

STANDARD TEST METHOD 8

DETERMINATION OF SPECIFIC GRAVITY OF FEI CUI (JADEITE JADE)

1.1 SCOPE

This Standard describes the method of determining the specific gravity of Fei Cui (Jadeite Jade).

1.2 APPLICATION

The specific gravity determination applies to items made from Fei Cui (Jadeite Jade) as received by the laboratory for testing.

The specific gravity may be used for the identification of Fei Cui (Jadeite Jade) on its authenticity.

1.3 DEFINITIONS

Specific Gravity (SG): It is the mass of a unit volume of Fei Cui (Jadeite Jade) compared with the mass of the water in the same volume of the Fei Cui (Jadeite Jade) under test expressed without any dimensional unit.

$$\text{Specific gravity} = \frac{m_a}{m_a - m_l}$$

where

m_a is the weight in air (in carat)

m_l is the average weight in water (in carat)

Mounted Fei Cui (Jadeite Jade): Fei Cui (Jadeite Jade) set singly, or in a group or cluster, on a piece of jewellery.

1.4 APPARATUS

The following apparatuses are required:

1 Balance: A balance with a unit in carat, a resolution of 0.001 carat and an accuracy of 0.01 carat.

2. Balance (for item with a weight of equal to or over 200 carat): A balance with a unit in carat, a resolution of 0.01 carat and an accuracy of 0.1 carat.

3. Hydrostatic attachment: An attachment whereby the Fei Cui (Jadeite Jade) item can be hanged.

4. Water container: A container or beaker made in glass for holding sufficient amount of distilled water.

1.5 TEST ITEM

The determination of specific gravity is a single unit test for a whole piece of test item in its entirety. Sampling of a number of test items to represent a batch of Fei Cui (Jadeite Jade) products shall not be permitted.

1.6 PROCEDURES

1. The test Fei Cui (Jadeite Jade) shall be cleaned scrupulously with a lint-free cloth

2. The Fei Cui (Jadeite Jade) item shall be weighed using an electronic balance. The weight measured shall be taken to 0.01 carat and recorded as "weight in air, m_a ."

3. The hydrostatic attachment with sufficient distilled water shall be set up near the pan of the electronic balance.

4. The item shall then be placed on a wire basket and fully immersed in water. The basket shall not touch the bottom of the beaker and air bubbles shall not be allowed to be trapped on the surfaces of the item or the basket. The completely immersed item shall be weighed to 0.01 carat and its mass recorded as "weight in water".

5. Step 4 shall be repeated three times and the average m_l shall be calculated.

Note:

SG examination shall not be applied on mounted Fei Cui (Jadeite Jade).

For an item with a weight of equal to or over 200 carats, all the records shall be expressed to the

nearest 1 decimal place using the balance as defined in 1.4.2.

1.7 EXPRESSION OF RESULTS

The specific gravity of the item shall be calculated using the weight in air (m_a) and average weight in water (m_l) using the following equation:

$$\text{Specific gravity} = \frac{m_a}{m_a - m_l}$$

1.8 TEST REPORT

The report shall affirm that the test was carried out in accordance with this Standard. The determination of specific gravity should be reported as far as possible with other Fei Cui (Jadeite Jade) test

results such as polariscope examination, shape and cut identification, measurement of dimensions and weight, identification of transparency, examination of fluorescence, Chelsea colour filter examination, determination of refractive index, infrared spectrum examination, magnification examination and spectroscopic examination. In general, the test report shall include but not be limited to the following:

- (a) Identification number of the Fei Cui (Jadeite Jade) item.
- (b) Date of test.
- (c) Standard method of determination of specific gravity.
- (d) Name of person carrying out the test.
- (e) Name and signature of person responsible for testing.