Minerals are naturally occurring substances with distinct chemical compositions and crystalline structures. Here are some major minerals and their characteristics:

1. **Quartz:**
   - **Composition:** Silicon dioxide (SiO_2).
   - **Characteristics:** Quartz is one of the most abundant minerals. It appears in various colors and crystal forms, including clear, milky white, pink, and purple. It has a hardness of 7 on the Mohs scale, making it relatively durable. Quartz is used in jewelry, electronics, and construction.
2. **Feldspar:**
   - **Composition:** Group of minerals comprising aluminum, silicon, and oxygen.
   - **Characteristics:** Feldspar is commonly found in granite rocks and has varieties like orthoclase, plagioclase, and microcline. It has a hardness of 6-6.5 and occurs in colors such as white, pink, and gray. Feldspar is used in ceramics and glass production.
3. **Calcite:**
   - **Composition:** Calcium carbonate ($CaCO_3$).
   - **Characteristics:** Calcite is found in sedimentary and metamorphic rocks. It has a hardness of 3 on the Mohs scale and displays a rhombohedral cleavage. It often forms in clear or white crystals and is a primary constituent of limestone and marble.
4. **Mica:**
   - **Composition:** Silicate minerals with varying elements like potassium, aluminum, magnesium, and iron.
   - **Characteristics:** Mica occurs in thin, sheet-like layers and has perfect basal cleavage, allowing it to split easily into thin, flexible sheets. It is heat-resistant, electrically insulating, and occurs in various colors. Muscovite and biotite are common types of mica.
5. **Hematite:**
   - **Composition:** Iron oxide (Fe_2O_3).
   - **Characteristics:** Hematite has a metallic luster and occurs in colors ranging from silver-gray to reddish-brown. It has a hardness of 5.5-6.5 and leaves a reddish-brown streak. Hematite is an important ore of iron and is used in jewelry and pigments.
6. **Gypsum:**
   - **Composition:** Hydrous calcium sulfate ($CaSO_4 \cdot 2H_2O$).
   - **Characteristics:** Gypsum is a soft mineral (hardness of 2 on the Mohs scale) that occurs in clear, colorless, or white crystals. It is commonly used in plasterboard, cement, and fertilizer production.
7. **Talc:**
   - **Composition:** Hydrated magnesium silicate ($Mg_3Si_4O_{10}(OH)_2$).
   - **Characteristics:** Talc is one of the softest minerals, with a hardness of 1 on the Mohs scale. It has a greasy or soapy feel and occurs in various shades of white, green, or gray. Talc is used in cosmetics, paper, and plastics.
8. **Bauxite:**
   - **Composition:** Aluminum oxide hydroxide ($Al_2O_3 \cdot nH_2O$).

- **Characteristics:** Bauxite is an ore of aluminum and occurs in earthy masses or as reddish-brown, pisolitic nodules. It is the primary source of aluminum and is extensively used in the production of aluminum metal.

These minerals exhibit diverse physical properties, uses, and occurrences, contributing significantly to various industries, construction, technology, and everyday products.

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