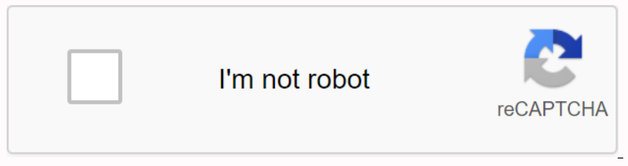

Continue

Polarity of pentane

 Burdick & Jackson solvents are organized to increase the polarity index, a relative measure of the degree of interaction of the solvent with various polar test solutes. Polarity Index (P') Pentane 0.0 1.1,2-Trichlorotrifluoroethane 0.0 Cyclopentane 0.1 Heptane 0.1 Hexane 0.1 Iso-Octane 0.1 Petroleum Ether 0.1 Petroleum Ether 0.1 1 Cyclohexane chloride 0.2 n-Butyl Chloride 1.0 Toluene 2.4 Methyl t-Butyl Ether 2.5 o-Xylene 2.5 Chlorobenze no 2.7 o-Dichlorobenzene 2.7 Ethyl Ether 2.8 Dichloromethane 3.1 Ethylene Dichloride 3.5 n-Butyl Alcohol 3.9 Isopropil Alcohol 3.9 n-Butyl Acetate 4.0 Isobutyl Alcohol 4.0 Methyl isoam il Ketone 4.0 n-Propyl Alcohol 4.0 Tetrahydrofuran 4.0 Chloroform 4.1 Methyl Isobutyl Ketone 4.2 Ethyl Acetate 4.4 Methyl n-Propyl Ketone 4.5 Methyl Ethyl Ketone 4.7 1.4-Dioxane 4.8 Acetone 5.1 Methanol 5.1 Piridine 5.3 2-Metoxitanol 5.5 Acetonitrile 5.8 Propylene Carbonate 6.1 N,N-Dimethylformamide 6.4 Dimethyl Acetamide 6.5 N-Methylpyrrolidone 6.7 Dimethyl Sulfoxide 7.2 Water 10.2 Not included: Alcohol Ethyl glime Isopropil Myristate 1,2,4-Trich Triethylamine Trifluor Solvent Acid Polarity Index Dipole Point Moment Boiling Point Boiling Point Deferent Freezing Point 0.0 0 1.84 36.1 -129.7 Cyclopentane 0.1 0 1.97 49.3 -93.9 Heptane 0.1 0 1.92 98.4 -90.6 Hexane 0.1 0.08 1.88 68.7 -95.3 Cyclohexane 0.2 0 2.02 80.7 6.5 Toluene 2.4 0.31 2.38 110.6 -94.5 o-Xylene 2.5 0.0 45 2.57 1 444.4 -25.2 Chlorobenzene 2.7 1.54 5.62 131.7 -45.6 o-Dichlorobenzene 2,007 2.14 9.93 180.180.5 -17.0 Diethyl Ether 2.8 1.15 4.33 34.5 -117.4 Dichloromethane 3.1 1.14 8.93 39.7 -95.1 3.5 1.83 10.36 83.5 -35.7 -35.7 Alcohol 3.9 1.66 19.92 82.3 -88.0 n-Butyl Acetate 4.0 1.84 5.01 126.1 -73.5 n-Propyl Alcohol 4.0 3.09 20.33 97.2 -126.2 Ethyl Alcohol - 1.66 24.55 78.3 -114.1 Glyme - 1.71 7.20 84.5 -69 Tetrahydrofuran 4.0 1.75 7.58 66 -108.5 Chloroform 4.1 1.15 4.81 61.1 -63.5 Ethyl Acetate 4.4 1.88 6.02 77.1 -84.0 Ethyl Methyl Ketone 4.7 2.76 18.51 79.6 -86.7 1,4-Dioxane 4.8 0.45 2.25 101.3 11.8 Acetone 5.1 2.69 20.7 56.3 -94.7 Methanol 5.1 2.87 32.70 64.7 -97.7 Pyridine 5.3 2.37 12.4 115.2 -41.5 2-MethoxyEthanol 5.5 2.04 16.93 124.6 -85.1 Acetonitrile 5.8 3.44 37.5 81.6 -43.8 N,N-DimethylFormamide 6.4 3.86 36.71 153.0 -60.4 DimethylAcetamide 6.5 3.72 37.78 166.1 -20 N-MethylPyrrolidone 6.7 4.09 32.2 202 -24.4 Dimethyl Sulfoxide 7.2 4.1 46.68 189 18.5 Water 10.2 1.87 80.1 100.0 0.0 Values Taken from For reference and additional solvents follow this Link. Compilados por A.Chandrasekaran Properties of Organic Solvents Os valores na tabela abaixo, exceto como observado, foram extraídos de compilações on-line