

These correlations are based on which solvents dissolve PVDC at elevated temperatures and use data from Wessling [6]. These were additionally used to check new calculations for solubility parameters of the solvents where these were lacking.

POLYMERS 145–148

These chemical resistance data for PES (ICI-Victrex[®]) and PPS (Philips-Ryton[®]) were based on supplier data sheets and are reported in Reference 7.

Polymers 149–160

These correlations for many common plastics types are based on the resistance tables reported in the PLASTGUIDE (1989) published by the Danish company Dukadan, which no longer exists. A single correlation for the solubility of PA 6,6 is based on its solubility only with data from Reference 8.

POLYMER 161

Beerbower treated several sets of data and made correlations of swelling and solubility (and other phenomena). This one is for polyvinyl silane.

POLYMERS 162–163

These correlations for swelling of cellophane and solubility of ethylene vinyl alcohol copolymer are based on data generated at NIF (Scandinavian Paint and Printing Ink Research Institute).

POLYMERS 164–167

These are supplementary breakthrough time correlations for Saranex[®], Safety 4[®] 4H, and polyvinylalcohol protective gloves. See also Reference 5 and Chapter 13. Elimination of plasticizer data for the 4H gloves improved predictability for lower molecular weight materials.

POLYMERS 168–181

These correlations for common polymer types are based on data in resistance tables in the *Modern Plastics Encyclopedia* in the 1984/1985 issue [9]. Such data are not always sufficiently encompassing to allow good correlations.

POLYMER 182

Correlation based on high temperature solvents for ECTFE.

POLYMER 183

Data for this correlation of solubility of polyacrylonitrile were taken from the *Polymer Handbook* [10], Table of solvents and nonsolvents, p. VII/385-VII/386. See also Chapter 5, Table 5.3.

POLYMERS 184–186

Data for this correlation are the tendency of Polyethylene imide (PEI) (GE Ultem®) to environmental stress crack (ESC) at different stress/strain levels. These data were generated by General Electric as published in the *Modern Plastics Encyclopedia* 1984/1985 [9].

POLYMERS 187–224

The *Handbook of Solubility Parameters and Other Cohesion Parameters* [11] as well as the *Polymer Handbook* [12] included so-called “solvent range” data. Solvents were divided into groups of poor, moderate, and strong hydrogen bonding, and many experiments were run. The correlations show that not all the data were well taken, but a reasonable indication is possible. The full Hansen solubility parameter system is not covered very well by this limited solubility data. These polymers are included in Reference 11, Table 1, on page 280. Heating samples to speed up the solution process was also done. This can easily lead to errors.

POLYMERS 225–346

These entries have the same problem as those in 187–224 in that the data are sometimes questionable and not sufficient enough to do what has been done, i.e. convert solvent range data to Hansen solubility parameter spheres. These entries cover the acrylics, polyesters, polystyrenes, vinyls, and miscellaneous categories. Some categories are not yet included. Data on page 281-289 (Table 2) in Reference 11.

Polymer 347

These values for VYHH® (Union Carbide) were taken from Reference 1.

POLYMER 348

This questionable correlation for PVF includes only one solvent as being good [13].

POLYMER 349

Data on PES true solubility taken by author. See Chapter 5 and Table 5.4.

POLYMERS 350–358

These entries are not all polymers but mostly biological materials with the source of data being [14].

POLYMER 359

The solubility of cholesterol, data collected by the author. See Chapter 15.

POLYMER 360

Solubility data generated by high school students as part of project. Included in Reference 4. Source of chlorophyll was crushed leaves.

Polymer 361

Correlation on strength of paper immersed in different solvents reported in Reference 4. Data was taken from Reference 15.

POLYMER 362

Solubility of ULTRASON® PES has been reported by BASF in their product data. These data were combined with supplementary solubility data for this correlation. Also reported in Reference 16. See Chapter 5.

POLYMERS 363–364

Chemical resistance of BAREX® 210 from data in BP Chemicals datasheet. Styrene is an outlier in the first, whereas its removal from consideration gives a perfect fit and presumably a more useful correlation.

POLYMERS 365–367

These data were generated in connection with a lecture to the Nordic Conservation Congress in Copenhagen [17]. All give perfect fits, partly because of too few data, but the correlations can be useful. Paraloid B72 and Dammar are used as protective lacquers.

POLYMERS 368–369

These correlations divide the permeation coefficients given in Reference 18 into >80 and >0.8 , respectively. The units are $(g \times mm)/(m^2 \times d)$. The fits are good. See Chapter 13.

POLYMERS 370–371

These are correlations of experimental solubility data for the Rhône-Poulenc reactive isocyanates Tolonate® HDT (which gave the same result as Tolonate® HDT-LV) and Tolonate® HDB (which gave the same results as Tolonate® HDB-LV). The fits were perfect and the numbers reasonable. The data could not include alcohol or amine solvents because of reactions.

POLYMERS 372–389

The data correlated for these 18 rubbers are from a RAPRA database [19]. The information used was satisfactory or unsatisfactory, all other information such as limited suitability was neglected. No precise weight gain or other information is available, just the general suitability or not.

The values in parentheses are (data fit/number of solvents).

ACM	acrylate rubbers (.981/55)
ECO	epichlorohydrin rubbers (.988/37)
CSM	chlorosulphonated polyethylene rubber (.906/53)
E	ebonite (.722/41)
EPM	ethylene-propylene copolymer (.987/47)
EPDM	ethylene-propylene terpolymer (.968/51)
FQ	fluorosilicone rubber (.844/40)
FKM	hexafluoroprop.-vinylidene fluoride copol. (Viton) (.769/50)
NR	natural rubber (1.000/59)
NBR	nitrile rubber (.990/65)
FFKM	Kalrez® (Du Pont) (too resistant to correlate)
CR	polychloroprene (.877/54)
AU	polyester polyurethane (.959/63)
EU	polyether polyurethane (.959/63)
T	polysulphide rubber (.799/48)
Q	silicone (.748/53)

SBR	styrene butadiene rubber (.942/54)
TFP	tetrafluoroethylene-propylene copolymer (.744/26)

POLYMERS 390–412

These correlations use data from the RAPRA collection of data on chemical resistance for plastics [20]. Approach same as for RAPRA rubber data just above.

