MoS_2		
Property	**Description/Value**	
	Bulk	**Monolayer**
Lattice constant (a)	3.19 Å [1]	3.20 Å [1, 2]
c/a ratio	3.86 [1]	-------
Cohesive energy	4.96 eV/atom [1]	4.98 eV/atom [1]
Dielectric constant (ε)	8.5 ($\varepsilon_{\parallel}$), 13.5 ($\varepsilon_{\perp}$) [3]	2.8 ($\varepsilon_{\parallel}$), 4.2 ($\varepsilon_{\perp}$) [3]
Effective masses	----------	m_e=1.182 m_o, m_h=3.108m_o [3]
Effective Bohr radius	----------	9.3 Å [3]
Band gap type	Indirect	Direct [1-3]
Band gap energy	1.29 eV (experimental), 0.89 eV (calculation) [1, 4]	1.80 eV (experimental), 1.57 eV (calculation) [1, 5]
Group	Transition Metal Dichalcogenide [6]	Transition Metal Dichalcogenide [6]
Crystal structure	hP6, space group $P6_3$/mmc, No 194 (2H) hR9, space group R3m, No 160 (3R) [7]	hP6, space group $P6_3$/mmc, No 194 (2H) hR9, space group R3m, No 160 (3R) [7]
Mo-S bond length	2.41 Å [8, 9]	2.41 Å [8, 9]
S-Mo-S bond angle	80.84° [9]	80.88° [9]
Spin-orbit splitting	----------	0.15 eV [8]
Molar mass	160.07 g/mol [10]	160.07 g/mol [10]
Charge transfer of Mo atom	1.09 e [8]	1.09 e [8]
In-plane stiffness	----------	124.24 N/m [8]
Density	5.06 g/cm^3 [10]	5.06 g/cm^3 [10]
Melting point	1,185 °C (decomposes) [10]	----------
Exciton binding energy	----------	1.02 eV [11]
Solubility	decomposed by hot sulfuric acid, aqua regia and nitric acid (insoluble in dilute acids) [10]	decomposed by hot sulfuric acid, aqua regia and nitric acid (insoluble in dilute acids) [10]
Coordination geometry	Trigonal prismatic (Mo), Pyramidal (S) [12]	Trigonal prismatic (Mo), Pyramidal (S) [12]
Thermal conductivity at 300K	----------	34.5±4 W/mK (experimental) [13]
Complex refractive index	----------	Real part n_i = 4.49, imaginary part k_i= 1.01 (experimental) [14]
Appearance	Silvery black solid [10]	----------
Carrier mobility in MoS_2 [15, 16]		
Thicknesses	**PMMA/SiO_2/Si substrate**	**SiO_2/Si Substrate**
1.5 nm	30 cm^2/V.Sec (electron)	30-60 cm^2/V.Sec (electron)
6.5 nm	68 cm^2/V.Sec (electron), 1 cm^2/V.Sec (hole)	30-60 cm^2/V.Sec (electron)

47 nm	480 cm^2/V.Sec (hole), 270 cm^2/V.Sec (electron)	30-60 cm^2/V.Sec (electron)
80 nm	250 cm^2/V.Sec (hole), 50 cm^2/V.Sec (electron)	30-60 cm^2/V.Sec (electron)

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