

# MATERIAL PROPERTIES TEST RESULT OF TITANIUM DIOXIDE GLASS FIBER EPOXY COMPOSITE

## DENSITY TEST

TiO<sub>2</sub> Volume

0.09

0.07

0.05

0.03

0.01

0.00

1.37

Actual ρ(g/cm<sup>3</sup>)

1.48

Theory ρ (g/cm<sup>3</sup>)

0.29

Glass Fiber Volume

0.19

Mass in Water (g)

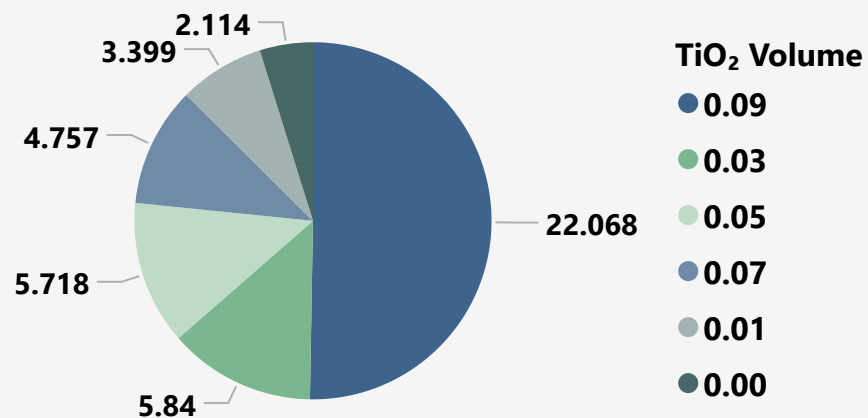
0.72

Mass on Air (g)

0.67

Epoxy Volume

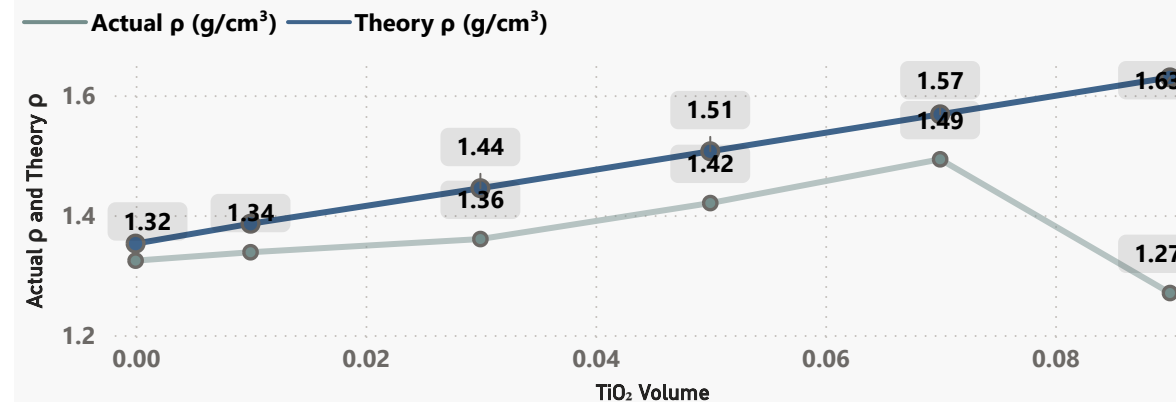
## Porosity Percentage by TiO<sub>2</sub> Volume



