# 10) dimensions two in conductivity Electrical :1 Problem points)

table: following the in 9 to 0 from numbers the Write

| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |

## points) 1.2) measurements (4PP) Four-point-probe A. Part

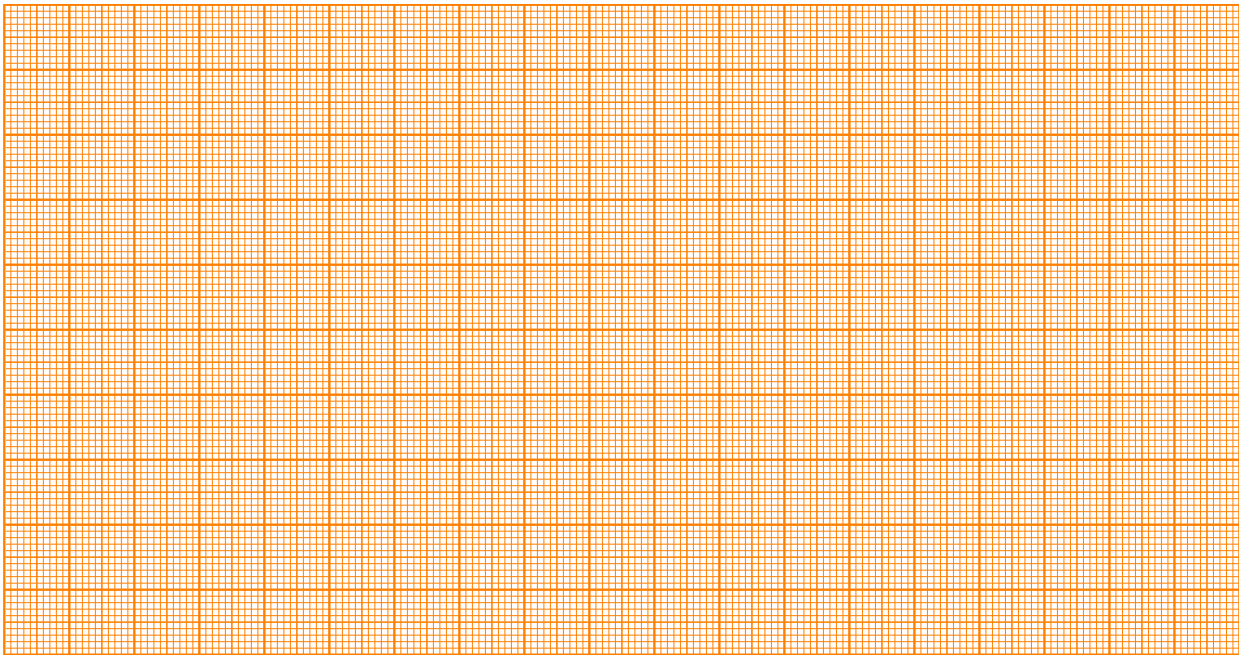
(0.6 pt) **A.1**

$s =$

| $V$ | $I$ | $V$ | $I$ |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

.**A.1 Graph** into data your Plot

**A.1 Graph** $V$ vs. $I$ :



(0.2 pt) **A.2**

$R =$

(0.4 pt) **A.3**

$\Delta R =$

**points) 0.3) resistivity Sheet B. Part**

(0.3 pt) **B.1**

$\rho_\square \equiv \rho_\infty =$

**points) 3.2) dimensions sample different for Measurements C. Part**

(3 pt) **C.1**

$s =$

$\rho_\infty =$

results. intermediate for used be can columns empty The

| $\hat{R}$ | | | | | | (f(w/s |
|---|---|---|---|---|---|---|
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(0.2 pt) **C.2**
results. your for **C.1** Table Use

