

4. LIMITING REACTANTS

CH30S

UNIT 2 – CHEMICAL REACTIONS

MR. WIEBE

1

MMMM....CHEMISTRY CAKE!

You have **20 cups** of flour, **8 cups** of sugar, **30 litres** of milk and **48 eggs** in your kitchen. The recipe for chemistry cake is:

3 cups of flour
2 cups of sugar
2 litres of milk
+ 6 eggs

= 1 chemistry cake

2

BE A CHEMISTRY-CAKE BOSS!

You have **20 cups** of flour, **8 cups** of sugar, **30 litres** of milk and **48 eggs** in your kitchen. The recipe for chemistry cake is:

3 cups of flour

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2 litres of milk

+6 eggs

= 1 chemistry cake

1. How many cakes can you make?
2. Which ingredient ran out first and limited the number of cakes you could make?
3. What and how much of each ingredient is left over?
4. What does this assignment have to do with chemistry?

3

INTRODUCING...THE ICE TABLE!

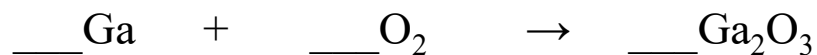
You have **20 cups** of flour, **8 cups** of sugar, **30 litres** of milk and **48 eggs** in your kitchen. What is the limiting ingredient? How much of each excess ingredient is left over?

	3F	+	2S	+	2M	+	6E	→	1Cake
I nitial									
C hange									
E nd									

4

EXAMPLE #1

14.0 mole Ga and 12.0 mole O₂ react. Find the limiting reactant, the mass of excess reactant and product made.



5

EXAMPLE #2

14.0 g of Al reacts with 94.0 g of Br₂. Find the limiting reactant, the mass of the excess reactant and product.



6

EXAMPLE #3

25.0 g of H_3PO_4 reacts with 94.0 g of $\text{Ca}(\text{NO}_3)_2$. Find the limiting reactant, the mass of the excess reactant and product.