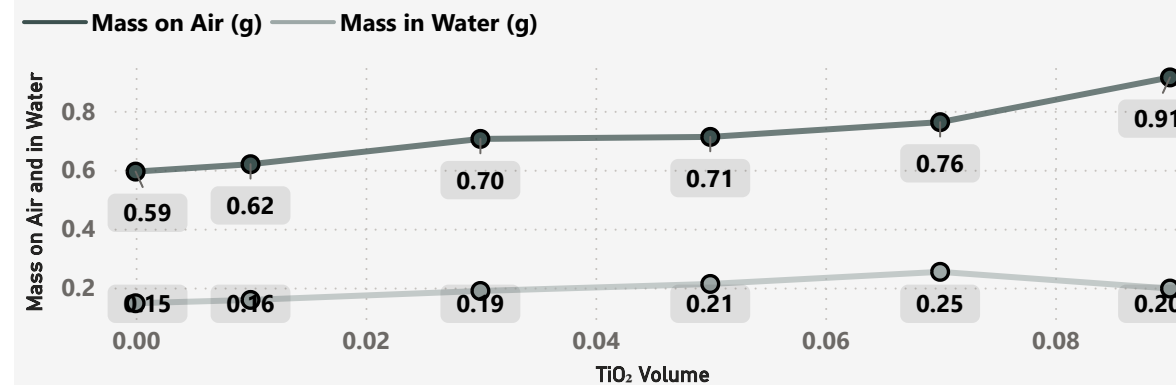
7.32

Percentage of Porosity(%)

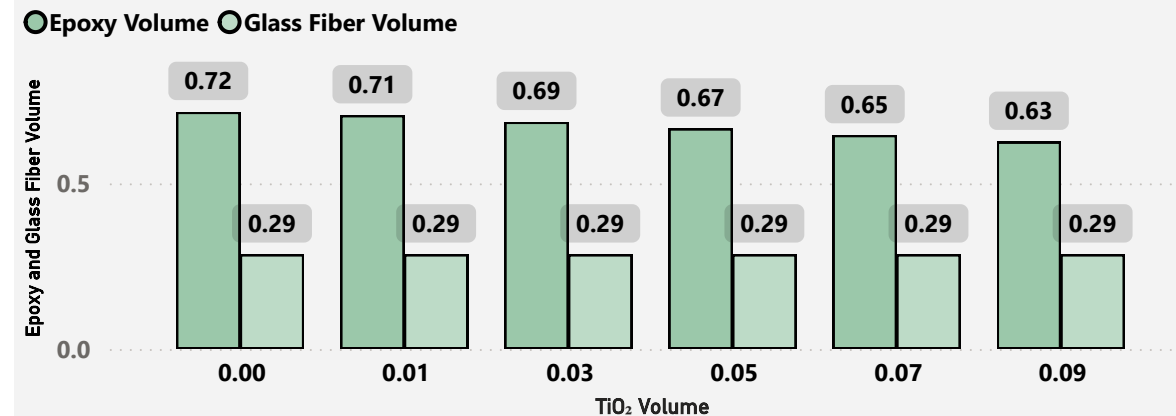
## Actual ρ vs Theory ρ byTiO<sub>2</sub> Volume



## Mass on Air vs Mass in Water by TiO<sub>2</sub> Volume



## Epoxy Volume and Glass Fiber Volume by TiO<sub>2</sub> Volume





## TENSILE TEST

3.30

Elongation at Break (%)

75.06

Tensile Strength (MPa)

1,255.51

Elastic Modulus (MPa)

### TiO<sub>2</sub> Volume by Variation

0.09	0.07	0.05
0.03	0.01	0.00

Buckling

Compress  
Result

## COMPRESSIVE TEST

5.03

Deflection (mm)

52.92

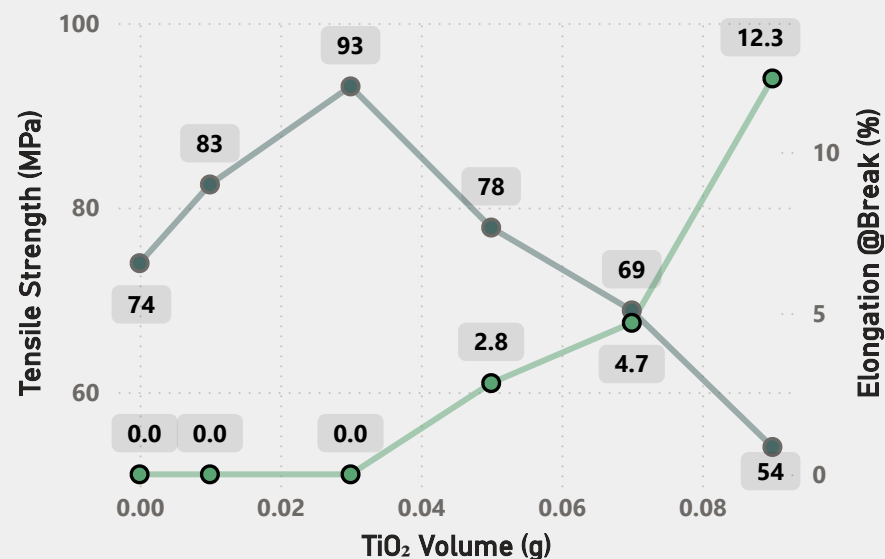
Compressive Strength

8,855.71

Force Given (N)