POLYMERS 413–450

These data are from the collected report of the EC project on self-stratifying coatings reported in a full issue of *Progress in Organic Coatings*. The specific reference is Reference 21. The evaluations were made at different concentrations in many cases. Some alkyds were omitted here.

POLYMERS 451–452

These data are for strong swelling of two different film samples of brominated butyl rubber.

POLYMER 453

The correlation is based on strong swelling of a film of polyisoprene.

POLYMERS 454–458

These correlations are based on chemical resistance data from Reference 22.

POLYMER 459

Correlation based on solubility of Ethylene Vinylacetate adhesive EVA 4055.

POLYMER 460

Correlation based on solubility of Topas® 6013 from Ticona GmbH (Hoechst AG).

POLYMER 461

Correlation based on solubility of CZ® Resin from the West Company.

POLYMER 462

An older correlation for the solubility of Kauri Gum, used in the Kauri-Butanol test, was made with a data fit of 0.95 for the standard solvents.

POLYMER 463

The data for the solubility of polyvinylpyrrolidone used in this correlation are found in Reference 23. The data fit was 0.992, but as with many water soluble polymers, there is a considerable extrapolation into the “unknown” where there are no liquids.

ENTRY 464

The data fit for the correlation of solubility of palm oil with the standard set of solvents was 0.992.

ENTRY 465

This is a correlation of the solubility of a fungicide and algacide called Bethoxazin using solubility data in 19 liquids from Reference 24. The data fit was 0.976.

ENTRY 466

This is a correlation for the solubility of carbon-60 at a given small level as reported in Reference 25; 15 of the 87 liquids were considered as “good” giving a data fit of 0.972.

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LIST OF TRADE NAMES AND SUPPLIERS

PAINTS AND BINDERS:

Bayer (D): Cellit, Desmophen, Desmolac, Pergut, Cellidora, Desmodur, Baysilon, Alkydal
 Hercules (US): Piccolyte, Cellolyn, Pentalyne, Ester Gum, Parlon
 Ciba-Geigy (CH): Araldite
 Shell (D): Epikote, Cariflex
 Union Carbide (US): Vinylite, Phenoxy
 Hoechst (D): Macrynal, Phenodur, Alpex, Mowithal, Alfthalat, Mowilith
 Reichhold (CH): Super Beckasite, Uformite
 Polymer Corp. (CAN): Polysar
 Goodrich (US): Hycar
 Hüls (D): Vilit, Vesturit, Buna Hüls, Lutonal, Laroflex, Plastopal, Polystren
 Monsanto (US): Modaflow, Multiflow, Butvar
 Montecatini Edison (I): Vipla
 ICI (GB): Cereclor, Alloprel, Suprasec
 Du Pont (US): Lucite
 Hagedorn (D): 1/2 sec. Nitrocellulose H 23
 Röhm (D): Plexigum
 Rohm and Haas (U.S.): Paraloid
 Dynamit Nobel (D): Dynapol
 SOAB (S): Soamin
 BIP Chemicals (GB): Beetle
 Dyno Cyanamid (N): Dynomin
 DSM Resins (NL): Uracron
 Wacker (D): Wacker
 Dow Chemical (CH): Ethocel
 Cray Valley (GB): Versamid
 W. Biesterfeld (D): Chlorparaffin
 Synres (NL): Synresin
 American Cyanamide (US): Cymel
 Polyplex (DK): Plexal
 Pennsylvania Industrial Chemical Corp. (US): Piccopale, Piccoumarone

OTHERS:

Chemical Fabrics Corporation: Challenge

Chevron Phillips: Ryton
ICI (Victrex plc): Victrex
Saranex: Dow
Safety 4, 4H: North
General Electric: Ultem
BASF: Ultrason
BP Chemicals: Barex
Rhône-Poulenc: Tolonate
Ticona (Celanese): Topas
West Company (DAIKYO): CZ Resin

The capital letters in parenthesis are the international symbols for the respective countries:

D	Germany
US	United States of America
CH	Switzerland
CAN	Canada
I	Italy
GB	Great Britain
S	Sweden
N	Norway
NL	Netherlands
DK	Denmark

TABLE A.2
Hansen Solubility Parameters for Selected Correlations

Number	Polymer	Dispersion	Polar	Hydrogen Bonding	Interaction Radius
Cellulose Acetobutyrate					
1	CELLIT BP-300	16.60	12.00	6.70	10.20
Cellulose Acetate					
2	CELLIDORA A	18.20	12.40	10.80	7.40
Ethyl Cellulose					
3	ETHOCEL HE10	17.90	4.30	3.90	5.90
4	ETHOCEL STD 20	20.10	6.90	5.90	9.90
Epoxy					
5	ARALDITE DY O25	14.00	7.40	9.40	13.70
6	EPIKOTE 828	23.10	14.60	5.00	20.50
7	EPIKOTE 1001	20.00	10.32	10.11	10.02
8	EPIKOTE 1004	17.40	10.50	9.00	7.90
9	EPIKOTE 1007	21.00	11.10	13.40	11.70
10	EPIKOTE 1009	19.30	9.37	10.95	8.26
11	PKHH	23.40	7.20	14.80	14.90
Epoxy Curing Agents					
12	VERSAMID 100	23.80	5.30	16.20	16.10
13	VERSAMID 115	20.30	6.60	14.10	9.60
14	VERSAMID 125	24.90	3.10	18.70	20.30
15	VERSAMID 140	26.90	2.40	18.50	24.00
Polyurethane					
16	DESMOPHEN 651	17.70	10.60	11.60	9.50
17	DESMOPHEN 800	19.10	12.20	9.90	8.00
18	DESMOPHEN 850	21.54	14.94	12.28	16.78
19	DESMOPHEN 1100	16.00	13.10	9.20	11.40
20	DESMOPHEN 1150	20.60	7.80	11.60	13.10
21	DESMOPHEN 1200	19.40	7.40	6.00	9.80
22	DESMOPHEN 1700	17.90	9.60	5.90	8.20
23	DESMOLAC 4200	18.70	9.60	9.90	8.20
24	MACRYNAL SM 510N	19.90	8.10	6.00	9.80
Phenolic Resins					
25	SUPER BECKACITE 1001	23.26	6.55	8.35	19.85
26	PHENODUR 373U	19.74	11.62	14.59	12.69
Hydrocarbon Resins					
27	PLIOLYTE S-100	16.47	0.37	2.84	8.59
28	PICCOPALE 110	17.55	1.19	3.60	6.55
29	PICCORONE 450L	19.42	5.48	5.77	9.62
Styrene-Butadiene (SBR)					
30	POLYSAR 5630	17.55	3.35	2.70	6.55
Acrylonitrile-Butadiene					
31	HYCAR 1052	18.62	8.78	4.17	9.62

