Separation of a Ternary Mixture

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Data and Calculations:

Cont. Name	Mass of Container (g)	Mass w/ Substance (g)
Beaker 1	89.23	90.80
Beaker 2	96.27	96.96
Evap. Dish	54.03	54.33
Watch Glass/Filter	45.07	45.47

Table 1: Masses of all equipment and samples.

Substance	Expected Mass (g)	Recovered Mass (g)	% Recovered Mass
Mixture	1.57	1.39	88.5
NaCl	0.62	0.69	49.6
SiO_2	0.31	0.30	21.5
$CaCO_3$	0.62	0.40	28.7

Table 2: Masses of recovered samples

Results and Discussion:

Results in this lab allowed for the mixture to be separated into three different materials. NaCl (salt), $CaCO_3$ (chalk), and SiO_2 (sand) were succesfully separated into three groups and weighed accordingly. In the original mixture, 20% of the mixture was composed of sand, and then 40% each was salt and chalk. When the materials were recovered, 21.5% was sand, 28.7% was chalk, and 49.6% was salt.

Some of the sources of error in this experiment may have been due to overboiling of the mixture, which may have happened a couple times throughout. This would have resulted in losing some material, whether it was due to splashing or evaporation of said substance. A second source of error may have been from

transferring the substance into different containers - i.e., pouring the mixture into a different container and being unable to wash all remnants out of the original container. This would mean that the substances were stuck to the inside of the original container, and were then discarded in order to wash the container for reuse.

Some possible improvements would be extra care while transporting the mixture, and simply paying attention to the mixture while it is boiling and/or lowering the temperature of the hot plate.