**Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Densities of Common Substances**

Density is a measure of the amount of mass in a certain volume. This physical property is often used to identify and classify substances. It is usually expressed in grams per cubic centimeters, or g/cm3.

**Density = Mass ÷ Volume**

|  |
| --- |
| **Densities of Common Substances** |
| **Substance** | **Density****(g/cm3)** |
| Aluminum | 2.7 |
| Bone | 1.7–2.0 |
| Gold | 19.3 |
| Iron Pyrite (Fool’s Gold) | 5.0 |
| Lead | 11.4 |
| Mercury | 13.5 |
| Silver | 10.5 |
| Water | 1.0 |

**Directions:** Calculate the density of each unknown substance. Then use the chart above to determine the identity of each substance.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Mass (g)** | **Volume (cm3)** | **Density (g/cm3)** | **Substance** |
| **Example** | 135 | 10 | 135 g ÷ 10 cm3 = 13.5 g/cm3 | Mercury |
|  | 171 | 15 |  |  |
|  | 108 | 40 |  |  |
|  | 680 | 1000 |  |  |
|  | 250 | 250 |  |  |

**Bonus:** You found a substance with a mass of 96.6 g and a volume of 5.0 cm3. Did you find gold or fool’s gold?

**Answer KEY**

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|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Mass (g)** | **Volume (cm3)** | **Density (g/cm3)** | **Substance** |
| **Example** | 135 | 10 | 135 g ÷ 10 cm3 = 13.5 g/cm3 | Mercury |
| 1. | 171 | 15 | 171 g ÷ 15 cm3 = 11.4 g/cm3 | Lead |
| 2. | 108 | 40 | 108 g ÷ 40 cm3 = 2.7 g/cm3 | Aluminum |
| 3. | 680 | 1000 | 680 g ÷ 1000 cm3 = 0.68 g/cm3 | Gasoline |
| 4. | 250 | 250 | 250 g ÷ 250 cm3 = 1.0 g/cm3 | Water |

**Bonus:** You found a substance with a mass of 96.6 g and a volume of 5.0 cm3. Did you find gold or fool’s gold? Density = mass/volume

Density = 96.6g/5.0 cm3

Density = 19.32 g/cm3

You found gold!