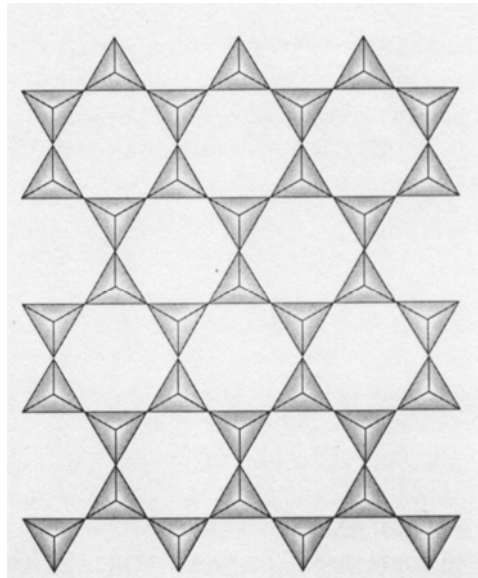


V. FILOSILIKATI plastnati, listasti

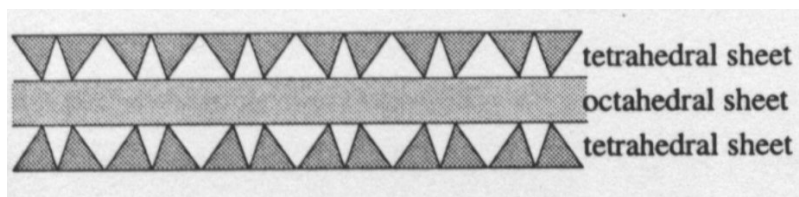
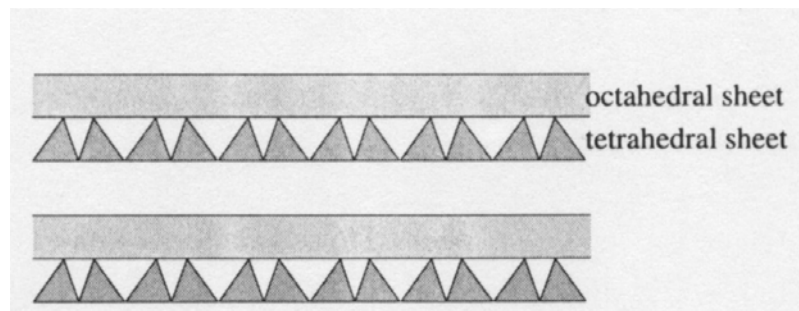
- $[\text{Si}_4\text{O}_{10}]^{4-}$ so preko kisika vezani v neskončne ravnine → listasti
- psevdoheksagonalna plast

Slika:

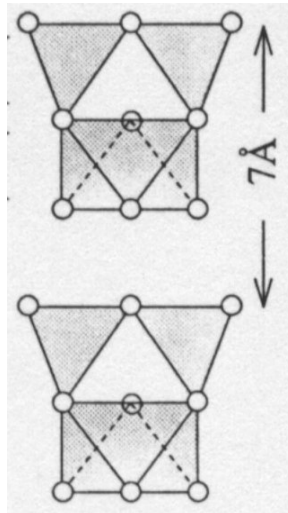


- polarne tetraedrske plasti

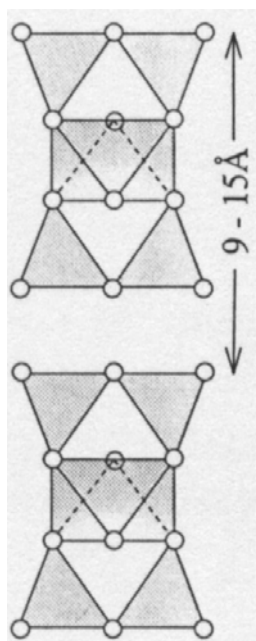
Slika:



- $O/Si = 10/4$
- $[AlSi_3O_{10}]^{4-} \rightarrow$ alumosilikati
- kationi med plastni (oktaedrska koordinacija): Al^{3+} , Fe^{3+} , Fe^{2+} , Mg^{2+}
 - **gibbsitni tip** $Al(OH)_3 \rightarrow$ dioktaedrski tip \rightarrow 2/3 koordinacijskih centrov $Al^{(6)}$ zasedenih s trivalentnim kationom
 - **brucitni tip** $Mg(OH)_3 \rightarrow$ trioktaedrski tip \rightarrow 3/3 koordinacijskih centrov $Mg^{(6)}$ zasedenih z dvovalentnim kationom
- oblike paketov:
 - t o – **kaolinitni tip**
 -



