
Appendix A: Table A.3

COMMENTS TO TABLE A.3

The data in Appendix A.3 is for the solubility of the polymers listed in Table 5.2. 0.5 g of polymer was placed in a test tube with 5 ml of the given solvent (except for the Milled Wood Lignin). The evaluation of solubility was made on a scale as follows:

1. Soluble
2. Almost soluble
3. Strongly swollen, slight solubility
4. Swollen
5. Little swelling
6. No visible effect

Note:* indicates a reaction. Data reproduced from Hansen, C.M., "The Three Dimensional Solubility Parameter and Solvent Diffusion Coefficient," doctoral dissertation, Danish Technical Press, Copenhagen, 1967.

TABLE A.3
Solubility Data for the Original 33 Polymers and 88 Solvents

Polymer	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	X	Y	Z	A	B	C	D	E	F	G	L	
Solvent																																		
Acetic Acid	1	6	2	4	2	1	6	1	1	1	6	3	1	4	4	1	4	1	1	6	6	6	6	6	3	4	1	6	1	6	6	5	4	
Acetic Anhydride	1	5	1	3	2	5	6	1	1	1	6	1	1	1	5	1	4	1	1	6	2	6	6	6	6	5	1	5	1	5	6	5	5	
Acetone	1	1	1	1	1	1	3	1	6	1	3	1	1	1	3	1	1	1	1	6	1	6	6	6	6	1	1	6	1	6	5	2	5	
Acetonitrile	1	6	1	6	5	5	4	1	6	1	6	4	1	5	5	6	5	2	1	6	5	6	6	6	6	4	1	6	4	6	6	5	6	
Acetophenone	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	5	2	6	1	1	5	1	5	2	1	4	
Aniline	1	4	1	1	1	1	1	1	1	3	1	3	1	1	1	1	1	1	1	6	1	6	6	6	5	1	1	6	1	6	3	1	1	
Benzaldehyde	1	1	1	1	1	1	1	1	1	1	1	4	1	1	1	1	1	1	1	2	1	5	5	4	3	1	1	5	1	4	1	1	3	
Benzene	1	5	1	1	1	1	1	1	5	6	1	6	1	6	1	6	6	1	2	1	1	1	1	1	5	1	1	1	4	1	5	1	5	
1-Bromonaphthalene	1	6	2	1	1	1	1	1	6	6	1	6	1	6	1	6	6	1	4	1	1	1	5	1	6	1	1	1	5	1	4	1	4	
1,3-Butanediol	5	6	5	5	4	6	6	6	5	6	6	6	6	1	6	1	4	6	1	5	5	6	6	6	6	6	1	6	6	6	6	6	6	
1-Butanol	5	6	3	5	1	1	6	5	1	6	6	6	1	1	1	6	4	3	6	6	6	6	1	5	1	3	1	6	4	6	6	6	6	
<i>n</i> -Butyl Acetate	1	1	1	1	1	1	1	1	6	1	1	6	1	6	1	1	6	1	1	1	1	1	1	1	6	1	1	1	2	2	5	1	6	
<i>n</i> -Butyl Lactate	1	1	1	1	1	5	1	1	1	1	6	1	1	1	1	3	1	1	6	1	6	1	6	5	6	3	1	1	6	1	6	6	6	1
Butyric Acid	1	6	1	1	1	1	4	1	1	6	6	6	1	6	1	6	1	1	4	5	4	1	4	1	1	1	1	3	4	6	1	6	1	6
Gamma-Butyrolactone	1	1	1	6	1	3	1	1	3	1	3	1	1	1	5	1	1	1	1	6	1	6	6	6	6	5	1	6	1	6	4	2	1	
Butyronitrile	1	1	1	1	3	2	1	1	5	1	3	4	1	3	3	4	5	1	1	6	1	5	6	6	6	1	1	6	2	6	6	1	5	
Carbon Disulfide	4	5	3	1	5	5	1	4	5	6	1	6	1	6	1	5	4	3	3	1	4	1	1	1	4	1	1	1	6	1	6	1	4	
Carbon Tetrachloride	1	5	4	1	2	5	1	1	6	6	1	6	1	6	1	5	6	1	5	1	5	1	1	1	4	1	1	1	4	1	6	1	5	
Chlorobenzene	1	1	2	1	1	1	1	1	6	1	6	1	6	1	5	6	1	1	1	1	1	1	1	1	5	1	1	1	3	1	4	1	5	
1-Chlorobutane	1	4	2	1	1	4	1	1	3	6	1	6	1	6	1	3	6	1	3	1	1	1	1	1	5	1	1	1	3	1	6	1	6	
Chloroform	1	1	1	1	1	1	1	1	1	6	1	3	1	6	1	3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	1	6
<i>m</i> -Cresol	3	3	1	1	1	1	5	1	1	5	6	4	1	1	1	1	1	1	1	5	1	5	1	5	1	1	1	6	1	6	6	1	1	
Cyclohexane	6	6	6	1	6	5	1	4	6	6	6	6	1	6	1	5	6	5	5	1	6	1	1	1	6	2	4	1	6	1	6	2	6	
Cyclohexanol	5	6	6	1	1	6	1	1	6	6	3	1	6	1	1	5	2	1	5	5	5	1	5	1	1	1	5	1	6	5	6	5	6	
Cyclohexanone	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	6	1	1	1	1	1	1	5	
Cyclohexylamine	1	1	1	1	1	1	1	1	1	*	*	3	1	1	1	5	6	1	*	1	1	1	1	1	1	1	1	1	1	1	6	5	*	
Cyclohexylchloride	1	3	4	1	1	4	1	5	5	6	1	6	1	6	1	6	6	1	4	1	1	1	1	1	6	1	1	1	3	1	5	1	6	
Di-(2-Chloroethyl)ether	1	1	1	1	5	3	1	1	5	5	1	5	1	6	1	6	5	1	1	5	1	6	6	5	6	1	1	4	1	6	5	1	6	
Di-isobutyl Ketone	1	3	4	1	1	5	3	5	6	1	1	6	1	6	1	2	6	1	1	1	1	1	1	1	6	1	1	1	6	1	6	1	6	

