

Skript zur Vorlesung Allgemeine Chemie II

Educational Material

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2001

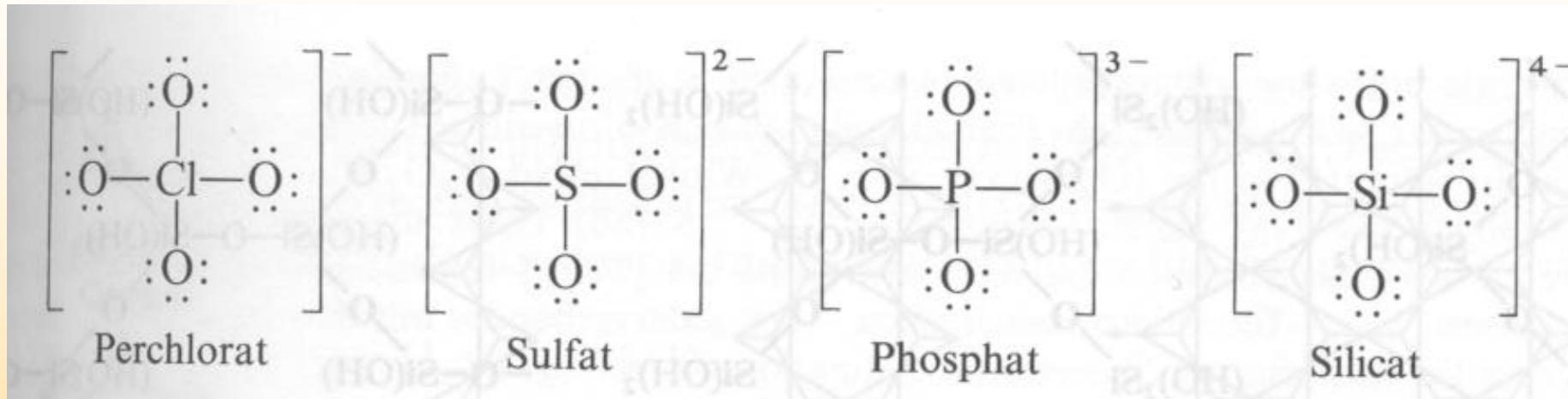
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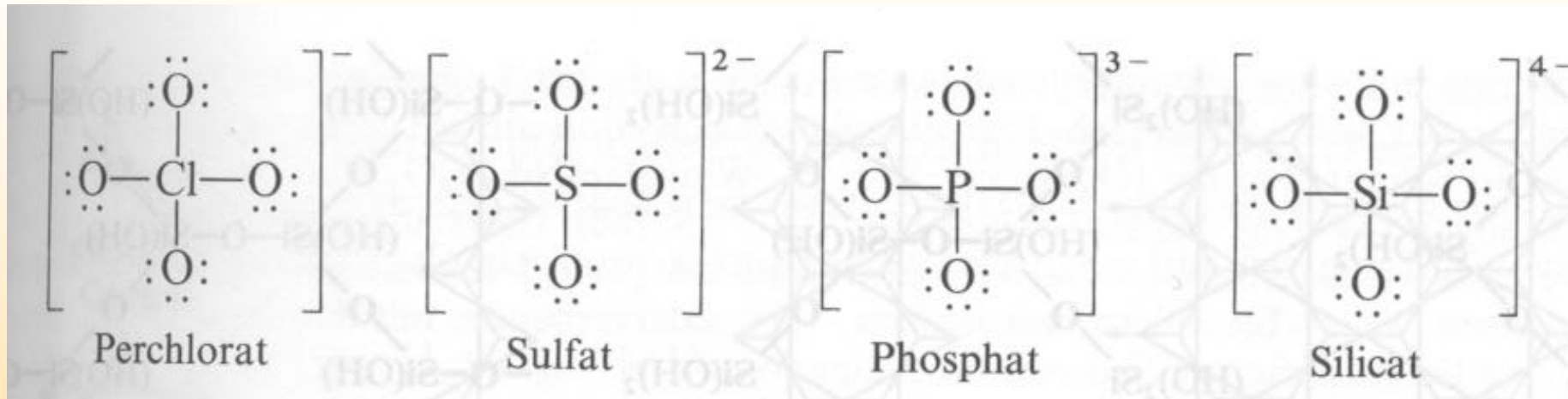
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Anionen von Mono-Oxosäuren

