Analysis Report

Analytical instrument(s):	Horiba LA950 Laser Diffractometer
Test Laboratory:	Particle Technology Ltd, UK
Customer Order Number	E130N21000125
Test Engineer(s):	Matthew Marples
Report Author:	Matthew Marples
Date of Test:	17/05/2021
Issue	Issue 1

Contents

1 Scope

Four filter samples were delivered for particle size analysis.

2 Test Laboratory Details

Particle Technology Ltd
Station Yard Industrial Estate
Hatton
Derbyshire
United Kingdom
DE65 5DU

3 Customer Details

Element Mats Tech Enviro UK Ltd
European Shared Service Centre
Rosewell House
2A (1F) Harvest Drive
Newbridge, Midlothian
EH28 8QJ

4 Sample Information

PTL Sample ID	Sample Identification	
34242	47-79812	CHP
34243	47-79813	Stela 2
34244	47-79817	Stela 1
34245	47-79657	

Table 1 –Sample details.

Figure 1 (Image of samples)

5 Test Method

Particle Characterization Test Parameters			
Analysis Performed		**Instrument Used**	
Optical Microscopy		Horiba LA950 Laser Diffractometer	X
Particle Size Analysis	X	HIAC Royco 8000A	
Elemental Composition		Coulter Counter Multisizer III	
Other		Sieve Analysis	
Type of Sample Supplied		Horiba XGT 7000 X-Ray Analytical Microscope	
Bulk		Leica DM2500 Optical microscope	
Filter	X	Microtrac S3500	
Other		Other	

Table 2 – Test Parameters

The filters were carefully washed with isopropyl alcohol (IPA) in order to liberate the samples. The dispersions were then collected in separate glass vials and placed into an ultrasonic bath for a minimum of ten minutes. A representative sample of each vial was then taken for particle size analysis using laser diffraction.

