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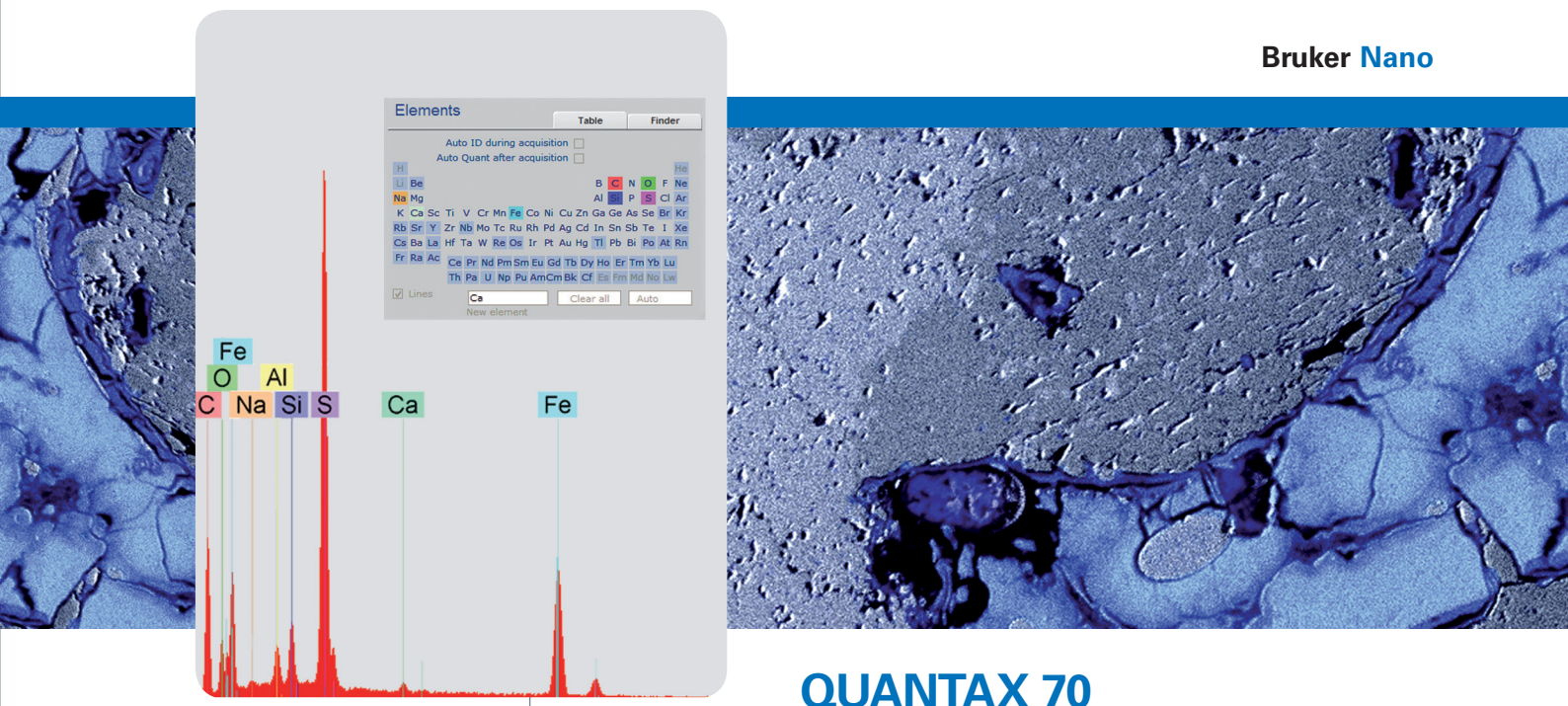


QUANTAX 70

EDS System for Hitachi Tabletop Microscope TM3000

- **Extended Quotation, America**

think forward

EDS

1. Overview

This document is to give an introduction to Bruker's QUANTAX 70, an EDS system specifically developed for use in combination with the Hitachi TM3000 TableTop Microscopes. It contains detailed technical descriptions of the hardware and software components, pricing and distribution guidelines, information with regard to installation and conditions for technical service, as well as a standard quotation and a product specification sheet.

The QUANTAX 70 consists of an XFlash® SDD detector with 30 mm² active area, a small signal processor box (MIN SVE), a scan generator box and an easy to use software for qualitative and quantitative EDS microanalysis which includes line scan and mapping functionality. The system allows the detection of light elements (from boron) and offers excellent energy resolution. The detector (XFlash® 430 H) can be easily installed on the TM3000 microscope, the software runs on the TM3000 computer.

The QUANTAX 70 was thoroughly evaluated at Hitachi High Technologies headquarters in Naka, Japan, and was approved for use with the TM3000 TableTop Microscope by Hitachi's QA department.