TABLE A.2 (CONTINUED)
Hansen Solubility Parameters for Selected Correlations

Number	Polymer	Dispersion	Polar	Hydrogen Bonding	Interaction Radius
Polybutadiene					
32	BUNA HULS B10	17.53	2.25	3.42	6.55
Polyisoprene					
33	CARIFLEX IR 305	16.57	1.41	-0.82	9.62
Polyisobutylene					
34	LUTONAL IC/1203	14.20	2.50	4.60	12.40
35	LUTANAL I60	16.90	2.50	4.00	7.20
36	POLYVINYL BUTYL ETHER	17.40	4.30	8.40	7.40
Special					
37	LIGNIN	20.17	14.61	15.04	11.66
38	MODAFLOW	16.10	3.70	7.90	8.90
Polyvinylchloride					
39	VIPLA KR (PVC)	18.40	6.60	8.00	3.00
Chloroparaffin					
40	CERECLOR 70	20.00	8.30	6.80	9.80
41	CHLOROPAR 40	17.00	7.60	7.90	11.90
Chlorinated Rubber					
42	PERGUT S 5	17.40	9.50	3.80	10.00
43	ALLOPREN R10	17.40	4.30	3.90	6.10
Chlorinated Polypropylene					
44	PARLON P 10	20.26	6.32	5.40	10.64
Chlorosulfonated PE					
45	HYPALON 20	18.10	3.40	4.90	3.60
46	HYPALON 30	18.20	4.70	2.00	5.00
Cyclized Rubber					
47	ALPEX	19.90	0.00	0.00	9.40
Nitrocellulose					
48	1/2-sec.-NITRO CELLULOSE H 23	15.41	14.73	8.84	11.46
Rosin Derivatives					
49	CELLOLYN 102	21.73	0.94	8.53	15.75
50	PENTALYN 255	17.55	9.37	14.32	10.64
51	PENTALYN 830	20.03	5.81	10.93	11.66
52	ESTER GUM BL	19.64	4.73	7.77	10.64
Polyamide					
53	VERSAMID 930	17.43	-1.92	14.89	9.62
54	VERSAMID 961	18.90	9.60	11.10	6.20
55	VERSAMID 965	20.15	6.04	12.90	9.20

TABLE A.2 (CONTINUED)
Hansen Solubility Parameters for Selected Correlations

Number	Polymer	Dispersion	Polar	Hydrogen Bonding	Interaction Radius
Isocyanate					
56	DESMODUR L	17.50	11.30	5.90	8.50
57	DESMODUR N	17.60	10.00	3.70	9.30
58	SUPRASEC F-5100	19.70	12.90	12.80	11.40
Polyvinylbutyral					
59	MOWITAL B 30 H	18.60	12.90	10.30	8.30
60	MOWITAL B 60 H	20.20	11.20	13.30	11.20
61	BUTVAR B 76	18.60	4.36	13.03	10.64
Polyacrylate					
62	LUCITE 2042 PEMA	17.60	9.66	3.97	10.64
63	LUCITE 2044 PMMA	16.20	6.80	5.70	9.10
64	PLEXIGUM MB319	18.60	10.80	4.10	11.50
65	PLEXIGUM M527	18.40	9.40	6.50	10.70
66	PMMA	18.64	10.52	7.51	8.59
Polyvinylacetate					
67	MOWILITH 50 PVAC	20.93	11.27	9.66	13.71
Polystyrene					
68	POLYSTYRENE LG	22.28	5.75	4.30	12.68
Vinyl Chloride Copolymers					
69	LAROFLEX MP 45	18.40	8.40	5.80	9.00
70	VILIT MB 30	20.00	8.30	6.70	9.40
71	VILIT MC 31	20.00	8.30	6.70	9.40
72	VILIT MC 39	18.40	7.60	6.70	6.80
73	VINYLITE VAGD	17.10	10.40	6.50	7.50
74	VINYLITE VAGH	16.50	10.90	6.40	7.70
75	VINYLITE VMCA	17.70	11.10	6.90	8.70
76	VINYLITE VMCC	17.60	11.10	6.80	8.80
77	VINYLITE VMCH	17.60	11.10	6.40	8.60
78	VINYLITE VYHH	17.40	10.20	5.90	7.80
79	VINYLITE VYLF	18.10	10.30	4.20	8.30
Binders in Solution: Alkyds and Polyesters					
80	ALFTALAT AC 366	18.60	10.00	5.00	10.40
81	ALFTALAT AM 756	23.00	2.20	4.20	16.90
82	ALFTALAT AN 896	22.90	15.20	7.60	18.10
83	ALFTALAT AN 950	22.60	13.80	8.10	17.10
84	ALFTALAT AT 316	20.50	9.30	9.10	12.40
85	ALFTALAT AT 576	19.20	5.30	6.30	11.90
86	ALKYDAL F 261 HS	23.60	1.00	7.60	19.00
87	ALKYDAL F 41	20.60	4.60	5.50	12.60
88	DUROFTAL T 354	17.30	4.20	7.90	9.30
89	DYNAPOL L 812	22.60	13.10	5.80	16.80

