

HEALTHY PHARMACEUTICAL DRUGS – CONTROL OF IMPURITIES IN ACTIVE PHARMACEUTICAL INGREDIENTS BY EDXRF

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Palladium is amongst a number of metals used as catalysts in industrial hydrogenation reactions. Hydrogenation involves the addition of hydrogen to unsaturated organic compounds and is a key component in the production of pharmaceutical products. The Palladium is usually added as a ten percent constituent of a carbon matrix. Other metal catalysts used in hydrogenation can include Platinum, Rhodium and Ruthenium.

Knowledge of the amount of catalyst used is important in controlling the reaction. The residual catalyst metal is usually present in the 1 to 20 parts per million (ppm) ranges. Too little Palladium results in an inefficient hydrogenation process whilst too much has an adverse economic impact on manufacturing costs.

Determination of the residual Palladium in the finished product can give vital information on the efficiency and economics of the hydrogenation reaction. Traditional methods of catalyst analysis have incorporated wet chemical techniques.

Clearly an updated method that yields simpler, faster and more accurate Palladium concentration would give a large advantage to the site laboratory. XRF is the obvious answer to this analytical problem.

Today elemental analysis with (ED-XRF) has become a very important tool in research and for process or quality control. Flexible to cover different analytical tasks, low in maintenance for cost-effective operation, small in size for easy relocation – these characteristics are making the S2 RANGER attractive for a wide range of applications in industry e.g. cement, oils, lubricants, chemicals, refinery, research, environmental monitoring and waste management.