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Study on Ramp Current Method and Up-and-down Method for Sensitivity Testing of Initiating Device

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Abstract: By comparing the advantage and disadvantage of ramp current with other methods, ramp current method and up-and-down method are used to test sensitivity of bridge-wire Electrical Initiating Device. As the ramp current method can get the critical sensitivity of Electrical Initiating Device, the testing samples are designed under different charging conditions to study the relationship between charging pressure and sensitivity. The testing results show that the ramp current method can meet the sensitivity testing purpose. It can be used to detect disfigurement and difference of the Electrical Initiating Device. It can be used to evaluate the system′s fire characteristic during designing stage. Because each sample testing result can be used, fewer samples are needed in ramp current method.

Key words: explosion mechanics; dynamic ramp method; up-and-down method; sensitivity test; electrical initiating explosive system

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