Surface Energy Data for PET: Poly(ethylene terephthalate), CAS # 25038-59-9

Source[(a)]	Mst. Type[(b)]	Data[(c)]	Comments[(d)]
Ellison, 1954[(13)]	Critical ST	γ_c = 43 mJ/m^2; 20°C	Test fluids not known.
Dann, 1970[(94)]	Critical ST	γ_c = 32 mJ/m^2; 25°C	Ethylene glycol/2-ethoxyethanol mixes, based on advancing contact angles.
Dann, 1970[(94)]	Critical ST	γ_c = 32 mJ/m^2; 25°C	Ethylene glycol/2-ethoxyethanol mixes, based on retreating contact angles.
Dann, 1970[(94)]	Critical ST	γ_c = 36.5 mJ/m^2; 25°C	Polyglycol blends, based on advancing contact angles.
Dann, 1970[(94)]	Critical ST	γ_c = 44 mJ/m^2; 25°C	Polyglycol blends, based on retreating contact angles.
Dann, 1970[(94)]	Critical ST	γ_c = 31 mJ/m^2; 25°C	Formamide/2-ethoxyethanol mixes, based on advancing contact angles.
Dann, 1970[(94)]	Critical ST	γ_c = 43 mJ/m^2; 25°C	Formamide/2-ethoxyethanol mixes, based on retreating contact angles.
Dann, 1970[(94)]	Critical ST	γ_c = 46 mJ/m^2; 25°C	Per ASTM D-2578, using formamide/2-ethoxyethanol mixes.
Markgraf, 2005[(62)]	Critical ST	γ_c = 41-44 mJ/m^2; no temp cited	Test liquids not known.
Owens, 1969[(155)]	Contact angle	θ_W^Y = 76°; no temp cited	
Dann, 1970[(94)]	Contact angle	θ_W^A = 71°; 25°C	Sessile drop method; surface cleaned with detergent and rinsed with distilled water.
Wu, 1971[(29)]	Contact angle	θ_W^Y = 81°; 20°C	
Leclerq, 1977[(132)]	Contact angle	θ_W^A = 65.5°, θ_W^R = 56.5°, dθ_W = 9.0°; 20°C	Surface cleaned with ethanol.
Wu, 1982[(27)]	Contact angle	θ_W^A = 82°, θ_W^R = 54°, dθ_W = 28°; 20°C	
Winters, 1985[(184)]	Contact angle	θ_W^Y = 69°; no temp cited	Mylar.
Kogoma, 1987[(66)]	Contact angle	θ_W^Y = 70°; no temp cited	
Ivanov, 1987[(67)]	Contact angle	θ_W^Y = 70°; no temp cited	
Yasuda, 1988[(173)]	Contact angle	θ_W^A = 62.2°-63.8°; no temp cited	25.4% crystallinity.
Yasuda, 1988[(173)]	Contact angle	θ_W^A = 63.7°-64.9°; no temp cited	37.7% crystallinity.
Yasuda, 1988[(173)]	Contact angle	θ_W^A = 67.0°-67.1°; no temp cited	50.7% crystallinity.
Janczuk, 1989[(106)]	Contact angle	θ_W^Y = 76.5°; 20°C	Cleaned with detergent and ultrasonically rinsed with distilled water.
Dewez, 1991[(78)]	Contact angle	θ_W^Y = 66°; no temp cited	
Jonsson, 1992[(112)]	Contact angle	θ_W^Y = 60°; no temp cited	Cleaned by sonification in a 70/30 ethanol/water solution and rinsed with distilled water.
Li, 1992[(176)]	Contact angle	θ_W^A = 79.1°; 21°C	
Strobel, 1993[(3)]	Contact angle	θ_W^A = 70°, θ_W^R = 53°, dθ_W = 17°; 20°C	
Wallace, 1993[(80)]	Contact angle	θ_W^A = 74°, θ_W^R = 51°, dθ_W = 23°; 25°C	
Strobel, 1996[(95)]	Contact angle	θ_W^A = 70°, θ_W^R = 53°, dθ_W = 17°; no temp cited	Measured by sessile drop method.
Della Volpe, 1997[(149)]	Contact angle	θ_W^A = 81°; 25°C no temp cited	From uncited literature value.

Hsieh, 1998[228]	Contact angle	$\theta_W^Y = 75.8^o$; no temp cited	Regular denier PET fabric.
Hsieh, 1998[228]	Contact angle	$\theta_W^Y = 75.5^o$; no temp cited	Microdenier PET fabric.