e hardbound . Foram extraídos valores para polaridade relativa, força eluante, limites limiares e pressão de vapor: Christian Reichardt, Solventes e Efeitos Solventes em Química Orgânica, Editores Wiley-VCH, 3º ed., 2003. As tabelas abaixo foram postadas (23/10/98) e revisadas (28/07/09) e atualizadas (04/10/10) por Steve Murov, Professor Emérito de Química. Table 1 arranged alphabetically, Table 2 arranged according to increasing polarity TABLE 1 Solvent formula boiling point (oC) melting point (oC) density (g/mL) solubility in H2O1 (g/100g) relativepolarity2 eluant strength3 threshold limits4 (ppm) vapor pressure 20oC (hPa) acetic acid C2H4O2 118 16.6 1.049 M 0.648 >1 10 15.3 acetone C3H6O 56.2 -94.3 0.786 M 0.355 0.56 500 240 acetonitrile C2H3N 81.6 -46 0.786 M 0.460 0.65 20 97 acetyl acetone C5H8O2 140.4 -23 0.975 16 0.571 2-aminoethanol C2H7NO 170.9 10.5 1.018 M 0.651 3 0.53 aniline C6H7N 184.4 -6.0 1.022 3.4 0.420 2 0.4 anisole C7H8O 153.7 -37.5 0.996 0.10 0.198 benzene C6H6 80.1 5.5 0.879 0.18 0.111 0.32 0.5 101 benzonitrile C7H5N 205 -13 0.996 0.2 0.333 10 12 benzyl alcohol C7H8O 205.4 -15.3 1.042 3.5 0.608 1-butanol C4H10O 117.6 -89.5 0.81 7.7 0.586 20 6.3 2-butanol C4H10O 99.5 -114.7 0.808 18.1 0.506 100 i-butanol C4H10O 107.9 -108.2 0.803 8.5 0.552 2-butanone C4H8O 79.6 -86.3 0.805 25.6 0.327 0.51 200 105 t-butyl álcool C4H10O 82.2 25.5 0 00.786 M 0.389 100 41 desulfida de carbono CS2 46.3 -111.6 1.263 0.2 0.065 0.15 10 400 tetraclorito de carbono CCl4 76.7 -22.4 1.594 0.08 0.052 0.18 5 120 clorobenzeno C6H5Cl 132 -45.6 1.106 0.05 0.188 0.30 10 12 clorofórmio CHCl3 61.2 -63.5 1.498 0.8 10 210 cyclohexane C6H12 80.7 6.6 0.779 0.005 0.006 0.04 100 104 cyclohexanol C6H12O 161.1 25.2 0.962 4.2 0.50 9 50 1.2 cyclohexanone C6H10O 155.6 -16.4 0.948 2.3 0.281 25 5 di-n-butylphthalate C16H22O4 340 -35 1.0049 0.0 011 0.272 1.1-dichloroethane C2H4Cl2 57.3 -97.0 1,176 0.5 0.269 100 240 dietethylene glycol C4H10O3 245 -10 1,118 M 0.713 0.027 diglyme C6H14O3 162 -64 0.945 M 0.244 dimethoxyethane (glyme) C4H10O2 85 -58 0.868 M 0.231 N , N-dimethylaniin C8H11N 194.2 2.4 0.956 0.14 0.179 dimillaformamide (DMF) C3H7NO 153 -61 0.944 M 0.386 10 3.5 dimylfota cla 10H10O4 2 83.8 1 1,190 0.43 0.309 dimethylsulfoxide (DMSO) C2H6OS 189 18.4 1,092 M 0.444 0.75 dioxane C4H8O2 10 11.8 11.033 M 0.164 0.56 20 41 ethanol C2H6O 78.5 -114.1 0.789 M 0.654 0.88 100 59 ether C4H10O 34.6 -116.3 0.713 7.5 0.117 0.38 400 587 Ethyl acetate C4H8O2 77 -83.6 0.894 8.7 0.228 0.58 400 97 Ethyl acetoacetate C6H10O3 180.4 -80 1,028 2.9 0.577 ethyl benzoate C9H10O2 213 -34.6 1,047 0.07 0.228 ethylene glycol C2H6O2 197 -13 1,115 M 0.790 1.11 glycerin C3H 8O3 290 17.8 1.261 M 0.812 heptane C7H16 