

Supplement of Atmos. Chem. Phys. Discuss., 14, 15735–15770, 2014
<http://www.atmos-chem-phys-discuss.net/14/15735/2014/>
doi:10.5194/acpd-14-15735-2014-supplement
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Supplement of

Chemistry and mineralogy of clay minerals in Asian and Saharan dusts and the implications for iron availability

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Table S1. General chemical formulas of minerals in the Asian and Saharan dusts identified by TEM and XRD analysis.

Mineral	Chemical formula
Phyllosilicates	
Illite*	$K_{0.8}(Al,Fe,Mg)_2(Si_{3.5}Al_{0.5})O_{10}(OH)_2$
Smectite*	$Ca_{0.1-0.3}(Al,Mg,Fe)_2(Si_{3-4}Al_{0-1})O_{10}(OH)_2 \cdot nH_2O$
Vermiculite*	$Ca_{0.3-0.5}(Mg,Fe,Al)_3(Si_3Al)O_{10}(OH)_2 \cdot nH_2O$
Chlorite*	$(Mg,Fe,Al)_6(Si_3Al)O_{10}(OH)_8$
Kaolinite	$Al_2Si_2O_5(OH)_4$
Muscovite	$KAl_2(Si_3Al)O_{10}(OH)_2$
Biotite*	$K(Fe,Mg,Al)_3(Si_3Al)O_{10}(OH)_2$
Other silicates	
Quartz	SiO_2
Plagioclase*	$(Ca,Na)Al_{1-2}Si_{2-3}O_8$
K-feldspar	$KAlSi_3O_8$
Amphibole*	$Ca_2(Fe,Mg)_5AlSi_7O_{22}(OH)_2$
Epidote	$Ca_2(Al,Fe)_3(SiO_4)_3(OH)$
Palygorskite	$(Mg,Al)_2Si_4O_{10}(OH) \cdot 4H_2O$
Non-silicates	
Calcite	$CaCO_3$
Gypsum	$CaSO_4 \cdot 2H_2O$
Goethite	$FeO(OH)$
Magnetite	$Fe^{2+}Fe^{3+}_2O_4$
Hematite	Fe_2O_3

*Representative chemical formulas. They have a range of compositional variation due to ionic substitution.