

## Mineral

### ALUMINIUM

Bauxite  
( $\text{Al}_2\text{O}_3 \cdot x\text{H}_2\text{O}$ )

Orthoclase feldspar  
( $\text{K}_2\text{O} \cdot \text{Al}_2\text{O}_3 \cdot 6\text{SiO}_2 \cdot 2\text{H}_2\text{O}$ )

Muscovite (mica)  
( $\text{K}_2\text{O} \cdot 3\text{Al}_2\text{O}_3 \cdot 6\text{SiO}_2 \cdot 2\text{H}_2\text{O}$ )

Kaolinite  
( $\text{Al}_2\text{O}_3 \cdot 2\text{SiO}_2 \cdot 2\text{H}_2\text{O}$ )

Leucite  
( $\text{K}_2\text{O} \cdot \text{Al}_2\text{O}_3 \cdot 4\text{SiO}_2$ )

# BAUXITE



Download App - Metallurgy Education

# CORUNDUM

Cyanite  
( $\text{Al}_2\text{O}_3 \cdot \text{SiO}_2$ )

Sillimanite  
( $\text{Al}_2\text{O}_3 \cdot \text{SiO}_2$ )

Corundum  
( $\text{Al}_2\text{O}_3$ )

Cryolite  
( $\text{Na}_3\text{AlF}_6$ )

Aluminite  
( $\text{Al}_2\text{O}_3 \cdot \text{SO}_3 \cdot 9\text{H}_2\text{O}$ )



Download App - Metallurgy Education

# CHROMIUM

Chromite  
( $\text{FeO} \cdot \text{Cr}_2\text{O}_3$ )



Download App - Metallurgy Education

## COPPER

### *Sulphides*

- Bornite  
( $\text{FeS} \cdot 2\text{Cu}_2\text{S} \cdot \text{CuS}$ )
- Chalcocite  
( $\text{Cu}_2\text{S}$ )
- Chalcopyrite  
( $\text{CuFeS}_2$ )
- Covellite  
( $\text{CuS}$ )
- Enargite  
( $3\text{Cu}_2\text{S} \cdot \text{As}_2\text{S}_5$ )

## CHALCOPYRITE



© geology.com

**LEAD**

**Galena**  
**(PbS)**

**Cerrusite**  
**(PbCO<sub>3</sub>)**

**Anglesite**  
**(PbSO<sub>4</sub>)**

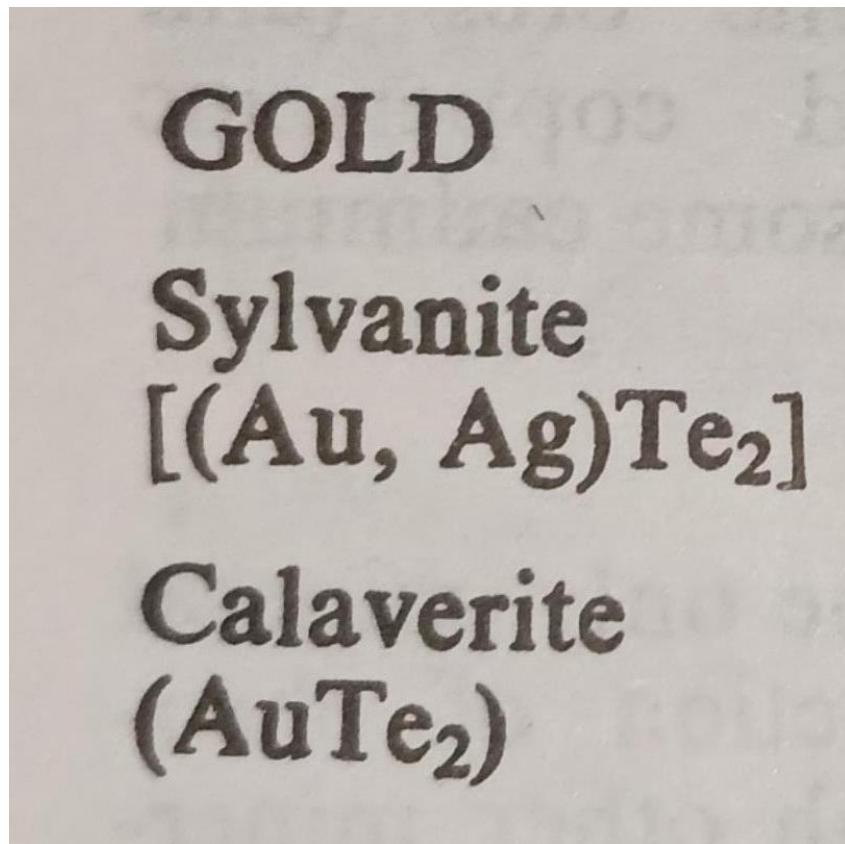
**GALENA**



© geology.com

Download App - Metallurgy Education

# SALVANITE



Download App - Metallurgy Education

# MOLYBDENITE

MOLYBDENUM

Molybdenite  
( $\text{MoS}_2$ )

Powellite  
[ $\text{Ca}(\text{Mo, W})\text{O}_4$ ]

Wulfenite  
( $\text{PbMoO}_4$ )



Download App - Metallurgy Education

**NICKEL**

**Garnierite**  
 $[(\text{Ni, Mg})\text{SiO}_3 \cdot x\text{H}_2\text{O}]$

**Nicolite**  
 $(\text{NiAs})$

**Pentlandite**  
 $(\text{Fe, Ni})_9\text{S}_8$

**GARNIERITE**



Download App - Metallurgy Education

# CASSITERITE

TIN

Cassiterite  
(SnO<sub>2</sub>)

Stannite  
(Cu<sub>2</sub>S·FeS·SnS<sub>2</sub>)

Franckeit  
(5PbS·2SnS<sub>2</sub>·Sb<sub>2</sub>S<sub>3</sub>)



Download App - Metallurgy Education

# ILMENITE

TITANIUM

Ilmenite

$[\text{FeTiO}_3]$

(with Mg sometimes replacing Fe)

Rutile

$(\text{TiO}_2)$

Senaite

$[(\text{Fe} \cdot \text{Mn} \cdot \text{Pb})\text{O} \cdot \text{TiO}_2]$



Download App - Metallurgy Education

## TUNGSTEN

Wolframite  
[(Fe, Mn)WO<sub>4</sub>]

Ferberite  
(FeWO<sub>4</sub>)

Hubernite  
(MnWO<sub>4</sub>)

Scheelite  
(CaWO<sub>4</sub>)

Carbides

## WOLFRAMITE



Download App - Metallurgy Education

# SPHALERITE

ZINC

Sphalerite  
(ZnS)

Zincite  
(ZnO)



Download App - Metallurgy Education

# PATRONITE

VANADIUM

Patronite  
( $\text{V}_2\text{S}_5$ ,  $x\text{S}$ )

Sulvanite  
( $3\text{Cu}_2\text{S}\cdot\text{V}_2\text{S}_5$ )



R070737

1 cm

Download App - Metallurgy Education

# PITCHBLENDE

## URANIUM

Pitchblende  
( $U_3O_8$ )

Uraninite  
( $UO_2$ ,  $UO_3$ )

Carnotite  
( $K_2O \cdot 2UO_3 \cdot V_2O_5 \cdot xH_2O$ )



Download App - Metallurgy Education

# ZIRCON

ZIRCONIUM

Zircon  
( $\text{ZrSiO}_4$ )

Baddeleyite  
( $\text{ZrO}_2$ )



Download App - Metallurgy Education