TABLE A.2 (CONTINUED)
Hansen Solubility Parameters for Selected Correlations

Number	Polymer	Dispersion	Polar	Hydrogen Bonding	Interaction Radius
90	DYNAPOL L 850	20.00	6.20	7.00	9.50
91	PLEXAL C-34	18.50	9.21	4.91	10.64
92	SOALKYD 1935-EGAX	18.00	11.60	8.50	9.00
93	VESTURIT BL 908	18.80	12.00	6.00	11.50
94	VESTURIT BL 915	17.70	13.00	7.60	11.50
Amino Resins					
95	BE 370	20.70	6.10	12.70	14.80
96	BEEBLE 681	22.20	-0.40	10.10	18.40
97	CYMEL 300	19.35	12.83	12.87	9.82
98	CYMEL 325	25.50	15.20	9.50	22.20
99	DYNOMIN MM 9	18.80	14.00	12.30	10.50
100	DYNOMIN UM 15	19.90	15.80	13.40	11.70
101	SOAMIN M 60	15.90	8.10	6.50	10.60
102	SYNRESIN A 560	22.10	5.00	11.30	15.50
103	PLASTOPAL H	20.81	8.29	14.96	12.69
104	UFORMITE MX-61	22.70	2.80	5.40	16.20
Acrylate Resins					
105	URACRON 15	19.20	7.70	5.70	10.60
106	PARALOID P 400	19.20	9.60	9.30	12.20
107	PARALOID P 410	19.60	9.10	6.80	12.20
108	PARALOID EXPER. RES. QR 954	18.40	9.80	10.00	12.40
Silicone Resins					
109	BAYSILON UD 125	19.40	9.90	10.10	6.90
110	TEFLON (SL2-)	17.10	8.10	1.30	4.70
Special Data					
111	DOW EPOXY NOVOLAC 438	20.30	15.40	5.30	15.10
112	DOW EPOXY NOVOLAC 444	19.50	11.60	9.30	10.00
113	ZINK SILICATE - CHEMICAL RES.	23.50	17.50	16.80	15.60
114	2-COMP EPOXY CHEMICAL RES.	18.40	9.40	10.10	7.00
115	POLYVINYLIDINE FLUORIDE SOL.	17.00	12.10	10.20	4.10
116	COAL TAR PITCH SOL.	18.70	7.50	8.90	5.80
Breakthrough Time (Bt) Correlations for Common Types of Chemical Protective Films at Practical Film Thickness					
117	NITRILE 20 MIN	17.50	7.30	6.50	5.10
118	NITRILE 1 HR	16.60	9.10	4.40	10.00
119	NITRILE 4 HR	19.00	12.60	3.80	13.30
120	BUTYL 20 MIN	16.50	1.00	5.10	5.00
121	BUTYL 1 HR	15.80	-2.10	4.00	8.20
122	BUTYL 4 HR (2)	17.60	2.10	2.10	7.00
123	NATURAL RUBBER 20 MIN	14.50	7.30	4.50	11.00
124	NATURAL RUBBER 1 HR	15.60	3.40	9.10	14.00
125	NATURAL RUBBER 4 HR	19.40	13.20	7.70	19.00
126	PVC 20 MIN	16.10	7.10	5.90	9.30
127	PVC 1 HR	14.90	11.10	3.80	13.20
128	PVC 4 HR	24.40	4.90	9.90	22.70

TABLE A.2 (CONTINUED)
Hansen Solubility Parameters for Selected Correlations

Number	Polymer	Dispersion	Polar	Hydrogen Bonding	Interaction Radius
129	POLYVINYLALCOHOL 20 MIN	11.20	12.40	13.00	12.10
130	POLYVINYLALCOHOL 1 HR	15.30	13.20	13.50	8.80
131	POLYVINYLALCOHOL 4 HR	17.20	13.60	15.40	10.90
132	POLYETHYLENE 20 MIN	16.90	3.30	4.10	8.10
133	POLYETHYLENE 1 HR	17.10	3.10	5.20	8.20
134	POLYETHYLENE 4 HR	24.10	14.90	0.30	24.30
135	VITON 20 MIN	10.90	14.50	3.10	14.10
136	VITON 1 HR	16.50	8.10	8.30	6.60
137	VITON 4 HR	13.60	15.40	8.60	14.40
138	NEOPRENE 20 MIN	17.60	2.50	5.90	6.20
139	NEOPRENE 1 HR	19.00	8.00	0.00	13.20
140	NEOPRENE 4 HR	14.60	13.90	2.30	15.90
141	CH 5100 3 HR	16.60	5.40	4.00	3.80
142	CH 5200 3 HR	16.60	6.00	4.80	3.70
High Temperature Solubility of PVDC					
143	PVDC (110C) SOLUBILITY	17.60	9.10	7.80	3.90
144	PVDC (130C) SOLUBILITY	20.40	10.00	10.20	7.60
Chemical Resistance of High Performance and Other Polymers					
145	PES L C=1	18.70	10.50	7.60	9.10
146	PES L B + C =1	17.70	9.70	6.40	9.30
147	PPS CR 93°C	18.80	4.80	6.80	2.80
148	PPS TS60%12MO	18.70	5.30	3.70	6.70
149	PA6 CR	17.00	3.40	10.60	5.10
150	PA66 SOL	17.40	9.80	14.60	5.10
151	PA11 CR	17.00	4.40	10.60	5.10
152	POMH+POMC CR	17.10	3.10	10.70	5.20
153	PETP CR	18.20	6.40	6.60	5.00
154	PTFE L80 CR	16.20	1.80	3.40	3.90
155	PMMA CR	16.00	5.00	12.00	13.00
156	PE? CR QUESTIONABLE VALUES	16.80	5.40	2.40	4.70
157	PPO CR	17.90	3.10	8.50	8.60
158	PUR CR	18.10	9.30	4.50	9.70
159	ABS CR	16.30	2.70	7.10	7.80
160	PSU CR	16.00	6.00	6.60	9.00
161	VINYL SILANE	16.40	3.70	4.50	10.00
Correlations for Some Barrier-Type Polymers					
162	CELLOPHAN SW	16.10	18.50	14.50	9.30
163	EVOH SOL	20.50	10.50	12.30	7.30
164	SARANEX 4HR	17.70	18.30	0.70	18.40
165	4H 35°C	19.40	13.40	18.00	8.60
166	4H 35°C no plasticizer included	20.50	11.30	10.30	6.70
167	POLYVINYLALCOHOL	15.00	17.20	17.80	10.20
Chemical Resistance Data - Modern Plastics Encyclopedia					
168	ACETAL CELANESE	21.10	9.30	5.90	11.40
169	ACETALHOMO-DUO	19.00	5.00	8.00	5.00
170	CELLULOSE ACETATE	16.90	16.30	3.70	13.70

