

Surface Energy Data for PDMS: Polydimethylsiloxane, CAS #9016-00-6

Source ^(a)	Mst. Type ^(b)	Data ^(c)	Comments ^(d)
Fox, 1947 ⁽⁴⁴⁾	Critical ST	$\gamma_c = 15.7 \text{ mJ/m}^2; 20^\circ\text{C}$	Test liquids not known; dimethylsiloxane dimer.
Fox, 1947 ⁽⁴⁴⁾	Critical ST	$\gamma_c = 17.6 \text{ mJ/m}^2; 20^\circ\text{C}$	Test liquids not known; dimethylsiloxane tetramer.
Fox, 1947 ⁽⁴⁴⁾	Critical ST	$\gamma_c = 18.6 \text{ mJ/m}^2; 20^\circ\text{C}$	Test liquids not known; dimethylsiloxane heptamer.
Fox, 1947 ⁽⁴⁴⁾	Critical ST	$\gamma_c = 19.6 \text{ mJ/m}^2; 20^\circ\text{C}$	Test liquids not known; dimethylsiloxane dodecamer.
Crocker, 1969 ⁽¹¹¹⁾	Critical ST	$\gamma_c = 24 \text{ mJ/m}^2; \text{no temp cited}$	Test liquids not known.
Lee, 1972 ⁽²⁰⁶⁾	Critical ST	$\gamma_c = 20\text{-}23 \text{ mJ/m}^2; 20^\circ\text{C}$	Test liquids not known; silica filled PDMS rubber.
Shafrin, 1975 ⁽²⁹⁷⁾	Critical ST	$\gamma_c = 24 \text{ mJ/m}^2; 20^\circ\text{C}$	Test liquids not known.
Sowell, 1972 ⁽⁴⁸⁾	Contact angle	$\theta_W^Y = 99.5^\circ; 20^\circ\text{C}$	
Westerdahl, 1974 ⁽⁶³⁾	Contact angle	$\theta_W^Y = 117^\circ; \text{no temp cited}$	
Tezuka, 1986 ⁽¹⁹⁰⁾	Contact angle	$\theta_W^Y = 107^\circ; 25^\circ\text{C}$	Sessile drop method.
Owen, 1988 ⁽¹⁸⁷⁾	Contact angle	$\theta_W^A = 95^\circ - 107^\circ (\text{XBar} = 101.8^\circ; n = 5);$ $\theta_W^R = 48^\circ - 70^\circ (\text{XBar} = 59^\circ; n = 2);$ $d\theta_W = 25^\circ - 59^\circ (\text{XBar} = 42^\circ; n = 2); 20^\circ\text{C}$	Data from five separate silicone formulations.
Morra, 1990 ⁽¹¹⁹⁾	Contact angle	$\theta_W^A = 114^\circ, \theta_W^R = 81^\circ, d\theta_W = 33^\circ;$ no temp cited	Measured from sessile drops; contact time 0.08 mins.
Morra, 1990 ⁽¹¹⁹⁾	Contact angle	$\theta_W^A = 110^\circ, \theta_W^R = 74^\circ, d\theta_W = 36^\circ;$ no temp cited	Measured from sessile drops; contact time 0.17 mins.
Morra, 1990 ⁽¹¹⁹⁾	Contact angle	$\theta_W^A = 110^\circ, \theta_W^R = 71^\circ, d\theta_W = 39^\circ;$ no temp cited	Measured from sessile drops; contact time 0.50 mins.
Morra, 1990 ⁽¹¹⁹⁾	Contact angle	$\theta_W^A = 108^\circ, \theta_W^R = 68^\circ, d\theta_W = 40^\circ;$ no temp cited	Measured from sessile drops; contact time 1.00 mins.
Morra, 1990 ⁽¹¹⁹⁾	Contact angle	$\theta_W^A = 108^\circ, \theta_W^R = 67^\circ, d\theta_W = 41^\circ;$ no temp cited	Measured from sessile drops; contact time 2.00 mins.
Morra, 1990 ⁽¹¹⁹⁾	Contact angle	$\theta_W^A = 108^\circ, \theta_W^R = 64^\circ, d\theta_W = 44^\circ;$ no temp cited	Measured from sessile drops; contact time 5.00 mins.
Owen, 1996 ⁽¹³⁶⁾	Contact angle	$\theta_W^A = 101^\circ; \text{no temp cited}$	
Owen, 2003 ⁽²⁷¹⁾	Contact angle	$\theta_W^A = 102^\circ; \text{no temp cited}$	Freshly cleaved surfaces from high molecular weight gums.
Sowell, 1972 ⁽⁴⁸⁾	Contact angle	$\gamma_s = 20.9 \text{ mJ/m}^2; 20^\circ\text{C}$	Test liquids: water, glycerol, formamide, tricresyl phosphate, and n-hexadecane, by harmonic mean equation.
Owen, 1996 ⁽¹³⁶⁾	Contact angle	$\gamma_s = 22.8 \text{ mJ/m}^2 (\gamma_s^d = 21.7; \gamma_s^p = 1.1);$ no temp cited	Test liquids: water and diiodomethane, by geometric mean equation.
Owen, 1998 ⁽¹⁵²⁾	Contact angle	$\gamma_s = 19.9 \text{ mJ/m}^2 (\gamma_s^d = 17.9; \gamma_s^p = 2.0); 23^\circ\text{C}$	Test liquids not specified, by geometric mean equation from advancing contact angle on Dow Corning 280A pressure-sensitive adhesive.
Tarkow, 1958 ⁽¹⁹⁵⁾	From polymer melt	$\gamma_s = 21.6 \text{ mJ/m}^2; 20^\circ\text{C}$	Direct measurement of polymer melt extrapolated to 20°C.
Roe, 1965 ⁽¹⁹⁶⁾	From polymer melt	$\gamma_s = 20.6 \text{ mJ/m}^2; 20^\circ\text{C}$	Direct measurement of polymer melt extrapolated to 20°C.
LeGrand, 1969 ⁽³⁶⁾	From polymer melt	$\gamma_s = 21.1 \text{ mJ/m}^2; 20^\circ\text{C}$	Direct measurement of polymer melt extrapolated to 20°C.

