

## Crystallization Meta-stable Characteristics of RDX in Water-containing Cyclohexanone

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**Abstract:** In order to obtain large transparent spherical-shaped RDX crystal, the metastable characteristics of RDX in water-cyclohexanone mixture solvent were studied. Solubilities and super-solubilities of RDX in water-cyclohexanone solution were tested by spectroscopy method, and the metastable zone width of RDX solution was determined. The correlation among temperature, water content and metastable zone width was discussed in detail. It is found that the metastable zone width becomes narrow when temperature rises: the metastable width is 16.4 °C in low temperature zone while 15.0 °C in high temperature zone when the water content is 8%, and the meta-stable width is 19.1 °C and 14.0 °C respectively when the water content is 4%. When temperature of RDX solution is above 58 °C, the metastable width changes more wider when water content increases from 4% to 8%. The large transparent spherical particle RDX crystal, with 2 mm size and smooth surface, is obtained by adding the RDX crystal seed into water-cyclohexanone-RDX solution, which is in metastable state.

**Key words:** organic chemistry; RDX; water-cyclohexanone solution; metastable zone width

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### 捷克 Pardubice 大学 Zeman 教授来绵交流



2012年10月,应中国工程物理研究院化工材料研究所邀请,捷克 Pardubice 大学含能材料研究所所长 Svatopluk Zeman 教授在绵阳,与化工材料研究所、西南科技大学等单位的 40 余名科技人员进行了学术交流。

捷克 Pardubice 大学含能材料研究所是从事含能材料(火炸药、推进剂等)研究的世界知名研究所,对系列高能炸药、推进剂的分解机理、热安全性等都有深入研究。Svatopluk Zeman 教授长期从事含能材料研究,在环状硝基化合物的热稳定性、感度及起爆微机制方面积累了丰富的研究经验。Zeman 教授是已故董海山院士的老朋友,同时是《含能材料》外籍编委。

此次来访,Zeman 教授做了精彩的学术报告,并与科技人员进行了深入交流。科研人员就感兴趣的话题与 Zeman 教授进行了直接对话,交流气氛活跃。

(中国工程物理研究院化工材料研究所 曾俊伟 供稿)