- t o t – **sljudin tip**



- vgrajevanje med paketi (Van der Waalsova vez): H_2O , OH^- , K^+ , Na^+ , Ca^{2+} , $\text{Mg}^{2+} \rightarrow$ razkolnost, drobnozrnatost

Tetragonalne strukture

Apofilitova skupina: $\text{KCa}_4 [(\text{Si}_4\text{O}_{10})_2(\text{OH})_8\text{F}].8\text{H}_2\text{O}$

Psevdoheksagonalne in heksagonalne strukture

Pirofilitova in lojevčeva skupina: $\text{Al}_2[(\text{Si}_4\text{O}_{10})(\text{OH})_2]$, $\text{Mg}_3[(\text{Si}_4\text{O}_{10})(\text{OH})_2]$

Sljudina skupina: $\text{KAl}_2[(\text{AlSi}_3\text{O}_{10})_2(\text{OH},\text{F})_2]$

Skupina krhkih sljud: $\text{CaAl}_2[(\text{Al}_2\text{Si}_2\text{O}_{10})(\text{OH})_2]$

Montmorillonitova skupina: $\text{Al}_{1,67}\text{Mg}_{0,33}[(\text{Si}_4\text{O}_{10})(\text{OH})_2]^{0,33-} \text{Na}_{0,33}(\text{H}_2\text{O})_4$

Kloritova skupina: $\text{Mg}_3[(\text{Si}_4\text{O}_{10})(\text{OH})_2].\text{Mg}_3(\text{OH})_6$

Ferokloritova skupina: $(\text{Fe}^{2+},\text{Al})_3[(\text{Al}_{1,2-1,5}\text{Si}_{2,8-2,5}\text{O}_{10})(\text{OH})_2]\text{Fe}_3(\text{OH})_6$

Leptokloritova skupina: $(\text{Fe}^{2+},\text{Fe}^{3+})_3[(\text{AlSi}_3\text{O}_{10})(\text{OH})_2](\text{Fe},\text{Mg})_3(\text{O},\text{OH})_6$

Kaolinitova skupina: $\text{Al}_4[(\text{Si}_4\text{O}_{10})(\text{OH})_8]$

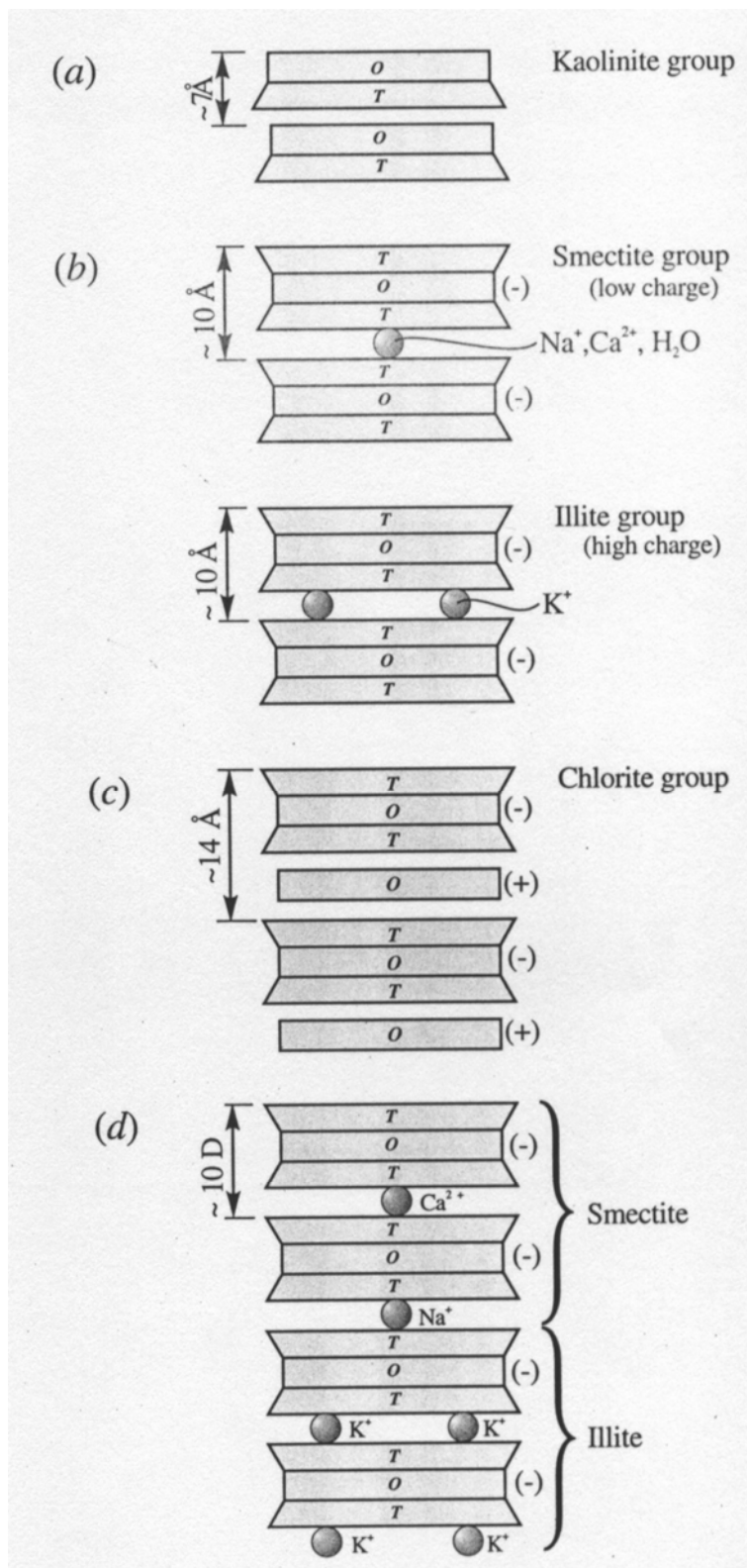
Serpentinova skupina: $\text{Mg}_6[(\text{Si}_4\text{O}_{10})(\text{OH})_8]$

