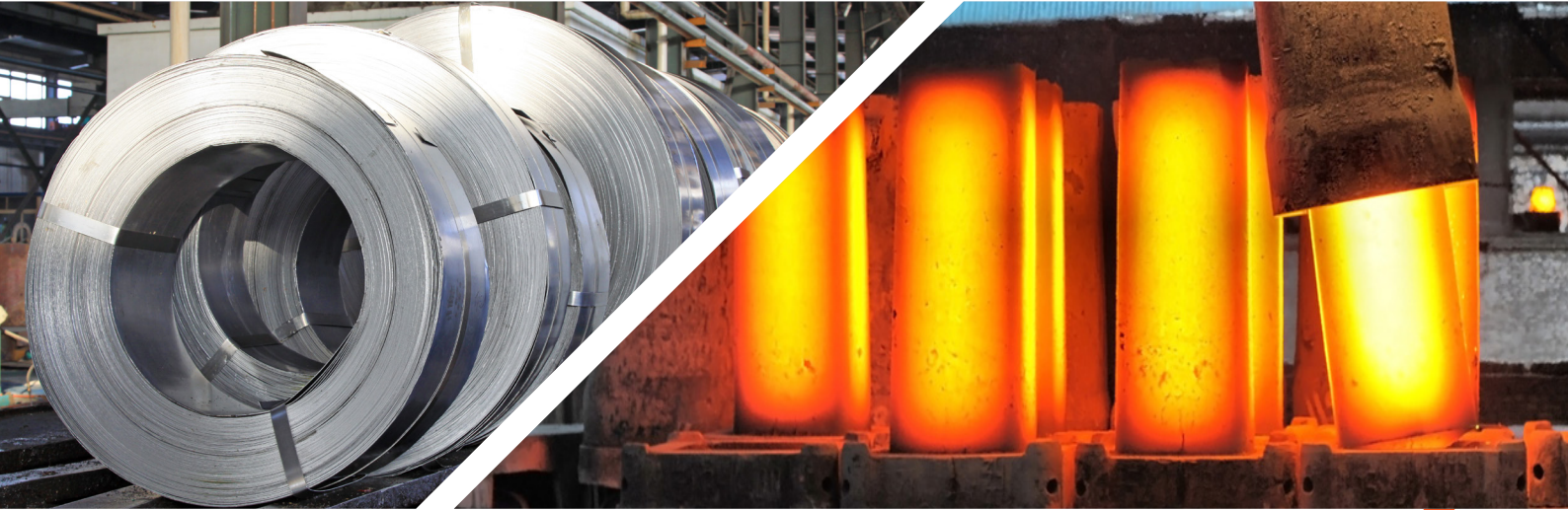


# Understanding and Reviewing Material Certificates



**A one day course** supporting businesses who buy, sell or use metals and alloys.



## Course aims

This course will help you to understand what to look for in material certificates and to evaluate deviations from specification. Real examples will be used and practical examples of certification review will be given.

## Who should attend

The course is aimed at personnel who use or work with material certificates. It will be particularly useful to quality and engineering personnel who have to review documentation in order to verify compliance.

**Find out more:** For further information please contact

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# Understanding and Reviewing Material Certificates

## Material Certificates

- What information does a certificate tell me and why is it important?
- What needs to be reviewed?
- What alloying elements need to be reviewed
- Heat treatment requirements

## Manufacturing and Properties

- Effect of Steelmaking
- Casting and forging
- Rolled and forged bar
- Heat treatment
- Mechanical Properties

## Steels

- What affects the properties of steels
- Processing parameters
- What's relevant to my application?
- Tensile, impact & hardness testing

## Stainless steels and non-ferrous alloys

- Certification and corrosion resistance
- Stainless steels
- Nickel alloys
- Aluminium alloys

## Non-conformances

- Common problems
- What can be accepted
- Effect of composition variations
- Heat treatment issues
- Material properties
- Effect on fabrication and welding

## Industry standards and specifications

- Basic requirements
- Specific applications
- Client requirements

## LEARNING OUTCOMES

- What information does a certificate tell me and why is it important?
- What do I need to review?
- Can I accept this material although it does not meet specification?
- What is the effect of a low carbon level?
- Why is heat treatment important
- Is the impact test temperature important?
- Is this variation going to affect the welding of this material?
- What do EAF and VOD mean?