"Atom"

John Dalton early 1800s

Law: summary of observation
Law of conservation of matter

In a chemical reaction matter is neither created nor destroyed

Vinegar + baking soda → fizzles → gas evolved

25 g

Sealed container

25 g

Maybe 15 g or so
Law of constant composition

A sample of a pure substance will have the same % by mass of elements (no matter size of sample or how sample was made).

\[ \text{NaCl table salt} \]
\[ \text{tiny sample from somewhere else} \]
\[ \text{large sample from here} \]
\[ \begin{cases} \text{X % Na by mass} \\ \text{Y % Cl by mass} \end{cases} \]

Atomic theory

1. All matter is made of indestructible atoms (fundamental particle)
2.
3.
4.
5.