

EXPERIMENTER'S XRF KIT

**XRF
Kit**

Amptek's Experimenter's XRF Kit is a package designed to help a user quickly begin doing elemental analysis via X-ray fluorescence (XRF). It includes hardware and software supplied by Amptek. Once this kit is assembled and the software configured and calibrated, one can begin doing simple analyses. This kit is general purpose, so is not tailored to a particular application, but can be the starting point for a customized system.

The XRF Kit is available with your choice of Amptek SDD, Fast SDD™, or Si-PIN detector. The user must supply a Windows SP2 or later (32-bit only) PC with three (3) available USB ports.

Amptek Experimenter's XRF Kit Includes:

- X-123 Complete Spectrometer with SDD, Fast SDD™, or Si-PIN detector
- Mini-X USB Controlled X-Ray Tube
- XRF-FP Quantitative Analysis Software
- Test stand with shielding and sample enclosure
- Stainless Steel 316 (SS316) test sample
- Complete documentation with step-by-step instructions
- XRF Kit wizard for quick software setup



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Amptek Experimenter's XRF Kit



Amptek Experiment's XRF Kit shown with the sample enclosure opened.

Frequently Asked Questions (FAQ) For Amptek Experimenter's XRF Kit

Is this XRF Experimenter's Kit comparable to a turn-key XRF system?

This kit contains all of the critical hardware and software required to do energy dispersive X-ray fluorescence (EDXRF), but it is not a turn-key system. It requires not only assembly but also configuration of the hardware and software, and calibration.

A turn-key system is generally designed to handle a wide range of measurement applications. If a user has a specific application, particularly one that is challenging for turn-key systems, the Amptek Experiment's XRF Kit lets the user optimize the entire system for that one application. It is a very powerful tool for specific and challenging measurement applications. But to obtain its advantages, the user must invest the time to fully optimize the hardware, the software, the calibration procedures, and so on.

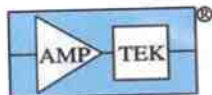
A turn-key system is designed for an operator with minimal training. The operator turns on the system, takes a measurement, and the system gives the answer. The designers of the turn-key system have already optimized the configuration, calibrated the system, and evaluated its measurement uncertainty. The Experiment's XRF Kit requires a user to carry out these steps and to have the knowledge to carry them out. It is possible to use the Experiment's XRF Kit to fabricate a prototype of an OEM system, which is simple to use, but this requires development effort.

To do XRF, do I need to buy or build anything other than Amptek's Experimenter's XRF Kit?

No, the Experiment's XRF Kit provides everything including radiation shielding. User's must be trained in radiation safety and fully understand the radiation precautions and instructions provided.

What must I do to start using the Experimenter's XRF Kit as a laboratory prototype?

- 1) The kit comes with instructions to guide you through (a) assembling the hardware, (b) installing the software, (c) selecting a "basic" configuration which permits you to acquire a spectrum, and (d) calibrating the energy scale.
- 2) The kit comes with a single sample material, a piece of stainless steel 316, to use in initial setup and calibration. You must obtain any other samples necessary.
- 3) You need to optimize the configuration of the system for your measurement application. There are many parameters to consider: the energy and filtering of the excitation source, geometry of the detector, tube and sample, the parameters of the signal processor (there are many parameters, though usually only a few are key), and the parameters of the spectrum processing and analysis software.
- 4) You need to calibrate the energy scale. For accurate results, you also need to calibrate the analysis software using samples of known composition.



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