



# Abrasive efficacy of toothpaste particles

## Micro-particles in Oral Care

Contemporary toothpastes consist of a series of abrasive particles in carrier fluid, to aid in the abrasive removal of plaque and staining.

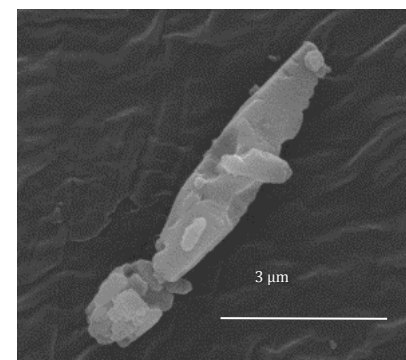
The research undertaken in this project aims to understand the abrasive performance of micro-particles with respect to different factors, such as particle size, shape and

For this particular project the behaviours of two similar scalenohedral calcite particles are being investigated.

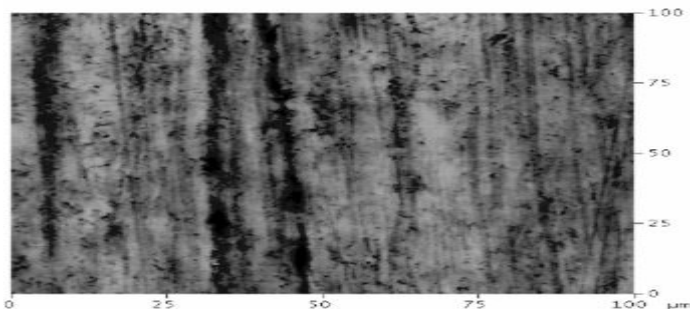
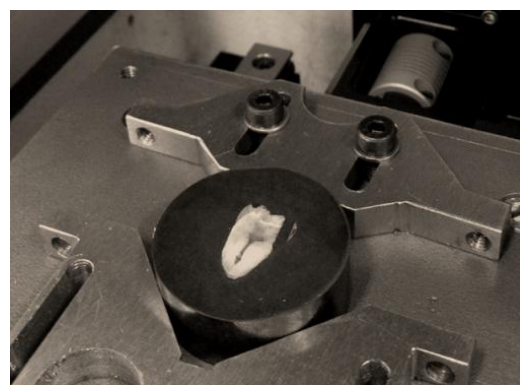
As supplied both particles are similar in morphology, composition and hardness but particle A exhibit 4 times less dentinal wear than particle B particles.



Particle A



Particle B



To investigate this the following have been conducted:

- Hardness comparison
- Nano-indentation
- Dentinal wear analysis
- Linear-reciprocation wear analysis
- CETR controlled wear analysis
- Particle nano-manipulation
- SEM imaging
- TEM imaging

This understanding into abrasive efficacy of certain particles is important for the oral care industry in order for them to further develop their products and remain competitive.