

Physik

Chemie · Biologie

Technik



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## Instruction sheet 554 844

Target set for K lines fluorescence (554 844),

Target set for L lines fluorescence (554 846),

Target set of alloys (554 848)

### 1 Description

The target sets 554 844, 554 846 and 554 848 are suitable for recording the x-ray fluorescence spectra in the x-ray device (554 811) in conjunction with the x-ray energy detector (559 938).

The target sets for K and L lines fluorescence consist of a number of pure metals, for which the characteristic lines can be excited by the x-ray radiation energy  $E \leq 35$  keV. Each target is identified by the element symbol.

The target set of alloys consists of four metallic compounds. The targets are identified by a number.

### 2 Technical data

Dimensions: 25 mm x 25 mm

#### Target set for K lines fluorescence (554 844):

Element	Z	Energy of the characteristic lines
Titanium (Ti)	22	K $\alpha$ : 4,51 keV, K $\beta$ : 4,93 keV
Iron (Fe)	26	K $\alpha$ : 6,40 keV, K $\beta$ : 7,06 keV
Nickel (Ni)	28	K $\alpha$ : 7,47 keV, K $\beta$ : 8,26 keV
Copper (Cu)	29	K $\alpha$ : 8,04 keV, K $\beta$ : 8,91 keV
Zinc (Zn)	30	K $\alpha$ : 8,64 keV, K $\beta$ : 9,57 keV
Zircon (Zr)	40	K $\alpha$ : 15,77 keV, K $\beta$ : 17,67 keV
Molybdenum (Mo)	42	K $\alpha$ : 17,48 keV, K $\beta$ : 19,61 keV
Silver (Ag)	47	K $\alpha$ : 22,17 keV, K $\beta$ : 24,95 keV

#### Target set for L lines fluorescence (554 846):

Element	Z	Energy of the characteristic lines
Silver (Ag)	47	K $\alpha$ : 22,17 keV, K $\beta$ : 24,95 keV L $\alpha$ : 2,98 keV, L $\beta$ : 3,15 keV
Indium (In)	49	K $\alpha$ : 24,21 keV, K $\beta$ : 27,29 keV L $\alpha$ : 3,29 keV, L $\beta$ : 3,49 keV
Tin (Sn)	50	K $\alpha$ : 25,28 keV, K $\beta$ : 28,50 keV L $\alpha$ : 3,44 keV, L $\beta$ : 3,66 keV
Tungsten (W)	74	L $\alpha$ : 8,40 keV, L $\beta$ : 9,67 keV
Gold (Au)	79	L $\alpha$ : 9,72 keV, L $\beta$ : 11,44 keV
Lead (Pb)	82	L $\alpha$ : 10,56 keV, L $\beta$ : 12,62 keV

#### Target set of alloys (554 848):

No.	Material
1	Stainless steel X5CrNi18-10 (72% Fe, 18% Cr, 10% Ni)
2	Brass CuZn36 (64% Cu, 36% Zn)
3	Brass CuZn39Pb3 (58% Cu, 39% Zn, 3% Pb)
4	Samarium-cobalt magnet

#### Safety note

Since some materials contains heavy metals or allergens, care should be taken, in accordance with good laboratory practice, to ensure that before, during and after exposure to the targets, the workplace, the equipment, the clothes and the hands (protective gloves being worn, where appropriate), where necessary, are thoroughly cleaned up and kept clean. During experiments eating, drinking or smoking is forbidden.

The corresponding material safety data sheets should be consulted. For each of these, the currently valid regulations concerning exposure to hazardous substances in schools must be observed.