

## Ferrite Testing

Ferrite testing is a fast, inexpensive and accurate way to measure delta ferrite content in austenitic and duplex stainless steels. Ideal ferrite content provides a balance between ductility, toughness, corrosion resistance and crack prevention.



### The Applus+ solution

Applus+ are able to deliver bespoke ferrite-testing services to any industry, at any stage of manufacture, anywhere in the world. Clients can expect the highest degree of quality control, through strict internal competency testing and technical procedures.

Applus+ is able to deliver results by the placement of a single probe on the surface of the specimen, whereby the reading is displayed automatically and stored in the instrument. For easy ferrite-content measurements along a weld seam, our testing instruments offer continuous measurement-capture functions. When scanning the weld seam, the continuous readings are captured and stored. This provides a ferrite-content profile along the weld seam. Ferrite-content measurements can be taken regardless of the properties of the substrate material and starting at a plating thickness of 3mm. Corrective calibrations to customer-specific calibration standards or correction factors can be used to take into account influences of the specimen shape, plating and substrate thicknesses.

Results are generally available instantly and, depending on the client's requirements, can be provided as spot or profile readings and as percentages or as ferrite numbers.

### Target customers

Chemical, energy and processing plants are often subject to heat, aggressive media and high pressure. Steel destined for these plants must therefore be highly corrosion- and

acid-resistant, maintaining resilience even at high temperatures. If the ferrite content is too low, then the welded material is susceptible to hot-cracking; if the ferrite content is too high, the toughness, ductility and corrosion-resistance of the steel are reduced. For duplex steel, a ferrite deficit in the area of the weld seam results in stress-corrosion cracking and a subsequent reduction in strength.

Ferrite testing may be carried out on site at any stage of steel manufacture. Only testing throughout the course of the manufacturing process can provide the assurance that the ferrite content has not been adversely affected at any stage of processing at the expense of the steel's mechanical or corrosion-resistance properties.

## Key customer benefits

Choosing Applus+ as their ferrite-testing partner will provide clients with:

- Fast, reliable measurements and on-the-spot results
- Verification of adherence to welding procedures for heat control
- Verification that corrosion-resistant properties remain after welding
- Increased reliability, safety and longevity of process equipment, leading to cost savings and a reduction in risk to operators