98 -90.6 0.684 0.0003 0.012 400 48 1-he C7H16O 176.4 -35 0.819 0.17 0.549 hexane C6H14 69 -95 0.655 0.0014 0.009 0.01 50 160 1-hexanol C6H1 4O 158 -46.7 0.814 0.59 0.559 methanol CH4O 64.6 -98 0.791 M 0.762 0.95 200 128 methyl acetate C3H6O2 56.9 - 98.1 0.933 24.4 0.253 200 220 methyl t-butyl ether (MTBE) C5H12O 55.2 -109 0.741 4.8 0.124 0.20 METHYLEan chloride CH2Cl 2 39.8 -96.7 1,326 1.32 0.309 0.42 50 475 1-octanol C8H18O 194.4 -15 0.827 0.096 0.537 pentane C5H12 36.1 -129.7 0.626 0.004 0.009 0.00 600 57 3 1-pentanol C5H12O 138.0 -78.2 0.814 2,568 2-pentanol C5H12O 119.0 -50 0.810 4.5 0.488 3-pentanol C5H12O 115.3 -8 0.821 5.1 0.463 2-pentanone C5H10O 102.3 -76,809 4.3 0.321 3-pentanone C5H12O 101.7 -39.8 0.814 3.4 0.265 200 1-propanol C3H8O 97 -126 0.803 M 0.617 0.82 2-propanol C3H8O 82.4 -88.85 0.785 M 0.546 0.82 400 44 pyriride C5H5N 115.5 -42 0.982 M 0.3 02 0.71 5 2 0.886 tetrahydrofuran (THF) C4H8O 66 -108.4 0.886 30 0.207 0.57 200 200 toluene C7H8 110.6 -93 0.867 0.05 0.099 0.29 50 29 water H2O 100.00 0.00 0.998 M 1,000 >1 water , heavy D2O 101.3 4 1,107 M 0.991 p-xylene C8H10 138.3 13.3 0.861 0.02 0.074 0.26 100 15 1 M = miscible. 2 The values for relative polarity are normalized from solvent shift measurements of absorption spectra and were extracted from Christian Reichardt, Solvents and Solvent Effects in Organic Chemistry, Editors Wiley-VCH, 3rd ed., 2003.3 Parameter of Snyder empirical elulant force for alumina. Extracted from Reichardt, page 495.4 Threshold limits for exposure. Extracted from Reichardt, 501-502. TABLE 2 Solvent formula boiling point (oC) melting point (oC) density (g/mL) solubility in H2O1 (g/100g) relativepolarity2 eluant strength3 threshold limits4 (ppm) vapor pressure 20oC (hPa) cyclohexane C6H12 80.7 6.6 0.779 0.005 0.006 0.04 100 104 pentane C5H12 36.1 -129.7 0.626 0.0039 0.009 0.00 600 573 hexane C6H14 69 -95 0.655 0.0014 0.009 0.01 50 160 heptane C7H16 98 -90.6 0.684 0.0003 0.012 400 48 carbon tetrachloride CCl4 76.7 -22.4 1.594 0.08 0.052 0.18 5 120 carbon disulfide CS2 46.3 -111.6 1.263 0.2 0.065 0.15 10 400 p-xylene C8H10 138.3 13.3 0.861 0.02 0.074 0.26 100 15 toluene C7H8 110.6 -93 0.867 0.05 0.099 0.24 50 29 benzene C6H6 80.1 5.5 0.879 0.18 0.111 0.32 0.5 101 ether C4H10O 34.6 -116.3 0.713 7.5 0.117 0.38 400 587 methyl t-butyl ether (MTBE) C5H12O 55.2 -109 0.741 4.8 0.124 0.20 diethylamine C4H11N 56.3 -48 0.706 M 0.145 0.63 5 260 dioxane C4H8O2 101.1 11.8 1.033 M 0.164 0.56 20 41 N,N-dimethylaniline C8H11N 194.2 2.4 0.956 0.14 0.179 chlorobenzene C6H5Cl 132 -45.6 1.106 0.05 0.188 0.30 10 12 anisole C7H8O 153.7 -37.5 0.996 0.10 0.198 tetrahydrofuran (THF) C4H8O 66 -108.4 0.886 30 0.207 0.57 200 200 ethyl acetate