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# The Solid-liquid Transformation of Low-grade Solid Potash Deposit in Dalangtan Basin and the Simplification of the Liquid Phase System

WANG Xiaohan[1,2], ZHANG Chao[1,2],XIE Shaolei[1], JIA Yongzhong[1] and YAO Ying[1*]

*1 Key Laboratory of Salt Lake Resources and Chemistry, Qinghai Institute of Salt Lakes, Chinese Academy of Sciences, 810008 Xining, China*
*2 University of Chinese Academy of Sciences, 100049 Beijing, China*

We studied the solid-liquid transformation of low-grade solid potash deposit in Dalangtan Basin and simplified the liquid phase system. We did experiments to optimize conditions of the solid-liquid transformation. The Suitable mass ratios of the combination of the low-grade solid potash deposit and pure water , the suitable reaction time of the solid-liquid transformation and the changes of potash leaching rate with the changes of temperature were found. The liquid phase system after solid-liquid transformation was Na+, K+, $Mg^{2+}$//$Cl^-$,$SO_4^{2-}$—$H_2O$ quinary system. The method to simplify the liquid phase system is refrigerating rime technique. The temperature range is from 0℃ to -16℃. We found $SO_4^{2-}$ precipitated as $Na_2SO_4$•$10H_2O$. So that the liquid phase system was simplified as $Na^+$, $K^+$, $Mg^{2+}$//$Cl^-$—$H_2O$ quaternary system.

**Key words:** low-grade solid potash deposit, solid-liquid transformation, liquid phase system, simplification

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* Corresponding author. E-mail: yaoy1125@hotmail.com