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复合抗冻剂的膨化硝铵炸药的耐冻效果最佳,能显著 改善炸药的耐冻性。

(3)根据复合油相凝固点的测试和炸药耐冻性的测试,得到耐冻性相对较好的复合油相的配方,并对用 该复合油相制备的炸药进行了验证实验,结果表明用 该复合油相配方制备的炸药经冷冻后性能稳定。

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- Preparation of Freeze Resistant Expanded Ammonium Nitrate Explosive

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Abstract: Based on the analysis of ingredients of rock expanded ammonium nitrate explosive(EANE), it is concluded that the decisive factors affecting the freeze resistance of EANE cannot expand ammonium nitrate and sawdust, but composite oil phase, an effective technical approach to manufacture freeze resistant EANE is introduced. When antifreezing agent is added into composite fuel oil, the freezing point of composite fuel oil can be reduced. Composite fuel oil may contain some kinds of antifreezing agents and other combustible agents, and its freezing point was tested. Explosion performances of freeze resistant EANE were tested after being frozen at -18 °C for one week. It is shown that EANE with good freeze resistance and explosion performances can be manufactured by addition of antifreezing agent into composite fuel oil. The composition of composite oil phase with satisfactory freeze resistance is diesel oil ; ozokerite ; paraffin ; surfactant ; glycerin ; antifreezing oil ; polymer = 70 ; 7.5 ; 5 ; 5 ; 5 ; 5 ; 5 , and its freezing point is 31. 5 °C. Detonation velocity, sympathetic detonation distance and brisance of EANE prepared with this composite oil are 3 546 m \cdot s⁻¹, 5 cm and 13.7 mm respectively.

Key words: explosion mechanics; expanded ammonium nitrate explosive; freeze resistant; antifreezing agent; composite fuel oil; freezing point

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《纳米含能材料专辑》征稿启事

纳米科学与纳米技术被认为是 21 世纪最热门的三大科技之一。随着纳米科学与技术的发展,纳米材 料在火炸药及推进剂领域的应用已开始引起含能材料工作者的广泛关注。为使有关研究成果得到更好的 交流,促进纳米科技在该领域的发展,本刊拟于 2005 年 10 月(第5 期)组织出版《纳米含能材料研究论文 专辑》。内容包括:纳米(超细)材料的性能、制备方法及相关技术、纳米(超细)材料在火炸药及推进剂领 域中的应用与发展方向。

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