Diacetone Alcohol	1	5	1	1	1	1	5	1	1	1	3	4	1	1	1	1	1	1	6	1	6	6	6	6	3	1	6	1	6	6	5	1		
<i>o</i> -Dichlorobenzene	1	1	2	1	1	1	1	1	2	6	1	6	1	6	1	4	6	1	1	1	1	1	1	1	1	1	1	3	1	4	1	4		
Diethyl Amine	1	6	1	1	1	1	1	5	4	5	5	6	1	1	1	5	5	1	1	1	1	1	1	1	1	1	1	2	1	6	1	5		
Diethyl Ether	3	6	3	1	4	5	3	4	6	6	6	6	1	5	1	3	6	5	3	1	6	1	1	1	6	1	1	1	4	1	6	1	6	
Diethylene Glycol	6	6	1	5	3	5	6	6	4	1	6	6	4	1	6	1	1	5	1	6	6	6	6	6	6	6	1	6	1	6	6	6	1	
Diethylene Glycol Monobutyl Ether	3	3	1	1	1	1	4	1	1	1	1	6	1	1	1	1	1	1	1	6	4	5	5	6	6	1	1	6	1	6	6	1	1	
Diethylene Glycol Monomethyl Ether	1	1	1	1	1	1	6	1	1	1	4	4	1	1	1	1	1	1	1	6	3	6	6	6	6	5	1	6	1	6	6	4	1	
Dimethyl Formamide	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	6	1	5	5	6	6	4	1	6	1	6	4	1	1	
1,4-Dioxane	1	1	1	1	1	1	1	1	6	6	1	1	1	1	1	1	1	1	1	1	1	1	4	5	1	6	1	1	4	1	5	3	1	2
Dipropyl Amine	1	6	1	1	1	1	1	5	6	5	5	6	1	1	1	5	5	1	2	1	4	1	1	1	6	1	1	1	3	1	6	1	6	
Dipropylene Glycol	6	6	1	6	1	5	6	5	1	1	6	6	1	1	5	1	1	5	1	6	6	6	6	6	6	6	1	6	1	6	6	6	1	
Ethanol 96%	4	6	4	6	4	1	6	1	1	6	6	6	1	1	5	1	5	5	1	6	6	6	6	6	5	5	1	6	5	6	6	6	5	
Ethanol 99.9%	5	6	3	5	1	1	6	4	1	3	6	6	1	1	5	1	5	4	1	6	6	6	6	6	6	4	1	6	5	6	6	6	6	
Ethanolamine	6	6	1	6	2	6	6	6	5	*	6	4	1	1	5	1	5	6	1	6	6	6	6	5	6	6	6	6	1	6	6	6	1	
Ethyl Acetate	1	1	1	1	1	1	1	1	6	1	1	5	1	1	1	1	1	1	1	3	1	5	1	5	6	1	1	4	1	4	6	1	6	
Ethyl Benzene	1	5	4	1	2	3	1	1	4	6	1	6	1	6	1	6	6	1	3	1	1	1	1	1	6	1	1	1	6	1	6	1	6	
Ethyl Lactate	1	1	1	1	1	1	6	1	1	1	5	1	1	1	1	1	1	1	1	6	4	6	6	6	6	3	1	6	1	6	6	5	3	
2-Ethyl-1-Butanol	3	2	5	3	1	1	6	5	1	6	6	6	1	6	1	1	6	3	3	6	6	6	1	6	1	1	1	5	4	6	6	6	6	
