

Electrostatic flue gas cleaning

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Principle

Smoke consists of particles of solid substances suspended in gas. Fog is made up of suspended droplets. In cigarette smoke, as in many industrial processes, smoke and fog are frequently present together. The removal of particles contained in gases - predominately waste gases - is increasingly gaining in importance, both in everyday life and industrially, because frequently the particles and the substances absorbed on them are toxic. Well known examples are adsorbed polycyclic aromatics on soot particles in diesel exhaust, and dioxins, heavy metals and radioactive elements in waste gases from power stations and waste incinerators. The experimental set-up used here also enables constituents of cigarette smoke to be semi-quantitatively deposited even in quite large amounts, so that they can be extracted with light petrol and be examined.

Benefits

- Easy experiment set-up and safe experiment performance
- Demonstration with cigarette smoke - no additional chemical substance is necessary

Tasks

Clean cigarette smoke using high voltage.

Learning objectives

- Introduction to gas purification systems
- Effect of an electrostatic filter for the separation process
- How an electrostatic flue gas cleaning works

Scope of delivery

Frame for complete experiments	45500-00	1
Rear-cover for compl.-exp. panel	45501-00	1
Panel for complete experimental setups	45510-00	1
Clamping holder,turnable,8-10mm	45522-00	2
Holder for syringes	45523-00	1
Apparatus carrier w. fix. magnet	45525-00	1
Fixing bands,universal,100 pcs.	45535-00	1
Spring plugs, 50 off	45530-00	1
Gas syringe, 100 ml, with 3-way cock	02617-00	1
Insert with joining tube	02615-04	1
Glass tube,right-angled,.	MAU-10030703	1
Glass tube, straight, l=80 mm, 10/pkg.	MAU-16074541	1
Rubber stopper 26/32, 3 holes, 1 x 7 mm + 2 x 1,5 mm	39258-14	1
Nickel electrode,d 3mm,w.socket	45231-00	2
PHYWE High voltage power supply with digital display, 10 kV DC: 0... ± 10 kV, 2 mA	13673-93	1
Connecting cord, 30 kV, 1000 mm	07367-00	2
Petri dish, d 200 mm, glass	64705-00	1
Silicone tubing, inner diameter 3 mm	39296-00	1
Barrel base expert	02004-00	1