TABLE A.2 (CONTINUED)
Hansen Solubility Parameters for Selected Correlations

Number	Polymer	Dispersion	Polar	Hydrogen Bonding	Interaction Radius
171	CELL. ACET. BUTYRATE	17.20	13.80	2.80	12.60
172	CELL. ACET. PROPIONATE	9.80	13.60	11.40	15.20
173	PCTFE	14.10	2.70	5.50	6.60
174	FEP	19.00	4.00	3.00	4.00
175	FURAN	19.00	6.00	8.00	5.00
176	FURF ALC	19.90	3.90	5.10	3.80
177	PFA(?)	16.70	7.70	-0.50	8.10
178	PHENOLIC	21.60	5.20	18.80	15.40
179	PETG	18.00	3.00	4.00	6.00
180	HDPE	18.00	0.00	2.00	2.00
181	PP	18.00	0.00	1.00	6.00
Poly(Ethylene/Chlorotrifluoroethylene)					
182	PECTFE SOL AT HIGH TEMP.	19.50	7.30	1.70	5.10
Solubility of Polyacrylonitrile					
183	PAN	21.70	14.10	9.10	10.90
PEI - Polyethylene Imide - Environmental Stress Cracking (ESC)					
184	PEI 1200PSI	17.20	6.40	5.20	3.60
185	PEI 2400PSI	17.40	4.60	9.00	7.20
186	PEI 600PSI	17.30	5.30	4.70	3.30
Based on Solvent Range Solubility Data - Not too Reliable					
187	ESTER GUM	16.90	4.50	6.50	9.20
188	ALKYD 45 SOYA	17.50	2.30	7.70	10.00
189	SILICONE DC-1107?	19.60	3.40	10.80	9.80
190	PVETHYLETHER?	15.10	3.10	11.90	12.90
191	PBUTYLACRYLATE	16.20	9.00	3.00	10.10
192	PBMA?	15.90	5.50	5.90	8.50
193	SILICONE DC 23?	16.40	0.00	7.80	5.50
194	PE	16.00	0.80	2.80	3.20
195	GILSONITE	17.10	2.10	3.90	4.90
196	PVINYL BUTYLETHER	17.40	3.40	7.80	8.40
197	NAT RUBBER	16.00	4.00	6.00	1.30
198	HYP 20 CHLOROSULFONATED PE	17.40	3.20	4.00	4.80
199	ETHCEL N22?	22.70	0.50	16.50	20.10
200	CHLORINATED RUBBER	17.90	6.30	5.10	7.60
201	DAMMAR GUM	18.40	4.20	7.80	8.30
202	VERSAMID 100?	18.80	3.00	9.20	7.80
203	PS	18.50	4.50	2.90	5.30
204	PVAC	17.60	2.20	4.00	4.10
205	PVC	17.60	7.80	3.40	8.20
206	PHENOLICS	19.80	7.20	10.80	12.80
207	BUNA N BUTADIENE/ACRYLONITRILE	17.80	3.20	3.40	3.70
208	PMMA	18.10	10.50	5.10	9.50
209	PEO 4000 ? HEATED SAMPLES	21.50	10.90	13.10	15.90
210	POLYETHYLENESULFIDE (GOOD)	17.80	3.80	2.20	4.10
211	PC	18.10	5.90	6.90	5.50
212	PLIOLITE P1230	18.10	4.70	3.70	3.90

TABLE A.2 (CONTINUED)
Hansen Solubility Parameters for Selected Correlations

Number	Polymer	Dispersion	Polar	Hydrogen Bonding	Interaction Radius
213	MYLAR PET	18.00	6.20	6.20	5.00
214	VCVA COPOLY	17.30	8.70	6.10	7.80
215	PUR	17.90	6.90	3.70	2.70
216	SAN	16.60	9.80	7.60	4.80
217	VINSOL ROSIN	17.40	10.00	13.00	10.50
218	EPON 1001	17.00	9.60	7.80	7.10
219	SHELLAC	19.70	10.10	15.10	10.70
220	POLYMETHACRYLONITRILE	17.20	14.40	7.60	3.80
221	CELLULOSE ACETATE	18.30	16.50	11.90	8.80
222	CELLULOSE NITRATE	16.90	13.50	10.30	9.90
223	PVOH (NOT GOOD, SEE CHAP. 5)	17.00	9.00	18.00	4.00
224	NYLON 66	16.00	11.00	24.00	3.00
Acrylics - Solvent Range					
225	ACRYLOID B-44	19.40	11.20	4.40	10.50
226	ACRYLOID B-66	18.00	9.00	3.00	9.00
227	ACRYLOID B-72	19.20	11.20	1.80	11.00
228	ACRYLOID B-82	19.10	9.10	3.30	9.00
229	R+H PBA	16.00	8.00	8.00	12.00
230	R+H PiMBA	20.70	4.10	10.70	11.50
231	R+H PNBMA	16.00	6.20	6.60	9.50
232	R+H PEMA	19.00	9.00	8.00	11.00
233	R+H PMAA	25.60	11.20	19.60	20.30
234	R+H PMMA	19.10	11.30	4.10	10.30
235	BMA/AN 80/20	17.50	9.90	4.10	9.50
236	ISOB MALANH/CYCLOL 75/25	16.80	-0.40	7.20	8.50
237	MAA/EA/ST 15/38/47	17.60	5.20	7.00	4.50
238	MAA/MA/VA 15/27.5/57.5	28.50	15.70	18.10	21.50
239	MAA/MA/VA 15/17.5/67.5	25.50	15.70	18.10	21.50
240	MMA/CYCLOL 58/42	18.70	9.90	8.70	8.80
241	MMA/EA 50/50	17.50	9.90	4.10	9.50
242	MMA/EA 25/75	19.00	9.00	15.00	12.00
243	MMA/EA/AGE 40/40/20	17.60	9.80	5.60	9.70
244	MMA/EA/AA	15.90	15.90	11.50	11.10
245	MMA/EA/AN 55/30/15?	16.70	10.90	8.50	8.50
246	MMA/EA/AN 40/40/20	20.40	13.20	11.00	12.30
247	MMA/EA/BAMA 40/40/20	17.90	8.50	11.70	12.90
248	MMA/EA/CYCLOL	17.60	9.80	6.40	9.80
249	MMA/EA/MAM 40/40/20	19.00	9.00	15.00	12.00
250	MMA/EA/MAM 45/45/10?	19.50	11.10	8.70	11.20
251	MMA/EA/BVBE 40/40/20	17.80	10.00	6.60	9.80
Polyesters - Solvent Range					
252	ACID DEGMP	15.30	13.30	14.90	15.60
253	CARB DEG PTH	19.40	13.40	11.60	11.10
254	CRYPLEX 1473-5	19.20	9.40	5.60	8.90
255	DEG ISOPH	19.20	17.20	14.60	11.80
256	DEG PHTH	21.00	15.20	13.20	13.70
257	DPG PHTH	20.10	11.50	6.70	11.60

