PHYWE

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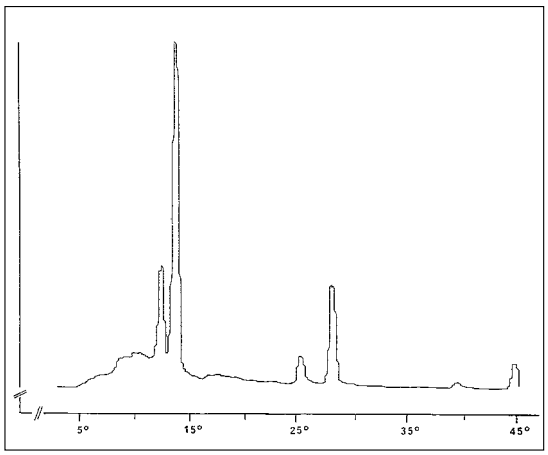
HANDBOOK

Experiments for the X-ray unit



The X-ray unit with recorder output is a demonstration and practical work unit to carry out all relevant experiments with soft X-rays without risks.

A control panel on the front of the unit, with all required feed and signal sockets, is used to perform all experiments in the closed experimenting area.

Two integrated step motors allow fast recording of X-ray spectra with recorders or PHYWE interface systems. With these motors, the analyser (monocrystal) and the detector (G.-M. counter tube) can be rotated independently or synchronously to any angular rate (e.g. 1:2 for Bragg reflection), with a high degree of angular resolution and with three adjustable speeds. An analogue signal proportional to the angle is available for recording. Futhermore, a demonstrative angular scale with two pointers is available.

This HANDBOOK can be purchased separately.

It contains the experiments listed below.

Please ask for a complete equipment list.

Ref No 25411

Handbook • Experiments for the X-ray unit • No. 01186.02 • 32 described Experiments

1 Detection of X-radiation

RP 1.1 (11915)
Fluorescence

RP 1.2 (11916)
Blackening of film with X-rays

RP 1.3 (11917)
Discharge of an electroscope

RP 1.4 (11918)
Ionisation chamber

RP 1.5 (11919)
Counter tube

2 Propagation of X-radiation

RP 2.1 (11920)
Rectilinear propagation of X-radiation

RP 2.2 (11921)
The determination of the location of an X-ray source

3 Transmission experiments

RP 3.1 (11922)
Observation of a luminescent screen

RP 3.2 (11923)
X-ray photography

4 Ionisation by X-rays

RP 4.1 (11924)
Dependence of the ionisation current on the capacitor voltage

RP 4.2 (11925)
Dependence of the ionisation current on the acceleration voltage

RP 4.3 (11926)
Absorbed dose measurement

5 Photometry

RP 5.1 (11927)
Photometry

6 X-ray spectra

RP 6.1 (11928)
Energy analysis of the X-radiation of a Copper anode

RP 6.2 (11929)
Characteristic radiation of Copper

RP 6.3 (11930)
Characteristic radiation of copper at high-order diffraction

RP 6.4 (11931)
Deceleration radiation, displacement law of Duane-Hunt and the determination of Planck's action quantum

7 Monochromation of X-rays

RP 7.1 (11932)
Monochromation by Bragg reflection

RP 7.2 (11933)
Monochromation by absorption

8 Absorption of X-rays

RP 8.1 (11934)
Dependence of the attenuation of monochromatic X-radiation on material thickness

RP 8.2 (11935)
Dependence of the absorption of monochromatic X-radiation on the material

RP 8.3 (11936)
Attenuation of X-radiation having different wavelengths

RP 8.4 (11937)
K-edge absorption of X-radiation

RP 8.5 (11938)
Moseley's law and the Rydberg frequency

RP 8.6 (11939)
L-edge absorption

9 Structural examinations

RP 9.1 (11940)
X-ray diffraction after Laue

RP 9.2 (11941)
The Debye-Scherrer method

10 The Compton effect

RP 10.1 (11942)
The Compton effect

11 Computer-assisted registration of measured values

RP 11.1 (11943)
X-ray spectra with the COMEX System

RP 11.2 (11944)
Measurement of the half-value layer thickness with the COMEX System

RP 11.3 (11945)
X-ray spectra with the COBRA System

RP 11.4 (11946)
Measurement of the half value layer thicknes with the COBRA System

X-ray photo of a frog