

## Concept of conductivity

Conductivity is the reciprocal of resistivity. It is defined as the ability of a material to conduct electric current.

1. It is denoted by the symbol  $\sigma$ .
2. It is the reciprocal of resistivity  $\rho$ .
3. It is denoted by the symbol  $\sigma$ .
4. It is denoted by the symbol  $\sigma$ .
5. It is denoted by the symbol  $\sigma$ .

## Measurement of conductivity

Conductivity is measured by using a conductivity cell. The cell consists of two parallel plates of area  $A$  and distance  $l$  apart. The conductivity  $\sigma$  is given by the relation:



Symbol	Unit	Formula
Conductivity	$\text{ohm}^{-1}\text{m}^{-1}$	$\sigma = \frac{1}{\rho}$
Resistivity	$\text{ohm}\cdot\text{m}$	$\rho = \frac{1}{\sigma}$
Conductance	$\text{ohm}^{-1}$	$G = \frac{\sigma A}{l}$
Resistance	$\text{ohm}$	$R = \frac{l}{\sigma A}$
Conductivity cell constant	$\text{ohm}^{-1}\text{cm}^{-1}$	$K = \frac{l}{A}$
Conductivity	$\text{ohm}^{-1}\text{cm}^{-1}$	$\sigma = \frac{G}{K}$
Resistivity	$\text{ohm}\cdot\text{cm}$	$\rho = \frac{K}{G}$
Conductivity	$\text{ohm}^{-1}\text{cm}^{-1}$	$\sigma = \frac{1}{\rho}$

## Lab 4

### Objective of experiment

Determination of conductivity of a solution.

1. To determine the conductivity of a solution.
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6. To determine the conductivity of a solution.
7. To determine the conductivity of a solution.
8. To determine the conductivity of a solution.
9. To determine the conductivity of a solution.
10. To determine the conductivity of a solution.