

## **INTISARI**

### **Pengaruh Massa Jenis Udara Dan Massa Jenis Anak Timbangan Terhadap Uji Volume Gelas Ukur**

Oleh

Ismi Dini Wahyuni

(15/386278/SV/09664)

Telah dilakukan pengujian tentang pengaruh massa jenis udara dan massa jenis anak timbangan terhadap uji volume gelas ukur. Penelitian ini dilatar belakangi oleh pentingnya melakukan pengujian volume sebenarnya gelas ukur. Tujuan dari penelitian ini adalah mengetahui pengaruh massa jenis udara dan massa jenis anak timbangan terhadap uji volume gelas ukur.

Metode yang digunakan pada pengujian ini yaitu metode eksperimen dan studi literatur sehingga memiliki acuan yang valid untuk dilakukannya pengujian. Dari hasil pengujian ini didapatkan nilai massa jenis udara menurut syarat teknis yaitu sebesar  $1.22 \text{ kg/m}^3$ , massa jenis anak timbangan sebesar  $7.833 \text{ g/mL}$  dan menghasilkan nilai volume sebenarnya gelas ukur sebesar  $497.233 \text{ mL}$ . Sedangkan pada pengujian gelas ukur menurut ketentuan didapatkan sebesar  $497.205 \text{ mL}$ . Pengujian volume sebenarnya gelas ukur berdasarkan perhitungan metode syarat teknis ini memiliki nilai koreksi sebesar  $2.767 \text{ mL}$  dari volume nominal gelas ukur (yakni  $500 \text{ mL}$ ). Adapun perbedaan antara nilai volume sebenarnya berdasarkan syarat teknis dan ketetapan memiliki nilai koreksi sebesar  $0.028 \text{ mL}$ . Hasil yang didapatkan ini masih dalam Batas Kesalahan yang Diizinkan (BKD) gelas ukur karena kurang dari  $5 \text{ mL}$ .

Hasil dari pengujian ini yakni perbedaan nilai dari perhitungan volume gelas ukur di Unit Pelayanan Teknis (UPT) Metrologi Legal Kota Yogyakarta berdasarkan massa jenis udara dan massa jenis anak timbangan dari syarat teknis dengan perhitungan sesuai ketentuan. Perbedaan tersebut memberikan keterangan bahwa massa jenis anak timbangan dan massa jenis udara mempengaruhi nilai dari pada volume sebenarnya gelas ukur pada kapasitas  $500 \text{ mL}$ .

Kata Kunci : gelas ukur, perhitungan volume, massa jenis udara, massa jenis anak timbangan

## ABSTRACT

### *The Influence Of The Density Of Air and The Density Of Balance Weights To The Volume Test Of Measuring Cylinder*

By:

Ismi Dini Wahyuni  
(15/386278/SV/09664)

*This research studies the influence of the density of air and the density of balance weights to the volume test of measuring cylinder. This research was conducted as a consideration to the importance of measuring the actual volume of a measuring cylinder. The purpose of this research is to find out the influence of the density of air and the density of balance weights to the process of volume measurement of a measuring cylinder.*

*The method used in this research is experimental method. Library research was also conducted to support this research. From this technics required method experiment, it is found that the number of the density is  $1,22 \text{ kg/m}^3$  for the density of air and  $7,833 \text{ g/mL}$  for the density of balance weights and it is also found that the actual volume of the measuring cylinder is  $497,233 \text{ mL}$ . Meanwhile, the volume of the measuring cylinder measured by following required terms and instructions is  $497,205 \text{ mL}$ . This measurement process has  $2,767 \text{ mL}$  correction value to the nominal volume of the measuring cylinder which is  $500 \text{ mL}$ . Meanwhile, the correction value resulted from the comparison of the actual volume and the volume measured by following required terms and instructions is  $0,028 \text{ mL}$ . This volume difference is still tolerated or permissible as it is less than  $5 \text{ mL}$ , the maximum number according to MPE (Maximum Permissible Error).*

*It can be inferred from from this research and experiment that there is different result in volume measurement process of measuring cylinder calculated by Technical Service Unit (UPT) of Metrology Legal Kota Yogyakarta based on the technics required method and the volume measurement process calculated based on required terms and instructions. The different result indicates that the weight density and the density of air and the density of balance weights influence the volume measurement process of a measuring cylinder with the capacity of  $500 \text{ mL}$ .*

*Keywords: measuring cylinder, actual volume, air density, balance weights density*