

## Surface tension with the ring method (Du Nouy method)

Article no: P2140500



### Principle

The force is measured on a ring shortly before a liquid film tears using a torsion meter. The surface tension is calculated from the diameter of the ring and the tear-off force.

### Benefits

- High sensitivity measurement possible thanks to ring method
- Analogue set-up that can also be used as a demo experiment in the lecture hall
- Torsion dynamometer used can measure very small forces and is therefore suitable to measure other electrostatic and magnetic interactions between bodies

### Tasks

1. Determine the surface tension of olive oil as a function of temperature.
2. Determine the surface tension of water/methanol mixtures as functions of the mixture ratio.

### Learning objectives

- Surface energy
- Interface
- Surface tension
- Adhesion
- Critical point
- Eötvös equation

## Scope of delivery

Magnetic stirrer with heater

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|   |              |   |
|---|--------------|---|
| Torsion dynamometer, 0.01 N                 | 02416-00     | 1 |
| Surface tension measuring ring              | 17547-00     | 1 |
| Retort stand, h = 750 mm                    | 37694-00     | 1 |
| Supp.rod stainl.st.,50cm,M10-thr.           | 02022-20     | 1 |
| Magnetic stirring bar 30 mm, cylindrical    | 46299-02     | 1 |
| Universal clamp                             | 37715-01     | 2 |
| Right angle boss-head clamp                 | 37697-00     | 2 |
| Right angle clamp expert with fulcrum screw | 02054-00     | 1 |
| Cristallizing dish, boro 3.3, d = 60 mm     | 46245-00     | 2 |
| Cristallizing dish, boro 3.3, d = 60 mm     | 46244-00     | 2 |
| Silk thread, l = 200 m                      | 02412-00     | 1 |
| Glass tubes, straight, 150 mm, 10           | MAU-16074542 | 1 |
| Stopcock, 1-way, straight, glass            | 36705-00     | 1 |
| Silicone tubing, inner diameter 3 mm        | 39296-00     | 2 |
| Volumetric pipette, 50 ml                   | 36578-00     | 1 |
| Volumetric pipette, 50 ml                   | 36579-00     | 1 |
| Pipettor                                    | 36592-00     | 1 |
| Pipette dish                                | 36589-00     | 1 |
| Graduated cylinder, Borosilicate, 1000 ml   | 36629-00     | 1 |
| Ethyl alcohol, absolute 500 ml              | 30008-50     | 1 |
| Olive oil, pure 100 ml                      | 30177-10     | 5 |
| Water, distilled 5 l                        | 31246-81     | 1 |