

X'Pert³ Powder is the newest X-ray diffraction system based on the fully renewed X'Pert platform. With new on-board control electronics, compliance with the latest and most stringent X-ray and motion safety norms, advances in eco-friendliness and reliability the X'Pert³ Powder is ready for the future.

The system offers an affordable solution for high-throughput, high-quality phase identification and quantification, residual stress analysis, grazing incidence diffraction, X-ray reflectometry, small-angle X-ray scattering, pair distribution function analysis and non-ambient diffraction. [Read more](#)

The X'Pert³ Powder can be equipped with either point or line detectors. A very cost-effective detector is our sealed Xe proportional detector, while our scintillation detector is very suited for hard radiation applications such as pair distribution function analysis.

As the world's first silicon-based position-sensitive line detector, the X'Celerator with 128 channels of 70 μm is the expression of PANalytical's pioneering work. With the R&D 100 Award winning X'Celerator detector you can measure up to 100 times faster than with a traditional point detector without compromising data quality. Without the need for cooling water, liquid nitrogen flow, counting gas or calibrations it is a very cost-effective solution.

[Webinar - Recorded](#)

HighScore (Plus) version 4.0 from Malvern Panalytical was released recently. This webinar will give you a guided tour along the most prominent new features of this powder diffraction analysis package. It will also explain important changes with respect to the previous versions. This webinar is, in the first place, for people who are already using HighScore. For those of you who have never worked with HighScore before, in the year 2014 we are planning a series of webinars that will give you an introduction to phase analysis.

[Webinar - Recorded](#)

This webinar explains how to perform a qualitative phase analysis with HighScore. Detecting the phases in a sample is often the first step of an X-ray powder analysis. .

[Webinar - Recorded](#)

This webinar will introduce you to the graphical user interface of HighScore and the basic ideas behind it. It will cover customization, the document model, editing and displaying of data and parameter sets. The webinar targets first-time and beginning users as well as all advanced users, who want to get the most out of the software. Mastering the graphical user interface is the basis for all analyses and applications possible with HighScore (Plus).

[Webinar - Recorded](#)

The production of blended cements with different additives is a significant contribution to the reduction of CO₂ emissions in the cement industry. A variety of completely or partly amorphous materials are used as additives, like slag, fly ash, silica, pozzolana and others. Controlling these additives quantitatively is essential in order to guarantee the cement norms. Of special interest is the quantification of amorphous content. X-ray diffraction in combination with *Rietveld analysis* allows a quantification of complex materials like blended cements.

[Webinar - Recorded](#)

The live webinar will show how to solve a crystal structure from powder data using the Empyrean diffractometer and the HighScore software suite [1]. We will discuss the requirements for solving a crystal structure from powder data and we will show recent examples of some vanadates among which a new larnite/belite structure [2]. Furthermore, as phase transitions may appear as function of temperature, the best practice for high-temperature measurements will be presented. The webinar targets researchers interested to learn how to solve a structure from powder X-ray data and in particular using Malvern Panalytical's HighScore suite. Additionally, people interested in the larnite and belite structures could learn how the chemistry stabilizing this structure type can be extended to open avenues for a better understanding of the crystal chemistry of this important crystal type in the cement industry and in mineralogy. This webinar will include a live question and answer session for our attendees

[Application Note](#)

In this data sheet we show a typical example of the fast and precise analysis of mineralogical ore compositions. The exploitation of new iron ore deposits of lower ore grade requires accurate and frequent monitoring of the mined material during mine

Green production of cement is trending, but it comes with its challenges. From a chemistry point of view alternative fuels render stoichiometry in the kiln invalid and when producing blended cements many supplementary cementitious materials have a rather complex chemical composition. These are just two examples that can make process control and quality assurance of environmentally friendly cement production demanding. Full mineralogical analysis with X-ray diffraction (XRD) helps to draw the right conclusions about the process without any simplified assumptions. X-ray diffraction is an easy-to-use technology, which is not user-dependent. In this webinar, we will illustrate the benefits of Malvern Panalytical's newest XRD instrument and show how it can address the needs when producing cement in an environmentally friendly way. The webinar targets industrial as well as academic XRD users from the cement and related industries.

[Webinar - Recorded](#)

Traditionally, quality control of iron ore and iron ore sinter has relied on time-consuming wet-chemical analysis. The mineralogical composition that defines the physical properties such as hardness or reducibility is currently not monitored. X-ray diffraction (XRD) is capable of delivering rapid and accurate analysis of all incoming raw materials, intermediate products as well as finished products. It is ideal for monitoring and assuring the highest standards for process and quality control. However, the use of XRD is often considered a big step in terms of initial investment and operator training. To make XRD accessible to everyone, Malvern Panalytical introduces a novel XRD approach: a new diffractometer, which is cost-effective and designed for ease of use. In this webinar, we are going to illustrate the benefits of this instrument – the most innovative benchtop diffractometer available on the market – for the metals industry, and show how it can address the most stringent industry needs. The webinar targets industrial as well as academic XRD users from metals-related industries.

[Webinar - Recorded](#)

Decreasing ore qualities and increasing prices for raw materials require a better control of ore processing and a more efficient use of energy. Traditionally, quality control in mining industries has relied on time-consuming wet-chemical analysis of the elemental composition. The mineralogy that defines the physical properties is often only monitored infrequently. Direct monitoring of minerals and process parameters does make the

difference in describing ore bodies and the efficiency of the beneficiation process. A full mineralogical analysis with X-ray diffraction (XRD) helps to increase mineral recoveries in the most effective and environmentally friendly way. X-ray diffraction is an easy-to-use technology, which is not user-dependent. In this webinar, we will illustrate the benefits of Malvern Panalytical's XRD instrument and show how it can address the needs of monitoring the processing of ores from the raw ore to the concentrate. The webinar targets industrial as well as academic XRD users from the mining and related industries.

[Application Note](#)

The use of the advanced diffractometer in combination with the Oxford Cryostream Plus compact enables us to evaluate the temperature effect on the synthesis process of nanocerium using the small-angle X-ray scattering (SAXS) technique at variable temperatures. We performed an ext

