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SAMPLE2517: 2% Wax in Oil

Particle Size Distribution

Canty Representative: Jena Woodward

Customer Contact: Webb

Date: December 14, 2012

Sales Representative: John Doerner

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Introduction

Objective

The purpose of this test is to determine if a vision based system provided by Canty can view and measure the particle size distribution of the samples provided by Webb. Below are the results of the testing performed at J.M. Canty.

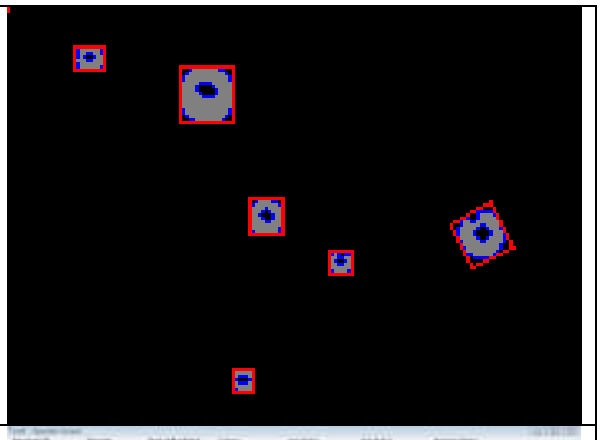
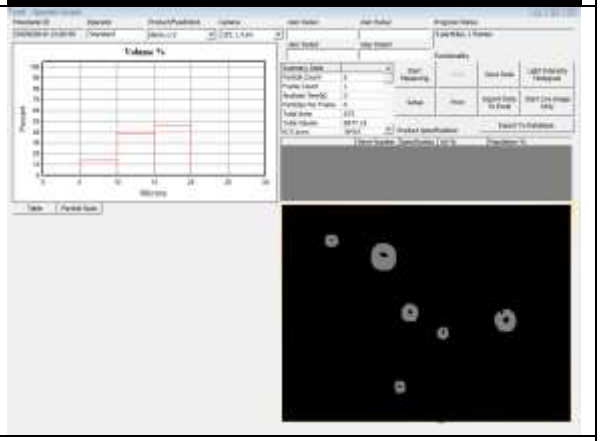
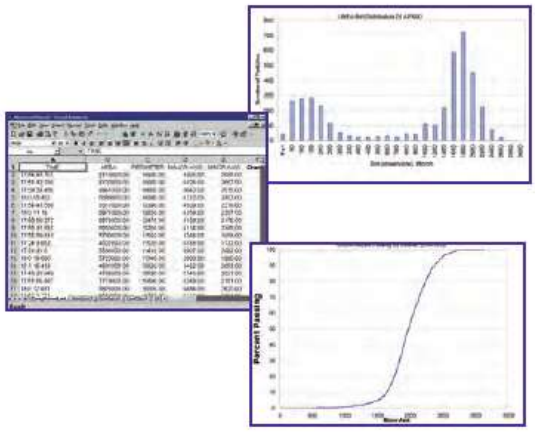
Sample Description

SAM2517	2% Wax in Mineral Oil

How It Works

This portion of the report elaborates on how the PharmaFlow™ and CantyVisionClient™ software interact and determine a droplet or particles size, shape, and PPM level.

Image Collection: Particles are sent through the flow cell body and back-lit with a high output CANTY Light. The particle images are collected in real time by the CCD camera. The image is then digitally transmitted to a PC with CantyVisionClient™ software for analysis.	

Binary Images: The image is then broken down into individual pixels. The intensity difference between the particles and the background allows CantyVisionClient™ software to determine the perimeter of the particle, as well as the major axis, minor axis, area, and other characteristics about the particles dimensions.	
Analysis: Once the software determines the particles size and shape, the software can perform further analysis on the individual particles. The analysis includes particle filters to enable users to determine when particles are dissimilar or nonconforming to the entire distribution of particles.	
Output: Now that the software has analyzed the particles data, the information can be stored and/or output to a variety of locations. This includes PC databases, 4-20 mA current loop, OPC and more!	

