Surface Energy Data for Nylon 6,6: Poly(hexamethylene adipamide), CAS #32131-17-2

Source[a]	Mst. Type[b]	Data[c]	Comments[d]
Ellison, 1954[13]	Critical ST	γ_c = 46 mJ/m²; 20°C	Test liquids not known.
Fox, 1954[204]	Critical ST	γ_c = 42.5 mJ/m²; no temp cited	Test liquids not known.
Fort, 1964[17]	Critical ST	γ_c = 42 mJ/m²; 22°C, 65% RH	Test liquids: water, glycerol, and formamide. Polymer samples prepared by bulk melt polymerization and finish formed in contact with aluminum foil.
Dann, 1970[94]	Critical ST	γ_c = 37.5 mJ/m²; 25°C	Ethylene glycol/2-ethoxyethanol mixes, based on advancing contact angles.
Dann, 1970[94]	Critical ST	γ_c = 49 mJ/m²; 25°C	Ethylene glycol/2-ethoxyethanol mixes, based on retreating contact angles.
Dann, 1970[94]	Critical ST	γ_c = 36.5 mJ/m²; 25°C	Polyglycol blends, based on advancing contact angles.
Dann, 1970[94]	Critical ST	γ_c = 48 mJ/m²; 25°C	Polyglycol blends, based on retreating contact angles.
Dann, 1970[94]	Critical ST	γ_c = 34 mJ/m²; 25°C	Formamide/2-ethoxyethanol mixes, based on advancing contact angles.
[d]Dann, 1970[94]	Critical ST	γ_c = >56 mJ/m²; 25°C	Formamide/2-ethoxyethanol mixes, based on retreating contact angles.
[d]Dann, 1970[94]	Critical ST	γ_c = >56 mJ/m²; 25°C	Per ASTM D-2578, using formamide/2-ethoxyethanol mixes.
Van Krevelen, 1976[85]	Critical ST	γ_c = 44 mJ/m²; 23°C	Test liquids not known.
Fort, 1964[17]	Contact angle	$\theta_W{}^A$ = 73°; 22°C, 65% RH	Polymer samples prepared by bulk melt polymerization and finish formed in contact with aluminum foil.
Owens, 1969[155]	Contact angle	$\theta_W{}^Y$ = 72°; no temp cited	
Dann, 1970[94]	Contact angle	$\theta_W{}^A$ = 65°; 25°C	Sessile drop method; surface cleaned with detergent and rinsed with distilled water.
Wu, 1971[29]	Contact angle	$\theta_W{}^Y$ = 70°; 20°C	
Absolom, 1979[179]	Contact angle	$\theta_W{}^A$ = 70°; 20°C	
Wu, 1982[50]	Contact angle	$\theta_W{}^Y$ = 72°; 20°C	
Hsieh, 1992[230]	Contact angle	$\theta_W{}^Y$ = 61.4°; no temp cited	Nylon fibers.
[d]Jonsson, 1992[112]	Contact angle	$\theta_W{}^Y$ = 32°; no temp cited	Cleaned by sonification in a 70/30 ethanol/water solution and rinsed with distilled water.
Spelt, 1992[88]	Contact angle	$\theta_W{}^A$ = 70°; 23°C	
Extrand, 2002[143]	Contact angle	$\theta_W{}^A$ = 68.5°; $\theta_W{}^R$ = 40.9°, $d\theta_W$ = 27.6°; 23°C	Measured by sessile drop method; cleaned with hexane and dried under vacuum.
van Oss, 2006[20]	Contact angle	$\theta_W{}^Y$ = 64°; 20°C	
Shafrin, 1963[201]	Contact angle	γ_s = 43.2 mJ/m² ($\gamma_s{}^d$ = 34.1, $\gamma_s{}^p$ = 9.1); no temp cited	Test liquids not known.
Owens, 1969[155]	Contact angle	γ_s = 47.0 mJ/m² ($\gamma_s{}^d$ = 40.8, $\gamma_s{}^p$ = 6.2); no temp cited	Test liquids: water and diiodomethane, by geometric mean equation.
Dann, 1970[94]	Contact angle	$\gamma_s{}^d$ = 47 mJ/m²; 25°C	Various test liquids.

