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### **FS 6: Positive Material Identification (PMI)**

PMI refers to the analysis of metallic alloys to establish their composition by percentage of constituent elements. Axiom NDT use a type of X-ray fluorescence (XRF) to achieve this.

Typical applications include analysis of machined valve parts, pressure control parts, wrought products, gear wheels, pressure vessels and anchor chains.

Axiom NDT use handheld XRF spectrometers from the NITON XLT range. These types of unit detect and analyse the emitted XRF spectrum when a metal surface is irradiated. Each element in the metal substrate has a characteristic pattern of lines (XRF spectrum) which can be identified and its concentration measured. For alloys, the relative intensities of component lines give a “fingerprint” which can be matched against a stored library of alloy standards.

Although low level radiation (maximum dose to the fingers of the user of 0.90 Usv/hr at 30.48cm) is produced when in operation, the device does not contain a ‘source’ of radiation in the accepted sense of the word and radiation is only generated when the power is connected and trigger depressed.

PMI using this type of equipment is a very rapid and safe technique, well suited to use by difficult access technicians, and produces reports that can be downloaded and printed on-site.

Axiom employ a number of technicians trained in the use NITON XLT equipment and we have been using the technique with very good results since early 2004.

**NITON PMI Units are transported in locked drop proof boxes and separated from their power source – under these circumstances they are not usually considered dangerous goods for shipping purposes.**



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