Typical Images

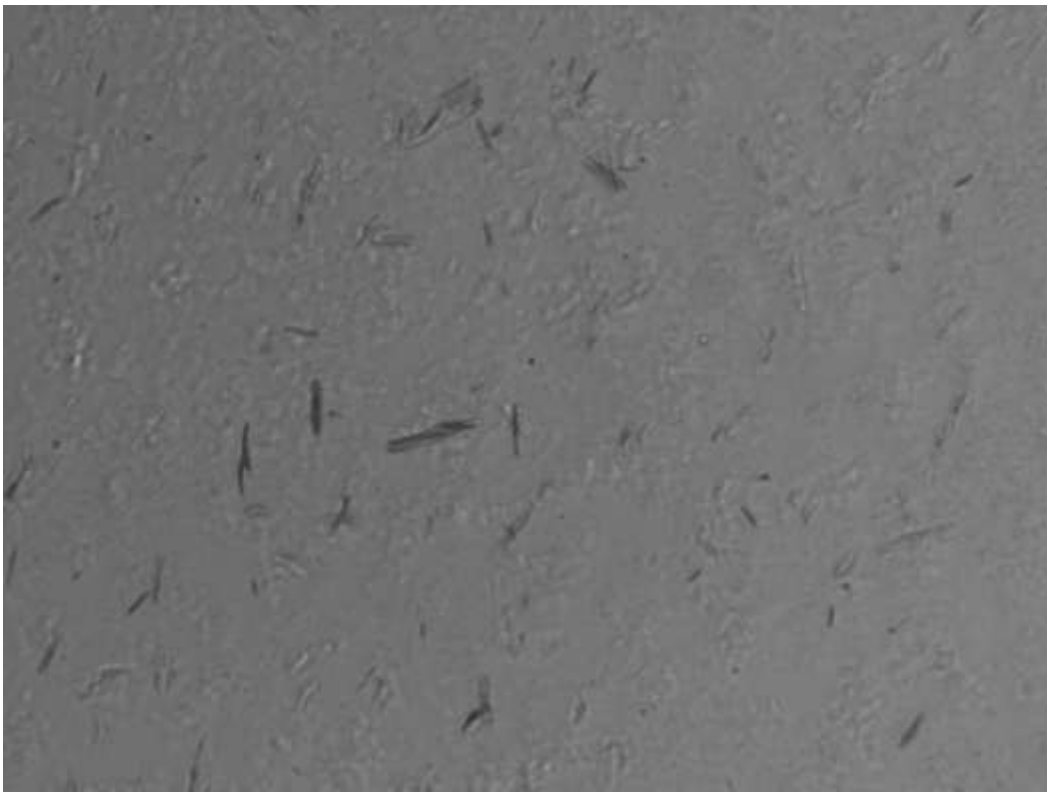


Figure 1 – SAM2517- 2% Wax in Oil

