

RELIABILITY CONSULTING AND SOLUTIONS



INNOVATION

ENGINEERING

OPTIMIZATION

Non-Destructive Examination (NDE) Services and Technology

Plant Safety Inspection

Process equipment that contain hazardous chemicals that are to be inspected during fabrication, repair and operations in order to ensure the integrity of the equipment. All inspections target confidence gained from the Non-Destructive Examination (NDE) methods selected for putting the plant into operations safely as well as maintaining this safety during operations.

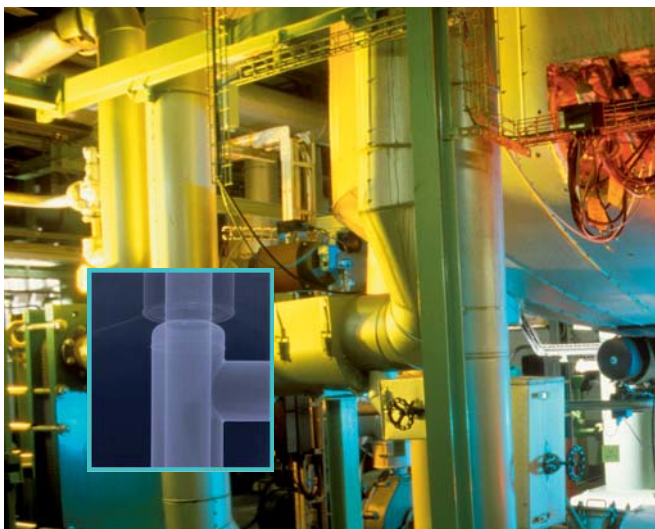
Nondestructive Examination helps to recognize degradation in an early stage or when it starts. Along with a preventive maintenance program such as the Bayer Technology Services Risk Based Asset Integrity Management approach unplanned shutdowns can be avoided and the

- Plant Availability,
- Plant Safety, and the
- Profitability of a plant can be increased.

Hydrostatic pressure tests as well as time consuming inner visual inspections can often be substituted by corresponding less intrusive non-destructive tests as a fully recognized alternative. The alternate NDE approach has the potential in saving money and very often short-ening the maintenance shut down period, finally contributing to plant availability.

Our NDE services combined with our top-notch technology allow us to

- detect corrosion damage of piping – no matter whether internal or external – before the product shows a leak,
- find leaks in vacuum systems before off-specification batches are being produced because oxygen influx, and
- indicate starting cracks in machine components and determine their propagation rate to further develop in order to support the planning process to purchase spare parts.



Online Condition Testing



Video-Boroscopic Testing of Tubular Heat Exchanger



Bayer Technology Services
Powering Your Performance

Non-Destructive Examination – Services and Technology provided by Bayer Technology Services

Our non-destructive examination methods and technology are routinely utilized for

- semi-finished products like dished heads, forgings, seamless and welded components and piping
- cast parts of pumps, valves, and fittings,
- fabricated components of all types, and
- general conditions testing of static equipment.

You might expect the complete spectrum of non-destructive examination technologies that can be applied during fabrication of the equipment, during a planned shutdown of the plant, but also – depending on the type of test performed – during operation of the plant.

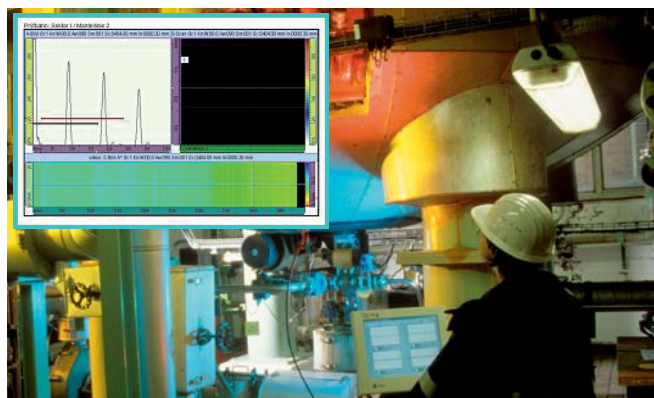
Such technologies include:

- Visual inspections, also with boroscopes, video boroscopes and vessel cameras, all allowing to perform non-intrusive inspections
- Radiographic testing methods, e. g. projection radiography to determine internal and/or external corrosion of insulated pipes, also available as digital radiography (shorter ray-time, digital documentation of pictures taken)
- Radiographic, ultrasonic, and surface-defect testing of welded seams
- Ultrasonic wall thickness measurements for components with on-site access with analog and digital testing devices
- “Corrosion Mapping” with Phased-Array Technology with digital documentation of pictures and color-coded “C-pictures”
- Surface crack testing by magnet particle testing, intrusive or eddy current testing technologies
- Helium-Leak Testing by integral or local leak search methodologies

All tests are being performed by qualified and certified inspectors (DIN EN ISO 473, API 510, API 570, API 653) and supervised by NDE level III experts. Our own labs in Germany are being accredited by the DACH/irlac-MRA and our reports and test-certificates are accepted by the accredited notified bodies.

In addition to our non-destructive examination services we are routinely involved in:

- quality inspection during fabrication of equipment such as vessels and piping, including pumps, valves, and fittings,
- the condition monitoring of all other plant components, and
- the leak-tightness of equipment and piping systems.



Digital Ultrasonic Wall Thickness Measurement for a Vessel applying Phased Array Technology

Bayer Technology Services – The NDE Experts

We are a team of NDE engineers and NDE technicians who are certified with level II and level III qualifications with expertise in materials, fabrication and welding.

We base our service on the extensive experience acquired during decades of materials engineering in conjunction with internationally recognized experts with strong academic background and a long record of field experiences in supporting operators in critical situations in which plant availability might be at stake. State-of-the-art technology and procedures based on decades of experiences made in the chemical industry and their power plants where we applied and used NDE.

Our track record indicates more than 40 years of experience within the operational business of global chemical-pharmaceutical companies – the Bayer Group and other chemical producers at the premises of Bayer or on the public market.

The wide experience of Bayer Technology Services is at your disposal. In conjunction with BayOpX® – our Operational Excellence approach – you get access to our full portfolio of services targeting optimum plant reliability and efficiency.

We offer demonstrations of our high-tech technology applications for NDE on demand. Do not hesitate to contact us if you want to know more about our specific approaches, our plant wide inspection management concepts, Phased Array or Column Scanning, IRIS, or Digital Radiography technology.