

Chem 1407 SI- Chapters 2 and 3

End of Chapter 2:


1. Define the following:

Term	Definition	Image/example
1. Exact Number	<ul style="list-style-type: none"> A value with an unlimited # of significant figs 	<p>4 Cars.</p>
2. Scientific Notation	<p>A method of writing very large or very small #s more compactly.</p>	<p>4.5×10^3</p> <p><u>4500</u></p>
3. Coefficient	<p>A # that exists between 1-9.</p>	<p><u>1</u>.2</p>

0.000032

1200

~~1.2 x 10~~

<p>4. Exponent</p>	<p>Shows the # of spaces the decimal place has been moved.</p> <p>+ = move left - = moving right</p>	<p>1200. (3) 1.2 x 10</p> <p>greater than 1 less than 1</p>
<p>5. Density</p> <p>$D = \frac{M}{V}$</p>	<p>The ratio of a substance's mass to its volume</p>	<p>$D = \frac{M}{V}$</p> 

2. Practice Problems:

a. Write the following numbers in scientific notation using 3 significant figures:

- i. 20356.0
- ii. 23.0
- iii. 625.0
- iv. 56965.0

23.0
2.30 x 10¹

625.0
6.25 x 10²

20356.0

2.03560 x 10⁴
2.04 x 10⁴

4. 56965.0

5.70 x 10⁴

b. Determine the density:

- i. M = 0.325 kg = 325g
- ii. V = 23 cm³

$D = \frac{M}{V}$

$\frac{325g}{23cm^3} = 14.13$




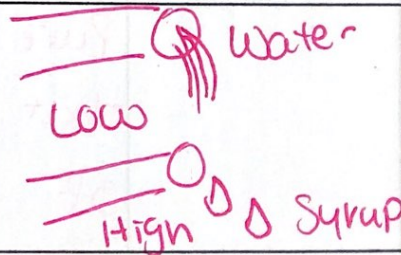
$\frac{0.325kg \times 1000 \text{ grams}}{1 kg} = 325g$



325g

14.1 g/cm³

Chapter 3: Matter and Energy

1. Define the following:

Term	Definition	example
1. matter	• Anything that has mass + takes up space.	
2. Mass	• Measure of quantity of matter	
3. Weight	The Force of gravity acting on the mass of a particular object.	
4. Viscosity	The ability of a liquid to flow	
5. Pure Substances:	A single chem. composed of the same kind of particle throughout -	element compound.

 <p>6. Mixture</p>	<p>A Comb of Pure substances.</p>	<p>Homo - Same • Water, Steel Hetero - diff. • Cement, ice cream</p>
<p>7. Solutions</p> <p>Salt Water</p>	<p>A Homogeneous Mix of 2 or more Substances.</p>	<p>Air. Water Koolaid.</p>
<p>8. Elements</p>	<p>The most Fundamental substances from which all material things are constructed.</p>	<p>Pb.</p>
<p>9. Atoms</p>	<p>• Smallest indivisible particles that retain the prop of the element.</p>	
<p>10. Compounds</p>	<p>Pure substances that are made up of 2 or more kinds of elements combined in</p>	<p>H₂O 2H: 1O.</p>

2. Describe the difference between physical and chemical properties:

Physical - Color, taste, can be test + doesn't destroy sample
 Fixed Proportions.

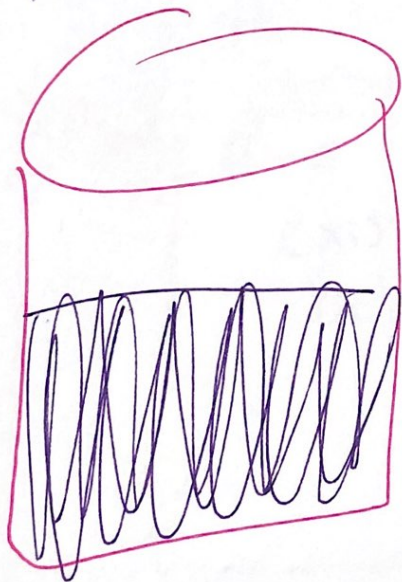
Chem - destroy sample.

3. Illustrate miscibility and immiscibility:

4. Briefly state and describe the 2 types of solids.

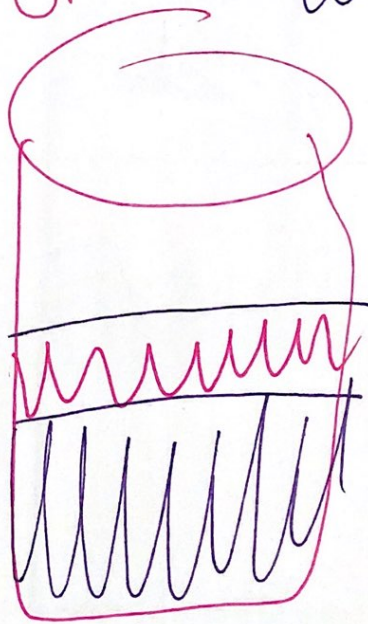
- • Crystalline - orderly internal arrange
- Quartz.
- Amorphous - no internal arrange.
- glass.

3. Alcohol water



MISC.

Oil water



IMMISC.