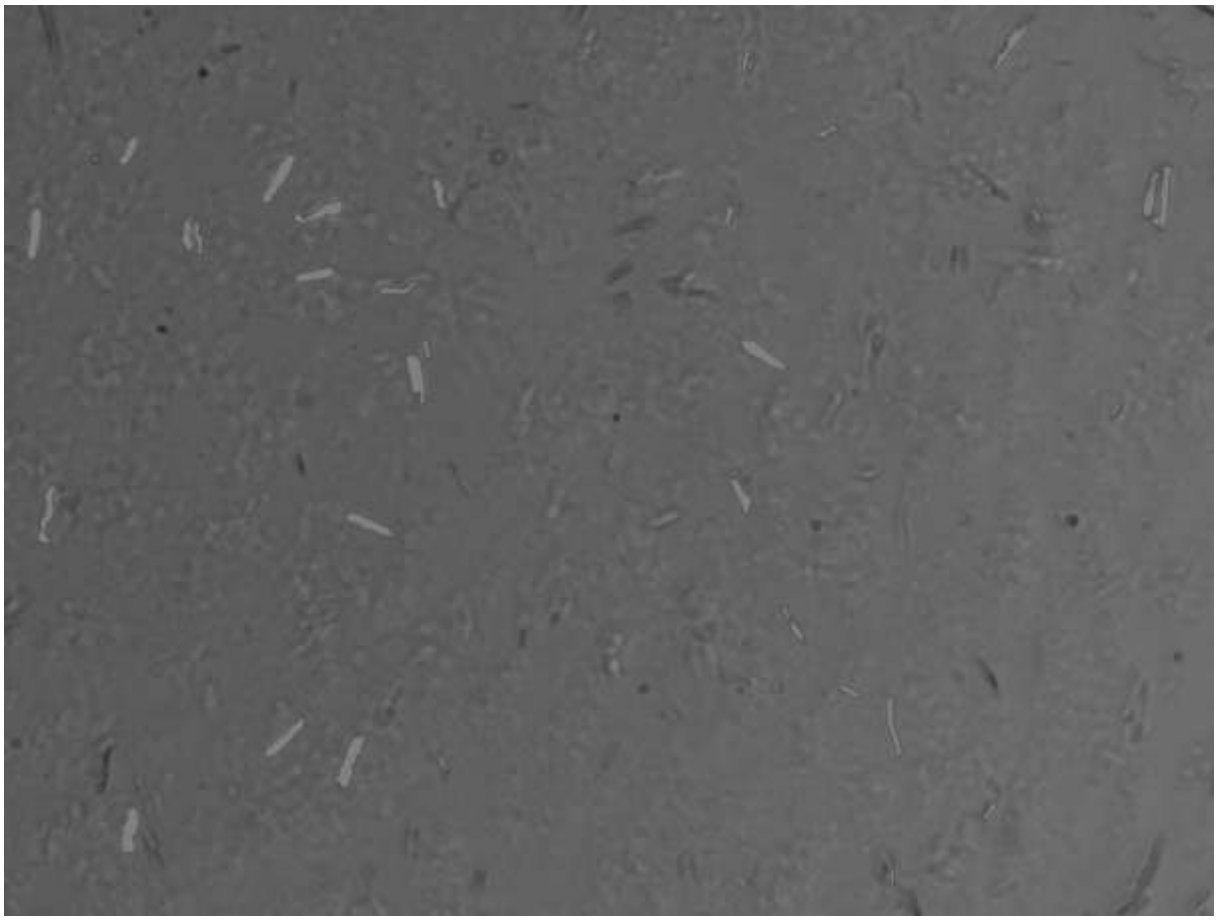


Figure 2 – 2% Wax in Oil analyzed using Canty Vision Particle Sizing Sizing Software

