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# Morphology and Structure of Halloysite in New Zealand Tephra

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**Abstract:** As shown by scanning and transmission electron microscopy, halloysite in three rhyolitic tephra occurs as squat and elongate ellipsoids. Both morphologies are presumed to result from a similar lattice building mechanism. The squat ellipsoids form from allophane; the elongate ellipsoids form from feldspars. The squat ellipsoids do not possess flattened faces or spaces between books of layers at field moisture levels. Outgrowths from the squat ellipsoids are possibly due to inclusions of allophane, glass, ferrihydrite, or feldspar crystallites. Possible spiral growth of halloysite, giving curved surfaces, may be due to a continuous distribution of crystal dislocations.

**Key Words:** Crystal dislocations • Electron microscopy • Growth mechanisms • Halloysite • Morphology

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