TABLE A.2 (CONTINUED)
Hansen Solubility Parameters for Selected Correlations

Number	Polymer	Dispersion	Polar	Hydrogen Bonding	Interaction Radius
258	DOW ADIP TEREP	17.80	10.40	6.80	9.30
259	DOW X-2635 MALEATE	17.80	5.60	6.80	4.50
260	VITEL PE LINEAR	14.90	10.10	2.90	6.10
261	VITEL PE101-X	21.30	6.30	4.70	7.30
262	HYD BIS A FUM ISPH	17.00	4.40	6.20	5.00
263	HYD BIS A PG FUM ISPH	18.70	8.90	5.50	8.40
264	PENTA BENZ MAL	19.40	12.20	10.20	10.80
265	SOL MYLAR 49001	19.00	5.00	4.00	5.00
266	SOL MYLAR 49002	19.00	5.00	5.00	5.00
267	TEG EG MAL TEREP	18.80	11.40	9.20	10.20
268	TEG MALEATE	18.10	13.90	12.10	9.70
269	VAREZ 123	17.30	10.90	11.90	10.70
Styrene Polymers And Copolymers - Solvent Range					
270	AMOCO 18-290	19.30	3.70	7.90	7.80
271	BUTON 100 BUTAD-STY	17.00	4.00	3.00	7.30
272	BUTON 300	17.30	3.70	7.30	7.00
273	KOPPERS KTPL-A	19.30	3.70	7.90	7.80
274	RUBBER MOD PS	20.00	5.00	1.00	7.00
275	STY MAL ANH	23.40	13.80	15.20	16.50
276	LYTRON 820	21.10	13.10	14.50	14.40
277	MARBON 9200	19.00	4.00	4.00	6.00
278	PARAPOL S-50	17.90	3.90	4.90	3.90
279	PARAPOL S-60	17.90	3.90	4.90	3.90
280	PICCOFLEX 120	17.40	7.80	3.80	7.70
281	SHELL POLYALDEHYDE EX 39	19.60	10.00	3.60	9.40
282	SHELL POLYALDEHYDE EX 40	19.60	10.00	3.60	9.40
283	SHELL X-450	19.30	9.50	11.10	11.10
284	SMA 1430A	18.80	11.40	16.40	14.10
285	SAN 85/15	19.10	9.50	3.10	8.70
286	STY/BUTENOL 85/15	17.40	7.80	3.80	7.70
287	STY/CYCLOL 82/18	18.20	5.60	7.20	5.70
288	STY/2EHA/AA 81/11/8	17.70	4.90	5.90	5.90
289	STY/MAA 90/10	18.70	6.30	7.30	6.70
290	STY/MA 85/15	18.00	9.00	3.00	9.00
291	STY/HALF ESTER MA 60/40	18.90	10.90	10.70	9.70
292	STY/PROP HALF E MA 57/43	18.00	9.80	8.40	10.10
293	STY/VBE 85/15	17.40	7.80	3.80	7.70
294	STYRON 44OM-27 MOD PS	20.00	5.00	1.00	7.00
295	STYRON 475M-27	20.00	5.00	1.00	7.00
296	STYRON 480-27	20.00	6.00	4.00	5.30
Vinyl Resins - Solvent Range					
297	ACRYLOID K120N	17.60	10.00	3.80	9.50
298	DODA 6225	19.00	2.00	1.00	3.00
299	DODA 3457	19.00	2.00	1.00	3.00
300	ELVAX 250	19.00	2.00	1.00	3.00
301	ELVAX 150	18.70	2.30	0.70	6.00
302	ELVAX EOD 3602-1	17.70	3.30	2.70	5.40

