

SILICA FUME PASTE CEMENTING OF COAL MINE ROOF - PASTE FILLER AND CRACK STRENGTHENING

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ABSTRACT

In this study, the geomechanical properties of the heterogeneous limestone rocks in Şırnak coal mine roof cemented at cracks and the effect of the qualities of cementing paste fill on strengthening by the different silica fume paste were investigated. For this purpose, uniaxial compressive strength, point load strength, impact resistance, friction with Abrasion Loss, Impact Abrasion Loss (Los Angeles Assay) tests were managed following the cemented 50x50x50mm blocks. Even the physical properties; density, water absorption rate and drying rate experiments and micro properties were examined.

The rock types of Şırnak coal mine roof also were studied as resistance to acidic water. The chemical act on paste fill, giving place to protect the roof texture and the results of the scaling tests carried out by examining the textural characteristics to be strengthened.

In the stable ground, the cracked side rock has to be covered and supported in order to avoid consolidation and rock bursting. This modified test also measures the impact resistance of rocks tested for use in the scaling to 30-40 cm lump massive rock (models in laboratory), the conditions and any seismicity in the area affecting the crack propagation. The pressure effect was investigated on the filled blocks depending on the rock type (porosity, overburden depth), geological and hydro geological conditions and any surcharge in the area affecting the crack propagation.

Keywords: Silica fume paste, cementing, Silica fume paste, crack fill, micro cementing, paste cementing, paste filler, crack strengthening/

INTRODUCTION

The restoration of old buildings, the long-term protection against to moisture and shattering has been planned by local authorities. The cementing fills has been so critical in the preservation of historical monuments to protect the remnants with a research work of developing the micro-granular cementing method. Thus, it can be realized that sealed stains and cracks with suitable cementing fill in the historical buildings provide maximum protection. In addition, the corrosive effect of the acidic rain waters or underground waters should be eliminated by cemented fill covering which will increase resistance against to acids. Mardin limestone as building material has to be transported and used as building material for thousands of years due to the abundant price and presence in the region. With nearly roman time the constructions of historical mosques, baths, church, buildings, house and roads are made of Mardin stone, which is used as the load carrier, or main construction column material. The extraction waste fine paste of Mardin Stone is applied in order to to reinforce the physical, chemical and textural properties of historical remnants of lightweight structures and so highly deteriorated