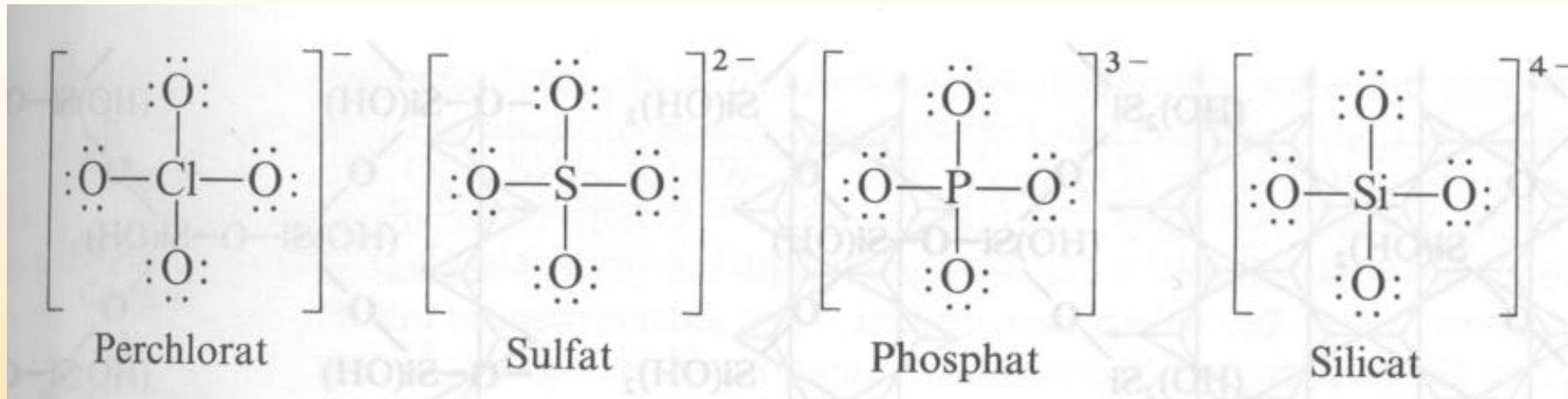


Anionen von Mono-Oxosäuren

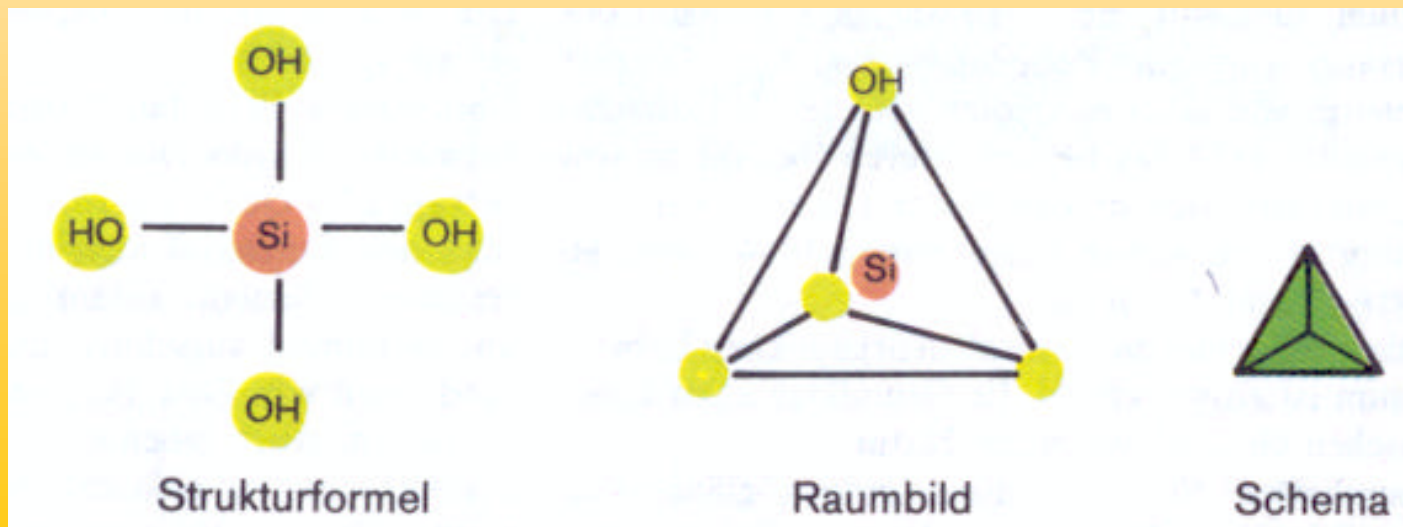


Nicht vergessen : semipolare Bindung

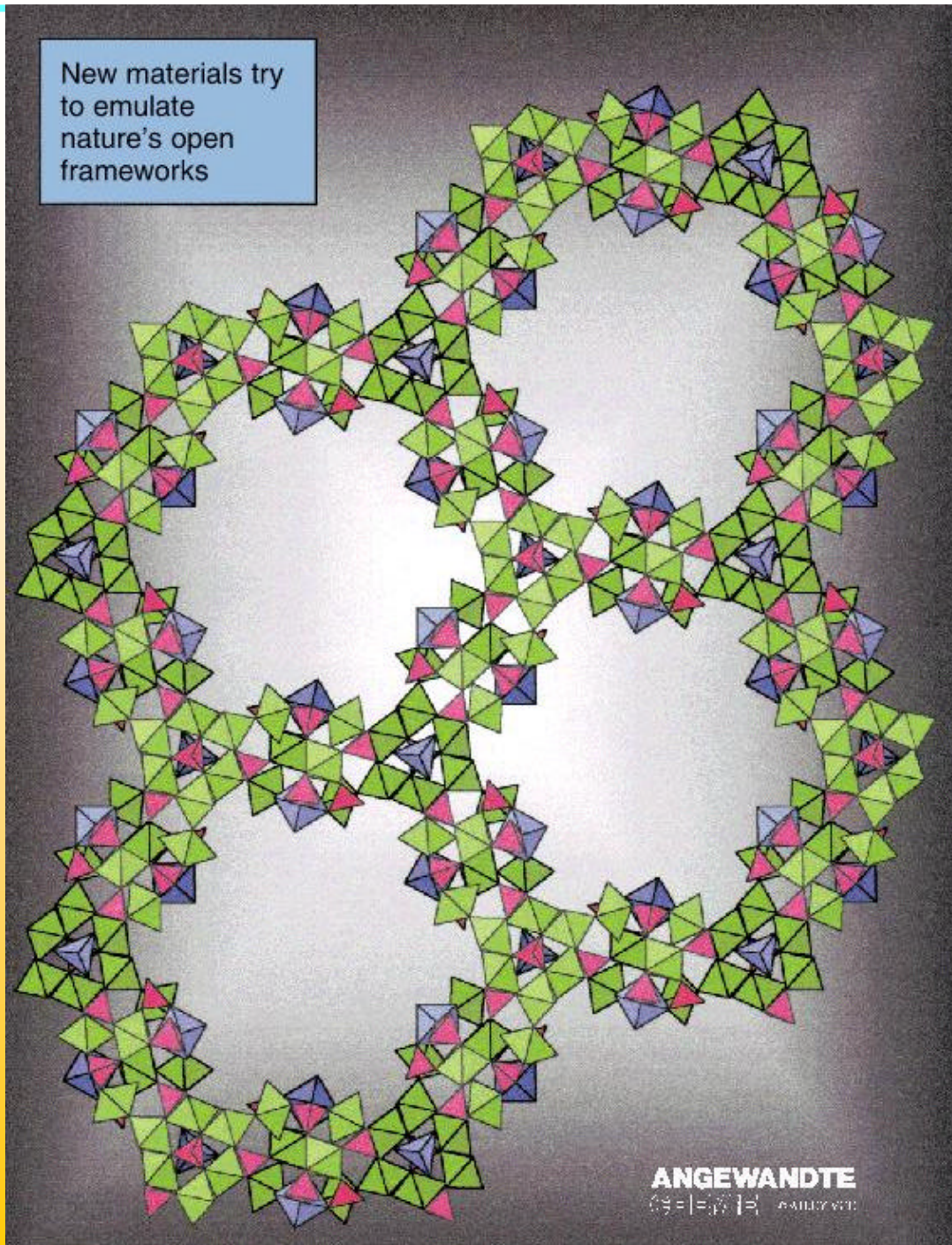
Anionen von Mono-Oxosäuren



Nicht vergessen : semipolare Bindung

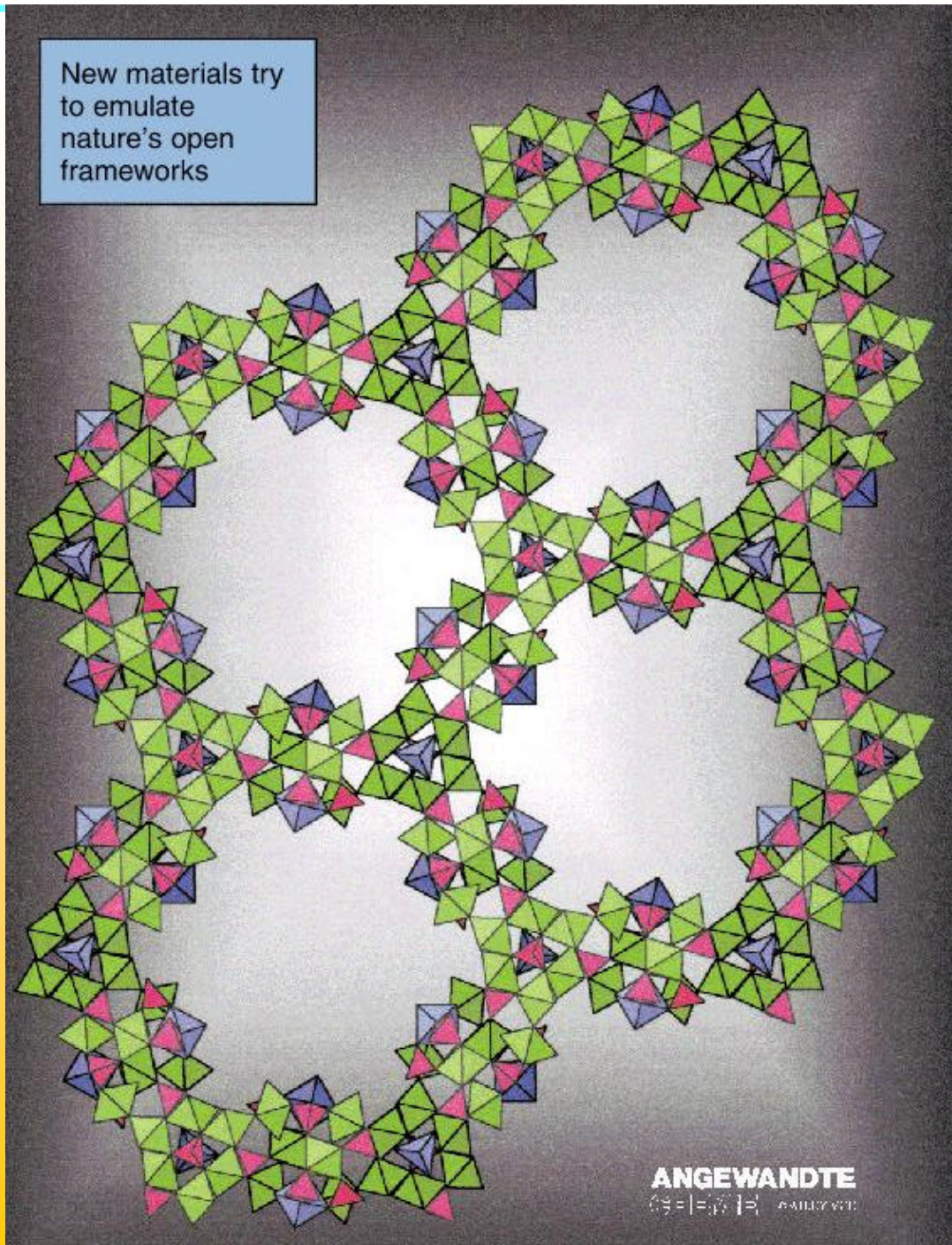


Wie kommt man
zu so etwas?

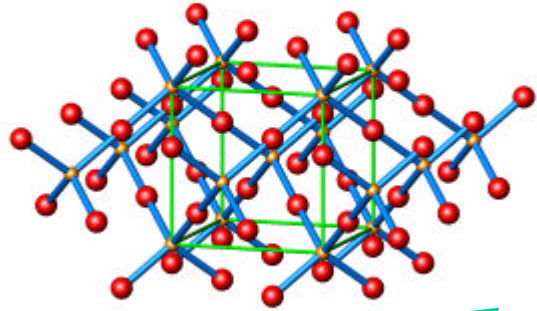


Wie kommt man
zu so etwas?

Was kann man
damit machen?



