2. Overview

2.1 Introduction

The S1 SORTER produced by Bruker Elemental, is a portal, wide range elemental analyzer intended for metal alloy field analysis. It provides a method for direct chemical analysis or material identification (sorting) from materials of various forms. The S1 sorter, based on energy dispersive spectroscopy X-ray fluorescence technology (ED-XRF), uses an X-ray tube as its excitation source.

The instrument contains a high-resolution, Peltier (thermoelectric) cooled, Silicon PIN (Si-PIN) diode detector. The S1 SORTER is a fully field-portable analyzer with an integrated PDA (Personal Digital Assistant) computer. The removable PDA provides the user interface for operating the instrument and contains the BrukerS1 analytical program. This program enable the user to select analytical methods, view spectra, and save data. A color touch screen (TFT), which can be operated with either a fingertip or the included stylus, provides control and display capabilities.

The instrument is factory calibrated and has a library of over 300 standard alloys. Special customer-specific alloys may be added by the factory when ordering, or anytime during the lifetime of the instrument. The standard library contains these common alloys:

- Low alloy steels
- Stainless steels
- Tool steels
- Nickel alloys
- Cobalt alloys
- Copper alloys