

BASALT

Description: a fine-grained, igneous rock that is usually black or gray in color when not weathered; an extrusive volcanic rock (formed at or near the surface); fine-grained (aphanitic) due to rapid cooling of lava at the surface of a planet; it may be porphyritic containing larger crystals in a fine matrix; it may be vesicular with numerous holes; basalt that erupts under open air may form scoria and breccia; basaltic cinders are often red, colored by oxidized iron from weathered, iron-rich minerals such as pyroxene; basalt is the most common extrusive igneous rock; basalt is in a high temperature range of the Bowen reaction series. The term "mafic," sometimes used to describe basalt, is a short form indicator of the presence of a relatively large concentration of iron and magnesium.

Basalt-forming environments:






Most basalt found on Earth was produced in three rock-forming environments

- a. oceanic divergent boundaries
- b. oceanic hotspots
- c. mantle plumes and hotspots beneath continents

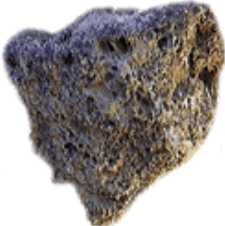

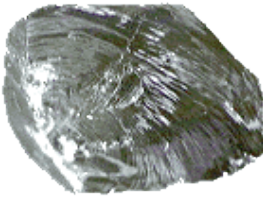

Commercial uses: crushed stone, concrete aggregate, railroad ballast, production of high quality textile fibers, floor tiles, acid-resistant equipment for heavy industrial use, rockwool, basalt plastic reinforcement bars basalt fiber roofing felt, basalt laminate used as a protective coating, heat-insulating basalt fiber materials, fiber glass

Mineralogy: composed of feldspars, pyroxenes, and olivine

Morphology and texture: shape, structure and texture of a basalt is diagnostic of how and where it erupted - whether in the sea, in an explosive eruption, or as creeping pahoehoe lava flows.

	 <p>vesicular basalt (numerous holes)</p>	 <p>pillow lava (forms underwater)</p>
 <p>columnar basalt: cooling of thick lava flows cause fractures</p>	 <p>basalt lava flow</p>	

Below: Other extrusive rocks, fine-grained to glassy. This texture forms because cooling occurs quickly at Earth's surface.

<p>Scoria</p> 	<p>Pumice</p> 	<p>Obsidian</p> 	<p>Rhyolite</p> 
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