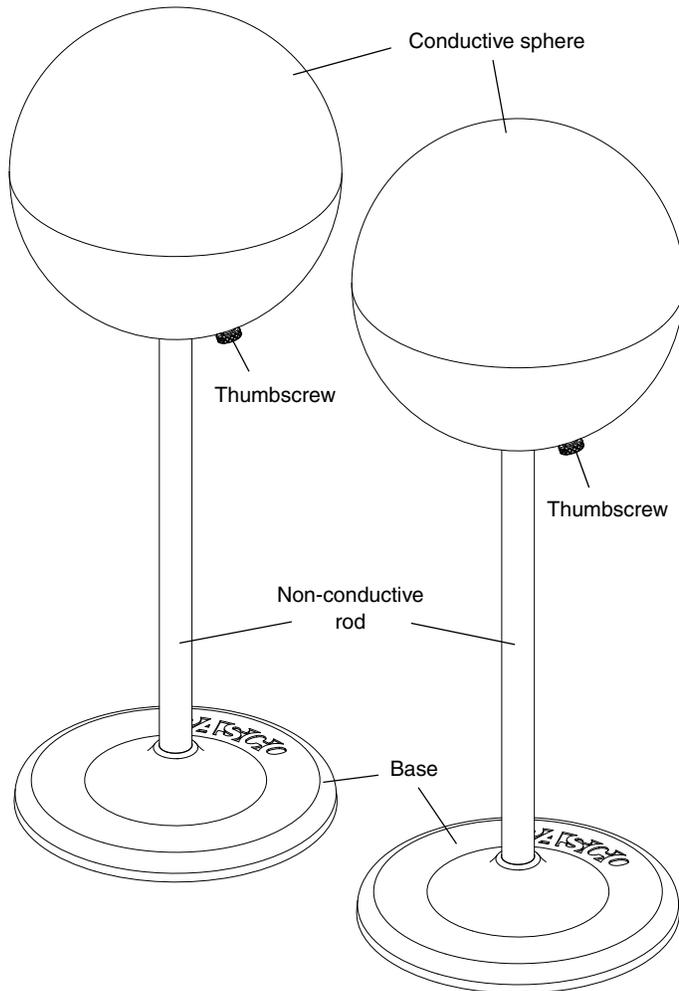




Conductive Spheres

ES-9059C



Introduction

The PASCO ES-9059C Conductive Spheres are convenient objects upon which to store electrical charges. The spheres are 13 centimeters (cm) in diameter and are made of nickel-plated ABS plastic. Each is mounted on a non-conductive rod of polycarbonate (about 10^{14} ohms) and attached to a stable support base. Each sphere has a thumbscrew terminal on the lower half of the sphere for attaching a ground cable or a lead from a voltage source.

NOTE: When handling the conductive spheres, take care to keep each sphere and non-conductive rod free of dirt, grease, and fingerprints to minimize leakage of charge from the spheres.

Recommended Equipment*

- Faraday Ice Pail (ES-9042A)
- Basic Electrometer (ES-9078)
- Electrostatics Voltage Source (ES-9077)
- Charge Producers and Proof Plane (ES-9057B)

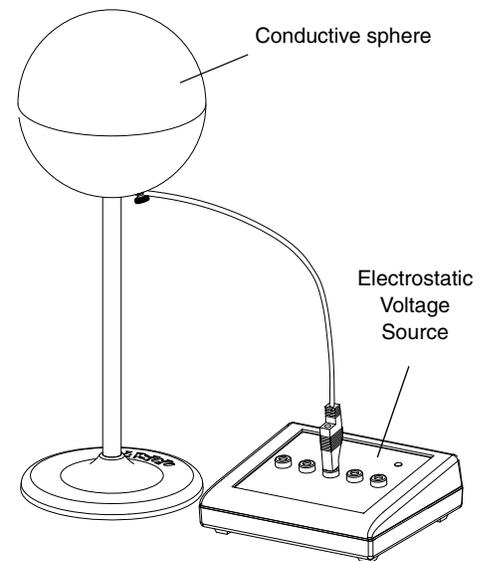
Related Equipment*

- Conductive Shapes (ES-9061)

*See the PASCO catalog or web site at www.pasco.com for more information.

