

Abstract Submitted  
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**Gas recovery experiments to determine the degree of shock-induced devolatilization of calcite** SOHSUKE OHNO, KO ISHIBASHI, Planetary Exploration Research Center / Chiba Institute of Technology, TOSHIMORI SEKINE, Hiroshima University, KOSUKE KUROSAWA, Japan Aerospace Exploration Agency, TAKAMICHI KOBAYASHI, National Institute for Materials Science, SEIJI SUGITA, University of Tokyo, TAKAFUMI MATSUI, Planetary Exploration Research Center / Chiba Institute of Technology — Shock-induced devolatilization of volatile-bearing minerals has played important roles in formation of the atmosphere and the evolution of surface environments of terrestrial planets. The dependence of the degree of devolatilization on the ambient pressure have not detailedly investigated before, although the ambient pressure must dramatically change the degree of devolatilization. In this study, we conducted shock-recovery experiments of calcite ( $\text{CaCO}_3$ ) using newly designed sample containers for released gas analysis and assess the dependence of the degree of devolatilization on the ambient pressure. The results clearly shows that the degree of devolatilization increases as the sample container volume increases and the initial mass of calcite decreases.

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