

CHAPTER 7
INFORMATION
HANDOUT

Mineral Identification Chart

BLM 7-5

| Mineral and Formula | Colour(s) | Streak | Hardness | Breakage Pattern | Uses and other properties |
|--|---|-------------------|----------|--|--|
| apatite ($\text{Ca}_5(\text{F}(\text{PO}_4)_3)$) | green, blue, brown | greenish grey | 5 | poor cleavage | • fertilizer, jewellery |
| augite ((Ca, Na) Mg, Fe, Al) (Al, Si) ₂ O ₆) | black | colourless | 6 | cleavage in two directions | • has square or eight-sided cross section |
| bauxite (mixture of minerals) | grey, brown, beige, etc. | varies | 1–3 | fracture | • ore of aluminum |
| biotite (K(Mg, Fe) ₃ (AlSi ₃ O ₁₀) (OH) ₂) | black to dark brown | colourless | 2.5–3 | basal cleavage | • occurs in large flexible plates |
| calcite (CaCO_3) | colourless, white, pale blue | colourless, white | 3 | cleavage in three directions | • fizzes when HCl is added • used in cements and other building materials |
| corundum (Al_2O_3) | varies: grey, brown, etc. | colourless | 9 | poor cleavage | • used as sandpaper, sharpener |
| dolomite ($\text{CaMg}(\text{CO}_3)_2$) | colourless, pink green, grey black, white | white | 3.5–4 | cleavage in three directions | • used in concrete and cement • used as an ornamental building stone |
| feldspar (KAlSi_3O_8) ($\text{NaAlSi}_3\text{O}_8$) ($\text{CaAl}_2\text{Si}_2\text{O}_8$) | colourless, white to grey, green | colourless | 6 | two cleavage planes meeting at $\sim 90^\circ$ angle | • used in the manufacture of ceramics |
| fluorite (CaF_2) | colourless, blue green, red yellow, purple, white | colourless | 4 | cleavage in four directions | • used in the manufacture of optical equipment • glows under ultraviolet light |
| galena (PbS) | grey | grey to black | 2.5 | perfect cubic cleavage | • source of lead • used in pipes, shields for X-rays |
| graphite (C) | black to grey | black to grey | 1–1.5 | basal cleavage (scales) | • used as pencil lead, lubricants for locks, rods to control some small nuclear reactions, and battery poles |
| gypsum ($\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$) | colourless, white brown, grey | white | 2 | basal cleavage | • used in plaster of Paris and construction |

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(continued)

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|---|---|---------------------|----------|----------------------------|--|
| halite (NaCl) | colourless, red, white, blue | colourless | 2.5 | cubic cleavage | <ul style="list-style-type: none"> a salt soluble in water used as a preservative |
| hematite (Fe ₂ O ₃) | black, reddish brown | reddish brown | 5.5–6.5 | irregular fracture | <ul style="list-style-type: none"> source of iron converted to “pig” iron and made into steel |
| hornblende ((CaNa) ₂₋₃ (Mg,Al,Fe) ₅ (Al,Si) ₂ Si ₆ O ₂₂ (OH) ₂) | green to black | grey to white | 5–6 | cleavage in two directions | <ul style="list-style-type: none"> will transmit light on thin edges has six-sided cross section |
| magnetite (Fe ₃ O ₄) | black | black | 6 | conchoidal fracture | <ul style="list-style-type: none"> source of iron naturally magnetic called lodestone |
| muscovite (KAl ₃ Si ₃ O ₁₀ (OH) ₂) | white, light grey, yellow, rose, green | colourless | 2–2.5 | basal cleavage | <ul style="list-style-type: none"> occurs in large flexible plates used as an insulator in electrical equipment and as a lubricant |
| olivine ((Mg,Fe) ₂ SiO ₄) | olive, green | none | 6.5–7 | conchoidal fracture | <ul style="list-style-type: none"> used as gemstones and refractory sand |
| pyrite (FeS ₂) | light, brassy yellow | greenish black | 6–6.5 | uneven fracture | <ul style="list-style-type: none"> source of iron called “fool’s gold” |
| quartz (SiO ₂) | colourless, various colours | none | 7 | conchoidal fracture | <ul style="list-style-type: none"> used as gemstones and in glass manufacture, electronic equipment, radios, computers, and watches |
| sphalerite (ZnS) | brown, reddish brown, greenish | light to dark brown | 3.5–4 | cleavage in six directions | <ul style="list-style-type: none"> main ore of zinc used in paint, dyes, and medicine |
| sulphur (S) | yellow | white to yellow | 1.5–2.5 | indistinct cleavage | <ul style="list-style-type: none"> granular and earthy used in matches and sulphuric acid |
| talc (Mg ₃ Si ₄ O ₁₀ (OH) ₂) | white, greenish | white | 1 | cleavage in one direction | <ul style="list-style-type: none"> used for talcum powder, sculptures, paper, and table tops |
| topaz (complex silicate) | varies | colourless | 8 | one direction of cleavage | <ul style="list-style-type: none"> used as a gemstone |