**points) 1.9) factor correction Geometrical D. Part**

(1.0 pt) **D.1**

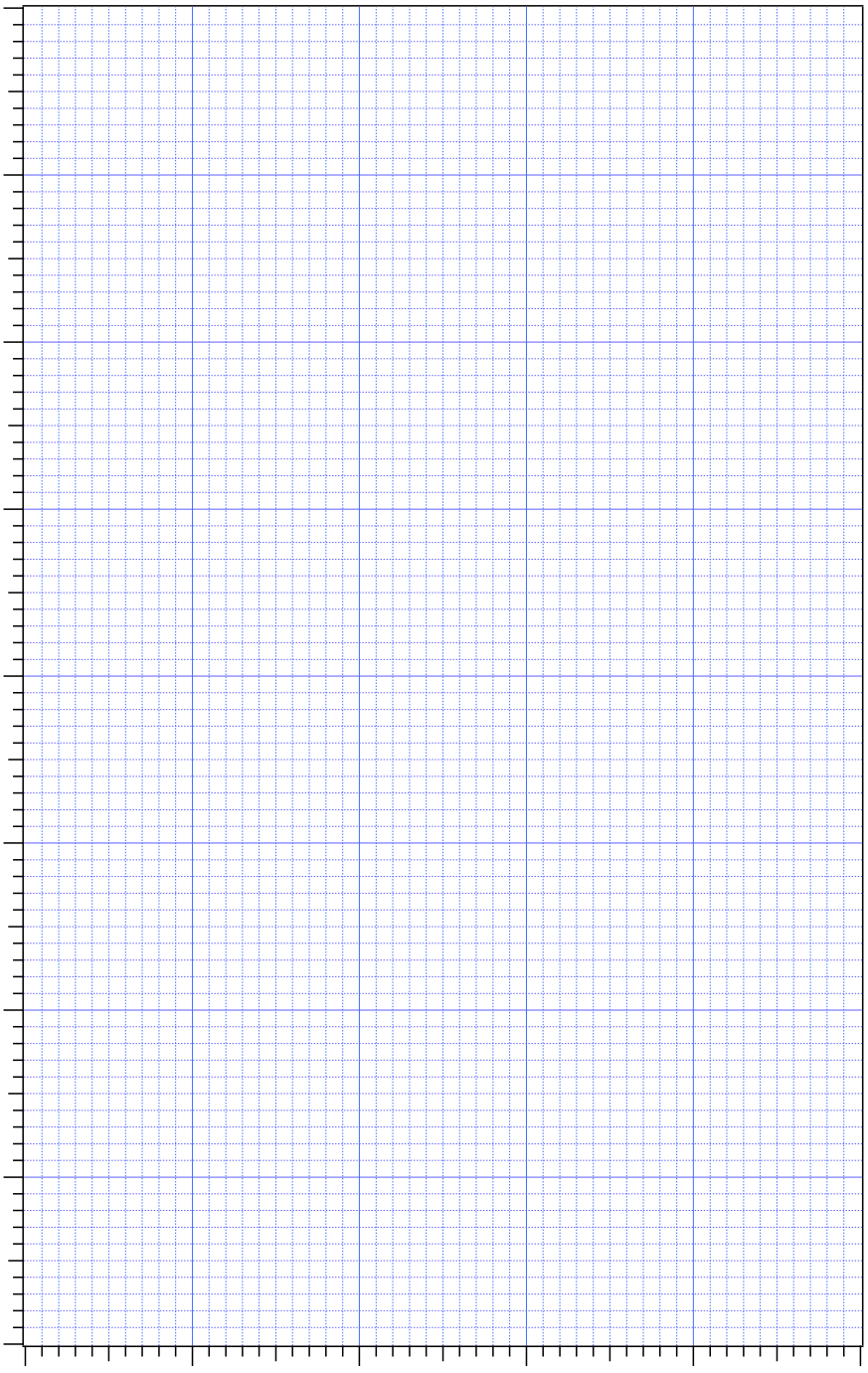
Plot your data on the appropriate graph paper: (**D.1a**) linear graph paper, (**D.1b**) semi-logarithmic or double-logarithmic (**D.1c**) on the following pages.