Hsieh, 1998[228]	Contact angle	$\theta_W^Y = 63.9^o$; no temp cited	Sulfonated PET fabric.
V. de Vasconcelos, 1999[213]	Contact angle	$\theta_W^A = 69.4^o$, $\theta_W^R = 67.7^o$, $d\theta_W = 1.7^o$;	Measured by sessile drop method; commercial grade PET film.
Johansson, 2000[101]	Contact angle	$\theta_W^A = 65^o$; no temp cited	
B.-Petermann, 2003[139]	Contact angle	$\theta_W^Y = 74^o$; 20°C	Measured by sessile drop method. Roll-coated polymer topcoat applied to carbon steel; surface degreased with ethanol, cleaned with detergent, and rinsed in distilled water.
Inagaki, 2004[58]	Contact angle	$\theta_W^Y = 73^o$; no temp cited	
Gotoh, 2004[92]	Contact angle	$\theta_W^A = 83.8^o$; no temp cited	Measured by sessile drop method.
Gotoh, 2004[92]	Contact angle	$\theta_W^A = 83.1^o$; $\theta_W^R = 51.8^o$, $d\theta_W = 31.5^o$; no temp cited	Measured by Wilhelmy plate method.
Cho, 2005[226]	Contact angle	$\theta_W^Y = 63^o$; no temp cited	Measured by sessile drop method.
Johansson, 2006[138]	Contact angle	$\theta_W^A = 70^o$; no temp cited	Ultrasonically cleaned in isopropanol and rinsed with ethanol.
Leroux, 2006[56]	Contact angle	$\theta_W^Y = 80^o$; no temp cited	Contact angle on woven and nonwoven textile structures.
Gao, 2007[59]	Contact angle	$\theta_W^A = 82^o$, $\theta_W^R = 49^o$, $d\theta_W = 33^o$; no temp cited	Commercial polyester film; water tested at 72.3 mJ/m^2.
Shafrin, 1963[201]	Contact angle	$\gamma_s = 41.3\ mJ/m^2$ ($\gamma_s^d = 37.8$, $\gamma_s^p = 3.5$); no temp cited	Test liquids not known.
Owens, 1969[155]	Contact angle	$\gamma_s = 47.3\ mJ/m^2$ ($\gamma_s^d = 43.2$, $\gamma_s^p = 4.1$); no temp cited	Test liquids: water and diiodomethane.
Dann, 1970[94]	Contact angle	$\gamma_s^d = 43\ mJ/m^2$; 25°C	Various test liquids.
Wu, 1971[29]	Contact angle	$\gamma_s = 41.3\ mJ/m^2$ ($\gamma_s^d = 38.0$; $\gamma_s^p = 3.3$); 20°C	Test liquids: water and diiodomethane, by geometric mean equation.
Wu, 1971[29]	Contact angle	$\gamma_s = 42.1\ mJ/m^2$ ($\gamma_s^d = 32.8$; $\gamma_s^p = 9.3$); 20°C	Test liquids: water and diiodomethane, by harmonic mean equation.
Kitazaki, 1972[191]	Contact angle	$\gamma_s = 43.8\ mJ/m^2$ ($\gamma_s^d = 42.7$, $\gamma_s^p = 1.1$); no temp cited	Various test liquids; original results split polar component into hydrogen- and non-hydrogen bonding parameters.
Wu, 1979[45]	Contact angle	$\gamma_c = 44.0\ mJ/m^2$; 20°C	Test liquids not known. Calculated by the equation of state method.
Janczuk, 1989[106]	Contact angle	$\gamma_s = 42.4\ mJ/m^2$ ($\gamma_s^d = 37.0$; $\gamma_s^p = 5.3$); no temp cited	Various test liquids, by geometric mean equation.
Janczuk, 1989[108]	Contact angle	$\gamma_s = 42.6\ mJ/m^2$ ($\gamma_s^d = 36.7$; $\gamma_s^p = 5.9$); no temp cited	Various test liquids, by harmonic-geometric mean equation.
Janczuk, 1989[108]	Contact angle	$\gamma_s = 44.2\ mJ/m^2$ ($\gamma_s^d = 33.0$; $\gamma_s^p = 11.3$); no temp cited	Various test liquids, by harmonic mean equation.
Janczuk, 1990[105]	Contact angle	$\gamma_s = 41.1\ mJ/m^2$; no temp cited	Test liquids: water and diiodomethane.
Janczuk, 1990[105]	Contact angle	$\gamma_s = 40.5\ mJ/m^2$; no temp cited	Averaged over 28 test liquids.