Halloysitova skupina: $\text{Al}_4[(\text{Si}_4\text{O}_{10})(\text{OH})_8]$

Sepiolitova skupina: $\text{Mg}_4[(\text{Si}_6\text{O}_{15})(\text{OH})_2].2\text{H}_2\text{O}+4\text{H}_2\text{O}$

NAJPOMEMBNEJŠE SKUPINE FILOSILIKATOV

Slika:



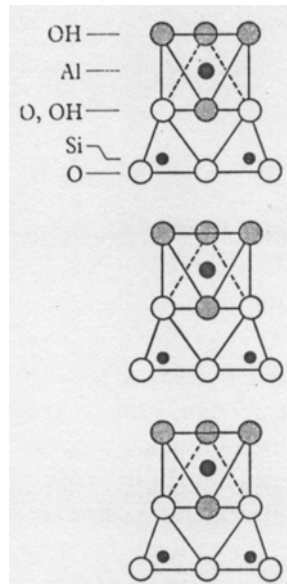
ZNAČILNE STRUKTURE FILOSILIKATOV

Slika: strukture mineralov

kaolinit $\text{Al}_4[(\text{Si}_4\text{O}_{10})(\text{OH})_8]$

serpentin $\text{Mg}_6[(\text{Si}_4\text{O}_{10})(\text{OH})_8]$

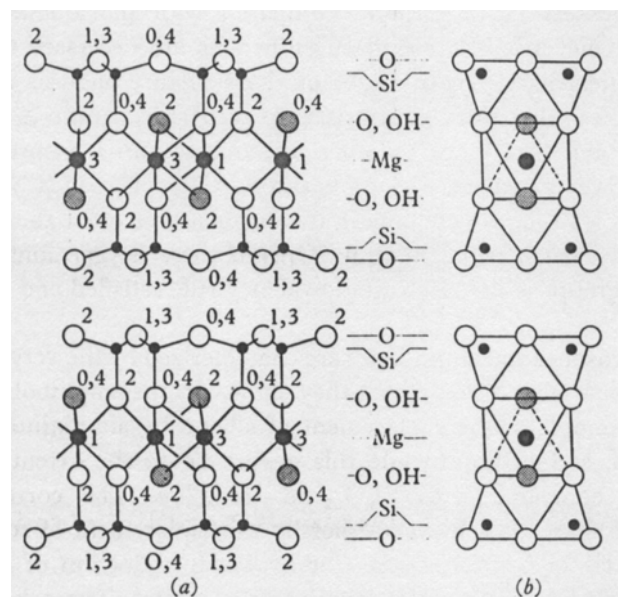
halloysit s plastjo vode v medpaketnem prostoru



Slika: struktura minerala

lojevec $\text{Mg}_3[(\text{Si}_4\text{O}_{10})(\text{OH})_2]$

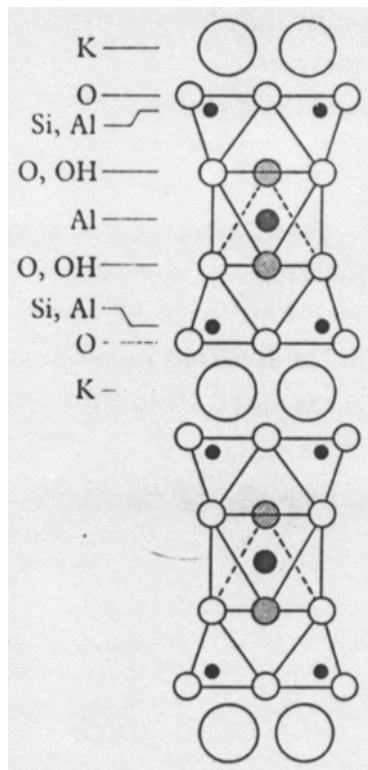
pirofilit $\text{Al}_2[(\text{Si}_4\text{O}_{10})(\text{OH})_2]$