LeGrand, 1969 ⁽³⁶⁾	From polymer melt	$\gamma_s = 20.6 \text{ mJ/m}^2; 20^\circ\text{C}$	$M_w = 75,000$. Direct measurement of polymer melt extrapolated to 20°C .
Wu, 1971 ⁽²⁹⁾	From polymer melt	$\gamma_s = 19.8 \text{ mJ/m}^2$ ($\gamma_s^d = 17.5$, $\gamma_s^p = 2.3$); 20°C	$M_w = 3,900$. Measurement by pendant drop of polymer melt extrapolated to 20°C ; polarity calculated from interfacial tension with PE by geometric mean equation.
Wu, 1971 ⁽²⁹⁾	From polymer melt	$\gamma_s = 19.8 \text{ mJ/m}^2$ ($\gamma_s^d = 19.0$, $\gamma_s^p = 0.8$); 20°C	Measurement by pendant drop of polymer melt extrapolated to 20°C ; polarity calculated from interfacial tension with PE by harmonic mean.
LeGrand, 1971 ⁽⁴³⁾	From polymer melt	$\gamma_s = 19.9 \text{ mJ/m}^2; 20^\circ\text{C}$	Direct measurement of polymer melt extrapolated to 20°C .
Bhatia, 1985 ⁽²⁷⁵⁾	From polymer melt	$\gamma_s = 21.0 \text{ mJ/m}^2; 20^\circ\text{C}$	$M_n = 1088$. Direct measurement of polymer melt extrapolated to 20°C .
Bhatia, 1985 ⁽²⁷⁵⁾	From polymer melt	$\gamma_s = 20.5 \text{ mJ/m}^2; 20^\circ\text{C}$	$M_w = 75,000$. Direct measurement of polymer melt extrapolated to 20°C .
Wu, 1989 ⁽²⁷³⁾	From polymer melt	$\gamma_s = 20.4 \text{ mJ/m}^2$ ($\gamma_s^d = 19.5$; $\gamma_s^p = 0.9$); 20°C	$M_w = 3,900$. Direct measurement of polymer melt extrapolated to 20°C .
Wu, 1989 ⁽²⁷³⁾	From polymer melt	$\gamma_s = 20.2 \text{ mJ/m}^2$ ($\gamma_s^d = 19.4$; $\gamma_s^p = 0.8$); 20°C	$M_w = 75,000$. Direct measurement of polymer melt extrapolated to 20°C .
Wu, 1989 ⁽²⁷³⁾	From polymer melt	$\gamma_s = 19.9 \text{ mJ/m}^2; 20^\circ\text{C}$	$M_w = 3,900$. Direct measurement of polymer melt extrapolated to 20°C .
Wu, 1989 ⁽²⁷³⁾	From polymer melt	$\gamma_s = 18.8 \text{ mJ/m}^2; 20^\circ\text{C}$	$M_w = 1,274$. Direct measurement of polymer melt extrapolated to 20°C .
Wu, 1989 ⁽²⁷³⁾	From polymer melt	$\gamma_s = 17.6 \text{ mJ/m}^2; 20^\circ\text{C}$	$M_w = 607$. Direct measurement of polymer melt extrapolated to 20°C .
Wu, 1989 ⁽²⁷³⁾	From polymer melt	$\gamma_s = 15.7 \text{ mJ/m}^2; 20^\circ\text{C}$	$M_w = 310$. Direct measurement of polymer melt extrapolated to 20°C .
Wu, 1968 ⁽¹⁸²⁾	Calculated	$\gamma_s = 23 \text{ mJ/m}^2; 20^\circ\text{C}$	$M_w = 162$. Calculated from molecular constitution.
Wu, 1974 ⁽⁴⁷⁾	Calculated	$\gamma_s = 20.4 \text{ mJ/m}^2; 20^\circ\text{C}$	Calculated from free volume theory and molecular weight.
Wu, 1974 ⁽⁴⁷⁾	Calculated	$\gamma_s = 21.3 \text{ mJ/m}^2; 20^\circ\text{C}$	Calculated from free volume theory and molecular weight.
Wu, 1982 ⁽¹⁸⁾	Calculated	$\gamma_s = 20.3 \text{ mJ/m}^2; 20^\circ\text{C}$	Calculated from cohesive energy density and solubility parameters.
Van Ness, 1992 ⁽¹⁸⁶⁾	Calculated	$\gamma_s = 19.6 \text{ mJ/m}^2; 20^\circ\text{C}$	Calculated molten surface tension value, extrapolated to 20°C .
Bicerano, 1996 ⁽²⁷²⁾	Calculated	$\gamma_s = 21.6 \text{ mJ/m}^2; 20^\circ\text{C}$	Calculated from parachor parameter.
Chaudhury, 1992 ⁽²⁶⁷⁾	Other	$\gamma_s = 23 \text{ mJ/m}^2$; no temp cited	Measured by contact deformation per Johnson-Kendall-Roberts method.
Owen, 1996 ⁽¹³⁶⁾	Other	$\gamma_s = 21.3 \text{ mJ/m}^2$; no temp cited	Direct measurement of liquid surface tension extrapolated to infinite molecular weight.