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## **Rapid growth and optical studies of KDP crystals with organic additives**

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### **Abstract**

KDP crystals were grown by the “point seed” rapid growth technique from aqueous solutions with different organic additives, including NTA, HEDTA, EDTA and DCTA. The growth rates were up to about 20 mm/day. The influences of these organic additives on the growth habit and optical properties of these as-grown KDP crystals have been studied. Such organic additives were all found to be able to enhance the solution stability and promote the growth rate for the (100) face of KDP crystals. Furthermore, the UV transmittance and laser damage threshold of the KDP crystals were both increased with the addition of these organic additives. It is proposed that the beneficial influences are due to the chelating action of such organic additives with metal ion impurities in the growth solutions.

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Key words: A1. Organic additive; A1. Solution stability; A1. Growth kinetics; A1.

Optical properties; A2. Rapid growth; B1. KDP crystal

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