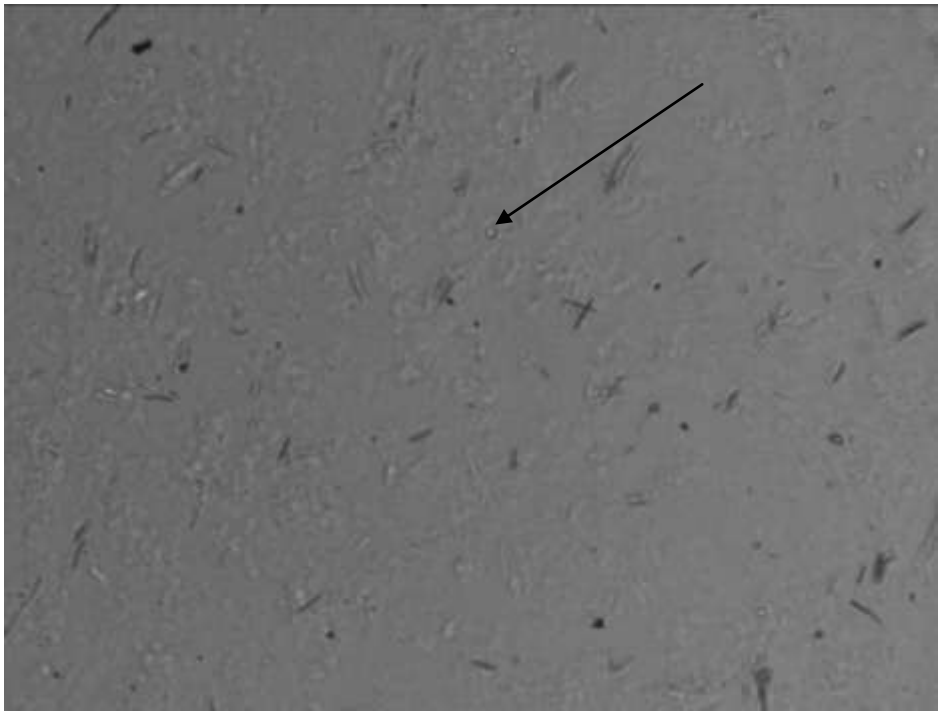


Figure 3 – SAM2517- Small water droplets

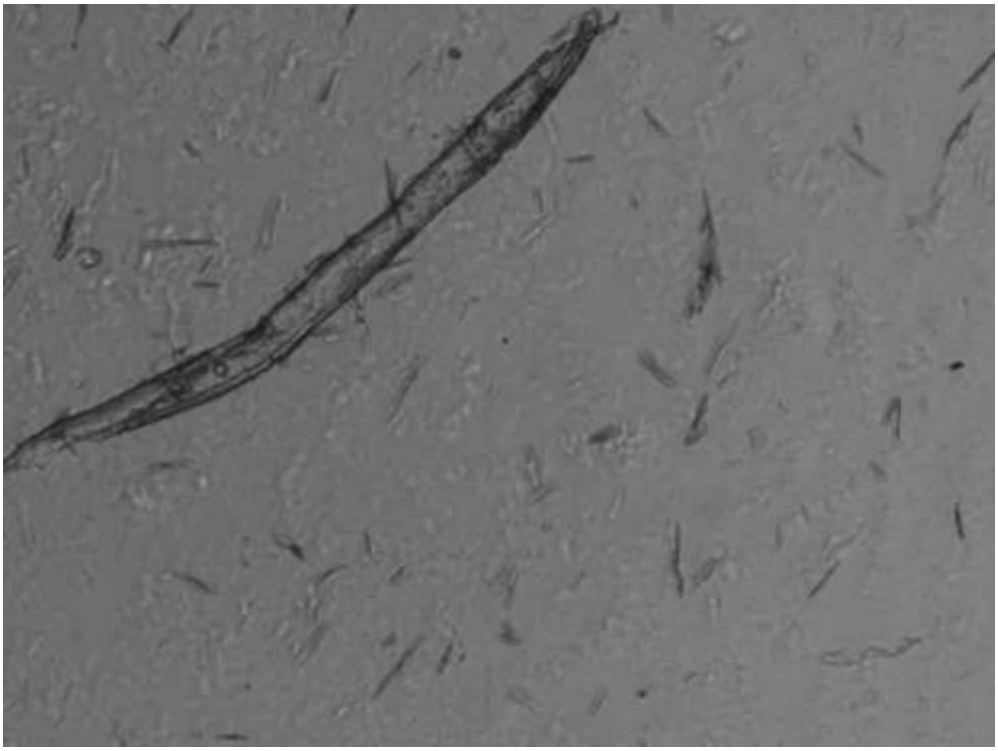


Figure 4 – SAM2517- Large Wax Particle

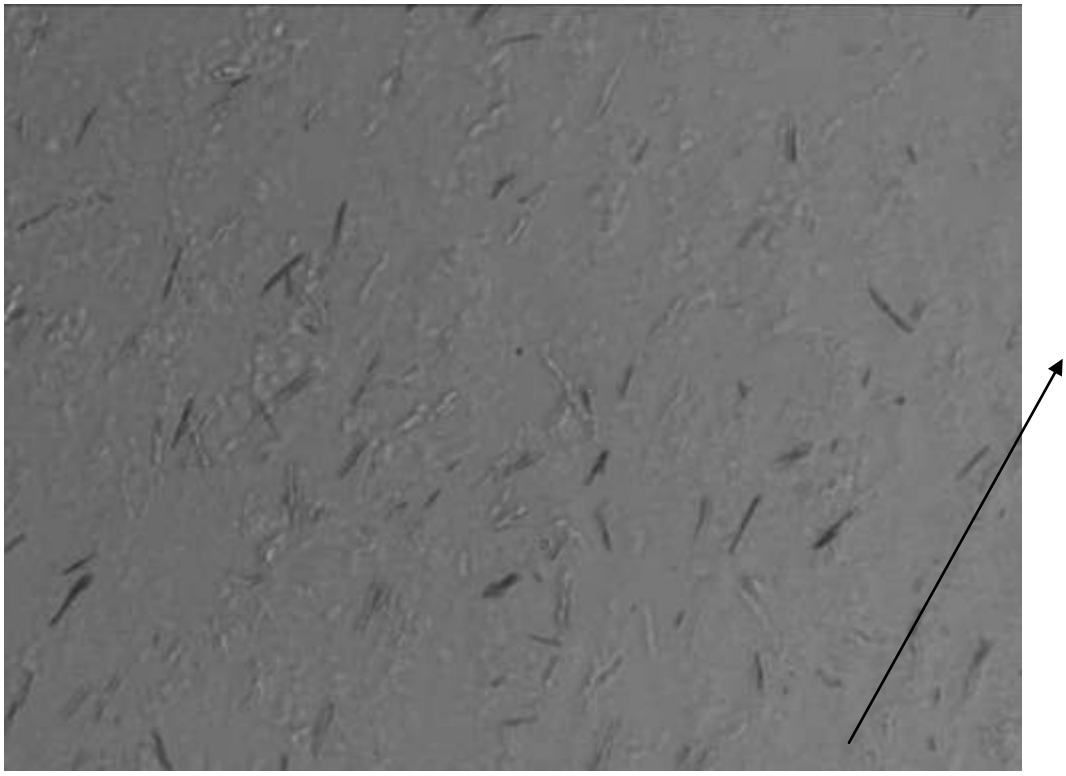


Figure 5 – SAM2517- Wax particles aligning in direction of flow

Data and Observations

Observations

SAM2517– 2% Wax in Oil - This sample contains a moderate concentration of transparent, sheet-like wax particles. The particles are readily detected and analyzed by the software when they are on their side as this creates contrast with the background. The wax particles aligned in the direction of the flow more as scanning progressed. Only trace water was observed in the sample.

