




**T.C.
SÜLEYMAN DEMİREL UNIVERSITY
TECHNICAL EDUCATION FACULTY**

Information of Report			
Report Number	201205/01		
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Signature of Author			
Applicated Experiment	Determination of real density (TS EN 1936:2010)		
Delivery Date	27 April 2012	Experiment Date	30 April 2012
Petrography name of natural stones	Barite	Commercial name of natural stones	Barite
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GENERAL INFORMATION

1-Description of research subject

The determination of density and chemical content of the material, sent to us from the company via cargo. Two different studies have been done in this context. The first study involves the determination of real density of the material, the second study experiments of chemical analysis of this material.

2- Experiments of natural stone

In the natural stone experiments, chemical properties and density of stones was investigated.

a) The determination of real density

Real-density determinations carried out in accordance with TS EN 1936:2010 standards (This standard specifies methods of determining the real density the apparent density and the open and total porosity of natural stone).

Three samples were selected, and then real density of the samples the determined by pycnometer experiment.

m_e (g): The mass of grinded and dried sample

m_1 (g): The mass total of pycnometer filled with water and grinded sample

m_2 (g): The mass of pycnometer filled with water

ρ_r (g/cm³): The real density of the material

$$\rho_r = \frac{m_e}{m_2 + m_e - m_1} \cdot \rho_{rh}$$

According to this; the results of the determination of the real density of each sample were obtained and the results shown in Table 1 are given.

Table 1. The results of determination of the real density of the samples

	Sample 1	Sample 2	Sample 3
m_1 (g)	357,51	356,45	351,14
m_2 (g)	338,12	337,14	337,82
m_e (g)	25,23	25,08	25,11
ρ_r (g/cm³)	4,312	4,334	4,328

Tablo 2. Real density of the samples

Sample Number	ρ_r
1	4,312
2	4,334
3	4,328
Average	4,324

Based on these results:

The real densities of the samples (ρ_r) were determined as 4,324 g/cm³.

b) Chemical Analysis

Chemical components of rack samples were done by the X-ray analyses method in the Suleyman Demirel University, Geothermal Energy, Groundwater and Mineral Resources Research and Application Center Management.

b1. X-ray Analysis:

Major components of the rack sample, was determined as barite (BaSO₄) minerals have never been found.

Suleyman Demirel University, Geothermal Energy, Groundwater and Mineral Resources Research and Application Center Management, X-ray analysis result was given.