6 Particle Size Distribution

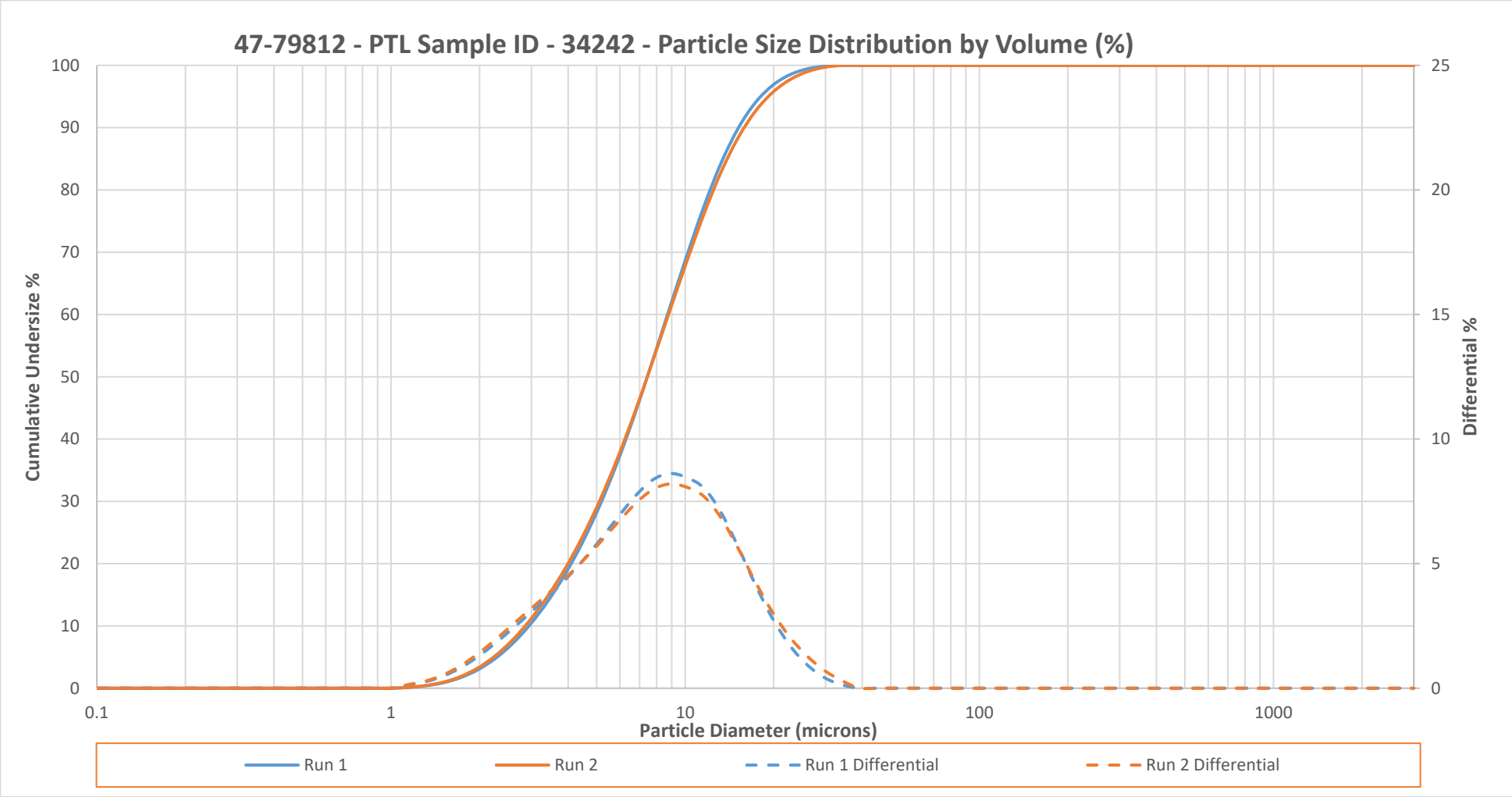

Figure 2 – shows Particle Size Distribution by Volume (%) for PTL Sample ID 34242.