C4H8O2 77 -83.6 0.894 8.7 0.228 0.57 400 97 ethyl benzoate C9H10O2 213 -34.6 1.047 0.07 0.228 dimethoxyethane (glyme) C4H10O2 85 -58 0.868 M 0.231 diglyme C6H14O3 162 -64 0.945 M 0.244 methyl acetate C3H6O2 56.9 -98.1 0.933 24.4 0.253 200 220 chloroform CHCl3 61.2 -63.5 1.498 0.8 0.259 0.40 10 210 3-pentanone C5H12O 101.7 -39.8 0.814 3.4 0.265 200 1,1-dichloroethane C2H4Cl2 57.3 -97.0 1.176 0.5 0.269 100 240 di-n-butyl phthalate C16H22O4 340 -35 1.049 0.0011 0.272 cyclohexanone C6H10O 155.6 -16.4 0.948 2.3 0.281 25 5 pyridine C5H5N 115.5 -42 0.982 M 0.302 0.71 5 20 dimethylphthalate C10H10O4 283.8 1 1.190 0.43 0.309 methylene chloride CH2Cl2 39.8 -96.7 1.326 1.32 0.309 0.42 50 475 2-pentanone C5H10O 102.3 -76.9 0.809 4.3 0.321 2-butanone C4H8O 79.6 -86.3 0.805 25.6 0.327 0.51 200 105 1,2-dichloroethane C2H4Cl2 83.5 -35.4 1.235 0.87 0.327 benzonitrile C7H5N 205 -13 0.996 0.2 0.333 10 12 acetone C3H6O 56.2 -94.3 0.786 M 0.355 0.56 500 240 dimethylformamide (DMF) C3H7NO 153 -61 0.944 M 0.386 10 3.5 t-butyl alcohol C4H10O 82.2 25.5 0.786 M 0.389 100 41 aniline C6H7N 184.4 -6.0 1.022 3.4 0.420 2 0.4 dimethylsulfoxide (DMSO) C2H6OS 189 18.4 1.092 M 0.444 0.75 acetonitrile C2H3N 81.6 -46 0.786 M 0.460 0.65 20 97 3-pentanol C5H12O 115.3 -8 0.821 5.1 0.463 2-pentanol C5H12O 119.0 -50 0.810 4.5 0.488 2-butanol C4H10O 99.5 -114.7 0.808 18.1 0.506 100 cyclohexanol C6H12O 161.1 25.2 0.962 4.2 0.509 50 1.2 1-octanol C8H18O 194.4 -15 0.827 0.096 0.537 2-propanol C3H8O 82.4 -88.5 0.785 M 0.546 0.82 400 44 1-heptanol C7H16O 176.4 -35 0.819 0.17 i-butanol C4H10O 107.9 -108.2 0.803 8.5 0.552 1-hexanol C6H14O 158 -46.7 0.814 0.59 0.559 1-pentanol C5H12O 138.0 -78.2 0.814 2.2 0.568 acetyl acetone C5H8O2 140.4 -23 0.975 16 0.571 ethyl acetoacetate C6H10O3 180.4 -80 1.028 2.9 0.577 1-butanol C4H10O 117.6 -89.5 0.81 7.7 0.586 20 6.3 benzyl alcohol C7H8O 205.4 -15.3 1.042 3.5 0.608 1-propanol C3H8O 97 -126 0.803 M 0.617 0.82 acetic acid C2H4O2 118 16.6 1.049 M 0.648 >1 10 15.3 2-aminoethanol C2H7NO 170.9 10.5 1.018 M 0.651 3 0.53 ethanol C2H6O 78.5 -114.1 0.789 M 0.654 0.88 1000 59 diethylene glycol C4H10O3 245 -10 1.118 M 0.713 0.027 methanol CH4O 64.6 -98 0.791 M 0.762 0.95 200 128 ethylene glycol C2H6O2 197 -13 1.115 M 0.790 1.11 glycerin C3H8O3 290 17.8 1.261 M 0.812 water , Heavy D2O 101.3 4 1,107 M 0.991 water H2O 100.00 0.00 0.998 M 1,000 >1 Spectra (of solvents and other compounds) 1. go, nmr, mass spectrum Aldrich - SITE NIMC - RSC - 2. go, mass spectra, uv-vis NIST site - 3. go Acros - ChemExper Chem Directory - 4. nmr human metabolites - (also some mass spectra) bioorganic - Solvents - Jump to Chemistry Webercises Directory. visitor counter (started on 10/23/98) 10/23/98)