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## Hydrogen wettability of sandstone reservoirs

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## Hydrogen Data Set

# Hydrogen Wettability of Sandstone Reservoirs: Implications for Hydrogen Geo-Storage

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Effect of Pressure and Temperature on Contact Angle in H<sub>2</sub> for pure quartz.

Temperature (K)	Pressure (MPa)											
	0.1		5		10		15		20		25	
296	0	0	7.5	6.1	12.3	10.1	20.8	17.1	24.4	20.7	28.3	24.6
323	0	0	17.4	15.2	20.6	16.7	30.7	26.3	33.9	30.4	40.8	35.1
343	0	0	27.2	24.4	33.7	30.2	40.2	35.8	43.7	40.3	48.3	44.1

Effect of Stearic Acid Concentration on Contact Angle in H<sub>2</sub> at 323 K.

Stearic Acid Concentration (mol/L)	Pressure (MPa)					
	0.1		15		25	
10 <sup>-2</sup>	51.8	47.4	68.2	63.4	76.9	70.7
10 <sup>-3</sup>	47.1	42.4	61.7	57.6	68.7	63.3
10 <sup>-5</sup>	39.8	34.7	53.9	49.2	60.5	56.7
10 <sup>-7</sup>	34.9	30.6	48.8	43.6	54.3	50.8
10 <sup>-9</sup>	32.5	28.7	45.4	41.7	51.6	47.2

Example contact angle image ( $10^{-2}$  mol/L stearic acid concentration, 25 MPa and 323 K).

The brine drop (dark) sits on the quartz surface (grey) in  $H_2$  atmosphere (transparent/white).