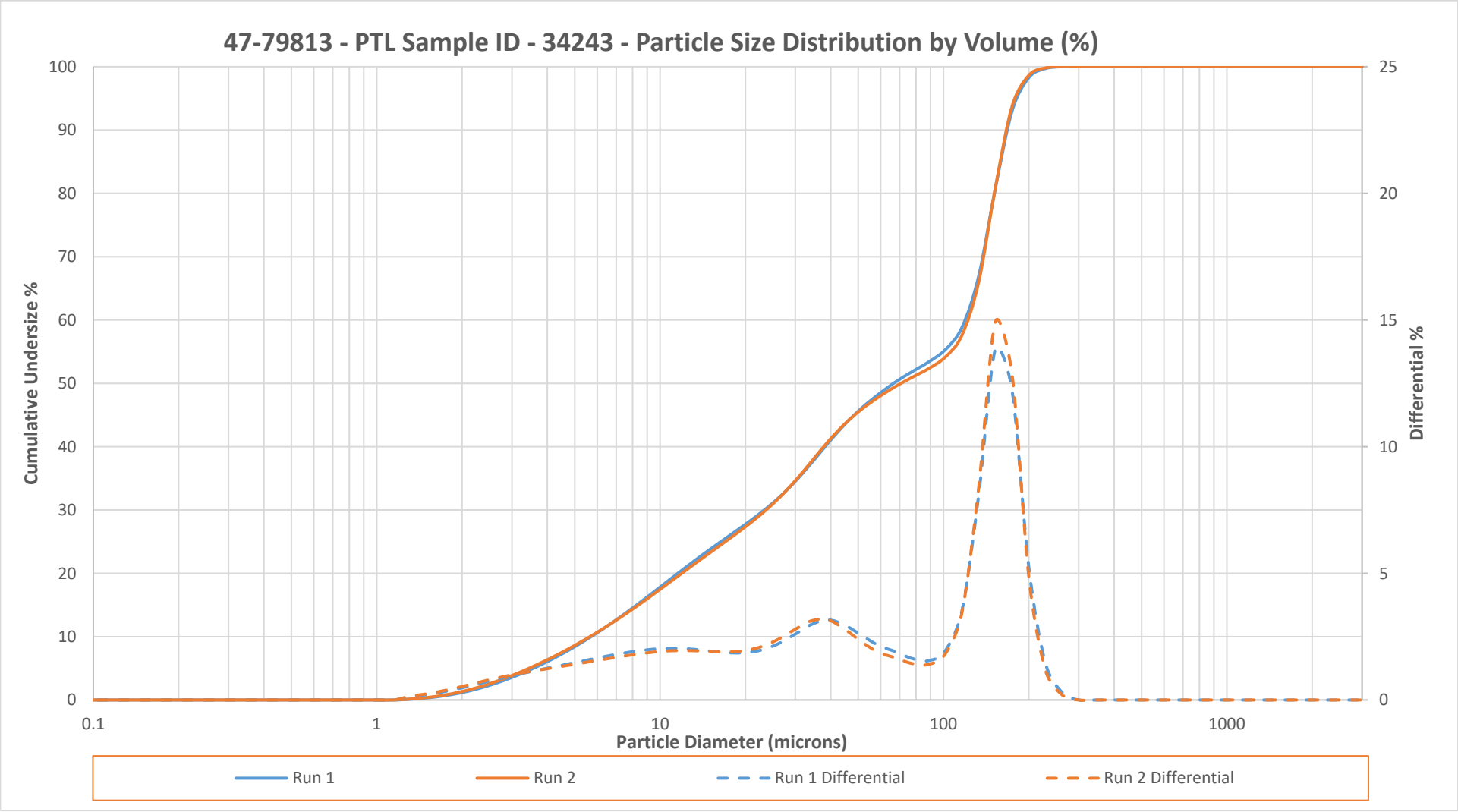

Figure 3 - shows Particle Size Distribution by Volume (%) for PTL Sample ID 34243.

