MEASURING VOLUME OF GASES - BALLOON

MED 01.05b

Material:

Item-no.	Qty.	Description
DS090-1K	1	Claw base simple, L=200 mm
P7240-1C	1	Support rod, round, L=250 mm, D=10 mm
DS400-3K	1	Bosshead cross-pattern, Demo, green
C7002-1A	1	Universal clamp, 0 - 80 mm
DM100-25	1	Graduated cylinder, with suspension, 250 ml
C7447-1G	1	Water Tank, 230x150x105 mm, plastics
P7050-1A	1	Powder dye, red
C7445-7S	1	Hose, silicone, D=7/9 mm, L=100cm
C6210-1B	1	One-way tap
C7320-2B	1	Stopper silicone, 17/22/25 mm, 1 hole, for SB 19
DM340-8B	1	Balloons, set

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Purpose
Determination of the volume of gases by liquid displacement.

Preparation
Insert the 25 cm rod into the claw base, afterwards fix the cross-patterned bosshead to the support rod and mount the universal clamp in the bosshead as shown on the image.

Place the measuring cylinder in the empty water tank (in horizontal position).
Pour coloured water into the water tank until the water level is 1 or 2 cm above the cylinder.

Now move the measuring cylinder carefully into vertical position whereby the opening must remain below the water level so that the water in the cylinder does not flow out.
Pay attention that the hose does not slip out of the cylinder.

Now fix the measuring cylinder with the universal clamp.

Experiment
Moisten the one-way tap and push it into the silicone stopper; afterwards insert the silicone stopper into the opening of the balloon. Moisten the other side of the tap and connect the silicone hose to it.
Now blow around 1 litre of air into the balloon through the silicone hose.
Close the tap afterwards so that the air cannot escape from the balloon.

Insert the free end of the hose into the measuring cylinder from the bottom and let a part of the air from the balloon flow into the measuring cylinder.

The inflowing air displaces the water in the measuring cylinder and thus can be read off easily from the measuring cylinder afterwards.