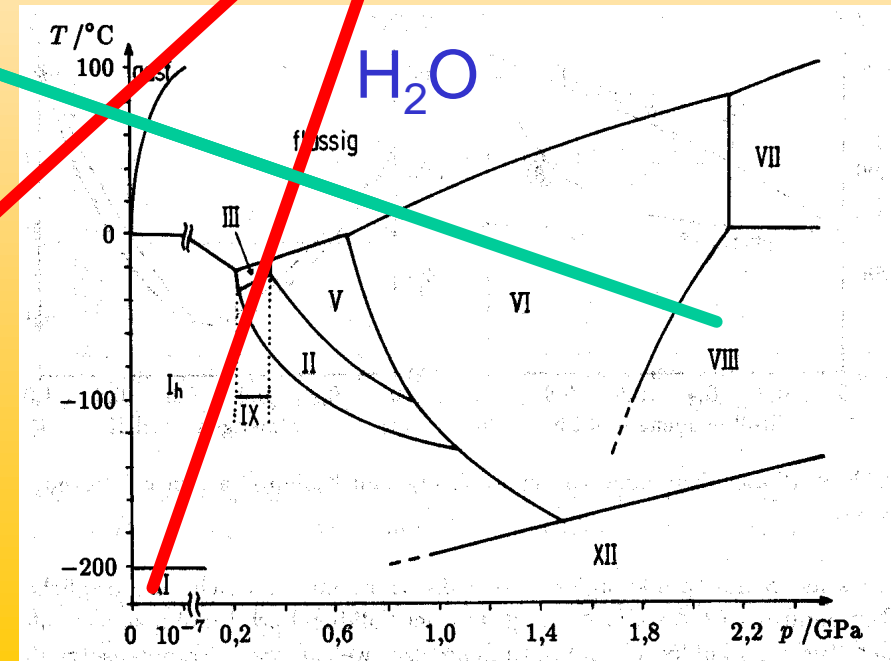
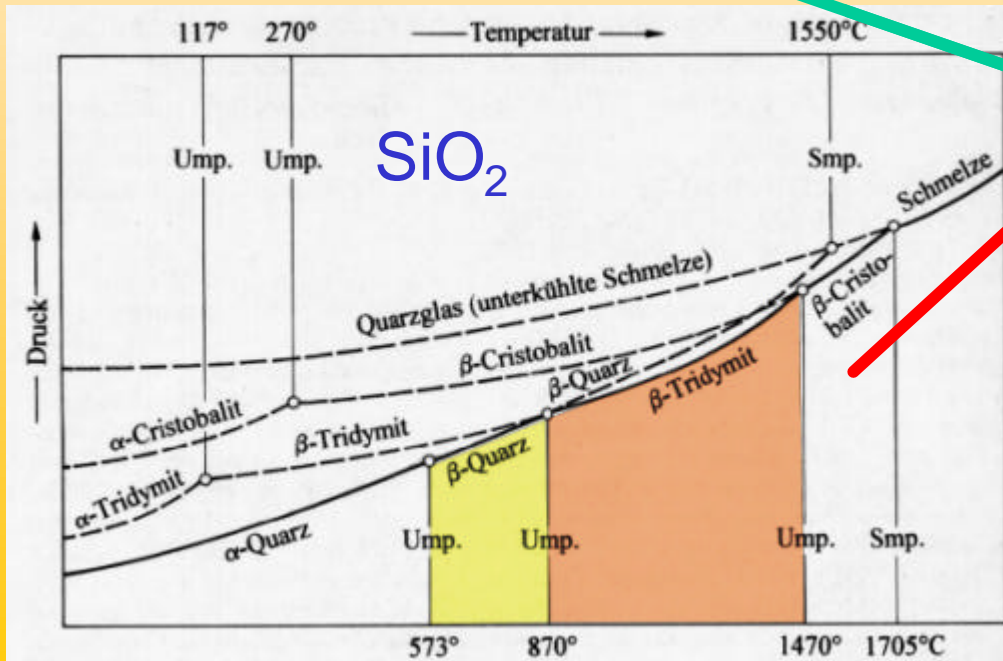
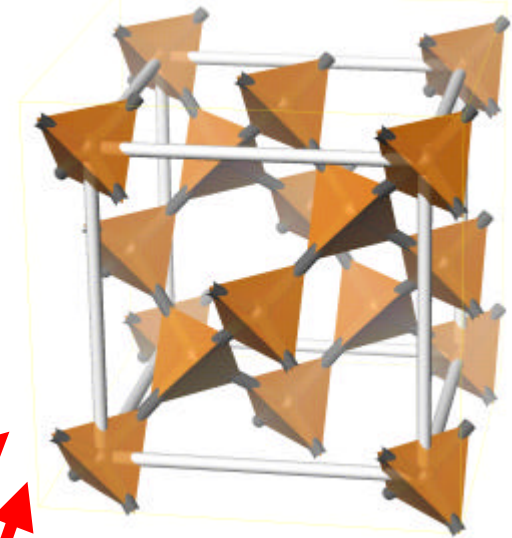
Tetraederpackungen sind topologische Katastrophen !



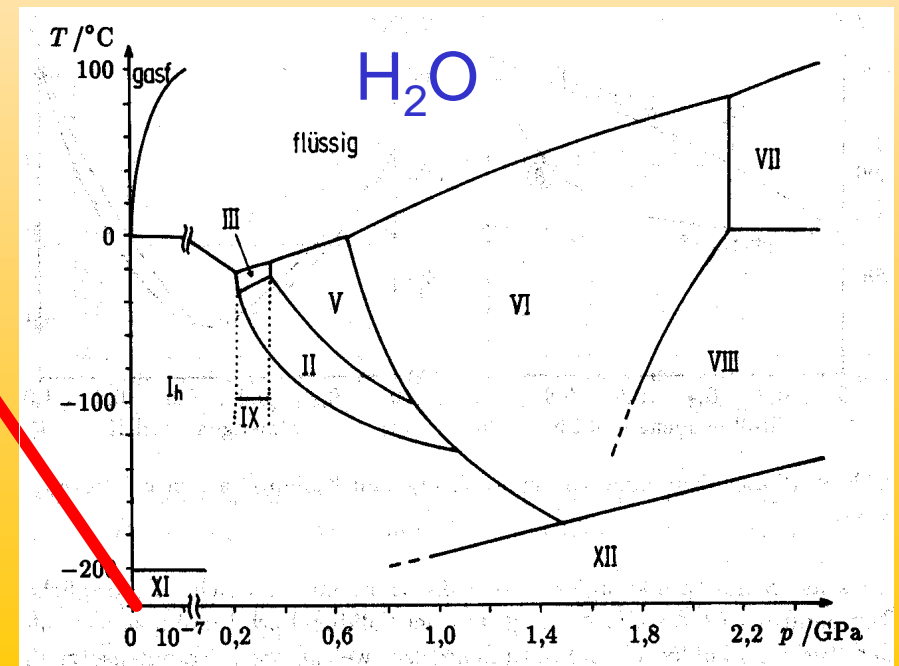
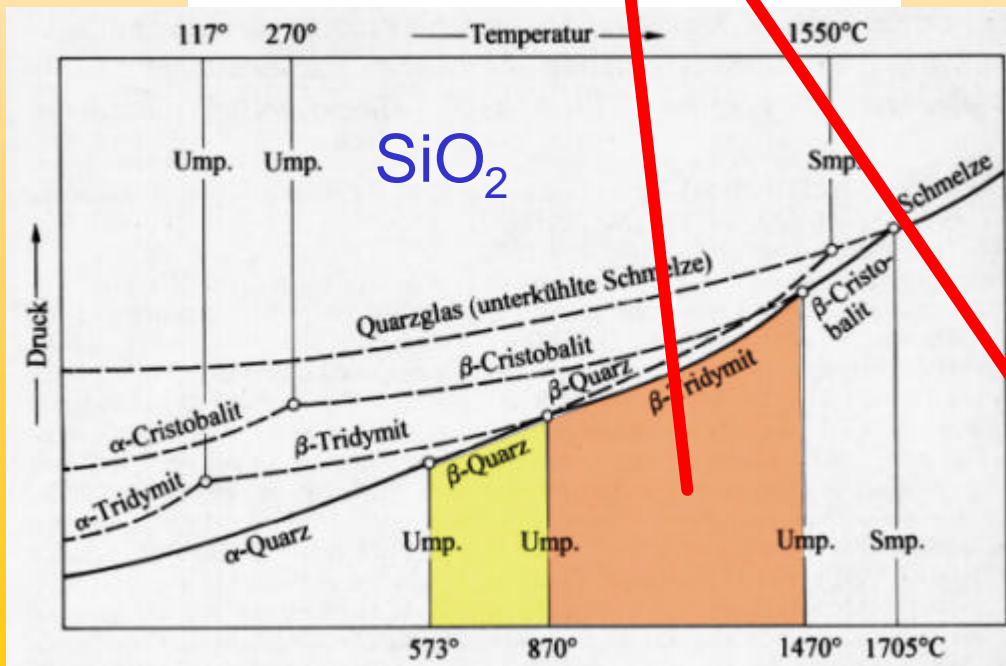
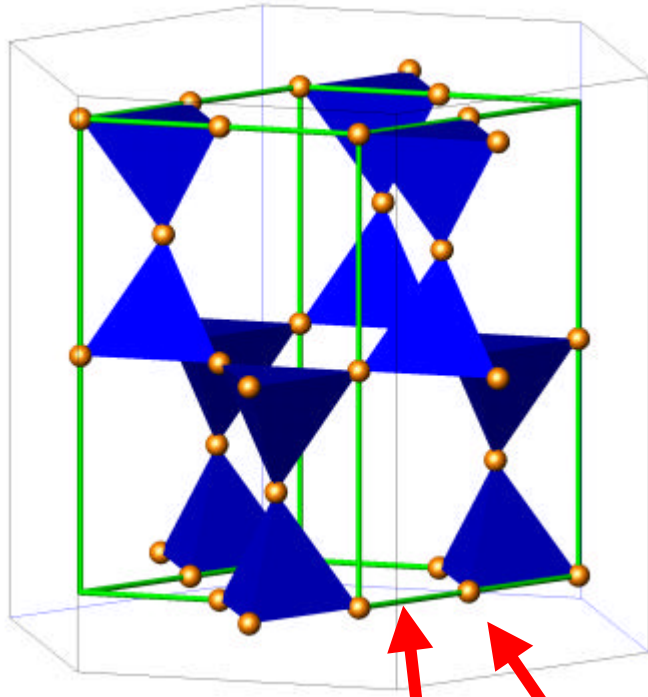
Kugelpackungsdichten

Diamant 34% !