(0.9 pt) **D.2**

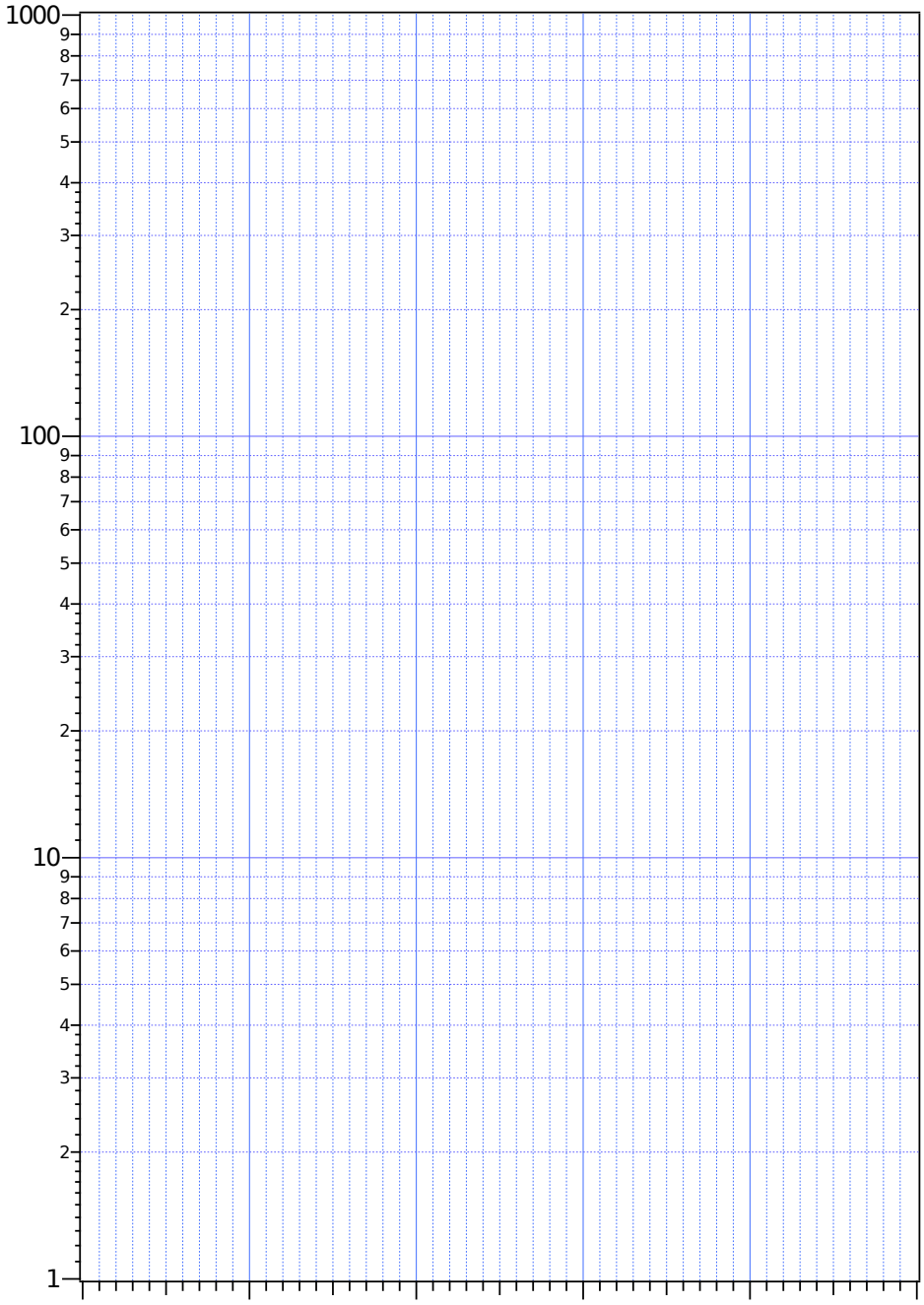
$a =$

$b =$

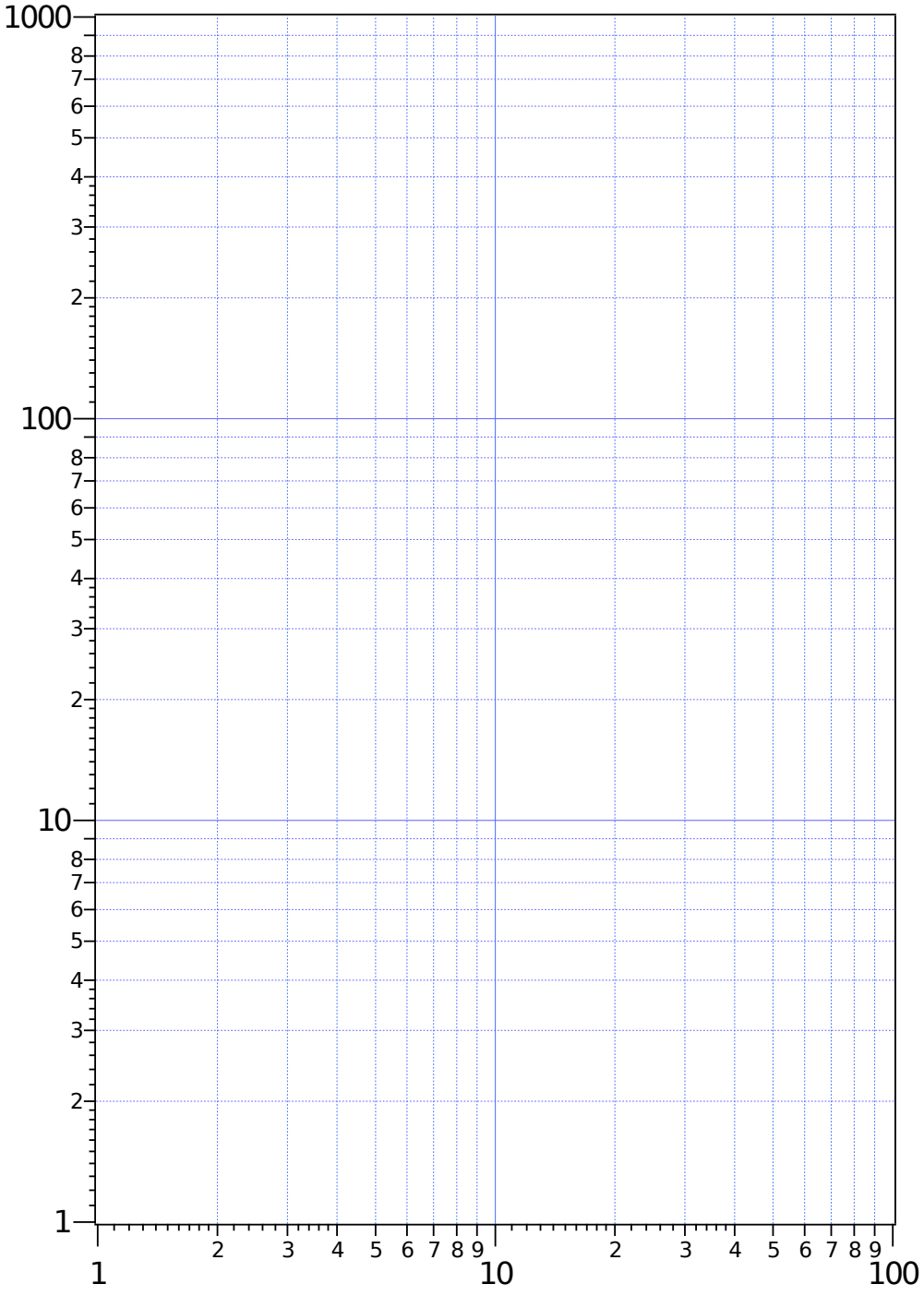
**scale: linear D.1a: Graph**



**scale: semi-log D.1b: Graph**



**scale: double-log D1c: Graph**



## points) 3.4) Pauw-method der van the and wafer silicon The E. Part

here: wafer your of number the Note

(0.4 pt) **E.1**

