

**MECHANICALLY INDUCED CHANGES OF VESICLE GLAZE BY LOCALIZED IMPACT.**

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**Introduction:** The Wabar impact crater field hosts a highly variable collection of impact induced materials. Particularly, the Wabar impactites are rich in vesicles of different sizes and shapes. In this work we present a local structure analysis of cm-sized vesicles typically hosted inside 5-20 cm diameter impact glass bombs.

To access the vesicles the bomb was cut open and the inside of the vesicle was positioned in a SEM for observation of the glaze. A representative micrograph is shown in Figure 1.

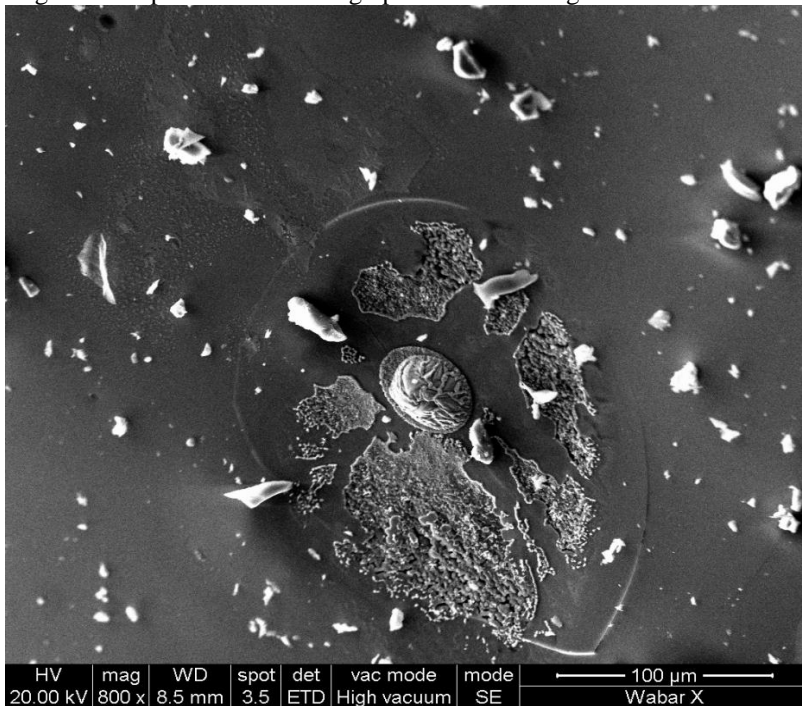


Figure 1. Vesicle in Wabar impactite.

A number of small, sharp fragments created by the mechanical opening of the glass bomb have been deposited on top of the glaze. Central in the micrograph the structural association of interest is seen: A protrusion constitutes the center of a circular mechanical fracture in the glaze, and also of an irregular deposit of a secondary glass deposited on top of the glaze and partially on top of the fracture in the glaze.

The texture is suggested to have formed by a sequence of events including:

- 1: A glaze form from a mixture of silica-based gas and particles trapped in the vesicle.
- 2: The vesicle hosts a small number of composite residual particles having a shell structure that features a dense center covered by a glassy shell.
- 3: The composite particles create a shock wave as they impact the solidified glaze causing the formation of a fracture in glass of the glaze and deposition of the core material becoming partly buried into the glaze.
- 4: At the same time the material from the glassy shell of the composite is heated, mobilized and spreads itself on top of the glaze and the fracture

These complex structures are helpful to establish the late processes in the impact plume.