

**Kratos Analytical,
a Shimadzu Group Company**

Kratos Analytical Limited is a wholly owned subsidiary of Shimadzu Corporation of Kyoto, Japan. We have been manufacturing scientific instruments for 5 decades. Throughout this period Kratos has continued to lead the development of new technologies related to X-ray photoelectron spectroscopy and MALDI mass spectrometry for materials surface and biomaterial characterisation respectively. We are proud that all Kratos products are designed, assembled and supported from our headquarters in **Manchester, UK.**

Engineering excellence

Our state-of-the-art scientific instruments use the latest engineering concepts and practices. We have talent and experience in electronic, electrical and mechanical engineering which contribute to the success of our products. Kratos Analytical is committed to investing in R&D for the improvement of existing and development of new products. Over the decades our intellectual property has been recognised and protected by numerous patents.

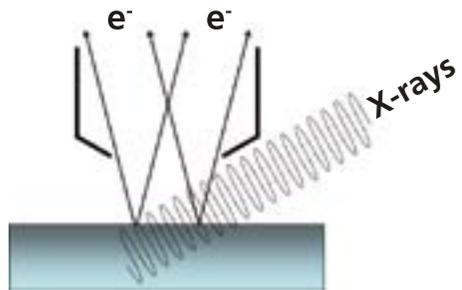
Always keen to progress, Kratos Analytical develops a close relationship with suppliers to adopt and apply their knowledge and experience to Kratos products.

Our manufacturing processes meet current ISO quality standards with certain MALDI products meeting rigorous FDA regulations for medical diagnostic instrumentation.



X-ray Photoelectron Spectroscopy

X-ray photoelectron spectroscopy (XPS), also known as electron spectroscopy for chemical analysis (ESCA), is a widely used surface analysis technique for materials characterisation. The technique provides quantitative elemental and chemical state information from the uppermost atomic layers of a material.



Schematic diagram for XPS

XPS is used in many diverse applications, ranging from defect analysis on microelectronic bond-pads to drug eluting thin films in the pharma industry.

Learn more about our XPS products and applications.



XPS instruments in use

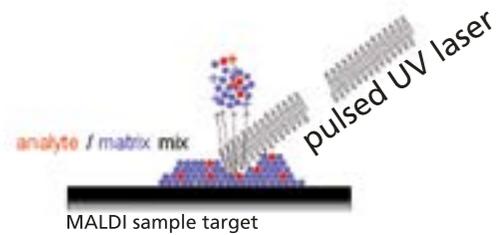
MALDI-TOF Mass Spectrometry

Matrix Assisted Laser Desorption Ionisation (MALDI) mass spectrometry (MS) is used in the analysis of biomolecules including proteins, oligonucleotides, small molecules and polymers. Analytes are mixed with a low molecular weight matrix and a pulsed laser is used to ionise the sample.

MALDI is typically coupled with time-of-flight (TOF) mass analysers which are used to separate the ions, providing information

