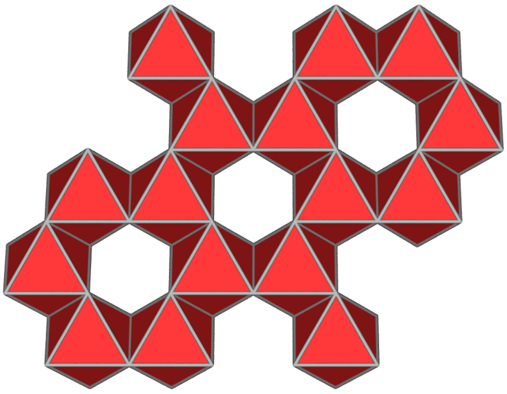
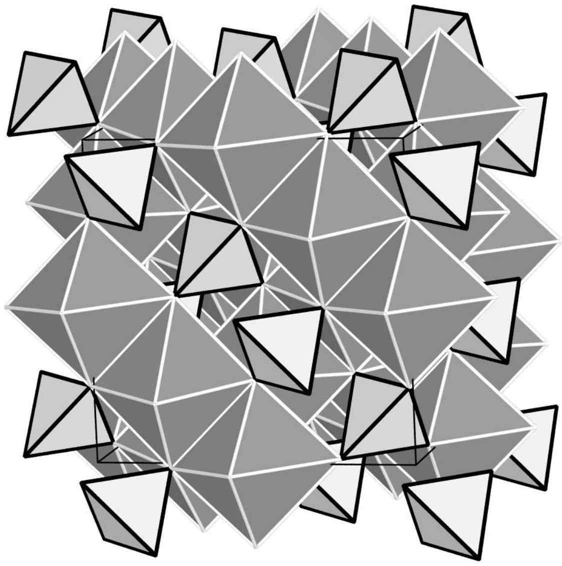
## 1. Übersicht

## 2. Struktur, elektronische Struktur und Farbigkeit



Korund (eine Schicht)



Spinell

## 3. Natürliche Fe-Oxide

## 4. Synthetische Fe-Oxide

| Farbe | Reaktion | | | Prozess |
|---|---|---|---|---|
| rot | $6FeSO_4 \cdot xH_2O + 1\frac{1}{2}O_2$ | $\longrightarrow$ | $Fe_2O_3 + 2Fe_2(SO_4)_3 + 6H_2O$ | Copperas |
| | $2Fe_2(SO_4)_3$ | $\longrightarrow$ | $2Fe_2O_3 + 6SO_3$ | |
| | $2Fe_3O_4 + \frac{1}{2}O_2$ | $\longrightarrow$ | $3Fe_2O_3$ | Calcinierung |
| | $2FeO(OH)$ | $\longrightarrow$ | $Fe_2O_3 + H_2O$ | Calcinierung |
| | $2FeCl_2 + 2H_2O + \frac{1}{2}O_2$ | $\longrightarrow$ | $Fe_2O_3 + 4HCl$ | Ruthner |
| | $2FeSO_4 + \frac{1}{2}O_2 + 4NaOH$ | $\longrightarrow$ | $Fe_2O_3 + 2Na_2SO_4 + 2H_2O$ | |
| gelb | $2FeSO_4 + 4NaOH + \frac{1}{2}O_2$ | $\longrightarrow$ | $2\ \alpha\text{-}FeO(OH) + 2Na_2SO_4 + H_2O$ | |
| | $2Fe + 2H_2SO_4$ | $\longrightarrow$ | $2FeSO_4 + 2H_2$ | |
| | $2FeSO_4 + \frac{1}{2}O_2 + 3H_2O$ | $\longrightarrow$ | $2\ \alpha\text{-}FeO(OH) + 2H_2SO_4$ | |
| | $2Fe + \frac{1}{2}O_2 + 3H_2O$ | $\longrightarrow$ | $2\ \alpha\text{-}FeO(OH) + 2H_2$ | Penniman |
| | $2Fe + C_6H_5NO_2 + 2H_2O$ | $\longrightarrow$ | $2\ \alpha\text{-}FeO(OH) + C_6H_5NH_2$ | Laux |
| orange | $2FeSO_4 + 4NaOH + \frac{1}{2}O_2$ | $\longrightarrow$ | $2\ \gamma\text{-}FeO(OH) + 2Na_2SO_4 + H_2O$ | |
| schwarz | $3FeSO_4 + 6NaOH + \frac{1}{2}O_2$ | $\longrightarrow$ | $Fe_3O_4 + 3Na_2SO_4 + 3H_2O$ | |
| | $2FeO(OH) + FeSO_4 + 2NaOH$ | $\longrightarrow$ | $Fe_3O_4 + Na_2SO_4 + 2H_2O$ | |
| | $9Fe + 4C_6H_5NO_2 + 4H_2O$ | $\longrightarrow$ | $3Fe_3O_4 + 4C_6H_5NH_2$ | |
| | $3Fe_2O_3 + H_2$ | $\longrightarrow$ | $2Fe_3O_4 + H_2O$ | |
| braun | $2Fe_3O_4 + \frac{1}{2}O_2$ | $\longrightarrow$ | $3\ \gamma\text{-}Fe_2O_3$ | Calcinierung |
| | $3Fe_3O_4 + Fe_2O_3 + MnO_2 + \frac{1}{2}O_2$ | $\longrightarrow$ | $(Fe_{11}, Mn)O_{18}$ | Calcinierung |