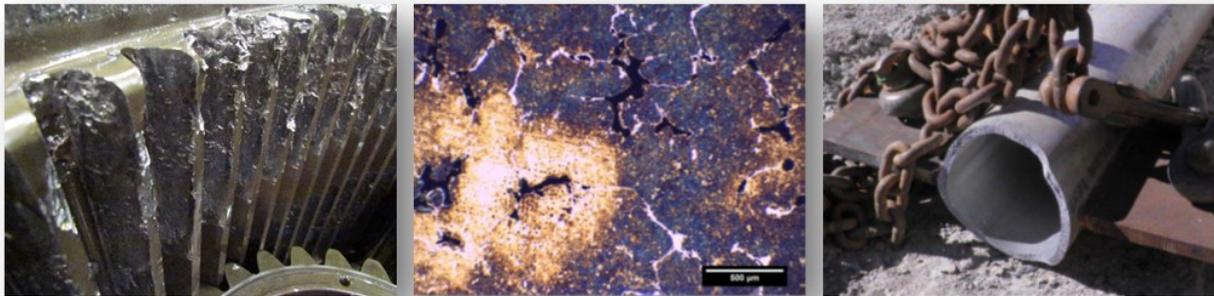


# Materials Centre

## Failure Analysis



The **Applus+** Materials Centre specialise in conducting materials failure analyses for our clients. We focus on the diagnostic and forensic engineering analysis of materials related failures for all types of materials, including metals & alloys, ceramics, polymers & elastomers, and various composites.

A typical failure investigation may include the following steps:

- Site inspection and data gathering
- Visual and macroscopic analysis
- Non-destructive testing to determine the extent of the failure
- Chemical and compositional analysis
- Hardness testing
- Mechanical testing
- Optical microscopy including Fractography
- Scanning electron microscopy and EDS analysis of specific areas of interest

As part of each investigation, it is normally common to conduct a Root Cause Analysis (RCA) to understand the various key variables that can influence the performance and outcomes of the materials and components under investigation.

Also essential to each investigation are understanding the client applications, structures, equipment, processes and understanding and relating manufacturing processes for the materials in relation to the failure modes observed.

## Expertise

The Materials Centre is currently managed and operated by a team of dedicated professionals with key expertise in materials science and technology. Our personnel have worked in the Oil & Gas, Mining and manufacturing industries for over 30 years, specializing in failure analysis of equipment, materials analysis and characterization.

## Benefits of Failure Analyses

A successful and detailed failure analysis can ultimately lead to reduced costs and lower risks associated with processes and manufacturing, due to:

- Establishing improved material quality
- Ensuring material conformity and suitability to the processes and applications involved
- Minimising wear and corrosion
- Manufacturing improvements
- Reducing the risk of re-occurring failures
- Reducing the associated safety risks of materials and component failures

Using a structured and systematic failure analysis process in combination with site support and participation can often lead to reduced equipment down-time and significantly improved productivity



## Additional Services

**Applus+** provides the following services as individual packages or combined to provide a total Asset Integrity Management programme.

- Advanced (non-intrusive) Inspection Services.
- Sub-sea Inspection Services.
- Engineering Design Solutions.
- Risk Based Inspection Planning.
- Inspection Management Services.
- In Service Inspection.
- Plant Life Management.
- Metallurgical Services.

Importantly, **Applus+** can also call upon extensive in-house expertise and resources for advanced inspection and conventional NDT, providing a total capability for management of through life plant integrity.

**Applus+**, in collaboration with our local and international partners, has extensive experience in the application of these services to a wide range of industries including:

- Oil & Gas.
- Petrochemical.
- Refining.
- Ore Processing and Handling.
- Power Generation.



**Applus+**

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