ELECTROSTATICS KIT - simple

EM1770-001 simple kit

DESCRIPTION: This kit contains materials for use in a variety of electrostatic experiments with plastic strips and rubbing cloths to produce positive and negative charges.

KIT CONTENTS:

- 9 pcs Polystyrene Balls
- 2 pcs Cloth, Cotton
- 2 pcs Cloth, Woollen
- 6 pcs Wooden Clothes Pegs
- 1 pce Nylon Filament x3.5 metres long
- 1 pce Small Paint Brush
- 1 pce Bottle graphite in Alcohol 25ml
- 6 pcs Insulators, polythene, 130x10x3mm
- 5 pcs Pins
- 5 pcs Acrylic Strip, transparent, 3mm thick, (replaces older style acetate strip but produces same polarity charge)
- 5 pcs Vinyl Strip, approx.1mm thick.

Additional materials required:

- 2 pcs Beaker 200ml
- 2 pcs Metal rods l5cm

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Physical size: 350x250mm LxW bag **Weight: 0.27 kg**

ASSEMBLY INSTRUCTIONS:

1. The styrene balls must be coated with a conducting film of graphite. When coating a ball, it can be supported on a pin which can be either held by hand or passed through a piece of card on the bench. The coating will dry in about 2 minutes.

2. Attach 10cm of nylon filament to a ball. Either secure with quick drying adhesive or by threading through a ball with a needle and then tying it.

3. Sharpen an insulator to a point with a knife and insert into a ball. It may be necessary to make a small slit in the ball before inserting the insulator.

4. The insulator, with the ball on its tip, can be held upright by clamping it in a clothes peg placed on the bench top.

USEFUL NOTES:

- Note: The Vinyl strips have a slight blue tint and the Acrylic strips are very clear.
- To obtain good results, all materials must be perfectly dry.
- The Vinyl strip will receive its maximum charge if rubbed with a woollen cloth. Using a cotton cloth will not alter the polarity of the charge but will give a weaker charge.
- The Acrylic strip will receive its maximum charge when rubbed with a cotton cloth. The woollen cloth will give a weaker charge of the same polarity.
- During handling, the plastic insulators will become oily and dirty and will gradually lose their effectiveness. They may be cleaned by washing with soap and water, rinsed and allowed to dry completely.

EXPERIMENTS:

1. Hang an Acrylic strip and a Vinyl strip from a horizontal rod using adhesive tape. Check that they can hinge and swing freely without twisting or touching. Briskly rub the Vinyl strip with the woollen cloth and the Acrylic strip with a cotton cloth. Rub another Vinyl strip with a woollen cloth and hold it close to the two suspended strips without touching them. Take note of any reaction between the strips.

   Rub a Vinyl strip with a cotton cloth and hold it close to the same suspended strips again noting any reaction. Recharge the suspended Vinyl strip by rubbing it with the woollen cloth. Stretch out the cloth and hold it close to the suspended strips. Note any reactions. Repeat last two experiments using an Acrylic strip and note any reactions. Try other cloth materials.

2. Remove the two suspended strips and hang two polystyrene balls from the support rod say 2cm apart. Rub a Vinyl strip with a woollen cloth and charge a ball mounted on a pointed insulator. Transfer this charge to the suspended balls. Note any reaction between the balls. Repeat above experiment using an Acrylic strip and a cotton cloth. Note any reactions.

3. On each of two clean glass beakers, rest a metal rod. Arrange the beakers so that the two rods touch end to end. Bring a charged Vinyl strip close to one end of the touching metal rods. Without touching the rods, separate them by moving one of the beakers, while the charged strip is held in place.

   Transfer some of the charge on the strip to a ball mounted on an insulator then, from that, to a suspended ball. Bring this suspended ball close to each end of the rods, noting the reaction in each case.

   Repeat last two experiments using an Acrylic strip rubbed with a cotton cloth and again note the reactions. Repeat experiment using different combinations of materials to provide different reactions.

Designed and manufactured in Australia