Operation with a Voltage Source

To use the conductive spheres with the PASCO ES-9077 Electrostatics Voltage Source, connect one of the high voltage power supply output terminals (+1000 V, +2000 V, +3000 V) to the thumbscrew terminal on the lower half of the conductive sphere. Note that the voltage source accessories include two banana-plug-to-spade-lug insulated wires.



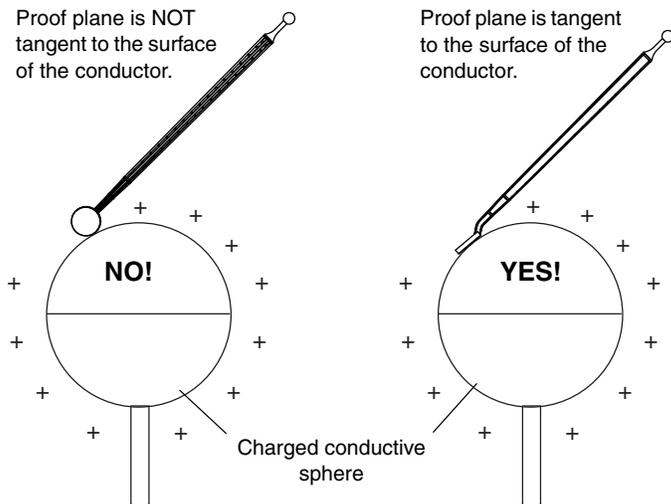
If you are using the PASCO ES-9078 Basic Electrometer to measure voltage, connect the electrometer ground terminal (GROUND) to the black ground terminal on the voltage source.

Using a Proof Plane to Sample Charge

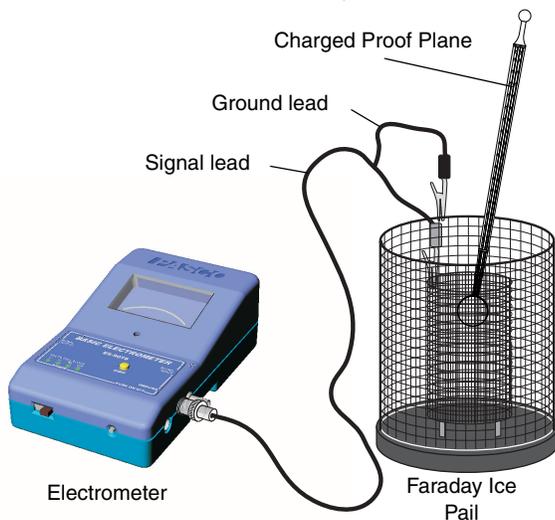
The proof plane that is part of the PASCO ES-9057B Charge Producers and Proof Plane can be used to transfer charge from the surface of a conductive sphere. Place the proof plane so that it is tangent to the surface of the conductive sphere.

Proof plane is NOT tangent to the surface of the conductor.

Proof plane is tangent to the surface of the conductor.



NOTE: You can then use a PASCO Basic Electrometer and a Faraday Ice Pail (ES-9042A) to measure the charge density on the proof plane, as shown in the following illustration.



By touching the proof plane to a surface, it will acquire the same charge distribution as the surface. By measuring the charge on the proof plane, the charge density on the surface can be determined. The greater the charge on the proof plane, the greater the charge density on the surface where the proof plane made contact.

Cleaning the Spheres

When necessary, clean the sphere and the non-conductive rod with rubbing (isopropyl) alcohol.

Warning! Do not use acetone to clean the sphere or the non-conductive rod!

Technical Support

For assistance with any PASCO product, contact PASCO at:

Address: PASCO scientific
10101 Foothills Blvd.
Roseville, CA 95747-7100

Phone: 916-786-3800 (worldwide)
800-772-8700 (U.S.)

Fax: (916) 786-7565

Web: www.pasco.com

Email: support@pasco.com

For more information about the Conductive Spheres and the latest revision of this Instruction Sheet, visit:

www.pasco.com/go?ES-9059C

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