TABLE A.2 (CONTINUED)
Hansen Solubility Parameters for Selected Correlations

Number	Polymer	Dispersion	Polar	Hydrogen Bonding	Interaction Radius
303	EXON 470 PVC	17.40	7.80	3.80	7.70
304	EXON 471	17.90	8.70	2.50	9.00
305	EXON 473	17.40	7.80	3.80	7.70
306	GEON 121	19.50	6.70	11.10	8.00
307	POLYCYCLOLa	19.00	9.00	15.00	12.00
308	PVBE	16.70	3.70	8.30	8.60
309	PVEE	16.00	4.00	12.00	14.00
310	FORMVAR 7/70E PVFORMAL	22.20	12.60	14.20	14.00
311	FORMVAR 15/95E	22.20	12.60	14.20	14.00
312	PVIBE	16.00	1.00	8.00	10.00
313	SARAN F-120 VCL2/AN?	28.80	16.80	0.80	23.70
314	SARAN F-220 ?	28.80	16.80	0.80	23.70
315	SINCLAIR 3840A	18.40	4.00	9.60	7.30
316	VA/EHA/MA 63/33/4	17.70	6.30	7.70	5.30
317	VA/EHA/CYC/MAA/76/12/8/4	21.20	12.40	13.00	12.60
318	VA/EA/CY 70/20/10	20.00	12.00	11.00	15.00
319	VBE/AN/MAA 46/27/27	18.90	11.70	11.10	9.60
320	VBE/MA/MAC46/27/27	19.40	13.00	13.80	12.30
321	VDC/AA 75/25 ?	20.40	11.00	0.80	11.70
322	VINYLITE AYAA PVAC	22.90	18.30	7.70	20.40
323	VINYLITE VAGH	17.00	7.80	6.80	7.10
324	VINYLITE VMCH	18.30	9.70	7.70	8.50
325	VINYLITE VXCC	18.00	9.40	4.60	8.40
326	VINYLITE VYHH	19.00	11.00	5.00	10.00
327	VINYLITE VYLF	18.00	9.40	4.60	8.40
328	VINYLITE XYHL PVBUTYRAL	19.00	9.00	15.00	12.00
329	VINYLITE XYSG PVBUTYRAL	19.00	9.00	15.00	12.00
330	VYSET 69	17.90	3.50	7.50	5.90
Miscellaneous - Solvent Range					
331	ACRYLAMIDE MONOMER	16.90	18.10	19.90	17.00
332	BAKELITE SULFONE P-47	20.00	3.00	6.00	3.00
333	BECKOLIN 27 MODIF OIL	11.40	0.00	3.00	18.10
334	PEO 4000 ? SAMPLES HEATED	22.20	11.20	13.20	17.10
335	CHLORINATED RUBBER	18.00	6.00	5.00	7.00
336	CONOCO H-35 HYDROCARBON M	11.40	0.00	3.00	18.10
337	DAMMAR GUM DEWAXED	19.00	2.00	9.00	9.00
338	EPOCRYL E-11 ?	17.30	12.90	12.10	8.50
339	ESTANE X-7 ?? DIOXANE ONLY	19.00	1.80	7.40	1.00
340	HEXADECYL MONOESTER TRIME	19.00	11.60	14.00	11.90
341	HYDR SPERM OIL WX135	20.00	4.00	2.00	5.00
342	HYPALON 20 CHL SULF PE	17.80	3.20	4.40	4.10
343	HYPALON 30	17.80	3.40	3.20	5.10
344	KETONE RESIN S588	18.00	10.80	13.20	12.20
345	SANTOLITE MHP ARYLSULFONA	18.40	12.00	8.40	10.60
346	pTOLSULFONAMIDE-FORMALDEH	24.60	18.60	16.40	20.90

TABLE A.2 (CONTINUED)
Hansen Solubility Parameters for Selected Correlations

Number	Polymer	Dispersion	Polar	Hydrogen Bonding	Interaction Radius
Polymer Solubility Data from Various Sources					
347	VYHH-NIF REPT	17.40	9.90	6.70	7.50
348	PVF? (DMF ONLY GOOD SOLVENT)	17.40	13.70	11.30	2.00
349	PES SOL	19.60	10.80	9.20	6.20
Biologically Interesting Systems					
350	LARD 37C	15.90	1.16	5.41	12.03
351	LARD 23C	17.69	2.66	4.36	7.98
352	1%IN WATER -AMINES	15.07	20.44	16.50	18.12
353	1%IN WATER +AMINES	14.96	18.33	15.15	16.22
354	BLOOD SERUM	23.20	22.73	30.60	20.48
355	SUCROSE	21.67	26.26	29.62	20.44
356	UREA	20.90	18.70	26.40	19.42
357	PSORIASIS SCALES	24.64	11.94	12.92	19.04
358	LIGNIN	20.61	13.88	15.25	11.83
359	CHOLESTEROL	20.40	2.80	9.40	12.60
360	CHLOROPHYLL	20.20	15.60	18.20	11.10
361	CELLULOSE-PAPER STRENGTH	25.40	18.60	24.80	21.70
Polysulfone PSU					
362	PSU ULTRASON S	19.70	8.30	8.30	8.00
Barex					
363	BAREX 210 CR	20.10	9.10	12.70	10.90
364	BAREX 210 CR-STYRENE	17.70	8.90	10.90	6.40
Polymers of Interest for Conservation of Paintings					
365	PARALOID B72	17.60	7.40	5.60	9.40
366	ESTIMATE DRIED OIL	16.00	6.00	7.00	5.00
367	DAMMAR DEWAXED	19.00	2.00	9.00	9.00
Permeation of LDPE by Organic Liquids					
368	LDPE PERM>80	16.50	4.50	0.50	6.00
369	LDPE PERM<0.8	15.30	5.30	2.50	10.10
Tolonate Solubility					
370	TOLONATE HDT (RH-POULENC)	19.00	11.00	3.00	12.00
371	TOLONATE HDB (RH-POULENC)	19.00	11.00	2.00	11.30
Chemical Resistance of Elastomers					
372	R ACM	16.80	11.80	11.60	17.00
373	R BUTYL	18.00	0.00	3.00	9.00
374	R ECO	21.30	8.10	6.10	12.00
375	R CSM	28.00	14.00	3.40	28.30
376	R EBONITE (DATA FIT 0.722)	18.70	6.10	2.70	6.60
377	R ETHYLENE/PROPYLENE	16.60	0.00	5.20	9.10
378	R EPDM	18.60	-3.40	4.40	10.70
379	R FQ FL/SI	15.90	20.10	6.90	16.80
380	R FKM (VITON) (0.76 DATA FIT)	11.60	23.00	5.00	21.60
381	R NR NAT RUB	20.80	1.80	3.60	14.00
382	R NBR	19.80	17.80	3.20	19.00

