

Exp No :

Date:

Refractive Index of the Material of a Glass slab

Aim: To determine the refractive index of a glass slab using a Traveling Microscope.

Apparatus: Glass Slab, Traveling Microscope, Lycopodium powder, paper etc.

Theory:

$$\text{Refractive index of the material of the glass slab} = \frac{\text{Real Thickness of the Glass Slab}}{\text{Apparent Thickness of the Glass Slab}}$$

Observations:

Value of One main scale division	1 MSD	= mm			
Number of Vernier Scale Divisions	N	= div			
Least Count	LC	= 1 MSD – 1 VSD			
		= $\frac{1 \text{ MSD}}{N}$	=	mm	
			=	cm	

Total Reading = MSR + (VSR x LC)

Reading	Reading of the vertical scale of the Microscope when focused on the			Real Thickness $R_3 - R_1$	Apparent Thickness $R_3 - R_2$	n = $\frac{R_3 - R_1}{R_3 - R_2}$
	Cross-mark without Glass Slab	Cross-mark with Glass Slab	Lycopodium Powder on Glass Slab			
MSR (cm)						
VSR						
Total (cm)	R ₁ =	R ₂ =	R ₃ =			

Refractive index of the material of the glass slab = $\frac{\text{Real Thickness}}{\text{Apparent Thickness}}$

$$n = \frac{R_3 - R_1}{R_3 - R_2} =$$

Result:

Refractive index of the material of the glass slab =