

Cluck & Bubble: A Poultry-tastic Acid Decomposition Adventure

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Decomposing Bones

- Decomposing matter in acids and strong bases involves chemical reactions that break down substances into simpler components. Acids donate protons, while strong bases accept protons, leading to different pathways of decomposition. This dual capability allows for diverse applications in chemical analysis, waste treatment, and industrial processes, highlighting the versatile role of acids and bases in transforming complex materials.

Materials

- 3 similar size chicken bones
- 3 M sulfuric acid (H₂SO₄ acid)
- 3 M Hydrochloric acid (HCL acid)
- 3 M Sodium hydroxide (NaOH basic)
- Funnel
- Stirring rod
- 3 beakers (250ml)
- Scale

Our Process of Decomposing Bones

- Broke the bones into 3 similar size bones and took as much of the tissue off the bone.
- Weigh starting amount
- Put chicken samples into the three separate solutions and give them time to sit in solution.
- Gave them 24 hours to sit in solution and return to measure out the amount lost.
- Remove the bone from the solutions and wash them off and dry them.
- Weight the amounts out and calculate the amount lost to get the best results.



Hydrochloric Acid (3M HCl)

Amount of Original Substance: 13.683g
Final Mass Collected: 10.576g
Percent lost: 22.71%

- This test showed that HCl was able to decompose the bone.
- We noticed on day 1 that HCL made the bone very squishy.

Sulfuric acid (3M H₂SO₄)

Amount of Original Substance: 12.347g
Final Mass Collected: 9.711g
Percent lost: 21.35%

- This test Showed that H₂SO₄ was able to decompose the bone.
- We noticed on day 2 the sample gained weight because the calcium in the bones react with the sulfur and crystalize

Results

Through our test we came to the consensus that Sodium Hydroxide was the best in terms of decomposing bone matter. This was a surprise because it is a strong base which was the opposite of our hypothesis, that a strong acid would do the best for decomposing matter.

Sodium Hydroxide (3M NaOH)

Amount of Original Substance: 18.217g
Final Mass Collected: 7.373g
Percent lost: 59.93%

- This test Showed that NaOH was the best at decomposing bone matter.
- We noticed on day 2 the sample lost the most matter at 42.93%.