Slika: struktura minerala

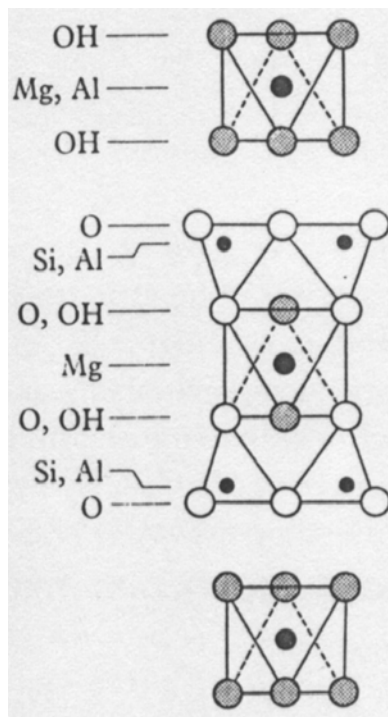
muskovit $\text{KAl}_2[(\text{Si}_4\text{O}_{10})_2(\text{OH})_2]$

biotit $\text{K}(\text{Mg,Fe,Mn})_2[(\text{AlSi}_3\text{O}_{10})_2(\text{OH})_2]$



Slika: struktura minerala

klorit $\text{Mg}_3[(\text{Si}_4\text{O}_{10})(\text{OH})_2] \cdot \text{Mg}_3(\text{OH})_6$

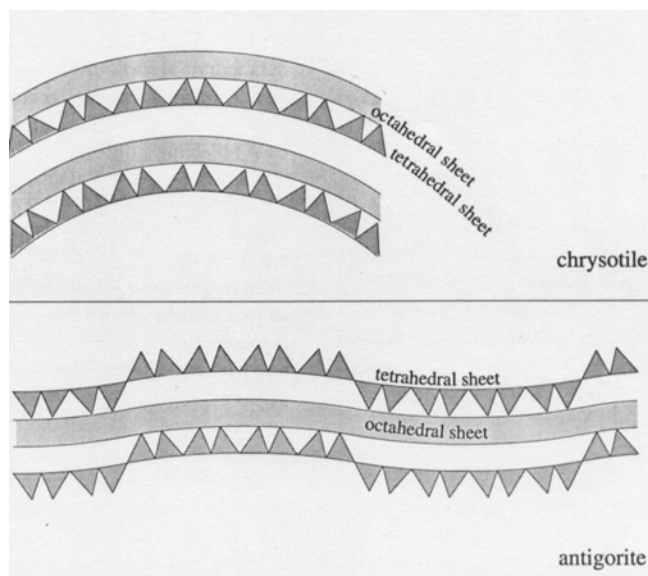


Montmorillonit

Vlaknati minerali:

Značilne strukture hrizotila in antigorita

Slika:



STABILNOST – NEVTRALIZACIJA STRUKTUR

Lojevec:

- tot paket
- van der Waalsova vez
- $Mg^{(6)}$ z O in (OH)

Muskovit:

- tot paket
- $1/4 Al^{3+}$ in $3/4 Si^{4+}$ v tetraedrskih mestih
- $3Mg^{2+} \rightarrow 2Al^{3+}$ v oktaedrskih mestih
- K^+ (za vsak $Si^{4+} \rightarrow Al^{3+}$) med paketi s koord.št. 12 (2 šesterokotnika)

Flogopit:

- $1/4 Al^{3+}$ in $3/4 Si^{4+}$ v tetraedrskih mestih

Margarit:

- $2/4 Al^{3+}$ in $2/4 Si^{4+}$ v tetraedrskih mestih $\rightarrow Ca^{2+}$ med paketi

Sljude:

- $\text{Al}^{3+} \rightarrow \text{Si}^{4+}$ na tetraedrskih mestih
- Al^{3+} , Fe^{3+} , Fe^{2+} , Mg^{2+} , Mn^{2+} , Li^{+} na oktaedrskih mestih
- K^{+} , Na^{+} , Ca^{2+} med paketi
- OH^{-} , F^{-} v ogliščih oktaedrov