

Resistivity

Reminder: You will receive no credit for items you complete after the assignment is due on the day of the experiment.

First Read the introductions discussions in the exercise in the lab manual for an overview.

Second: Review pages 651-658 and study resistivity info section 25-4 of the textbook.

Questions: to hand in.

1. What is the name of the Greek letter used for resistivity? Write it?
2. RESISTANCE IS RELATED TO THE length and area of a wire. How?
ie. What is the proportionality?
3. What is the formula for the area of a circle, expressed with the radius? And the Diameter?
4. Write the formula for Resistance, R , of a wire of length, l , and cross sectional area A ?
5. Write the formula for the Resistivity of a wire of length l and cross section area A ?
6. Rewrite the resistivity formula of a wire of length l and cross sectional diameter of D ?
7. Of the known conductors (see the table in 25-4), what material has the least Resistivity?
8. What conductors has the most Resistivity?

Problems to solve:

Add the following to your lab report at the end after you answer the quesitons part of the experiment

Show all work (formulas and math used). Label them by the numbers shown.

P1. A silver wire has a length of 1000cm (note: units used in formula) and cross sectional area of 5mm.

What is the resistance of the wire? Note again units used in formula, be sure to convert!

P2. What material is the wire made of that is 10.000m and cross sectional area of $3.700 \times 10^{-6} \text{ m}^2$ and the resistance of the wire was measured as 0.287 ohms (???)

Show the calculations that is the reason you picked this conductor!