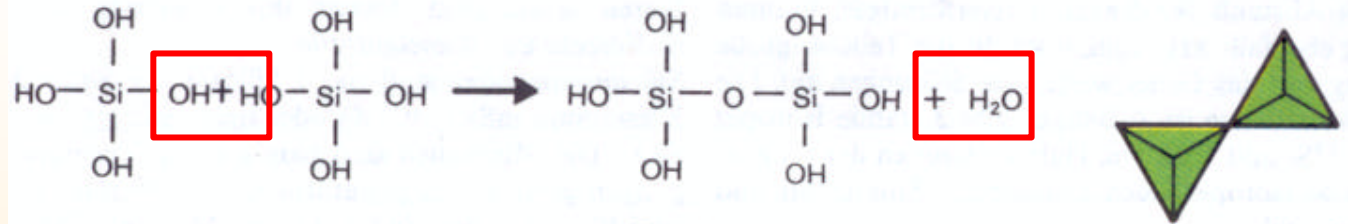
Cristobalit 13% !!



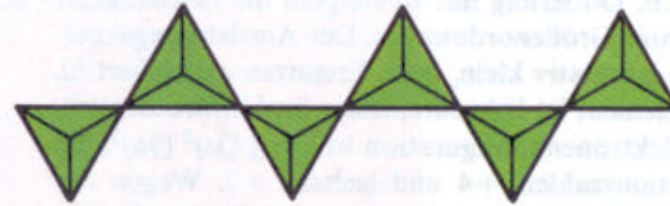
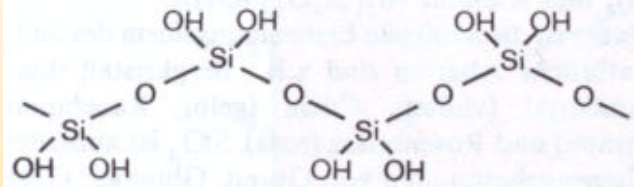
Allgemeine Chemie - Teil Anorganische Chemie II: Kieselsäuren u. Silicate



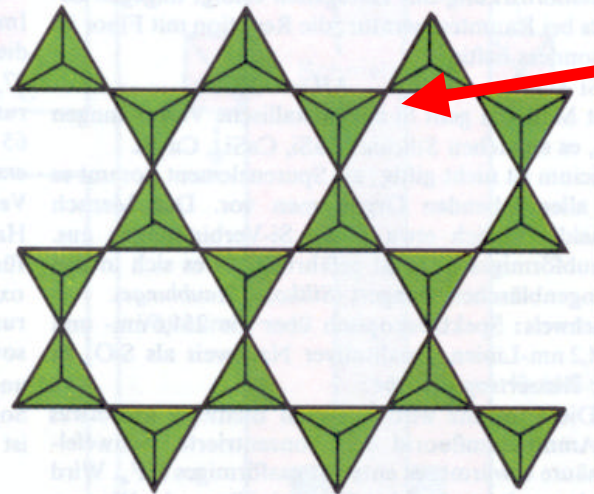
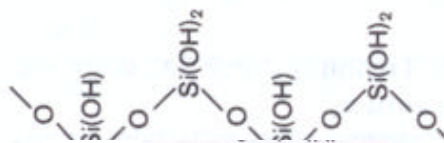
Kondensation



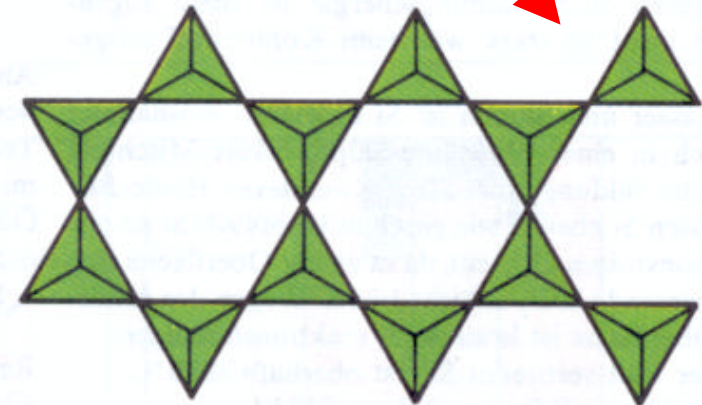
Kondensation zu Orthodikieselsäure $\text{H}_6\text{Si}_2\text{O}_7$



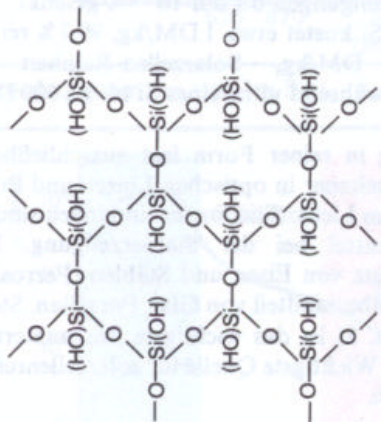
Kettenbildung: $(\text{H}_2\text{SiO}_3)_n \quad n \rightarrow \infty$



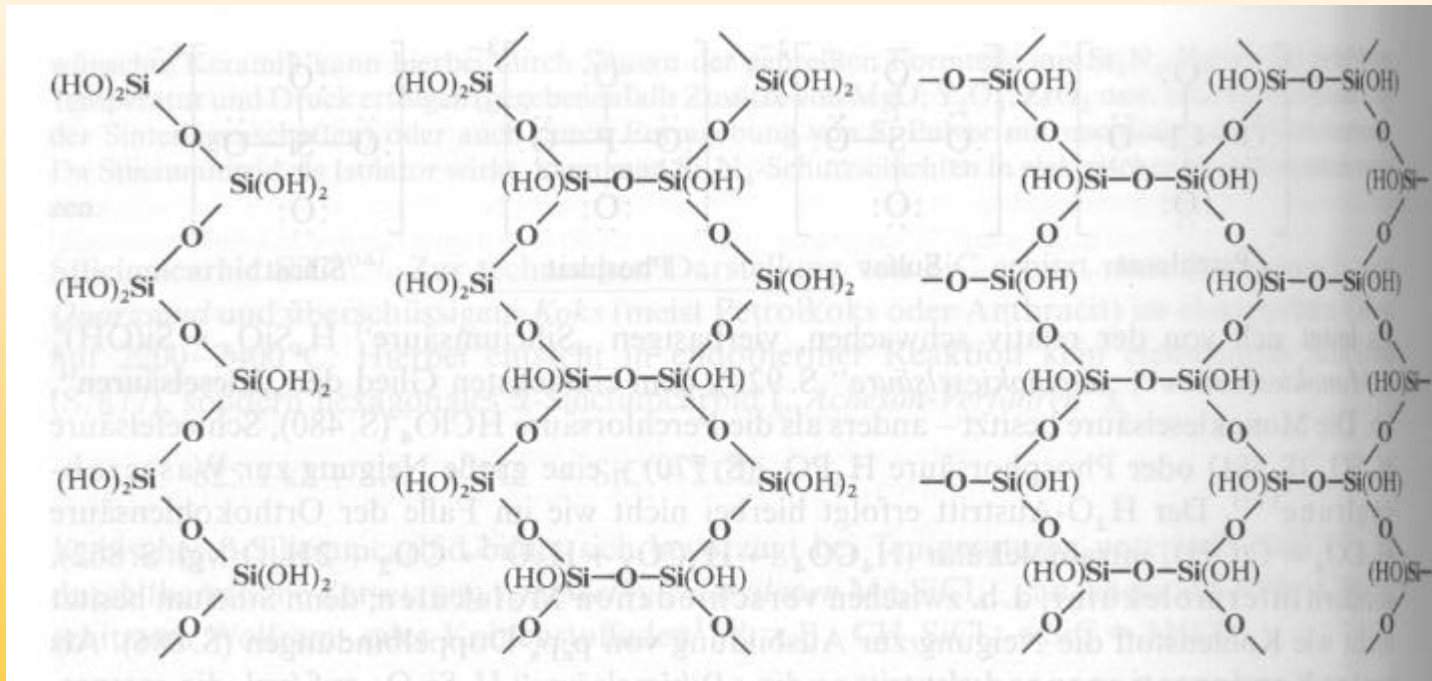
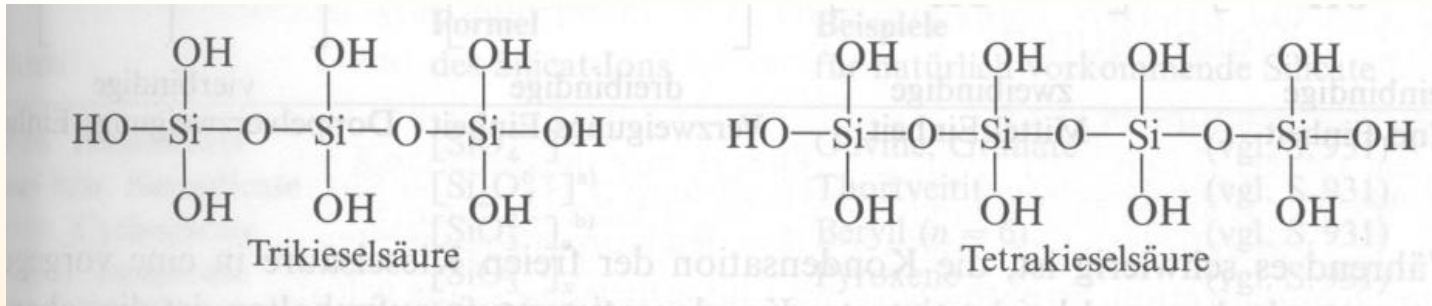
Kieselsäureblätter: $(\text{H}_2\text{Si}_2\text{O}_5)_n \quad n \rightarrow \infty$