TABLE A.2 (CONTINUED)
Hansen Solubility Parameters for Selected Correlations

Number	Polymer	Dispersion	Polar	Hydrogen Bonding	Interaction Radius
383	R CR CHLOROPRENE	24.60	8.60	6.40	20.40
384	R AU ESTER PU	17.90	13.30	10.70	17.10
385	R PEU ETHER PU	17.90	13.30	10.70	17.10
386	R T SULPHIDE	25.30	17.30	6.70	23.60
387	R Q SILICONE (0.748 DATA FIT)	13.80	5.00	1.20	14.30
388	R SBR	17.20	6.00	4.60	9.80
389	R TFP TETFLPROP (0.744 DATA FIT)	16.60	6.80	0.60	7.90
Chemical Resistance of Plastics					
390	R ABS	17.60	8.60	6.40	10.90
391	R CELLULOSE ACETATE	14.90	7.10	11.10	12.40
392	R CHLORINATED PVC	17.50	6.50	5.50	6.30
393	R DIALLYLPHTHALATE	22.20	12.20	8.60	15.80
394	R POM ACETAL	17.20	9.00	9.80	5.30
395	R PA12	18.50	8.10	9.10	6.30
396	R PA66	18.20	8.80	10.80	5.20
397	R POLYAMIDEIMIDE	18.50	5.70	8.70	4.20
398	R POLYBUTYLENETEREPH	18.00	5.60	8.40	4.50
399	R POLYCARBONATE	19.10	10.90	5.10	12.10
400	R HDPE/LDPE	17.50	4.30	8.30	3.90
401	R PET	19.10	6.30	9.10	4.80
402	R POLYIMIDES	24.30	19.50	22.90	21.60
403	R PMMA	19.30	16.70	4.70	17.40
404	R TPX	18.80	1.40	6.40	7.90
405	R POLYPHENYLENEOXIDE	16.90	8.90	2.70	11.70
406	R POLYSULPHONE	19.80	11.20	6.20	11.30
407	R POLYPROPYLENE	17.20	5.60	-0.40	4.50
408	R EPOXY COLD CURING	16.80	10.80	8.80	8.20
409	R EPOXY HOT CURING	18.30	12.30	9.70	7.30
410	R HET RESIN	17.50	11.30	8.30	8.60
411	R ISOPHTHALIC	19.80	17.40	4.20	18.00
412	R TEREPHTHALIC	19.80	17.40	4.20	18.00
Polymers at Different Test Concentrations - (Conc) Epoxy Polymers					
413	EPIKOTE 828 (60%)	16.60	14.00	2.80	14.90
414	EPIKOTE 828 (30%)	16.30	16.40	1.90	16.70
415	EPIKOTE 1001 (60%)	15.80	16.30	3.30	16.40
416	EPIKOTE 1001 (40%)	16.30	13.10	6.30	10.90
417	EPIKOTE 1001 (20%)	19.80	13.60	8.90	12.00
418	EPIKOTE 1001 (10%)	18.10	11.40	9.00	9.10
419	EPIKOTE 1004 (60%)	17.70	10.10	7.60	9.80
420	EPIKOTE 1004 (30%)	18.50	9.30	8.00	9.60
421	EPIKOTE 1007 (30%)	18.60	10.60	8.10	8.80
422	EPIKOTE 1009 (60%)	17.00	9.60	8.50	7.60
423	EPIKOTE 1009 (30%)	19.80	10.60	10.30	9.70
424	EPIKOTE 1009 (10%)	19.00	9.10	10.70	8.00
Acrylics					
425	PIBMA (10%)	17.00	4.60	7.60	9.50
426	PIBMA (30%)	17.10	5.90	0.70	7.30

TABLE A.2 (CONTINUED)
Hansen Solubility Parameters for Selected Correlations

Number	Polymer	Dispersion	Polar	Hydrogen Bonding	Interaction Radius
427	PMMA (10%)	17.80	10.40	2.90	9.60
428	PMMA (30%)	17.20	7.20	3.50	4.80
429	PBMA (10%)	20.60	3.50	7.20	12.80
430	PBMA (30%)	18.10	5.70	0.00	8.50
431	PMMA (10%)	17.60	10.10	5.80	9.40
432	PMMA (30%)	17.50	5.50	3.80	4.50
433	PEMA (10%)	16.50	8.70	5.00	10.40
434	PEMA (30%)	16.90	7.80	0.50	7.30
435	CRODA AC500 THERMOSET (10%)	17.80	6.40	4.70	10.70
436	CRODA AC500 THERMOSET (30%)	21.20	1.40	10.70	12.30
437	CRODA AC550 THERMOSET (10%)	16.30	10.60	7.40	12.90
438	CRODA AC550 THERMOSET (30%)	16.30	10.60	7.40	12.90
Fluorinated Polyethers					
439	LUMFLON LF200 (10%)	18.50	5.40	6.90	9.90
440	LUMFLON LF200 (30%)	20.10	4.40	3.20	8.50
441	LUMFLON LF916 (10%)	17.50	6.80	10.50	12.50
442	LUMFLON LF916 (30%)	18.10	3.90	8.30	8.80
Acrylic Modified Alkyd					
443	PLASTOKYD S27 (30%)	20.10	5.70	5.30	20.00
444	PLASTOKYD SC140 (30%)	25.20	9.20	3.70	20.00
445	PLASTOKYD SC400 (30%)	23.70	0.50	10.30	20.00
446	PLASTOKYD AC4X (30%)	23.90	7.80	8.80	19.90
Chlorinated Rubber					
447	ALLOPRENE R10 (10%)	19.50	9.20	6.90	7.50
448	ALLOPRENE R10 (30%)	17.90	5.60	6.70	5.80
449	ALLOPRENE R10 (60%)	19.60	6.50	5.80	9.10
Chlorosulfonated Polyethylene					
450	HYPALON 20 (30%)	20.30	3.20	0.70	11.30
Polyisoprene Swelling					
451	POLYISOPRENE SW	17.00	4.00	4.00	7.30
Bromobutyl Rubber Swelling					
452	BROMOBUTYL RUBBER S	17.60	1.70	2.00	6.00
453	BROMOBUTYL RUBBER L	17.00	3.40	2.00	6.00
Supplemental Chemical Resistance Corrlations					
454	NEOPRENE CR	18.10	4.30	6.70	8.90
455	HYTREL +/- OK	24.20	14.60	13.20	18.80
456	HYTREL +/- NOT OK	26.40	18.80	7.40	26.30
457	HYPALON +/- OK	18.40	3.60	6.40	9.00
458	HYPALON +/- NOT OK	18.40	5.60	6.00	9.40
Ethylene Vinylacetate (EVA) Solubility					
459	EVA 4055 SOL	17.70	3.50	3.70	4.70

TABLE A.2 (CONTINUED)
Hansen Solubility Parameters for Selected Correlations

Number	Polymer	Dispersion	Polar	Hydrogen Bonding	Interaction Radius
COC Solubility					
460	TOPAS 6013 SOL	18.00	3.00	2.00	5.00
461	CZ RESIN SOL	18.00	1.00	3.00	4.00
Miscellaneous					
462	KAURI GUM	18.7	8.1	13.0	8.2
463	POLYVINYLPIRROLIDONE (PVP)	21.4	11.6	21.6	17.3
464	PALM OIL	17.7	3.5	3.7	4.7
465	BETHOXAZIN	22.4	7.6	10.8	13.9
466	CARBON-60	19.7	2.9	2.7	3.9