



## Materials – Pressure Equipment

Vinçotte monitors your testing, analyses and investigations on the samples taken of your materials. Our inspectors and engineers have long years of experience in the various part aspects, and are authorised to co-sign a certificate in case of positive findings and results.

### Your tailor-made solution

Pressure vessels are the result of the integration and the assembly of various components, also called materials. It is obvious that apart from other aspects such as design, manufacturing and inspection, materials are of great importance in the design and construction of pressure equipment and in monitoring and ensuring their structural integrity. Materials are not only required to resist all applicable loads to which the pressure equipment will be exposed to during its lifetime, but they should also be suited for a wide variety of conditions of use: obviously, internal or external pressure must be taken into account, but it is also necessary to consider cyclic loads, wind loads, creep, etc., wherever required. The materials must be thermally, chemically and wherever necessary, also galvanically suitable for their intended use.

The manufacturer will make a selection from a long list of standards, or material specifications, based on all these requirements. He will select the material, the specifications of which are best suited to his needs. These material specifications explicitly describe the material by specifying mechanical and chemical properties. Specific additional requirements may be added wherever required, possibly in the form of options in the specifications. Non-destructive testing and a hydraulic test may also be required in a number of cases. The minimum, and in some cases, the maximum values, contained in the specifications, the actual acceptance criteria of the various tests, analyses and investigations, are 'guaranteed' values, so to speak, because in principle, the manufacturing process is also standardised to such a level of detail, that sometimes even the constituent minerals required for the production of steel are specified.

Depending on the regulations applicable to the pressure equipment in question, and in some cases the design and construction code or standard as well, it is necessary to provide documents along with the material, confirming that the requirements as per the material specifications have been duly met. These are termed material certificates. The standards and regulations specify different types of certificates, from ordinary certificates of compliance containing a confirmation by the equipment manufacturer that the material supplied satisfies the material specifications, to certificates wherein the material manufacturer and a third party – like Vinçotte - confirm that based on the tests, analyses and investigations required and conducted as per the specifications on samples of the relevant material, the material conforms to the requirements of the material specification in all respects. Such certificates also list out all test results and actual values (for example 3.2. certificates). Such confirmations by a third party like Vinçotte can, however, only be provided if such third party has been able to assure itself that all samples, tests, analyses and examinations were conducted in accordance with the applicable requirements and that the test results were properly recorded.

The monitoring of these operations requires inspectors and engineers with extensive experience in various part aspects. Vinçotte can place such personnel at your disposal.

The ultimate result of the above will be the drafting of a report that explicitly confirms which tests or examinations were directly monitored, and what the final findings and results were. Wherever required, the material certificates are drafted and signed by the material manufacturer, and then countersigned.

### Your result

Our service offers you:

- Neutral assessment of the origin and conformity of materials with the applicable standards.
- Confirmation of one or more material characteristics in case of dubious certificates, or if the quality system of the material manufacturer does not seem watertight.
- The detection of potential problems, with the option of implementing corrective measures well in time.
- Added credibility due to the intervention of a world-renowned independent third party.

## Please note

### Legislations

The pressure equipment manufacturer may voluntarily commission Vinçotte to carry out such material inspections, or the end user may decide on the same. On the other hand, such acceptance inspection may also be covered under one of the regulations for which Vinçotte is authorised. Examples of this include the European Pressure Directives (PED, TPED, SPV), the Belgian legislation on the transport of dangerous substances through pipelines (Gas law), and the Belgian and French regulations applicable to pressure equipment intended for nuclear facilities.

### Norms and standards

Interventions of this type can be made for all types of national and international material specifications or material standards: ASTM, ASME, DIN, AFNOR, BS, JIS, EN...

### In which situation?

This service is both possible on a voluntary basis but also on mandatory basis (for example, as part of EN 10204-3.2 certification). The service is intended for all organisations involved in the design and manufacture of pressure equipment :

- material manufacturers
- manufacturers of pressure equipment
- stocklists
- designers
- end users
- operators