

Effect of impurities on the growth texture of quartz

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Water content and other cation impurities in quartz crystals were analyzed with infrared spectroscopy and electron probe micro-analysis to clarify effect of H content on growth temperature. Specimens used for the measurements were clear quartz and amethyst crystals occurred from Otome mine (pegmatite), Japan and Uruguay, respectively. It has been considered that Uruguay amethyst grew under low temperature condition, compared with Otome quartz. The water content of Uruguay amethyst is ten times larger than that of Otome quartz. No correlation was observed between the contents of Al and H in Uruguay amethyst. The H content is also ten times larger than that of Al in Uruguay amethyst. These results suggest that the amount of water in quartz is closely related to the growth temperature.