

Experiment on Measurements

Names

Density of Steel (Method 2)

In this activity you are expected to determine the density of steel but this time, by using the displacement method on four (4) different sizes of cylinders.

Each member of the group must try taking the measurements and take note of these in the given table below.

Later, you will compare your results with the theoretical density of steel and with your experimental results in Method 1.

A. Mass _____ g

Quantities	Trials			Average
Initial Volume, V_o/cm^3				
Final Volume, V/cm^3				
Volume of cylinder ($V - V_o$)/ cm^3				

B. Mass _____ g

Quantities	Trials			Average
Initial Volume, V_o/cm^3				
Final Volume, V/cm^3				
Volume of cylinder ($V - V_o$)/ cm^3				

C. Mass _____ g

Quantities	Trials			Average
Initial Volume, V_o/cm^3				
Final Volume, V/cm^3				
Volume of cylinder ($V - V_o$)/ cm^3				

D. Mass _____ g

Quantities	Trials			Average
Initial Volume, V_o/cm^3				
Final Volume, V/cm^3				
Volume of cylinder ($V - V_o$)/ cm^3				

E. Density

Mass/g	Average Volume/ cm^3	Density/ gcm^{-3}
A		
B		
C		
D		
Average Density →		

E. The theoretical density of steel is $7.86 g cm^{-3}$. Calculate the percentage error of your average experimental value using the formula:

$$\% \text{ Error} = \left| \frac{\text{Theoretical Value} - \text{Experimental Value}}{\text{Theoretical Value}} \right| \times 100$$

F. Which experiment provided a more reliable result? Why do you think it worked much better to achieve better results?