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JOB　9003炸药的载荷环境试验

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Title: Load Environmental Test of Explosive JOB　9003

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关键词：材料力学；JOB　9003炸药；载荷环境试验；力学性能

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摘要：在5MPa轴向压应力条件下，对JOB　9003炸药进行了温度循环试验，结果表明，试验后炸药性能发生了明显的变化。JOB　9003炸药在载荷环境和温度循环的共同作用下其径向尺寸增加，轴向尺寸减小，而且径向尺寸的增加量与轴向尺寸的减小量相当。与轴向尺寸相比，径向尺寸对样品体积的影响更大，试验后样品体积变大，密度降低，同时炸药的压缩强度、最大蠕变应变和压缩蠕变断裂时间出现了明显降低，而模量变化不明显。分析认为，JOB　9003炸药内部的微孔隙和微损伤在载荷环境试验下发生变化，从而使JOB　9003炸药的尺寸、密度和力学性能出现了上述变化规律。

Abstract: The load environmental tests of 5MPa axial compression stress have been applied to explosive JOB　9003 under the temperature circulation. The test data show that the properties of the explosive have changed obviously after the tests. Under the condition of load environmental and temperature circulation, the radial dimension of explosive JOB　9003 increases while the axial dimension decreases. The changes of the two dimension are proximite. Comparing to the axial dimension, the contribution of the radial dimension to the volume is greater. So the volume of the sample increase and the density reduce. In addition, the compressive strength, the maximum creep strain and the creep rupture time all reduce obviously. But the modulus keeps no changes. It is analyzed that, the changes of the dimension, density and mechanical properties are owing to the changes of the tiny cavities in explosive JOB　9003 in the load environmental tests.

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