Tagawa, 1990[229]	Contact angle	$\gamma_s = 40.0\ mJ/m^2$ ($\gamma_s^d = 28.3$; $\gamma_s^p = 11.7$); no temp cited	Test liquids: water and n-alkane; PET fabric.
Lavielle, 1991[133]	Contact angle	$\gamma_s = 50.1\ mJ/m^2$ ($\gamma_s^d = 40.9$; $\gamma_s^p = 9.2$); no temp cited	Sample immersed in water, with alkane droplets deposited on immersed surface.

Li, 1992[176]	Contact angle	γ_s = 36.0 mJ/m^2; 21^{o}C	Test liquids not known.
Bonnerup, 1993[7]	Contact angle	γ_s = 36.6 mJ/m^2 (γ_s^d = 30.1; γ_s^p = 6.5); no temp cited	Test liquids: water and diiodomethane; washed with toluene and isopropanol, then dried overnight.
Della Volpe, 1997[149]	Contact angle	γ_s = 44.8 mJ/m^2 (γ_s^{LW} = 40.6, γ_s^{AB} = 2.3, γ_s^+ = 0.4, γ_s^- = 2.9); no temp cited	Test liquids not known; acid-base analysis from uncited literature data.
V. de Vasconcelos, 1999[213]	Contact angle	γ_s = 49.8 mJ/m^2 (γ_s^d = 43.9; γ_s^p = 6.0); no temp cited	Test liquids: water and alpha-bromonaphthalene. Commercial PET film.
Kwok, 2000[166]	Contact angle	γ_c = 35.2 mJ/m^2; no temp cited	Re-calculated by equation of state method from data produced by Ellison, 1954[13].
B.-Petermann, 2003[139]	Contact angle	γ_s = 43.6 mJ/m^2 (γ_s^d = 38.2; γ_s^p = 5.4); 20^{o}C	Test liquids: water, diiodomethane, and formamide, measured by sessile drop method. Roll-coated polymer topcoat applied to carbon steel; surface degreased with ethanol, cleaned with detergent, and rinsed in distilled water.
Gotoh, 2004[92]	Contact angle	γ_s = 45.9 mJ/m^2 (γ_s^{LW} = 44.6, γ_s^{AB} = 1.3, γ_s^+ = 0.1, γ_s^- = 4.4); no temp cited	Test liquids water, diiodomethane, and ethylene glycol. By sessile drop method; acid-base analysis.
Cho, 2005[226]	Contact angle	γ_s = 45 mJ/m^2 (γ_s^d = 32, γ_s^p = 13); no temp cited	Test liquids: water and formamide.
Morelock, 2007[54]	Contact angle	γ_s = 43.9 mJ/m^2; no temp cited	Test liquid: water.
Wu, 1971[41]	From polymer melt	γ_s = 44.6 mJ/m^2 (γ_s^d = 34.7; γ_s^p = 9.9); 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 = 25,000.
Lee, 1968[131]	Calculated	γ_s = 44 mJ/m^2; no temp cited	Calculated from glass temperature of 342K.
Wu, 1968[182]	Calculated	γ_s = 50 mJ/m^2; 20^{o}C	Calculated from molecular constitution.
Sewell, 1971[193]	Calculated	γ_s = 43.9 mJ/m^2; no temp cited	Calculated from parachor and cohesive energy.
Sewell, 1971[193]	Calculated	γ_s = 52.1 mJ/m^2; no temp cited	Calculated by least squares from cohesive energy and molar volume.
Van Krevelen, 1976[85]	Calculated	γ_s = 49 mJ/m^2; no temp cited	Calculated from parachor parameter.
Wu, 1982[50]	Calculated	θ_W = 70^o; 20^{o}C	Calculated from the theory of fractional polarity by geometric mean equation.
Wu, 1982[50]	Calculated	θ_W = 81^o; 20^{o}C	Calculated from the theory of fractional polarity by harmonic mean equation.
Wu, 1982[18]	Calculated	γ_s = 41.1 mJ/m^2; 20^{o}C	Calculated from cohesive energy density and solubility parameters.
[d]Mangipudi, 1994[270]	Other	γ_s = 61 mJ/m^2; no temp cited	Measured by contact deformation per Johnson-Kendall-Roberts method.
Surface-tension.de, 2007[110]	Unknown	γ_s = 44.6 mJ/m^2 (γ_s^d = 35.6, γ_s^p = 9); 20^{o}C	No details available.