**Wrong material -
could it have been avoided?**

Positive Material Identification, PMI

New materials
Demand for improved materials at the right prices has resulted in there today being a large number of steel types and metal alloys in the market.

This also means that the risk of picking the wrong one is great!

The wrong material
The consequences of using the wrong materials in structures can result both in increased costs and increased health and safety hazards. But how can this be avoided?

Solutions
The perfect solution is a chemical analysis of the material, but setting up tests is often problematical or, alternatively, it may take too long to take a sample and submit it for analysis in the laboratory. The rapid and inexpensive solution is to use engineers able to distinguish between different material qualities onsite.

This is referred to as sorting or positive material identification, PMI for short.

FORCE Technology has specialized in the various PMI techniques and is able to solve the vast majority of sorting tasks.

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PMI Equipment

Onsite material identification is either carried out using mobile instrumentation based on X-ray or spark technology depending on the assignment, or by grinding a tiny piece of material from the surface with a piece of diamond emery paper, in which latter case analysis is then carried out in the laboratory, which can be done on the same day if transport is available.

The advantage of the mobile X-ray method is that no marks are left on the surface, whilst the spark method in some cases provides better results.

Typical tasks

Most PMI analyses are carried out on high-alloyed steel, but other materials such as low-alloyed steel, titanium, nickel and copper can also be analysed.

Because of the high mobility of the instruments, besides the analysis of components, analyses may also be carried out on parts of already existing structures.

It is even possible to analyse welding seams.

Excellent accuracy

Typically, the relative accuracy of PMI techniques is approx. 10% over most of the measurement area, which is excellent for sorting purposes.

Quality Assurance

Satisfactory quality assurance is possible through the use of reference materials of known composition similar to that of the tested material.

Other services

FORCE Technology possesses market leading metallurgical knowhow and can satisfy a large number of analysis needs, such as:

- Advice on the application of PMI techniques
- Advice on choice of materials for a given structure
- Wet-chemical or spectrometric analysis where there are special demands for analysis accuracy and detection ranges
- Metallurgical and metallographic analyses
- Corrosion analyses
- Inspection
- Microscopy
- X-ray analysis of grinding dust, which customers can themselves collect
- Breakdown analyses
- Mechanical testing
- Surface analyses and characterization.

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