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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 13465.6-2009

**Test method for hydraulic pressure bursting of impermeable
graphite pipe**

不透性石墨管水压爆破试验方法

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Foreword

This part was proposed by the China Petroleum and Chemical Industry Association.

This part is under the jurisdiction of the National Technical Committee for Standardization of Non-metallic Chemical Equipment.

1 Scope

The Chinese method for finding out at what internal pressure a graphite pipe bursts. Impermeable graphite - graphite whose pores have been filled with a resin - is what the chemical industry uses to carry hydrochloric, sulphuric and hydrofluoric acid and to build the heat exchangers that would eat any metal alive; the price of that chemical resistance is that graphite is brittle, and a pipe that fails does not leak first, it goes. The burst pressure is therefore the number the designer of a graphite heat exchanger works back from, and it has to be measured the same way in every works if the safety factors are to mean anything.

This part of GB/T 13465 lays down that measurement: the equipment and instruments, the test specimens, the test conditions and test procedure, the treatment of the results and the contents of the test report. It applies to the determination of the hydraulic bursting pressure of impermeable graphite pipe. The specimens are taken and prepared to the general rules of GB/T 13465.1 and have to satisfy the product standard HG/T 2059 for appearance and for the tolerances on outside diameter and wall thickness. Graphite equipment makers, the chemical plants that buy from them and the inspection bodies that arbitrate between the two are the ones who use it.

This part of GB/T 13465 specifies the methods for the instruments, the equipment, the test specimens, the test procedure and the treatment of results of the hydraulic pressure test on impermeable graphite pipe.

This part applies to the determination of the hydraulic bursting pressure value of

impermeable graphite pipe.

2 Normative references

The provisions of the following documents become provisions of this part through being referred to in this part of GB/T 13465. For dated references, subsequent amendments (excluding corrections) or revisions do not apply to this part; however, the parties to agreements based on this part are encouraged to investigate the possibility of applying the most recent editions. For undated references, the latest edition applies to this part.

GB/T 13465.1-2002 Test methods for mechanical properties of impermeable graphite material - General rules.

HG/T 2059-2004 Specification for impermeable graphite pipe.

3 Equipment and instruments

A high-pressure plunger pump or high-pressure gear pump of sufficient pressure.

A pressure gauge, whose full-scale limit and accuracy class are stated in the standard.

A vernier caliper, whose measuring range and scale division are stated in the standard.

The pressure gauge and the vernier caliper shall be ones that are within the valid period of their verification.

The test rig is as shown in Figure 1: a water inlet, a pressurizing machine, a handwheel, a vent valve, an O-ring seal (interchangeable), a flange (interchangeable) and a drain valve, assembled on a frame that holds the pipe specimen vertically between two sealing heads with a pressure gauge at each end.

4 Test specimens

The method of taking the specimens follows the relevant provisions of GB/T 13465.1-2002.

The appearance of the specimens shall comply with the relevant provisions of HG/T 2059-2004.

The dimensions of the specimen are as shown in Figure 2; the outside diameter and wall thickness dimensions and their deviations shall comply with the product standard HG/T 2059-2004.

The number of specimens in each group shall not be less than the number stated in the standard.

7 Test report

The test report shall contain the following: the name, the specification, the number and the

source of the specimen; the individual values and the mean value of the test results of the specimens; the testing organization and the personnel who carried out the test; and the date the sample was received and the date of the test.

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