16.2: Introduction

Whether an object will float may depend on density. However, ships made of metals are able to float, and metals have a higher density than water. Archimedes Principle explains how an object with greater density than a fluid, such as a steel ship in water, is able to float in the fluid. An object may float if the object is able to displace an amount of fluid equal to its weight. The depth of water to which a ship sinks, determines the amount of water that is displaced by the ship, and the amount of water displaced determines the amount of buoyancy force from the water. When an object is floating in a fluid, the objects pressure down and the fluid pressure up must balance which means the pressure up from the water must equal the pressure down from a boat.

$$P_{Boat} = P_{Fluid}$$

Pressure of Object:

$$P = \frac{F}{A}$$

Pressure from Fluid:

$$P = Dgh$$

Contributors and Attributions

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