2-Ethyl-1-Hexanol	4	2	5	1	1	1	6	5	1	6	6	6	1	6	1	1	6	4	4	6	6	5	1	5	1	1	1	1	4	5	6	6	6	
1,2-Dichloroethane	1	1	1	1	1	1	1	1	1	6	1	5	1	6	1	4	5	1	1	1	1	1	1	1	1	6	1	1	1	1	2	3	1	6
Diethyl Sulfide	1	4	4	1	1	5	1	3	5	6	1	6	1	6	1	5	6	1	4	1	1	1	1	1	1	6	1	1	1	4	1	6	1	6
Dimethyl Sulfoxide	4	1	1	3	1	2	6	1	1	1	1	1	1	1	4	1	1	1	1	6	5	6	6	6	6	6	1	6	1	6	2	6	1	
Ethylene Glycol	6	6	6	4	6	6	6	6	6	6	6	6	6	1	6	6	6	5	2	6	4	6	6	5	6	6	6	6	6	6	6	6	1	
Ethylene Glycol Monobutyl Ether	1	5	1	1	1	1	6	2	1	1	2	6	1	1	1	1	1	1	1	6	4	6	1	6	4	1	1	6	1	6	6	1	6	
Ethylene Glycol Monoethyl Ether	1	5	1	1	1	1	5	1	1	1	5	6	1	1	1	1	1	1	1	6	4	6	6	6	6	1	1	6	1	6	6	2	1	
Ethylene Glycol Monoethyl Ether Acetate	1	1	1	1	1	1	1	1	5	1	1	4	1	1	1	1	1	1	1	5	1	6	6	6	6	1	1	6	1	6	5	1	6	
Ethylene Glycol Monomethyl Ether	4	3	1	1	1	1	6	1	1	1	6	4	1	1	2	1	1	1	1	6	5	6	6	6	6	4	1	6	1	6	6	5	1	
Formic Acid 90%	1	6	5	3	6	1	6	1	1	6	6	1	5	1	5	6	2	5	1	6	6	6	6	6	3	6	1	6	6	6	6	6	1	
Furan	1	4	1	1	1	1	1	1	3	6	3	6	1	6	1	5	5	1	1	1	1	1	1	1	1	6	1	1	1	4	1	6	1	6
Glycerol	4	6	6	5	6	6	6	6	6	6	6	6	6	6	6	6	6	4	3	6	6	5	6	6	6	6	6	6	6	6	6	6	6	
<i>n</i> -Hexane	6	5	6	1	6	6	3	6	6	6	6	6	1	6	5	5	6	5	6	3	6	1	1	1	6	4	6	1	6	2	6	5	6	
Isoamyl Acetate	1	1	1	1	1	1	1	1	5	1	1	6	1	6	1	5	6	1	1	1	1	1	1	1	1	6	1	1	1	4	1	5	1	6
Isobutyl Isobutyrate	1	5	5	1	5	5	1	5	5	1	1	6	1	6	1	6	6	1	3	1	1	1	1	1	1	6	1	1	1	5	1	6	1	6
Isophorone	1	1	1	1	1	1	1	1	1	1	1	6	1	1	1	1	1	1	1	1	1	1	1	1	1	6	1	1	1	6	1	6	1	6
Mesityl Oxide	1	1	1	1	1	1	1	1	5	1	1	6	1	1	1	1	1	1	1	1	1	1	1	1	1	6	1	1	1	1	4	2	1	4
Methanol	5	6	4	5	4	5	6	1	3	1	6	6	2	1	4	1	5	4	1	6	5	6	6	6	5	6	1	6	5	6	6	6	5	

