

**TABLE 1** CLASSIFICATION OF NATURAL AND SYNTHETIC (MARKED\*) SMECTITES

	DIOCTAHEDRAL SMECTITES (TYPE I)		TRIOCTAHEDRAL SMECTITES (TYPE II)	
Charge distribution over octahedral and tetrahedral sites	Principal octahedral cations: $M^{+3}$ and ( $M^{2+}$ substitutions)	Mineral name	Principal octahedral cations: $M^{2+}$ and ( $M^{+3}$ $M^{1+}$ , $\square$ substitutions)	Mineral name
Octahedral charges predominant	$Al^{3+}(Mg^{2+}, Fe^{2+})$	montmorillonite	$Mg^{2+}(\square)$ $Mg^{2+}(Li^{1+})$ $Mg^{2+}(\square, Li^{1+})$ $Mg^{2+}(\square, Li^{1+})$ $Mg^{2+}Li^{1+}Al^{3+}$  single or mixed 3d transition metals	stevensite hectorite laponite* fluorohectorite* (F for OH) swinefordite  transition metal "defect" trioctahedral smectites*
Tetrahedral charges predominant	$Al^{3+}$ $Fe^{3+}$ $Cr^{3+}$ $V^{3+}$	beidellite nontronite volkonskoite V-smectite	$Mg^{2+}$ $Fe^{2+}$ $Zn^{2+}$ $Co^{2+}$ $Mn^{2+}$ $Ni^{2+}$  single or mixed 3d transition metals	saponite Fe-saponite sauconite Co-smectite Mn-smectite Ni-smectite  transition metal trioctahedral smectites*

$\square$  indicates a vacancy