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X-Ray Fluorescence and Atomic (Spark) Emission Techniques



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X-Ray Fluorescence and Atomic (Spark) Emission Techniques

Use of X-Ray fluorescence and atomic (spark) emission techniques are able to be accredited under NATA's Chemical Testing and Non-destructive Testing fields. There are important distinctions between the outputs of each field of accreditation and clients are encouraged to specify the field which better suits their needs. Testing under either field must be appropriate for the intended purpose so that clients can have confidence in the results produced.

Chemical Testing

Definitive elemental analysis is accredited under **NATA's Chemical Testing** field of accreditation. Clients who require **elemental percentages** to be reported on NATA-endorsed reports will need to engage an **accredited Chemical Testing facility**.

One of the applications of elemental analysis is the positive identification of material grade within an individual alloy type.

There are extensive technical requirements for facilities accredited for these techniques, including the need to have implemented an equipment calibration program, possession of documented validation or verification data, method accuracy, measurement uncertainty and to have sufficient certified reference materials to cover the full analytical range of the instrumentation.

Non-destructive Testing

Accreditation is only available for **comparative indication** using portable equipment (Class of Test 6.94). The material under test is directly compared with a certified reference material of the required material grade or alloy type. The results obtained by this testing are **indicative only** and this restriction must be stated on reports. Positive identification of material grade, alloy type or determination of specific elemental percentages **is not able to be accredited**.

It is important that anyone requesting a non-destructive method of material identification is aware of the limitations pertaining to the results obtained.

Operation of equipment and interpretation of the readings obtained using either technique, necessitate involvement of appropriately trained and experienced personnel who:

- Are familiar with the chemical composition of the material(s) under test, and;
- Have an understanding of the requirements and limitations of the method, particularly that some elements are unsuitable for analysis by this method and others give poor responses and, following on from this;
- Know when alloys are encountered which may not be able to be unambiguously determined, notwithstanding comparison with a certified reference material, eg, stainless steel grade 316L (low carbon grade of 316).

Professional qualifications, eg. in metallurgy or chemistry, are advantageous for NDT personnel performing comparative identification of material grade or alloy type.

AMENDMENTS

The table below provides a summary of changes made to the document with this issue.

Section	Amendment
	New Information Paper