

Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Conching Chocolate GARY L. HUNTER, PAUL CHAIKIN, New York University, ELENA BLANCO, WILSON POON, University of Edinburgh — “Conching” is an intermediate step in the processing of chocolate where hydrophilic solid particles, such as sugar and milk proteins, are aggressively mixed into a fatty, fluid phase containing emulsifier, e.g. molten cocoa butter with lecithin. During conching, the system evolves from a fine powder to a coarser granulated material and ultimately into a thick cohesive paste. Our goal is to better understand the evolution of chocolate during conching and the transition from an effectively dry to a wet or immersed granular material. In particular, we focus on how mixing times change in response to variations in solid particle volume fractions and emulsifier concentration. As a function of volume fraction, mixing times are well-described by a conventional form that diverges at a finite volume fraction. Furthermore, mixing times can be collapsed onto a universal curve as a function of mixing speed and emulsifier concentration.

Gary Hunter
New York Univ NYU

Date submitted: 14 Nov 2013

Electronic form version 1.4