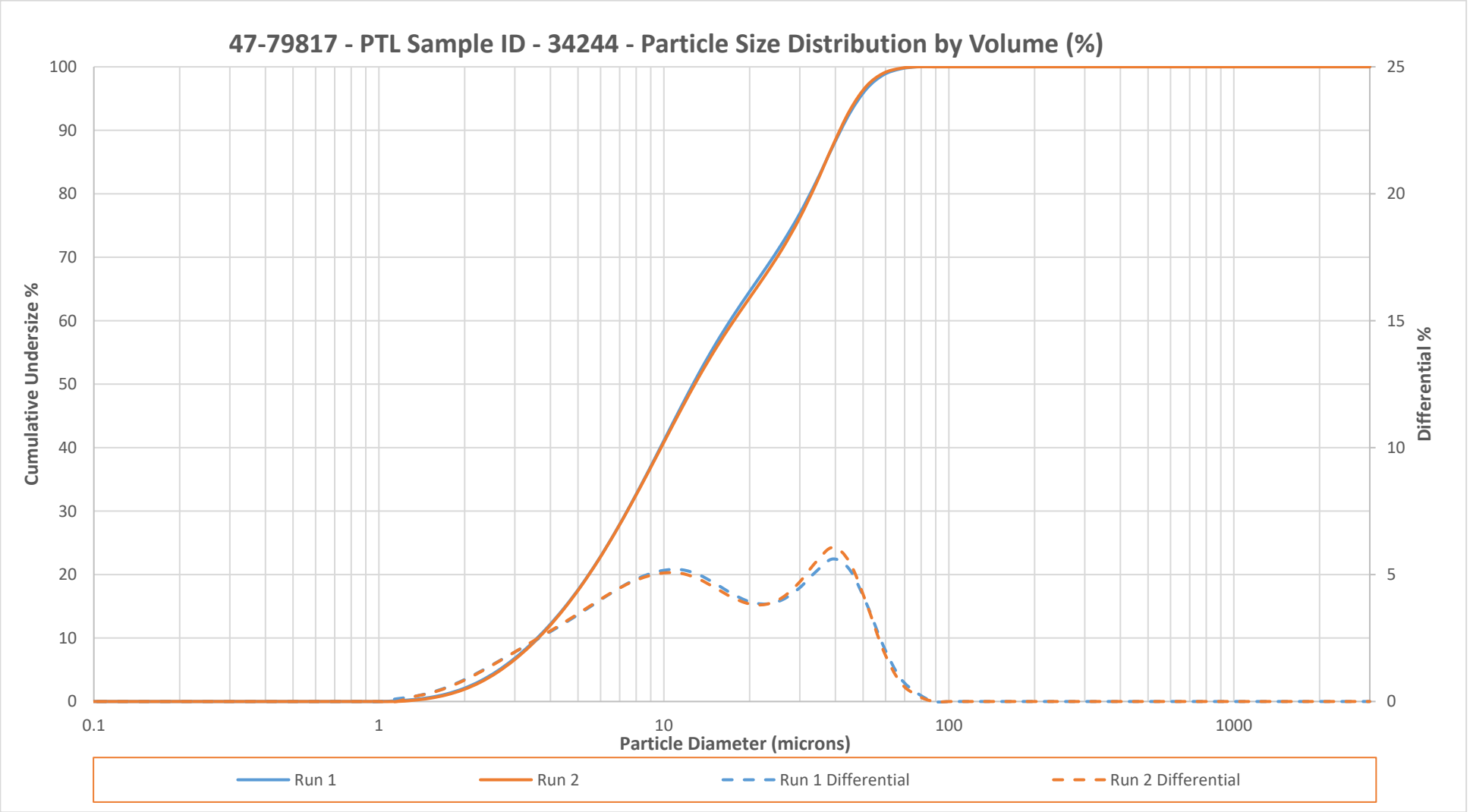

Figure 4 - shows Particle Size Distribution by Volume (%) for PTL Sample ID 34244.