Kieselsäurebänder: $(\text{H}_6\text{Si}_4\text{O}_{11})_n \quad n \rightarrow \infty$

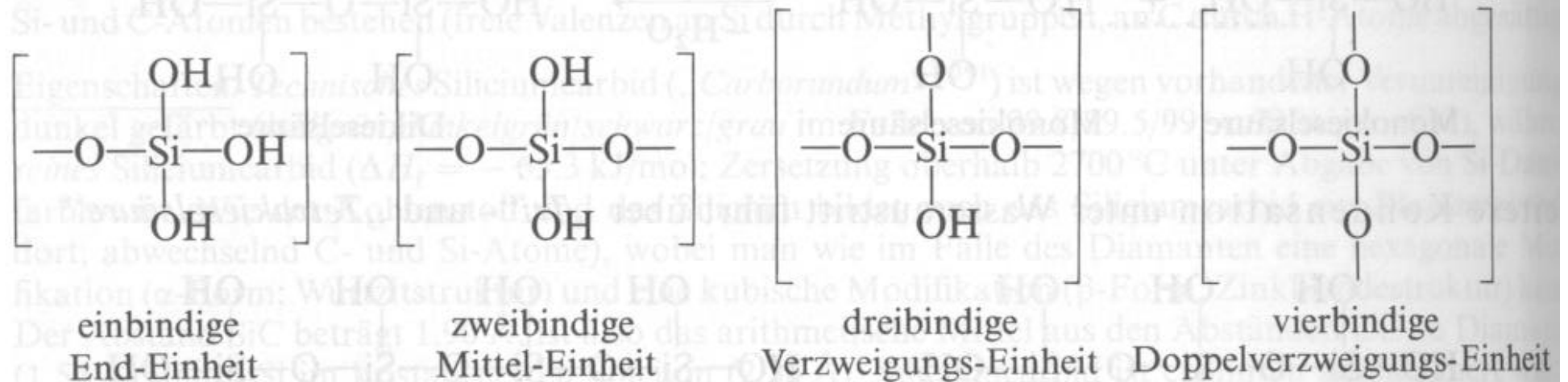
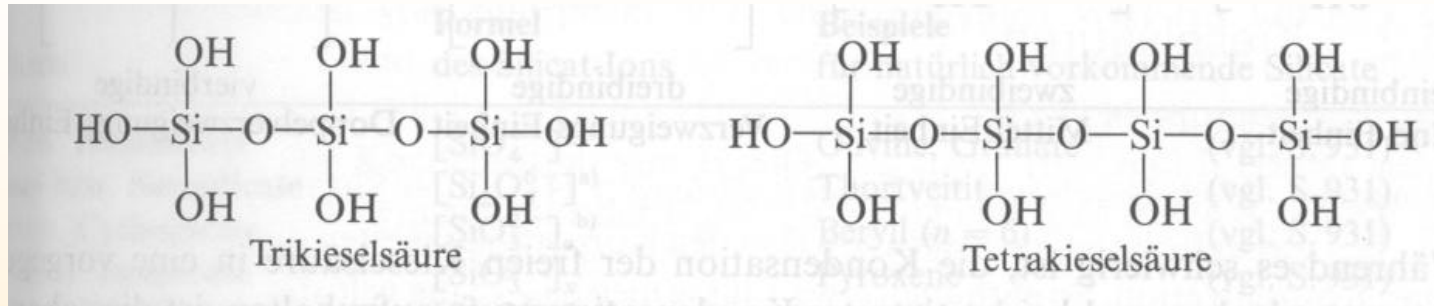