TABLE A.3 (CONTINUED)
Solubility Data for the Original 33 Polymers and 88 Solvents

Polymer	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	X	Y	Z	A	B	C	D	E	F	G	L	
Methyl Ethyl Ketone	1	1	1	1	1	1	1	1	6	1	1	4	1	1	1	1	1	1	1	4	1	4	1	4	6	1	1	5	1	5	3	1	6	
Methyl Isoamyl Ketone	1	1	1	1	1	1	1	1	6	1	1	6	1	1	1	1	6	1	1	1	1	1	1	1	6	1	1	1	4	2	5	1	6	
Methyl Isobutyl Carbinol	4	5	5	1	1	1	6	5	1	6	6	6	1	6	1	1	6	4	4	6	5	6	1	6	1	1	1	5	4	6	6	6	6	
Methyl Isobutyl Ketone	1	1	1	1	1	1	1	1	6	1	1	6	1	1	1	1	4	1	1	1	1	1	1	4	6	1	1	1	4	4	4	1	6	
Methylal	1	5	1	1	1	1	1	1	6	1	5	5	1	3	1	1	5	1	1	5	1	4	1	3	6	1	1	5	2	3	6	1	6	
Methylene Dichloride	1	1	1	1	1	1	1	1	1	6	1	5	1	6	1	5	3	1	1	1	1	1	1	1	2	1	1	1	1	1	2	1	6	
Morpholine	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	1	5	4	5	6	1	1	6	1	6	1	1	1	
Nitrobenzene	1	1	1	1	1	1	1	1	1	1	1	4	1	5	1	3	2	1	1	1	1	1	1	6	1	6	1	1	5	1	6	2	1	4
Nitroethane	1	1	1	1	5	5	2	1	6	1	5	5	1	6	3	6	5	1	1	6	1	6	6	6	6	3	1	6	3	6	6	2	6	
Nitromethane	1	6	2	5	6	5	5	1	5	1	6	1	2	6	6	6	5	2	1	6	1	6	6	6	6	4	1	6	4	6	6	5	6	
2-Nitropropane	1	1	2	1	6	5	1	1	6	1	3	5	1	6	4	6	4	1	1	6	1	6	6	5	6	1	1	6	3	6	5	1	6	
1-Pentanol	4	6	5	3	1	1	6	2	1	6	6	6	1	1	1	1	6	5	6	6	6	6	1	6	1	1	1	6	4	6	6	6	6	
1-Propanol	5	6	3	5	1	1	6	4	1	6	6	6	1	1	2	1	6	4	2	6	6	6	1	5	1	5	1	6	4	6	6	6	6	
Propylene Carbonate	3	1	1	5	6	6	6	1	6	1	6	3	1	1	6	6	1	1	1	6	4	6	6	6	6	6	1	6	1	6	6	6	6	
Propylene Glycol	6	6	5	6	4	6	6	6	1	6	6	6	6	1	6	4	6	5	1	6	6	6	6	6	6	6	1	6	5	6	6	6	3	
Pyridine	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	4	1	5	1	1	5	1	5	2	1	1
Styrene	1	2	2	1	1	1	1	1	3	6	1	6	1	6	1	4	6	1	1	1	1	1	1	1	1	6	1	1	1	4	1	5	1	5
Tetrahydrofuran	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3
Tetrahydronaphthalene	1	3	4	1	1	2	1	5	5	6	1	6	1	6	1	4	6	1	2	1	1	1	1	1	5	1	1	1	5	1	6	1	4	
Toluene	1	2	2	1	1	2	1	1	2	6	1	6	1	6	1	6	6	1	3	1	1	1	1	1	6	1	1	1	5	1	5	1	5	
1,1,1-Trichloroethane	1	5	4	1	1	4	1	1	6	6	1	6	1	6	1	3	6	1	3	1	1	1	1	1	6	1	1	1	4	1	6	1	6	
Trichloroethylene	1	4	2	1	1	1	1	1	1	6	1	6	1	6	1	4	5	1	1	1	1	1	1	1	2	1	1	1	4	1	5	1	5	
Xylene	1	4	3	1	5	3	1	4	5	5	1	6	1	6	1	6	6	1	3	1	1	1	1	1	6	1	1	1	5	1	6	1	6	