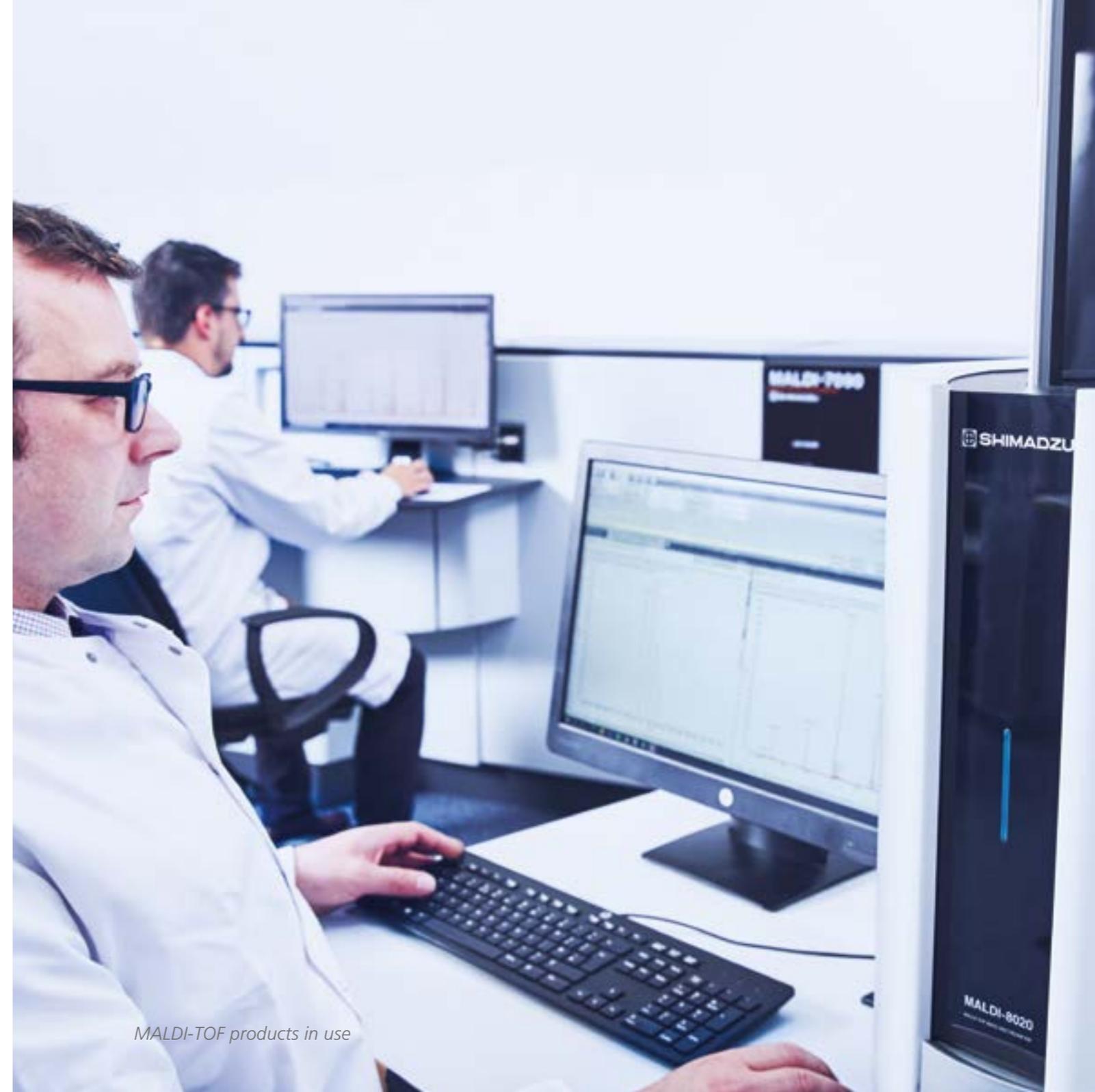
related to the molecular weight of the analytes. Work in developing the MALDI technique by Shimadzu employee Koichi Tanaka and co-workers was recognised with the award of a Nobel Prize in 2002 while he was working at Kratos Analytical. Applications of MALDI include microbial identification and mass spectrometry imaging, which is a powerful tool used to map distribution of molecules on a tissue sample.

Learn more about our MALDI products and applications.



Schematic diagram for MALDI-TOF MS

*Typical MALDI-MSI spectrum and associated MALDI images
Click graph to enlarge*



MALDI-TOF products in use

OUR CUSTOMERS

Kratos Analytical instruments are used primarily in the research and development labs of both academia and industry. Our state-of-the-art spectrometers underpin surface characterisation around the globe for many blue chip companies and leading Universities. Kratos XPS instruments contribute data to an ever increasing number of peer reviewed journal articles and company intellectual property. Commitment to our customers extends to providing bespoke hardware and software solutions to meet evermore demanding applications of the technique.

Kratos MALDI-TOF MS instruments are sold globally via the Shimadzu sales network to both academic and industrial customers for a variety of research applications. Due to its speed, ease of use and robustness, MALDI-TOF MS is gaining increased attention from researchers developing new diagnostic applications.

In the field of microbiology, MALDI-TOF mass spectrometry has revolutionised routine identification of bacteria due to the reduced analysis time. Through an OEM agreement with a leading company in the field of clinical microbiology, our MALDI-TOF systems are used in hospitals and laboratories around the world.

We recognise that our products require a large capital investment and that the expected lifetime can be over a decade. For this reason Kratos is committed to supporting all our installed products throughout their life-cycle at customer sites around the world. Our dedicated customer support group is responsible for routine and emergency maintenance of Kratos Analytical instruments from remote support of internet enabled instruments or, where necessary, a site visit.



CONTRIBUTING TO SOCIETY THROUGH SCIENCE AND TECHNOLOGY

Based on the Shimadzu corporate philosophy, 'contributing to society through science and technology' we recognize that all Kratos employees contribute through the development, production, sales and support of high quality instruments. Our aim is to design and sell spectrometers to meet the analytical needs of our customers and ensure that our products exceed the demands placed upon them.



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