Allgemeine Chemie - Teil Anorganische Chemie II: Kieselsäuren u. Silicate



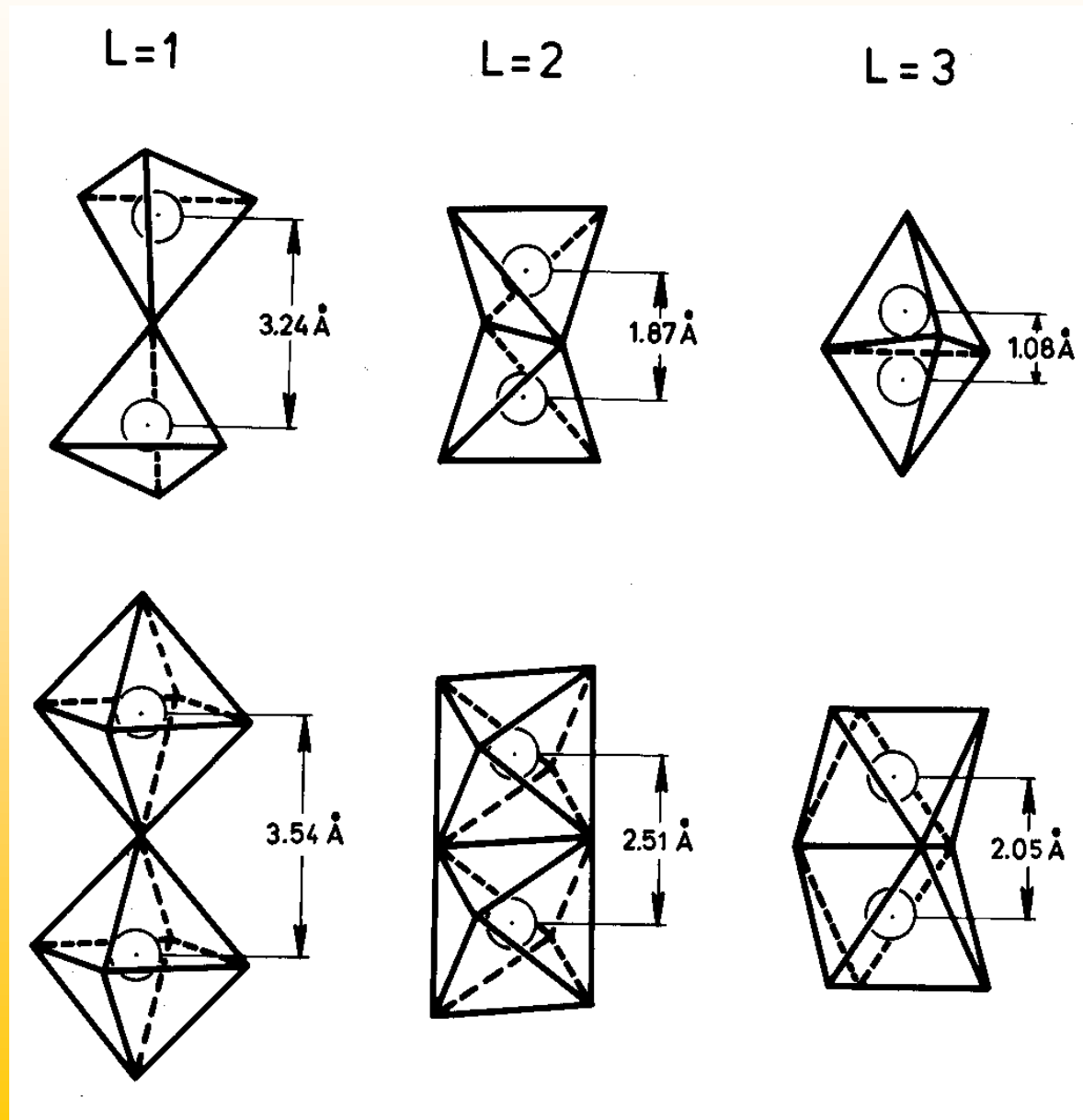
Typische Bausteine von Polymeren

Allgemeine Chemie - Teil Anorganische Chemie II: Kieselsäuren u. Silicate



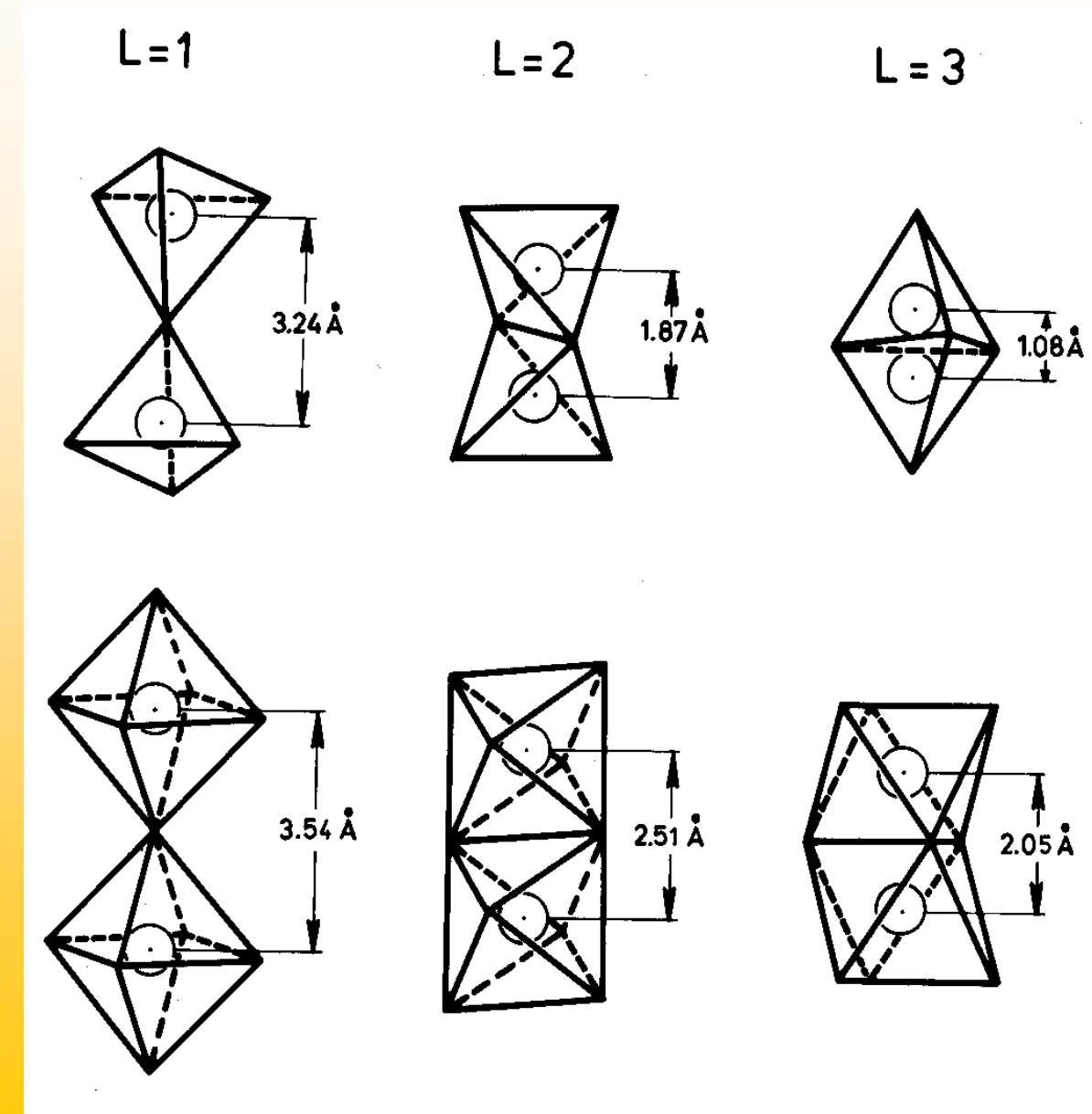
Typische Bausteine von Polymeren

Art der Verknüpfung



- Ecken-
 - Kanten-
 - Flächen-
- Verknüpfung

Art der Verknüpfung

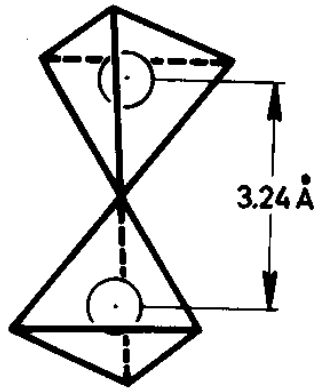


Abstände der
gleichgeladenen
(Kationen)-Zentren

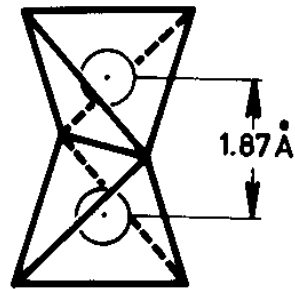
- Ecken-
 - Kanten-
 - Flächen-
- Verknüpfung

Art der Verknüpfung

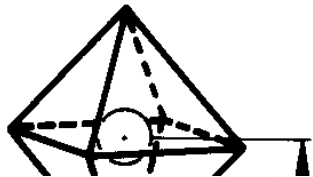
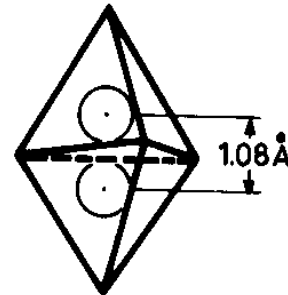
L=1



L=2

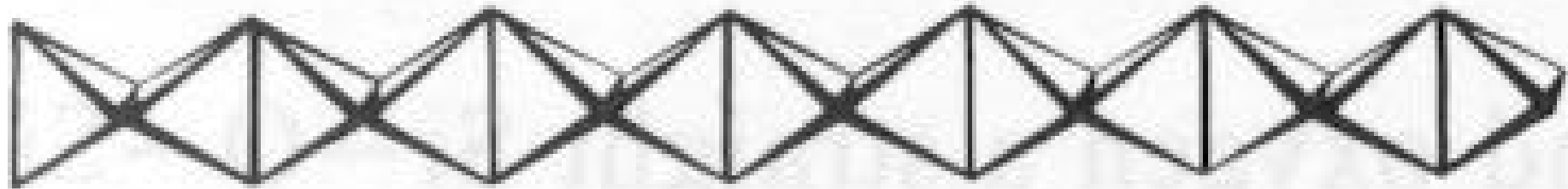


L=3



Abstände der
gleichgeladenen
(Kationen)-Zentren

- Ecken-
 - Kanten-
 - Flächen-
- Verknüpfung



Quarz



Orthoclas

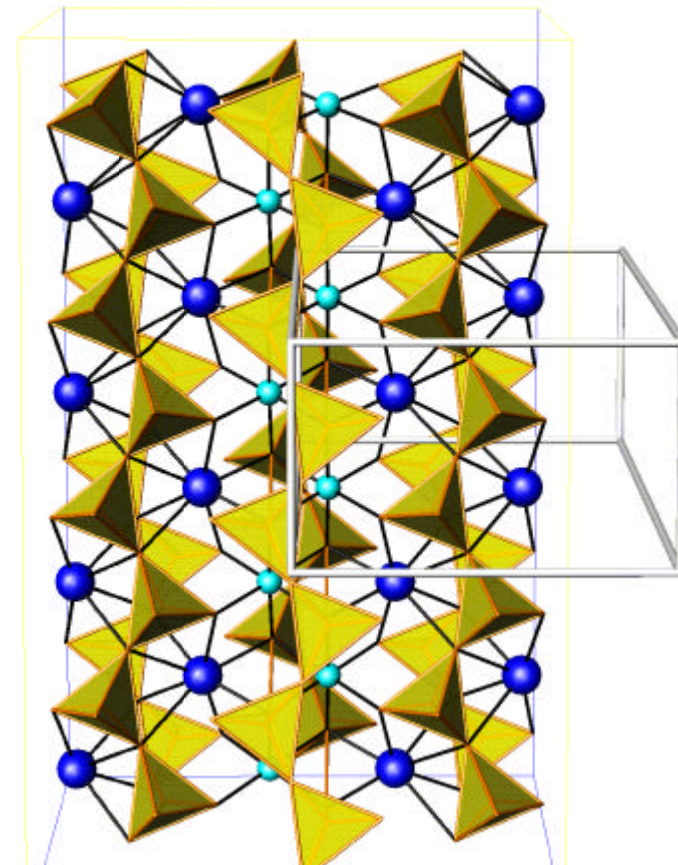


Aquamarin



Allgemeine Chemie - Teil Anorganisch

		Multiplicity		
		1	2	3
Dimensionality	0	Mono-silicates	Disilicates	Trisilicates
	0	Monocyclo-silicates	Dicyclo-silicates	Tricyclo-silicates
1	Poly-silicates	Monopoly-silicates	Dipoly-silicates	Tripoly-silicates
	2	Phyllo-silicates	Diphylo-silicates	Triphylo-silicates
3	Tecto-silicates	Tecto-silicates		