Data

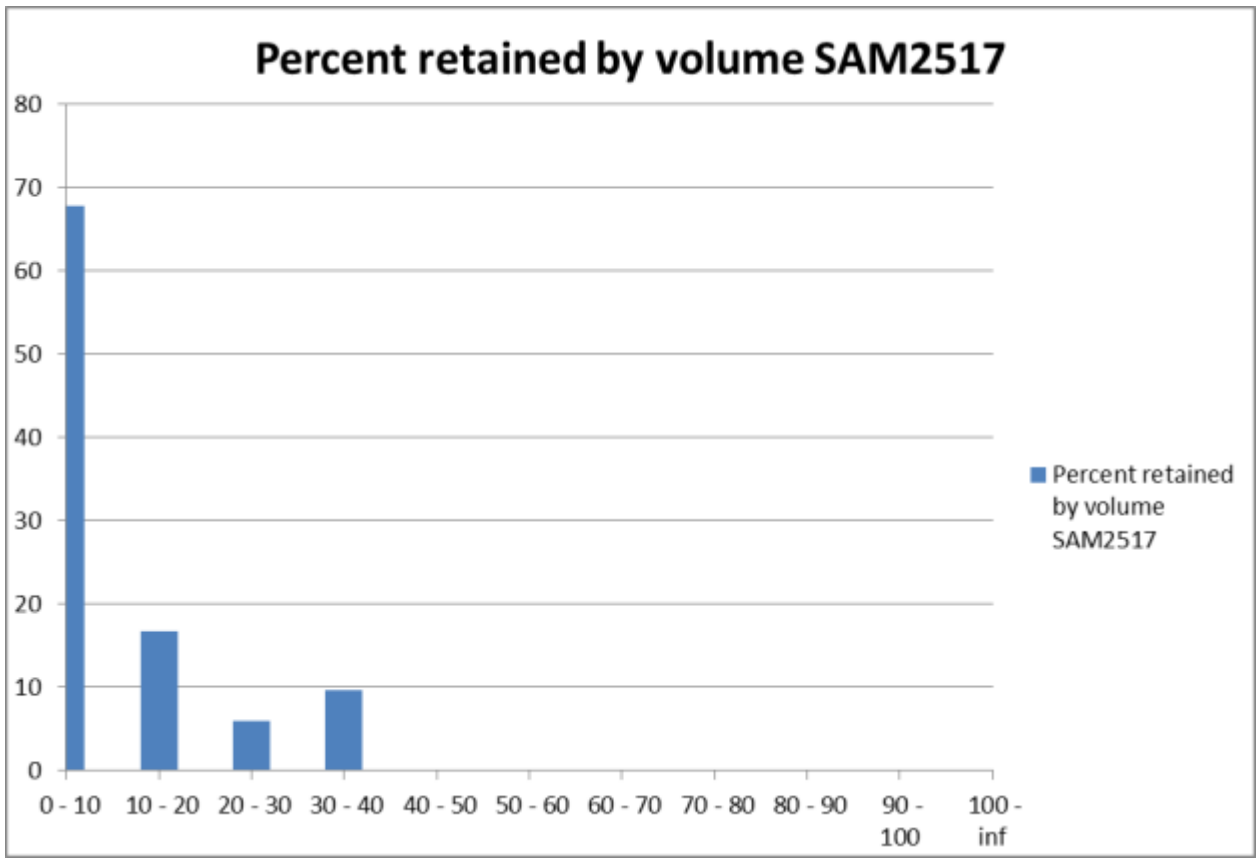


Figure 6 – Canty Results for SAM22517- 2% Wax in Oil

- Customer data indicates that the sample will have a size distribution within the range of 1 – 100 micron, with an average of 10 microns.

Conclusion

The 2% Wax in Oil sample supplied by Webb was analyzed using the PharmaFlow particle sizing system. 3mL of the wax in mineral oil was injected using a syringe into the syringe style gasket on the PharmaFlow. The wax particles were able to be seen, imaged and then analyzed by the system. The particles were most readily detected when they were on their side. Using cross polarized lighting would significantly improve the contrast between the transparent wax sheets and the background.

Technical Setup Details

Operator:	Jena Woodward
Sample Number:	SAM2517
Company:	Webb
Rep:	John Doerner
Test Purpose:	Particle Size Distribution

Test Setup:	
System Description:	PharmaFlow
Model #:	
Serial #:	
Software Version	

Test Setup Notes:
- Used manually operated syringe for injecting sample into flow cell.

SAM2199-1			
Weight or Concentration:	No Dilution 3mL	**Pixel Scale Factor**	0.528 microns per pixel
Shutter Speed:	1000 microseconds	**Aperture**	na
Gain:	0	**Light Filters**	na
Light Intensity:	26VDC	**Light Source**	HYL80-LS-WP
Gap:	150 microns	**Collimated LP**	Yes
Flow Rate:	static	**Light Guide**	Yes - Quartz

Run Notes:
The material contained sheet-like wax particles that provided contrast when viewed on their side.