2. Key Features of QUANTAX 70

- EDS system for qualitative and quantitative element analysis, specifically designed for the Hitachi TM 3000 TableTop Microscope
- XFlash® 430 H silicon drift detector (SDD) with large active area (30 mm^2), superior energy resolution (154 eV @ Cu Kα) and light element capability (from boron up)
- Small, high performance MIN SVE signal processing electronics, ensures stability of energy resolution up to 60.000 cps output count rate
- External scan generator with fast USB 2.0 interface
- Newly designed software for reliable automatic element ID and accurate quantitative analysis within seconds, running on the TM3000 computer
- Three different analysis modes: spot mode, line profile, element mapping
- Ease of use enables quick familiarization, even for beginners, with very little training effort
- Software available with GUI in German, English, Japanese (other languages on request)
- Detailed installation and service manuals

3. Contents of Delivery

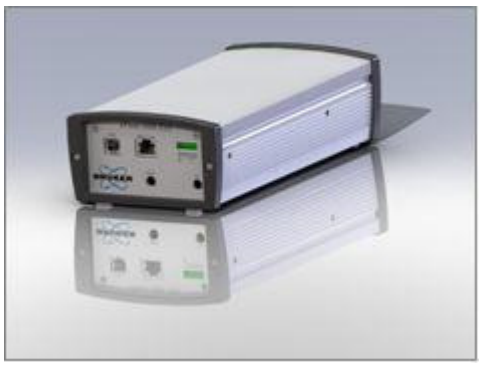
1	XFlash® 430 H EDS Detector
6	Screws
1	MIN SVE USB
1	Scan Generator USB
1	Detector cable
1	MegaLink cable
1	USB cable
1	DBC Cable (Scan control)
2	Power converter and power cable
1	Software user manual
1	Hardware manual XFlash® 430 H
1	Hardware manual MIN SVE USB
1	Detector data sheet
2	CDs - Software; Hardware driver - Detector calibration file

4. Technical Data

4.1. Detector XFlash 430 H

- Silicon Drift Detector (SDD)
- Active detector area: 30 mm^2
- Element range: boron (5) – americium (95)
- Energy resolution: 154 eV (for Cu Kα)
  135 eV (for Mn Kα)
  stable up to 60.000 cps output
- Internal detector temp.: - 25˚C
- Cooling method: Peltier cooling (no fan, no LN_2)
- No detector warm-up needed during venting/ sample changing
- Dimensions: 145 x 130 x 105 mm
- Weight: 1,5 kg
- Detector cable length: 2 m

4.2. Signal Electronics



- Bruker MIN SVE USB
- 4096 channels (5 eV/ch)
- Fully software controlled hardware calibration
- Up to 60.000 cps output count rate
- Mains voltage: 60 - 240 V (± 10%), 50/60 Hz
- Power consumption: 25 W (including detector)
- Grounding: < 100 Ohm
- Dimensions: 228 x 116 x 66 mm
- Weight: 1 kg
- USB cable length: 2 m

4.3. Scan generator

- Mains voltage: 60 - 240 V (± 10%), 50/60 Hz
- Power consumption: 25 W (including detector)
- Interface with TM3000 computer via USB 2.0
- Selectable image res.: large (1024 x 768)
  normal (640 x 480)
  small (320 x 240)
- Dwell time: freely adjustable
- Dimensions: 228 x 116 x 66 mm
- Weight: 1 kg

4.4. System

- Ambient temperature: 15 – 30 ˚C
- Relative humidity: 45% - 70% RH
- MTBF: 11 years
- Compliance: ISO 15632:2002, EN 61000, EN 61010

5. Software Description

The software of the QUANTAX 70 runs on Windows XP, Windows Vista and Windows7 operating systems and is to be installed on the TM3000 computer (laptop or desktop PC). An USB 2.0 interface is used to connect the TM3000 computer with the scan generator of QUANTAX 70.

The software is designed for easy and most convenient user operation. Installation and user training for QUANTAX 70 can be completed within one hour.

The software performs qualitative and quantitative analyses of all solid materials within only a few seconds. Using the external scan generator, QUANTAX 70 can acquire microscope images. Within the acquired image the user has the choice between a single spot analysis, a line profile analysis (line scan), or a two dimensional element distribution analysis (element map). The software provides automatic identification of all elements from boron (5) to americium (95). Quantification results are given as atomic % and weight %.

All analysis steps can be operated and visualized within one single EDS window on the microscope screen. A task bar guides the user through the entire analysis. A partial screen mode is available to allow investigation of SEM images and EDS data simultaneously without switching screens.

The QUANTAX 70 software includes the following features:

- Image acquisition with selectable image resolution (small, normal, large)
- Spot mode
    - Spectrum acquisition at a single spot on the sample surface,
    - Automatic element identification starting from Boron (5), interactive element ID for advanced users
    - Accurate element quantification (atomic %, weight %, normalized, unnormalized results, error margin) during acquisition
    - Display of results as table or graphic
- Line scan mode
    - Spectrum acquisition along a line of freely selectable length and position
    - Display of coloured concentration profiles for any number of elements along the selected line
- Mapping mode
    - Spectrum acquisition within a rectangular area of freely selectable size and position
    - Display of coloured concentration distributions (element maps) for any number of elements within the selected area
    - Overlay of any number of single element maps to visualize sample composition
- Storage of spectra, line profiles , maps and results at hard disk including quick save
- Evaluation of previously acquired spectra, line profiles and maps, loading of other Bruker spectra possible
- Report generation and print formatting
- Export of results to MS Word* (*registered trademark of Microsoft Corp.)
- Graphic user interface in German, English, Japanese (other languages on request)