# Thermo Scientific MEP-400 Multi-Element Probe

## XRF elemental slurry analysis without the need for radioisotopes or liquid nitrogen


**Thermo Scientific MEP-400 Multi-Element Probe**

In the mining industry, safety and environmental sustainability are priorities, while the collection of data in real time is essential for process control, automation and optimization. The Thermo Scientific™ MEP-400 Multi-Element Probe is the product of over 50 years of experience in slurry analysis solutions. The MEP-400 probe uses the latest technologies to enable continuous on-line analysis without isotopes or liquid nitrogen. It is the safest MEP ever, utilizing a fail-safe retractable shutter and controllable X-ray tube with automatic interlock and visual beacon to minimize the risk of radiation exposure to operators.

When the MEP-400 probe is used with the Thermo Scientific™ AnStat Online Sampling and Elemental Analysis Station, or the Thermo Scientific™ MSA-430 Multi-Stream Slurry XRF Analyzer, it permits plant operators to follow and respond to process trends in real time with high confidence.

The new MEP-400 probe attains higher count rates than previous generations, with a 10x improvement in copper lower limit of detection over the MEP-300 model that makes exceptional analyzer accuracy possible. Similar improvements are also realized for other base metals. This is achieved through the integration of a low power X-ray tube, combined with the latest Silicon Drift Detector (SDD) and Digital Pulse Processor (DPP). These technologies enable advanced measurements, with high accuracy, of elements in slurry. This technological leap in X-ray tube design with an air-cooled detector has eliminated the need for isotopes and has removed cryogenic cooling requirements.

Further benefits with the MEP-400 probe come with the long-life X-ray tube. An innovative Quick-Change window design reduces time needed for maintenance as well as the overall maintenance effort for operators. This also lowers the cost of ownership over the life of the mine. Increased safety, higher performance and lower maintenance combined with high availability for constant analysis make the MEP-400 probe an ideal way to upgrade your existing MSA and AnStat 200 and 300 series systems.

## A new generation: the Thermo Scientific MEP-400 probe upgrade options

### Common benefits of the upgrade

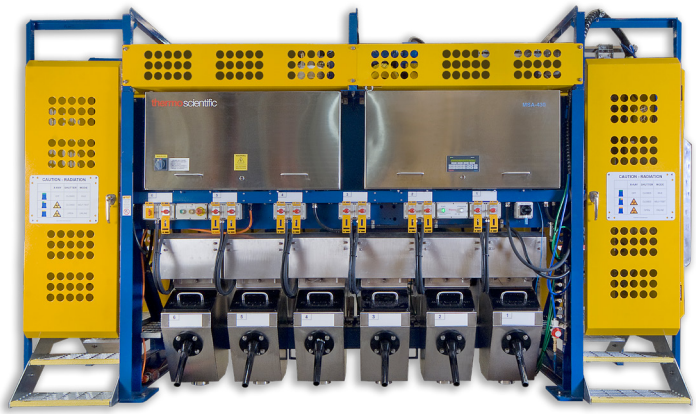
- Improved safety and sustainability
  - Radioisotope hazards, logistics, replenishments and disposals are eliminated.
  - Liquid nitrogen handling hazards and replacement waste are eliminated.
- Analytical performance
  - The probe delivers improved accuracy and higher count rates.
- Lower maintenance costs
  - The MEP-400 probe has a long-life X-ray tube and a Quick-Change window. A spare X-ray tube can be stored and replaced on-site (by a qualified field service person), eliminating the need for factory repair and minimizing down-time.

### Upgrade packages contain:

- MEP-400 Multi-Element Probe
- MEP-400 Controller for AnStat Online Sampling and Elemental Analysis Station or MSA Multi-Stream Analyzer
- Thermo Scientific™ WinISA software providing configuration, operation, maintenance, calibration and communications by Ethernet TCP/IP
- Opportunity to bundle other component replacement requirements with the main upgrade, e.g., hoists and crosscut samplers


**The MEP-400 probe is used on MSA-430 and AnStat-430**

**Thermo Scientific AnStat-430 Online Sampling and Elemental Analysis Station with upgrade**



**Thermo Scientific MSA-430 Multi-Stream Slurry XRF Analyzer with upgrade**

### (IP66) shroud

- High-visibility beacon offering quick visual confirmation of X-ray status and alarm conditions
- Modular interface and control unit
- Temperature, humidity and vibration sensor
- Instrument air cooled, no liquid nitrogen or chiller required

### Probe leg

- Fail-safe retractable shutter
- Window rupture protection with back-up window
- Sealed heat exchanger
- Quick-change window system

# Frequently asked questions

### Why should I upgrade?

- Increased safety, reduced maintenance costs, field repairable and improved analysis

### What product can be upgraded?

- AnStat Online Sampling and Elemental Analysis Station (AnStat-220 onwards), and MSA Multi-Stream Slurry XRF Analyzer (Mk 4.2 onwards)

### What are the steps in the upgrade proposal process?

- Contact your local sales or service
- Complete a site questionnaire
- Undergo site visit and equipment audit
- Receive proposal

### What do I have to prepare for?

A detailed list of site preparation tasks will be provided with the upgrade proposal. After accepting the proposal and site preparation tasks have been implemented, a Thermo Fisher Scientific service engineer will visit to install the upgrade, provide training and assist with calibration. In some cases, LAN and instrument air infrastructure will need to be augmented.

### Will I have to recalibrate?

Yes, you will need to allow for a new calibration of the equipment.

### Will there be any impact on my accuracy?

For most common applications the MEP-400 probe will provide improved or at least comparable accuracy.

### What do I do with my existing source?

The existing isotope from either a 200 series or 300 series probe will require appropriate disposal as per local regulations for isotope disposal.

### How is the radioactive materials license affected?

Isotope license is eliminated; however, an X-ray tube may require sending notification to or registering with local agencies.

### How is the radioisotope materials license affected?

Radioisotope possession license is eliminated; however, an X-ray tube may require sending notification to or registering with local agencies.

Thermo Scientific 4th generation MEP-400 multi-element probe

| MEP-400 physical specifications | |
|---|---|
| **Probe weight** | 70 kg |
| **Dimensions** | 0.97 m high x 0.33 m wide x 0.36 m deep |
| **Utilities** | |
| **Instrument air** | ISO 8573.1 Class 3, 4, 3. Dewpoint < 3°C) |
| **Air consumption** | Maximum flow rate 420 SLPM, nominal 600 kPa (87 psi) |
| **Air pressure** | 550 kPa nominal - 1000 kPa maximum |
| **Power** | Three phase 380-600 Volts AC +/- 10%, 50/60 Hz (48 - 62 Hz), 2.5 kVA |
| **Communications** | Ethernet TCP/IP: 100 MBps. Remote login to WinISA computer required. Reserve Static IP addresses: One for WinISA PC and one for each analyzer |
| **Environmental** | |
| **Operating temperature (ambient)** | -10°C to 55°C (measured at enclosure surface temperature, temperature to not exceed 55°C)<br>Sunshade required, to protect equipment & personnel, for outdoor installations above 35°C |
| **Operating temperature (process fluid)** | 0°C to 45°C |
| **Temperature (MEP-400 Probe, ambient)** | 0°C to 55°C |
| **Humidity** | 0 to 95% RH - non condensing |
| **Vibration** | < 0.5G at installation tank supports |
| **Protection class** | |
| **Controller enclosure** | IP65, NEMA 4, grade 316 stainless steel natural finish |
| **MEP-400** | IP66 - lower leg is suitable for continuous immersion in slurry |

Learn more at **thermofisher.com/mineralsxrf**