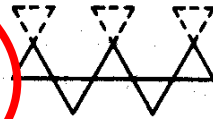




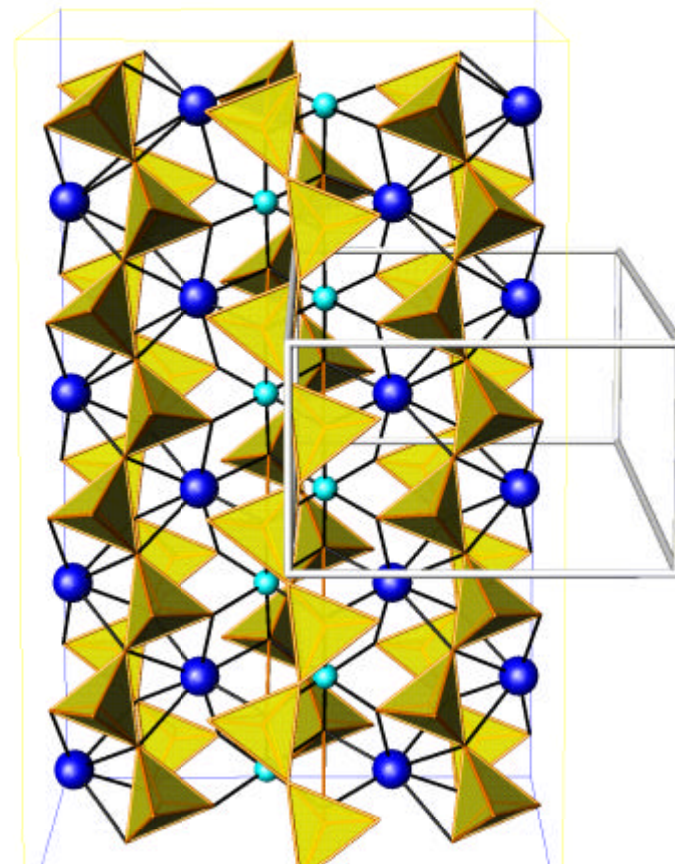
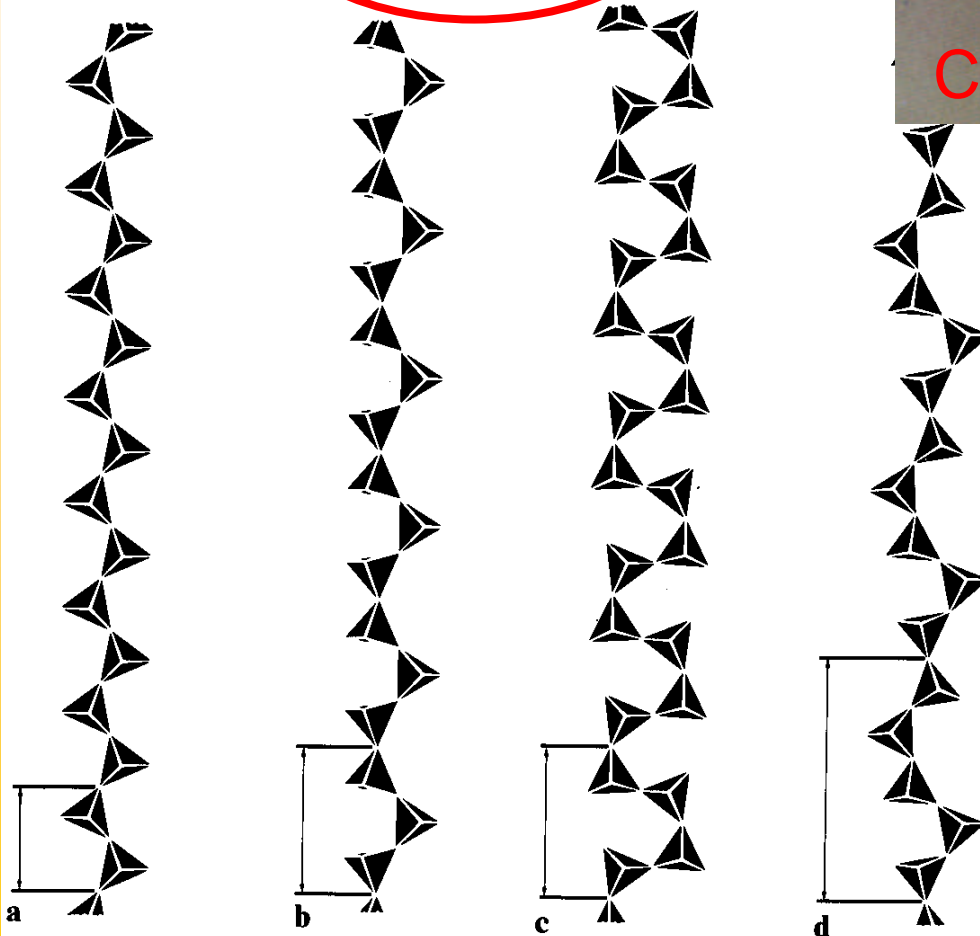
fundamental
anions



unbranched

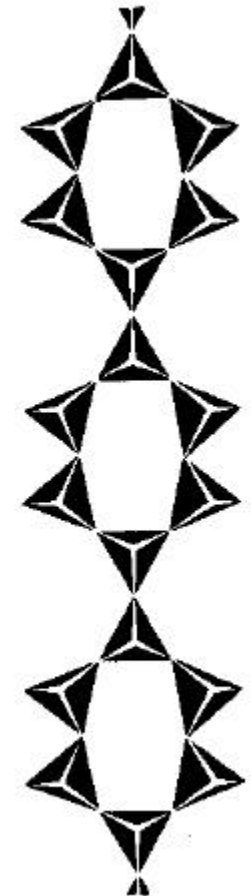
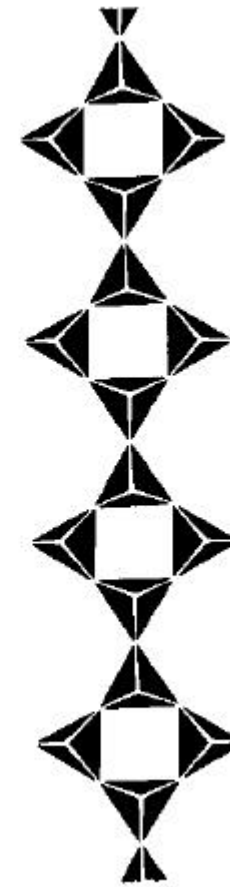
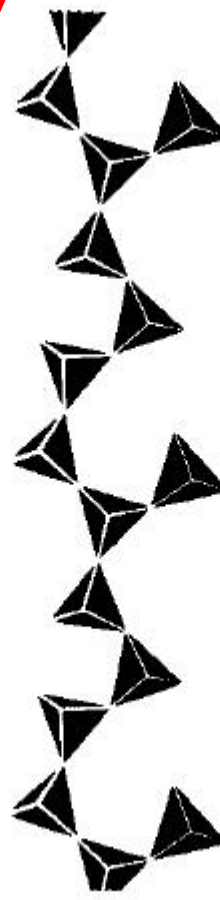
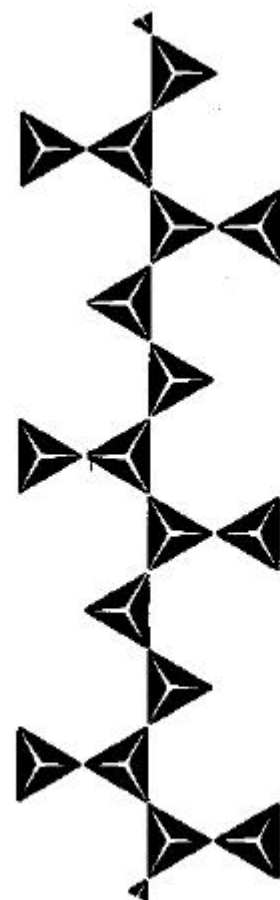
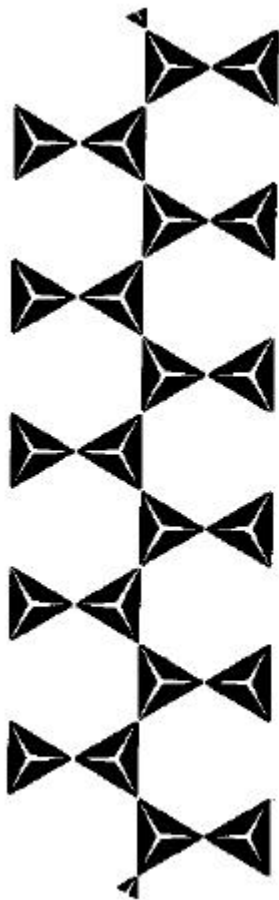
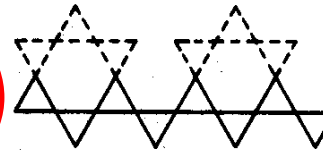
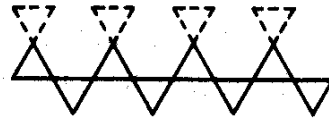