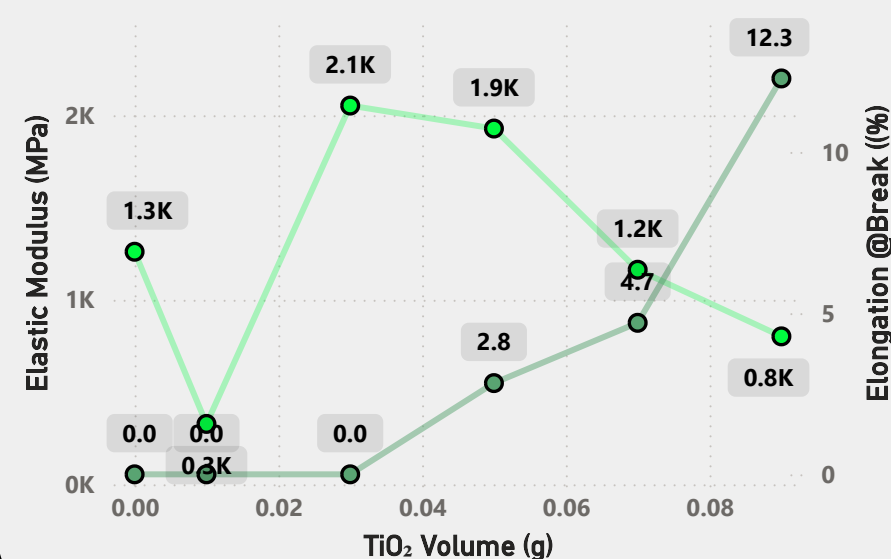
### Tensile Strength and Elongation @Break by TiO<sub>2</sub> Volume

● Tensile Strength (MPa) ● Elongation @Break (%)



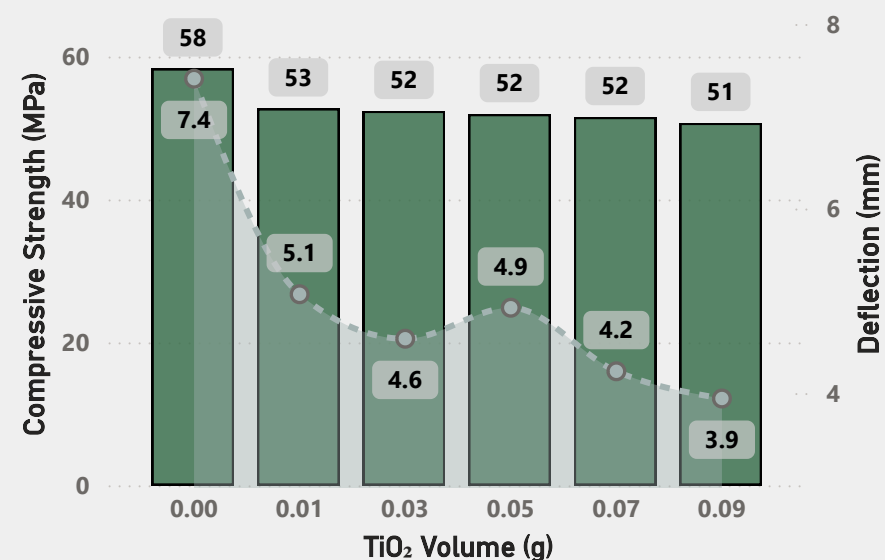
### Elastic Modulus and Elongation @Break by TiO<sub>2</sub> Volume

● Elastic Modulus (MPa) ● Elongation @Break (%)



### Compressive Strength and Deflection by TiO<sub>2</sub> Volume

● Compressive strength (MPa) ● Deflection (mm)



### Tensile Strength vs Compressive Strength by TiO<sub>2</sub> Volume

● Tensile Strength (MPa) ● Compressive strength (MPa)