Wu, 1971[29]	Contact angle	γ_s = 47.9 mJ/m^2 (γ_s^d = 35.0, γ_s^p = 12.9); 20^{o}C	Test liquids: water and diiodomethane, by harmonic mean equation.
Kitazaki, 1972[191]	Contact angle	γ_s = 46.5 mJ/m^2 (γ_s^d = 42.0, γ_s^p = 4.5); no temp cited	Various test liquids; original results split polar component into hydrogen- and non-hydrogen bonding parameters.
Absolom, 1979[179]	Contact angle	γ_s = 44.1 mJ/m^2; 20^{o}C	
Wu, 1979[45]	Contact angle	γ_s = 44.7 mJ/m^2; 20^{o}C	Test liquids not known, by harmonic mean equation.
Wu, 1979[45]	Contact angle	γ_c = 43.8 mJ/m^2; 20^{o}C	Test liquids not known; calculated by the equation of state method.
Tagawa, 1989[232]	Contact angle	γ_s = 52.9 mJ/m^2; no temp cited	Test liquids: water and n-alkane; nylon fiber.
Berger, 1991[145]	Contact angle	γ_s = 41.6 mJ/m^2 (γ_s^d = 33.1; γ_s^p = 8.5); no temp cited	Various test liquids, by geometric mean equation. Surface cleaned with dichloromethane.
Berger, 1991[145]	Contact angle	γ_s = 39.3 mJ/m^2 (γ_s^d = 31.7; γ_s^p = 7.6); no temp cited	Various test liquids, by geometric mean equation. 43% glass reinforced; surface cleaned with dichloromethane.
Spelt, 1992[88]	Contact angle	γ_c = 41.4 mJ/m^2; 23^{o}C	Test liquids not known; calculated by the equation of state method.
van Oss, 2006[20]	Contact angle	γ_s = 37.7 mJ/m^2 (γ_s^{LW} = 36.4, γ_s^{AB} = 1.3, γ_s^+ = 0.02, γ_s^- = 21.6); 20^{o}C	Test liquids: water, alpha-bromonaphthalene, diiodomethane, formamide, and glycerin; acid-base analysis.
Morra, 1999[134]	Contact angle	γ_s = 42.8 mJ/m^2 (γ_s^{LW} = 37.4, γ_s^{AB} = 5.4, γ_s^+ = 3.0, γ_s^- = 2.5); no temp cited	Test liquids not known; acid-base analysis based on reference values for water of γ^+ = 48.5 mJ/m^2 and γ = 11.2 mJ/m^2.
Kwok, 2000[166]	Contact angle	γ_c = 41.5 mJ/m^2; no temp cited	Re-calculated by equation of state method from data produced by Ellison, 1954[13].
Wu, 1971[41]	From polymer melt	γ_s = 46.5 mJ/m^2 (γ_s^d = 30.5, γ_s^p = 16.0); 20^{o}C	Direct measurement of polymer melt extrapolated to 20^{o}C; polarity calculated from interfacial tension with PE by harmonic mean. M_n = 19,000.
Wu, 1968[182]	Calculated	γ_s = 46 mJ/m^2; 20^{o}C	Calculated from molecular constitution.
Sewell, 1971[193]	Calculated	γ_s = 42.6 mJ/m^2; no temp cited	Calculated from parachor and cohesive energy.
Sewell, 1971[193]	Calculated	γ_s = 44.3 mJ/m^2; no temp cited	Calculated by least squares from cohesive energy and molar volume.
Vargha-Butler, 1985[180]	Calculated	γ_s = 39.0 mJ/m^2; 23^{o}C	Calculated from sedimentation volume.
Wu, 1982[50]	Calculated	θ_W = 62^o; 20^{o}C	Calculated from the theory of fractional polarity by geometric mean equation.
Wu, 1982[50]	Calculated	θ_W = 72^o; 20^{o}C	Calculated from the theory of fractional polarity by harmonic mean equation.
Wu, 1982[18]	Calculated	γ_s = 45.2 mJ/m^2; 20^{o}C	Calculated from cohesive energy density and solubility parameters.
Surface-tension.de, 2007[110]	Unknown	γ_s = 46.5 mJ/m^2 (γ_s^d = 32.5, γ_s^p = 14); 20^{o}C	No details available.