open-branched



Allgemeine Chemie - Teil Anorganische Chemie II: Kieselsäuren u. Silicate

fundamental
anions

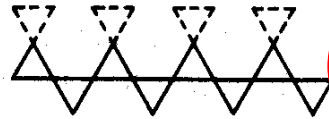


Allgemeine Chemie - Teil Anorganische Chemie II: Kieselsäuren u. Silicate

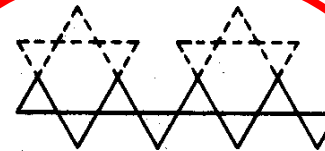
fundamental
anions



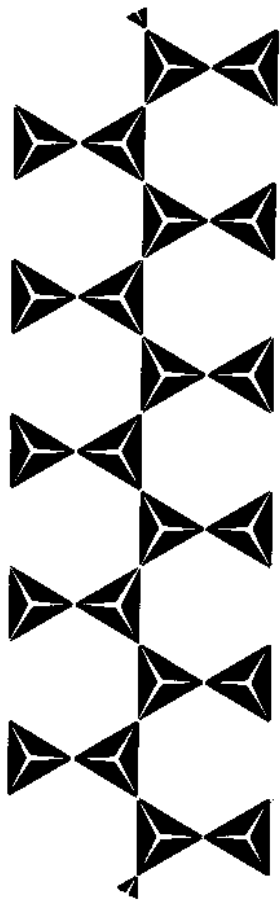
unbranched



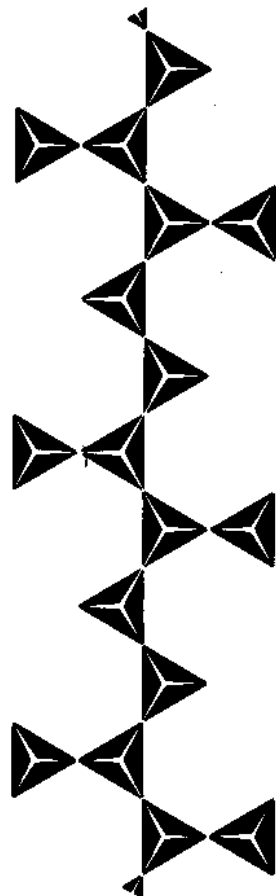
open - branched



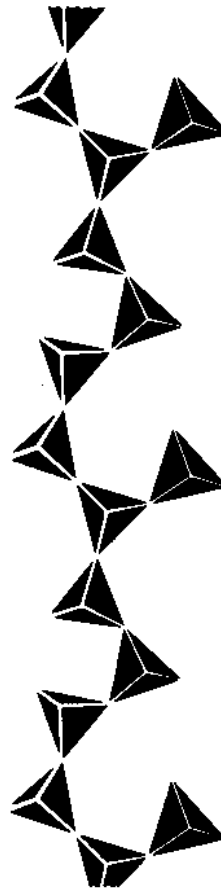
loop - branched



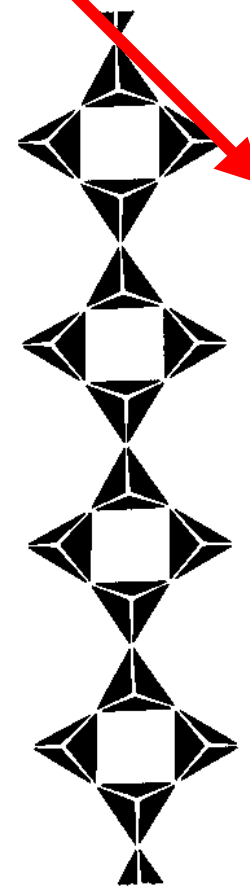
a



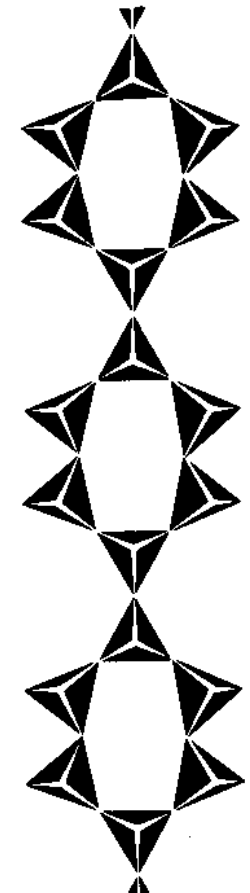
b



c



d



e

Quarz



Orthoclas

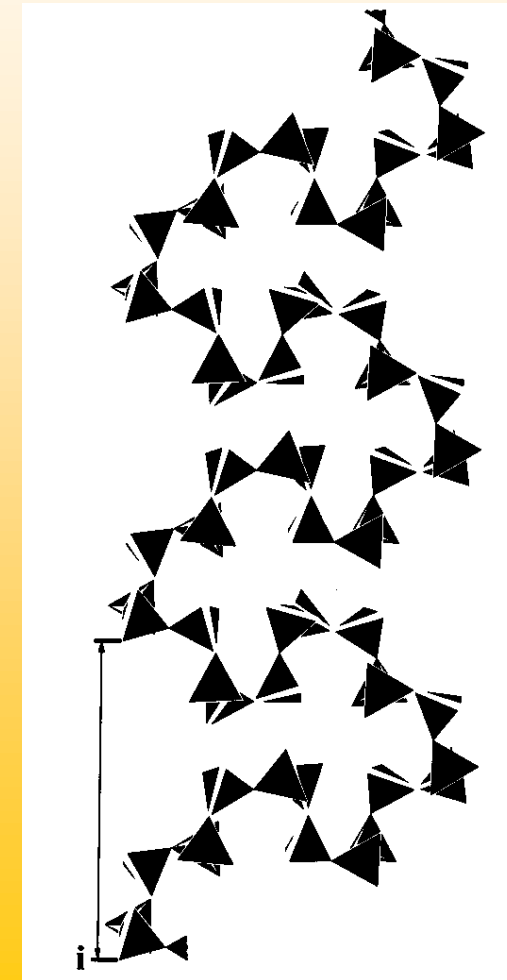


Aquamarin



Allgemeine Chemie - Teil Anorganische Chemie II: Kieselsäuren u. Silicate

Multiplicity Dimensionality		1	2	3	4	...
0	Oligo-silicates	Mono-silicates	Disilicates	Trisilicates	Tetra-silicates	...
0	Cyclo-silicates	Monocyclo-silicates	Dicyclo-silicates	Tricyclo-silicates	Tetracyclo-silicates	...
1	Poly-silicates	Monopoly-silicates	Dipoly-silicates	Tripoly-silicates	Tetrapoly-silicates	...
2	Phyllo-silicates	Monophyllo-silicates	Diphyllo-silicates	Triphyllo-silicates	Tetraphyllo-silicates	...
3	Tecto-silicates	Tecto-silicates				

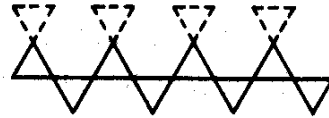


Allgemeine Chemie - Teil Anorganische Chemie II: Kieselsäuren u. Silicate

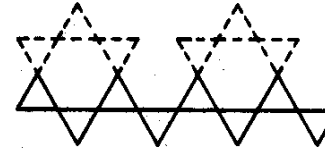
fundamental
anions



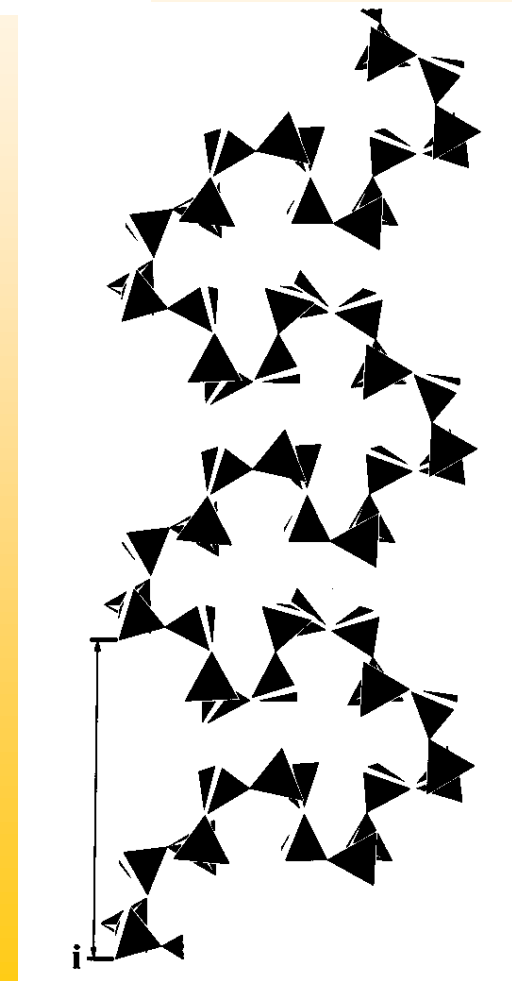
unbranched



open - branched



loop - branched

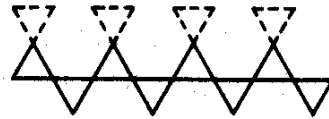


Allgemeine Chemie - Teil Anorganische Chemie II: Kieselsäuren u. Silicate

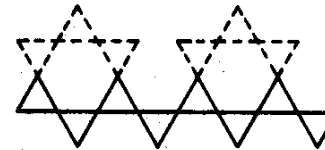
fundamental
anions



unbranched



open - branched



loop - branched

