



- **Innovative NMR Solutions for Pharmaceutical Scientists**

Premium Analytics on Your Bench

Medicinal and Analytical Chemistry



Gain instant answers to your analytical questions and timely organic synthesis support for solvents, reagents, and intermediates with the power of NMR, now on your bench. Compact, cryogen-free and cost-efficient, the Fourier 80, accelerates medicinal chemistry, streamlines identification and potency determination of new chemical entities and supports synthetic route optimization and scale-up.



Solid Form Quantification



Different polymorphs have different properties such as solubility, dissolution rates and stability which directly impact drug product quality and performance. The minispec Form Check benchtop analyzer monitors phase purity and quantifies physical API forms with an LOQ as low as 1% even when quantifying amorphous forms. It uses ^1H relaxometry data to obtain fingerprints for expected components in solid mixtures, replacing excessive calibration, delicate sample preparation and expert know-how.



Contactless Weight Checking



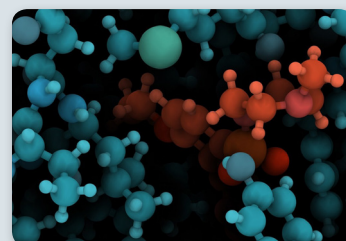
An important specification during the production of biologics and vaccines is that the product filled into each vial must be either within a range of values, or it must be greater than a specific value. Traditional gravimetric techniques struggle to meet requirements when the amount of drug is low and 100% fill check required. Thus TD-NMR methods are now back in the spotlight because of their high sensitivity and high accuracy. 100% fill checks of vials and syringes is now possible in a matter of seconds. The method is not invasive, preserving the sterility of the samples, and it comes in an affordable benchtop format!



Impurity Profiling and Control

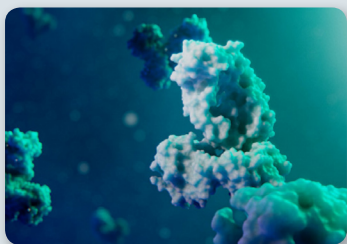


Regulatory expectations driven by patient safety considerations make structure elucidation and control of impurities at levels greater than 0.1% in the active pharmaceutical ingredient (API) of great interest. NMR and MS are the analytical technique of choice for this type of information. EPR, on the other hand, shines light on otherwise unseen impurities such as free radicals and transition metals. This is particularly important in forced degradation (e.g. oxidation) studies and shelf life determination. Bruker's Magnettech ESR 5000 benchtop spectrometer brings affordable, routine, EPR to pharmaceutical development.



Solving Problems at Atomic Resolution

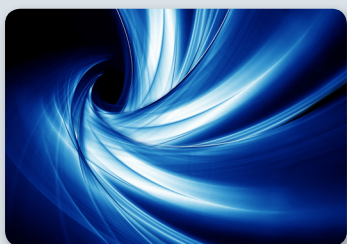
Quality Assessment of Biologics Drugs



Because of its intrinsically high information content, NMR is a unique tool for the evaluation of high order structure, reducing the number of techniques needed to characterize biotherapeutic drugs. Recent advances in data acquisition and analysis enable the study of intact materials, including monoclonal antibodies, at natural abundance, under conditions that are physiologically relevant.



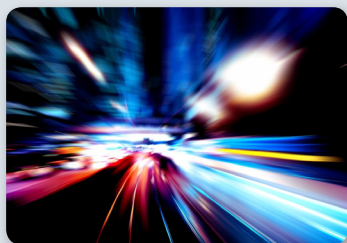
Process Understanding and Optimization



Process understanding, optimization and scale up is at the very heart of pharmaceutical sciences. Bruker's InsightMR is a varied and ever-increasing portfolio of NMR solutions for monitoring chemical and biological reactions to increase their understanding. In turn, this provides answers to key chemical and biological questions such as: reaction yield, mechanistic insights and kinetics, leading to increased safety and cost savings.



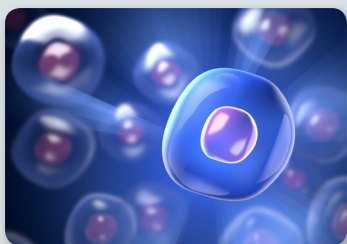
Fast Reaction Monitoring... When a Second Counts



For the very fast reaction monitoring (seconds) InsightXpress is the fastest of the Insight-family of process monitoring and optimization. With the latest in stop-flow delivery mechanisms, and NMR's quantitative information, InsightXpress doesn't just deliver reaction monitoring but reaction understanding. With the ability to do direct quantitation, variable reaction conditions, and fast reaction speed monitoring, design-of-experiments and quality-by-design have never been easier or faster



Online Cellular Metabolism - Indepth



Bruker has recently broadened the InsightMR family with InsightCell, an online tool for targeted fingerprinting that enables identification and quantification of key metabolites of cell culture media and indicates when material is out of specification required for optimal production. Additionally, InsightCell can also evaluate cells themselves in controlled, stopped-flow environments, without the need for large external bioreactors.



Complete Solutions, Quality and Compliance

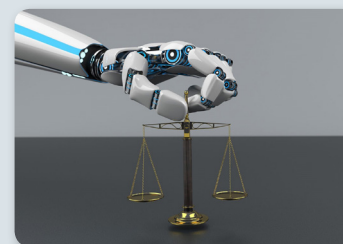
GxP Readiness - New Tools for Compliance

Data integrity (DI) is fundamental to the consistent supply of quality medicines. The underlying principles, as exemplified by the term ALCOA, are well known and align very closely with the fundamental principles of scientific integrity. DI is a hot topic for regulatory authorities who actively look for DI issues when conducting inspections and reviews. We have implemented a DI framework, aligned to the very best industrial practice. This web-based innovative solution integrates with a whole range of user defined workflows enabling the management of multiple instruments and multiple spectroscopies in a validated environment.



qNMR under GxP

Building on the new GxP readiness platform, our qNMR product now provides full traceability from initial question to result, together with detailed control over users and their rights. It is web based and can be operated by a variety of users, experts, and non-experts. Structured around a database, it enables data integrity and management of qNMR methods. These methods are typically designed by method developers, approved by method verifiers and deployed to the laboratory scientists. Efficient analytical request management with instrument time optimization, in a GxP environment, is now possible for qNMR.



Latest Hardware and Software for Total Solutions

Bruker continues their long tradition of cutting edge hardware with the latest in magnet and probe technologies, coupled with electronics (console) technology that includes intelligent software that makes calculated decisions, minimizing the time the user needs to spend in front of the spectrometer. This allows complete solutions such as those for Lead Discovery and Optimization, including HT sample prep robot and sample changer, dedicated high sensitivity probe/detector, and software: fragment library quality check, cocktail design, automated hit identification, quantitative assessment of binding (Kd) and 3D analysis of ligands.