| $V$ | $I$ | $V$ | $I$ |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

(0.4 pt) **E.2**

$V$ vs $I$ :**E.2 Graph**

$R_{4PP} =$

(0.2 pt) **E.3**

$w =$ $\rightarrow w/s =$ $f(w/s) =$

(0.1 pt) **E.4**

$\rho_{\square}(4\mathrm{PP})$

(0.6 pt) **E.5**

| $V$ | $I$ |
|---|---|
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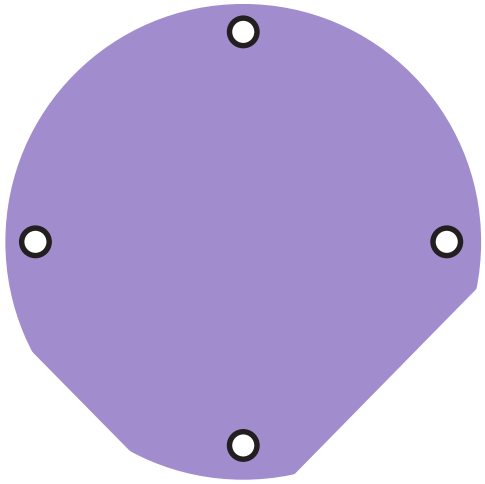
current): the of (orientation Sketch



