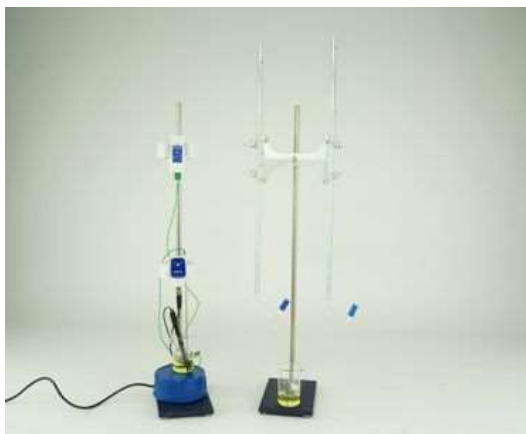


Nernst equation with Cobra SMARTsense

Article no: P3060967



Principle

The Nernst equation states how the electrical potential of an electrode in contact with an ionic solution depends on the concentrations (more precisely, activities) of these ions. The equation can be verified experimentally by using an electrochemical cell consisting of an inert indicator electrode coupled to a suitable reference electrode (here in the form of an ORP combination electrode).

Benefits

- Relevant both for chemists and for physicists
- Essential introductory experiment for studying battery technology

Tasks

Measure the potential of a platinum electrode with our ORP electrode immersed in solutions of known concentrations of the iron(II) and iron(III) complex ions $[\text{Fe}(\text{CN})_6]^{4-}$ and $[\text{Fe}(\text{CN})_6]^{3-}$.

Learning objectives

- Electrode potentials and their concentration dependence
- Redox electrodes
- Electrochemical cells

Necessary accessories

- Analytical balance 120g/0.1mg

Software included. Computer not provided.

Scope of delivery

Cobra SMARTsense Thermocouple - Sensor for measuring temperature -200 ... +1200 °C (Bluetooth + USB)	12938-01	1
Cobra SMARTsense ORP - Sensor for measuring the redox potential ±2000 mV (Bluetooth)	12927-00	1
Sheath Thermocouple, NiCr-Ni, Type K, -40°C ... +1000°C	13615-06	1
Connecting cord, 32 A, 500 mm, black	07361-05	1
Magnetic stirrer without heating, 3 ltr., 230 V	35761-99	1
Magnetic stirring bar 30 mm, cylindrical	46299-02	1
Retort stand, h = 750 mm	37694-00	2
Right angle boss-head clamp	37697-00	2
Universal clamp	37715-01	1
Burette clamp, roller mount., 2 pl.	37720-00	1
Burette, lateral stopcock, Schellbach, 50 ml	MAU-24022024	2
Weighing dishes, square shape, 84 x 84 x 24 mm, 500 pcs.	45019-50	1
Beaker, Boro, high-form	46026-00	2
Beaker, Boro, high-form	46032-00	4
Volumetric flask, Borosilicate, 100 ml, IGJ12/21	36552-00	4
Volumetric pipette, 50 ml	36581-00	2
Pipettor	36592-00	1
Pipette dish	36589-00	1
Funnel, glass, top dia. 50 mm	34459-00	2
Funnel, glass, top dia. 50 mm	34457-00	2
Pasteur pipettes, 250 pcs	36590-00	1
Rubber caps, 10 pcs	39275-03	1
Spoon, special steel	33398-00	1
Wash bottle, plastic, 500 ml	33931-00	1
Potass.hexacyanoferrate/II/250 g	30101-25	1
Potass.hexacyanoferrate/III/100g	30100-10	1

Water, distilled 5 l	31246-81	1
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Holder for Cobra SMARTsense	12960-00	2
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Necessary accessories

Analytical Balance, Sartorius, 220 g : 0.1 mg	49300-99
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