Experimental Study on the Effect of Resin Anchoring Agent Mixing with Steel Grit

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ABSTRACT: To improve the anchorage effect, steel grit or steel shot of different size and different amount were mixed into resin agent commonly used in China coal mine. 19 groups tests were conducted using right-whorled rebar bolt anchored into steel sleeve. Three bolt specimens were prepared and tested for each group, and as a comparison, the first group of bolt specimens was tested using resin anchoring agent without grit and steel. In the 2-10 groups, steel grits were added with different amount of 30, 40 or 50 and different particle sizes of 1.5, 2.0 and 2.5 mm. Each particle size corresponds to three quantities, a total of 9 groups of tests were conducted. Steel shots were added in 11-19 group tests with different amount and different particle size. The average peak pulling force of the first group is 121.3 (±3.1) kN, 5 of 9 group of specimens with steel grit are more than 121.3 kN, and 8 of 9 groups of specimens have better average peak pulling force than 121.3 kN. It can be concluded that, under the condition of testing, the anchorage effect can be improved after steel shots are mixed into resin anchoring agent.

KEYWODS: Anchor; Grout; Steel; Pullout