

MONASH INDUSTRY TEAM INITIATIVE (MITI) 2016-2017

Transportation of powders: Understanding how the powder is transported within the manufacturing process and the potential impact on integrity

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PROJECT SCOPE

Bulk Density

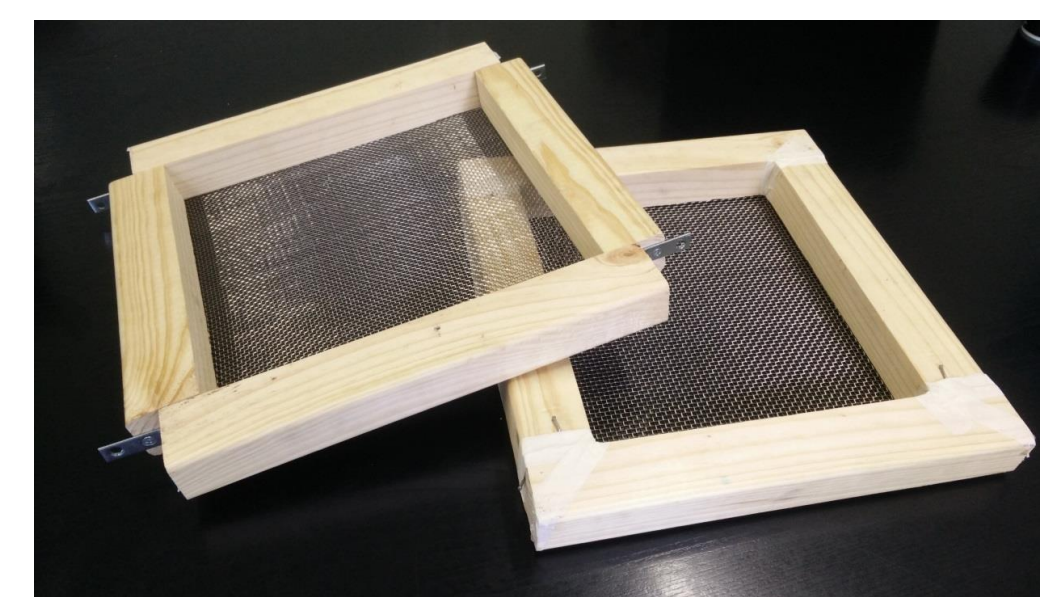
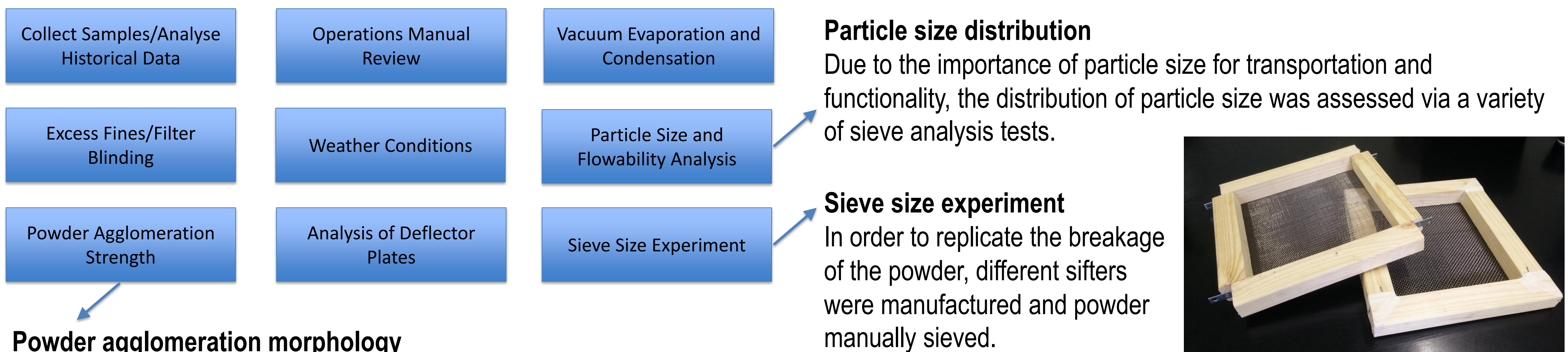
The Cobden site has quite a tight BD capability due to its transport system. However if this capability could be expanded to produce a larger range of BD this would create more sales opportunities with customers looking for lighter BD powder. The project focused on investigating how the powder is produced and transported within the factory to identify key areas where the density can be enhanced.

