

Chemistry of Food Additives Worksheet

Data Compilation

Part I. Nails for Breakfast

Mass of stir bar (g)	_____	Color 1,10-phenanthroline indicator when added to HCl in step 15	_____
Mass of the stir bar + iron	_____	Color 1,10-phenanthroline upon addition to iron(II) sulfate	_____
Mass of Iron	_____		

Part II. Iodized Salt

Test tube	A	B	C
Chemical Present			
Water Soluble			
Color change upon addition of chlorine water			

Part III. Does Salt Sense Make Sense?

	Salt	Salt Sense
Mass of Empty Cylinder		
Mass of Cylinder + Salt		
Mass of Salt		
Volume before grinding		
Volume after grinding		

Post-Lab Questions *(Answer on a separate sheet of paper.)*

Part I. Nails for Breakfast

- Compare the amount of iron filings obtained in Part I to the amount which should be present according to the nutrition facts label on the box. Calculate the percent recovery between the measured mass and the theoretical mass.
- What color did the 1,10 phenanthroline indicator turn upon adding to the iron obtained from the breakfast cereal? What does the color of the phenanthroline indicate about the type of iron found in breakfast cereal?

Part II. Iodized Salt

- Based on the results of obtained in the Iodized Salt demonstration, is iodide present in NaCl (tube 2) and Iodized Salt (tube 3). Give evidence to support your answer.

Part III. Does Salt Sense Make Sense?

- Based on the masses of salt and salt sense obtained in Table 2, what is the percent mass difference between the two?
- Calculate the percent volume remaining of both regular salt and salt sense after each has been ground with a mortar and pestle.
- Examine the change in volume of regular salt after being ground compared to Salt Sense calculated in question 5. What does this relate to the fact that Salt Sense claims to contain 33% less sodium than regular salt?

Part IV. Fruit Facts

- How did the apples kept in the beaker containing distilled water differ from those in the beaker containing ascorbic acid after 24 hours?
- In this demonstration L-Ascorbic acid was found to reduce the browning effects of cut apples. What other foods might benefit from treatment with L-ascorbic acid?