

MICRÔMETRO

$$\bar{D} = 18,612$$

$$\bar{H} = 19,132$$

$$C_{ADM} = \sqrt{[(18,612 - 18,612)^2]^5}$$

$$C_{ADM} = \sqrt{[(0)^2]^5}$$

$$C_{ADM} = 0$$

incerteza

$$\sigma_D = \sqrt{0^2 + 0,01^2} = 0,01 \text{ mm}$$

$$\sigma_H = \sqrt{0^2 + 0,01^2} = 0,01 \text{ mm}$$

notação final da densidade

$$\rho = \bar{\rho} \pm \sigma_\rho$$

$$\bar{\rho} = 0,007 \pm 0$$

$$\rho = 7,0 \pm 0,0 \times 10^{-3}$$

erro relativo

$$E\% = \frac{x_m - x_v}{x_v} \cdot 100$$

Cálculo da densidade (micrômetro)

$$\bar{\rho} = \frac{4\bar{M}}{\pi \cdot \bar{D}^2 \cdot \bar{H}}$$

$$\bar{\rho} = \frac{4 \cdot (41,03)}{3,14 \cdot (18,612)^2 \cdot 19,132}$$

$$\bar{\rho} = \frac{164,12}{20810,193}$$

$$\bar{\rho} = 0,00788 \text{ g/mm}^3$$

incerteza densidade

$$\sigma_\rho = 0,007 \cdot \sqrt{\frac{0^2}{41,03} + \frac{2 \cdot 0^2}{18,612} + \frac{0^2}{19,132}}$$

$$\sigma_\rho = \sqrt{0}$$

$$2,14 \cdot 10^{-6}$$

0,007

$$E\% = \frac{0,007 - 0,089}{0,089} = 0,9\%$$

incerteza experimental relativa

$$0\% = \frac{\sigma_G}{GM} \cdot 100 = \frac{0,0}{0,007} \cdot 100 = 0$$