

The World of Clay

Table 22.5. Classification of Layer Silicates (after Bailey, 1991a)

Layer Type	Layer Charge	Interlayer	Group	Sub-group	Examples of species
1:1	0	none or H ₂ O only	kaolin-serpentine	serpentine	chrysotile
				kaolinite	kaolinite
2:1	<0.2	none	talc-pyrophyllite	talc	talc
				pyrophyllite	pyrophyllite
	0.2–0.6	hydrated exchangeable cations	smectite	saponite	saponite
				montmorillonite	nontronite
	0.6–0.9	hydrated exchangeable cations	vermiculite	trioctahedral vermiculite	vermiculite
				dioctahedral vermiculite	vermiculite
	0.6–1.0*	non-hydrated cations	true micas	trioctahedral micas	phlogopite
				dioctahedral micas	muscovite
	2.0	non-hydrated cations	brittle micas	trioctahedral brittle micas	clintonite
				dioctahedral brittle micas	margarite
Variable	hydroxid sheet	chlorite	trioctahedral chlorites	clinochlore	
			dioctahedral chlorites	donbasseite	
			di-, trioctahedral chlorites	cookeite	

*The charge on the layer for a true mica is 0.85 to 1.0 for dioctahedral micas. Trioctahedral micas may have a layer charge of near 0.6, but it is still an open question. There may be one exception, wonesite (layer charge of 0.5). Any layer charge of 0.6 to 0.85 represents an "interlayer-cation-deficient mica."