(0.6 pt) **E.6**

| $V$ | $I$ |
|---|---|
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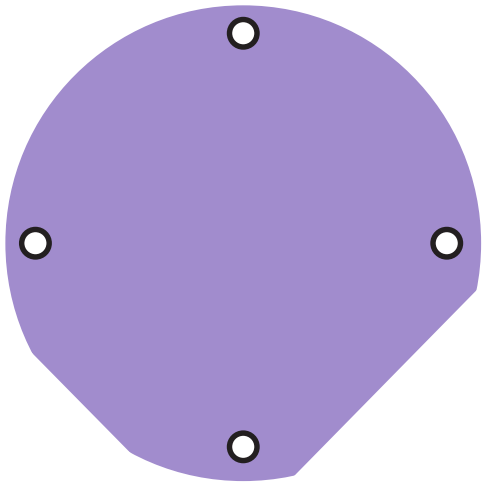
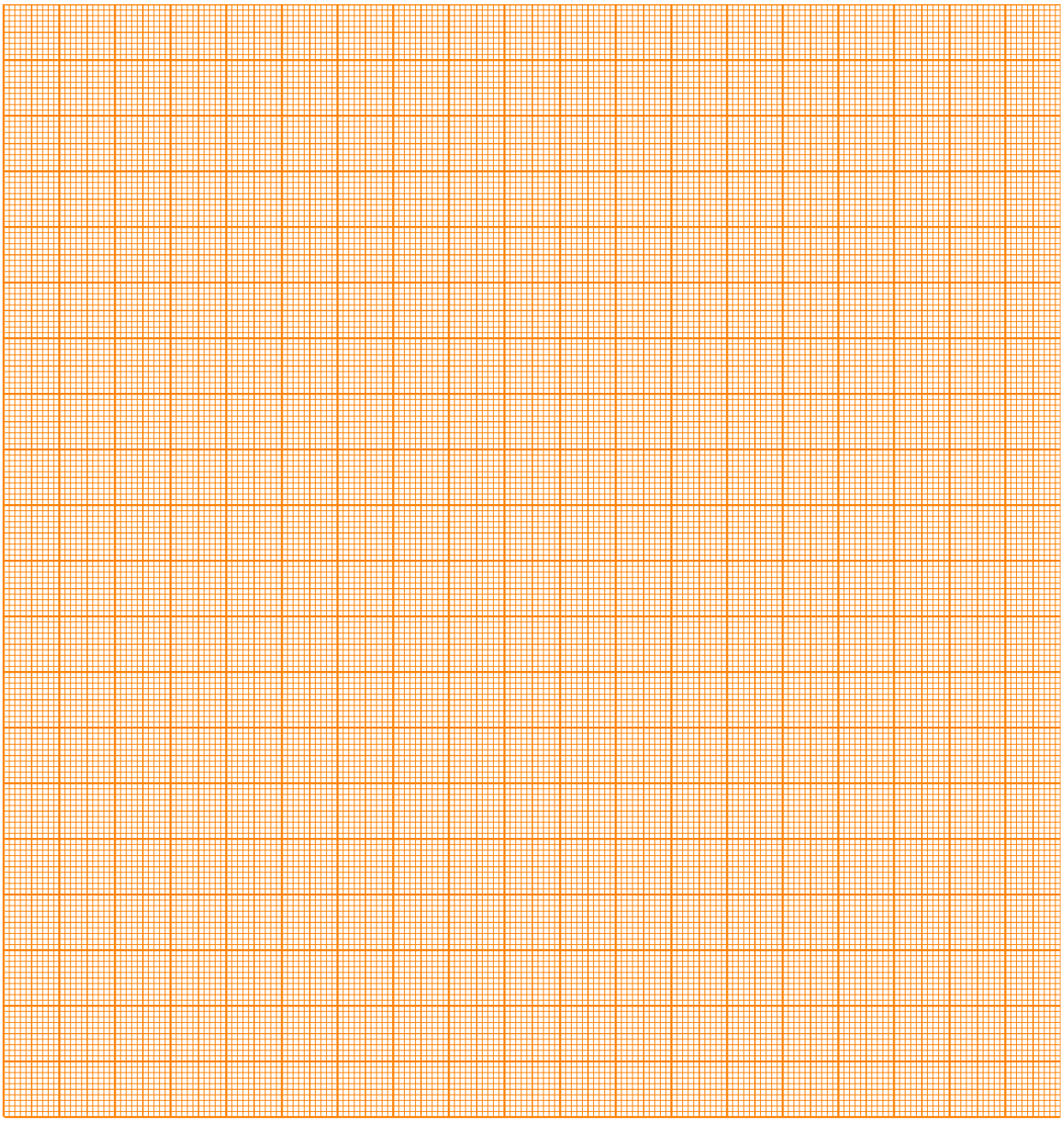
| | |

Sketch (orientation of the current):



(0.5 pt) **E.7**

$V$ vs. $I$ :**E.7 Graph**



$\langle R \rangle =$

(0.4 pt) **E.8**
Calculation:

$\rho_{\square}(\mathrm{vdP}) =$

(0.1 pt) **E.9**

$\frac{\Delta\rho_{\square}}{\rho_{\square}(\mathrm{vdP})} =$ $=$ $\%$

(0.1 pt) **E.10**

$\rho =$ film thin Cr the of Resistivity