Transport Blockages

At Cobden, the transport line sometimes experiences blockages which increases production down-time and can be costly. The focus involved identifying reasons why the blockages occur and what properties of the powder were likely to cause them.

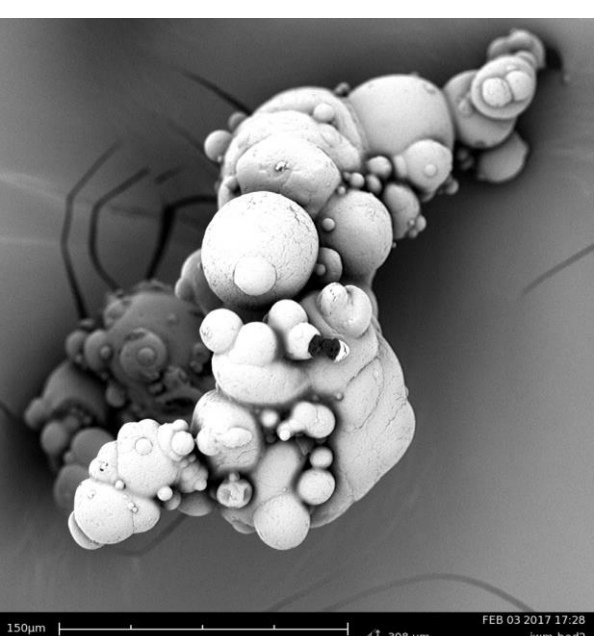


PROJECT FOCUS

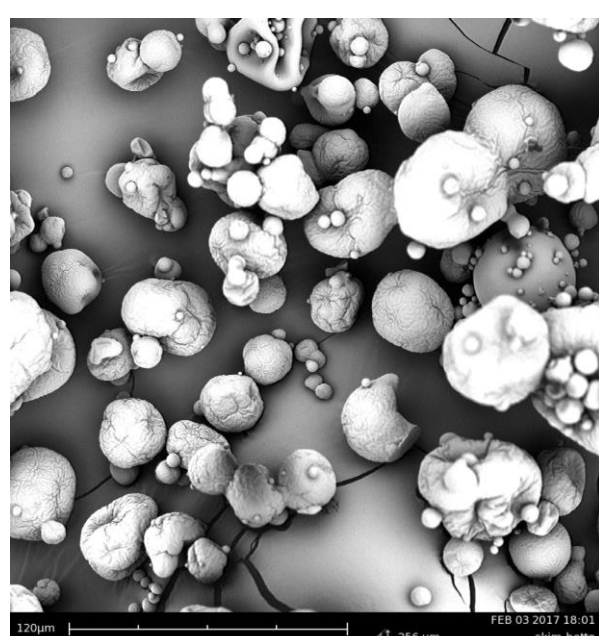


Powder agglomeration morphology

Bulk density and transportation of powder are affected by the morphology of the particles



SEM of whole milk powder



SEM of Skim milk powder

PROJECT OUTCOMES

- Proved/Disproved some hypothesis' in order to narrow down the focus to more important areas
- Conducted multiple powder density/ particle size measurements
- Used the results to determine the suitability of the powder

KEY RECOMMENDATIONS

- Purchase missing process equipment
- Alter dryer parameters to improve powder integrity
- Restore pipeline insulation
- Install a blower for skim milk transport