

Demonstration of the type of charge on rubbed rods

Task and equipment

Information for teachers

Additional Information

The students should see that on rubbing different materials a negative or a positive charging results that can be demonstrated with a neon tube.

Suggestions for Organization and Implementation

To obtain convincing experimental results, it is necessary to ensure that the students use clean, dry paper, that they rub firmly and that the classroom is sufficiently darkened. The function of the neon tube should be demonstrated by the teacher – before the students carry out the experiment – using a power supply (Voltage approx. 100 V DC, series resistance approx. 100 k Ω) so that the students know how one can demonstrate positive and negative charges (the negative electrode lights up).

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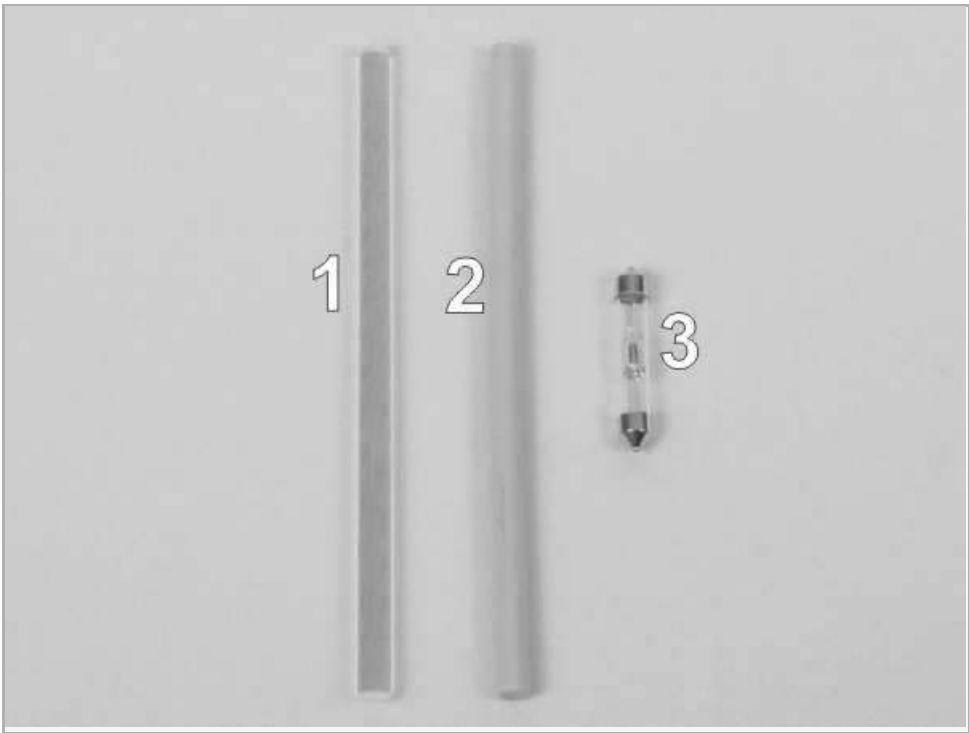
Task

What can we demonstrate on rubbed plastic rods?

Determine with a neon tube what type of charges appear on rubbed plastic rods.



Equipment



| Position No. | Material | Order No. | Quantity |
|---------------------|-----------------------------------|-----------|----------|
| 1 | Acrylic resin rod, d.8mm, l.175mm | 13027-08 | 1 |
| 2 | Polypropylene rod, d. 8mm,l.175mm | 13027-07 | 1 |
| 3 | Neon tube | 06656-00 | 1 |
| Additional material | | | |
| | Sheet of dry, rough paper | | |

Student's Sheet

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Set-up and procedure

Procedure

- Hold the grey rod (polypropylene) firmly at one end and rub the other end strongly with a dry sheet of paper.
- Grip the neon tube on one metal cap and touch the other one on the end of the rod which has been rubbed (Fig. 1). Note your observations in the report.



Fig. 1

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- Carry out the same experiment using the acrylic rod (transparent) and note your observations in the report.

Report: Demonstration of the type of charge on rubbed rods

Result - Observations 1

Note down your observations during the touching the polypropylene rod (grey).

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Result - Observations 2

Note down your observations during the touching the acrylic rod (transparent).

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Evaluation - Question 1

What can you infer from your observations about the charging of the two rods?

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