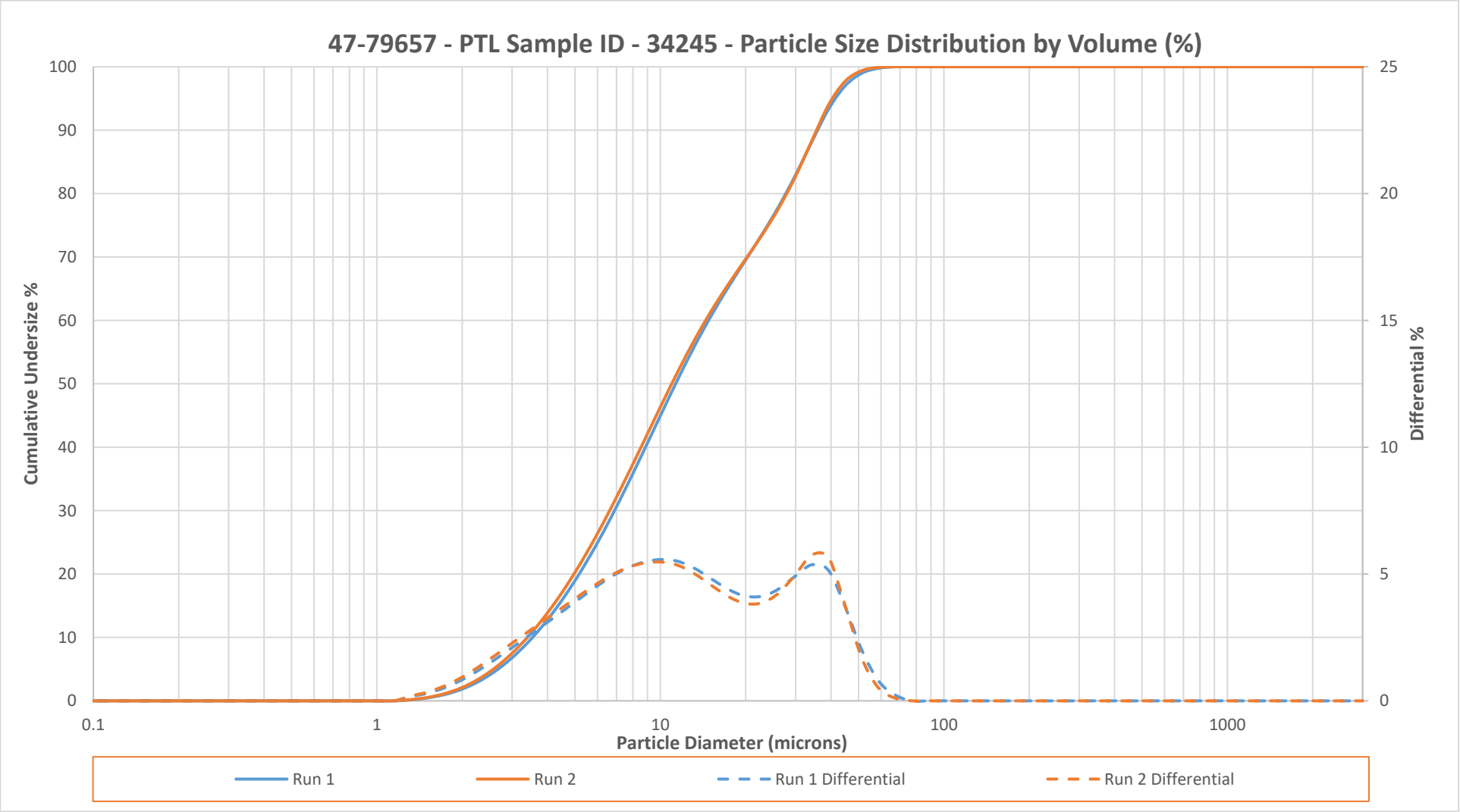

Figure 5 - shows Particle Size Distribution by Volume (%) for PTL Sample ID 34245.

Average Statistics									
	Mean Size (μm)	**Median Size(μm)**	**D10(μm)**	**D50(μm)**	**D90(μm)**	**PM10(%)**	**PM5(%)**	**PM2.5(%)**	
PTL S/ID 34242	*8.52*	*7.43*	*2.90*	*7.43*	*15.56*	*68.78*	*29.72*	*7.53*	CHP
PTL S/ID 34243	*82.81*	*68.80*	*5.68*	*68.80*	*168.34*	*17.79*	*8.80*	*2.69*	Stela 1
PTL S/ID 34244	*18.46*	*12.76*	*3.60*	*12.76*	*41.71*	*41.32*	*18.21*	*4.67*	Stela 2
PTL S/ID 34245	*15.84*	*11.15*	*3.46*	*11.15*	*35.76*	*46.04*	*20.36*	*4.86*	Control

Table 3 – Sample Statistics.

D values = Size (microns) at which 10%, 50% and 90% of the sample is smaller than.
PM values = Percentage of the sample that is smaller than 10µm, 5µm and 2.5µm.
The data shown in table 3 is based on volume/mass % and shows average values of the measurements performed.

7 Comments

Four filter samples were delivered for particle size analysis.

The samples were delivered on quartz fibre filter media; this material releases fibres which can skew the particle size distribution making it appear coarser.

The data shown in this report is felt to be an accurate representation of the particle size distribution of the sample.

8 Approval

The preceding report is an accurate account of the testing performed at Particle Technology Ltd UK.

Approved by:

Signed .....
T Jackson
QHS Manager
Issue Date: 20 May 2021