Intercomparison of Condensation Particle Counter

Project No.:	*CPC-2017-2-28*
Principal Investigator:	
Home Institution:	
Participant:	
Candidate:	**IT- Monte Cimone**
Counter (SN):	TSI CPC Model 3772; SN: 70902011
Location of the quality assurance:	TROPOS Leipzig, lab 130
Comparison period:	March 22, 2017
Last Intercomparison (with Project No.):	
TROPOS Reference Instrument:	Electrometer: TSI model 3068B #70838596, Last calibration in April 2016
Additional Equipment:	Bubble flow meter 'Gilibrator', Gilian (Sensidyne)

Summary of Intercomparison

Status:
The candidate passed the quality standards of ACTRIS and GAW. It was necessary to clean and recalibrate the candidate. The CPC efficiency curve corresponds to the standard. The candidate reached 99% efficiency at 40 nm. The Dp50 is at 9.03 nm.

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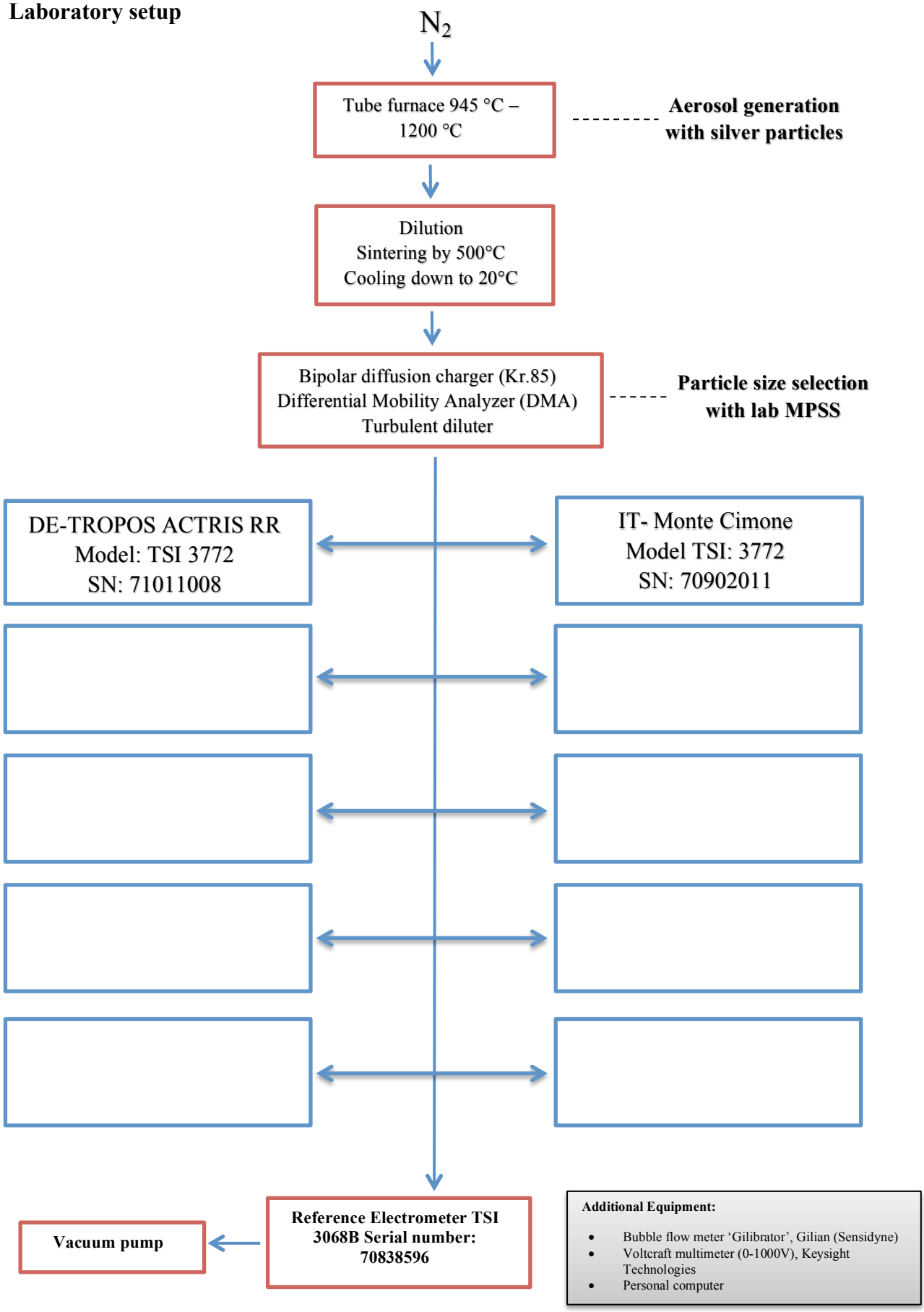
Laboratory setup



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Status of the candidate:

CPC status	Pre-Status	
power/status	*LED green*	-
saturator temp	*39*	°C
condenser temp	*22*	°C
optics temp	*40*	°C
cabinet temp	*32.2*	°C
ambient pressure	*101.2*	kPa
orifice pressure	*77*	kPa
nozzle pressure	*2.8*	kPa
laser current	*47*	mA
liquid level	*Full*	-
Aerosol flow (l/min)	*1.055*	l/min

Special Information regarding to the Candidate:

Was it necessary to:	yes/no	information
do a second run	no	
clean the optics	yes	
clean the nozzle	yes	
clean the saturator	yes	
change the wick	no	
change the laser	no	
change internal settings	no	

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CPC efficiency curve of the candidate: Status

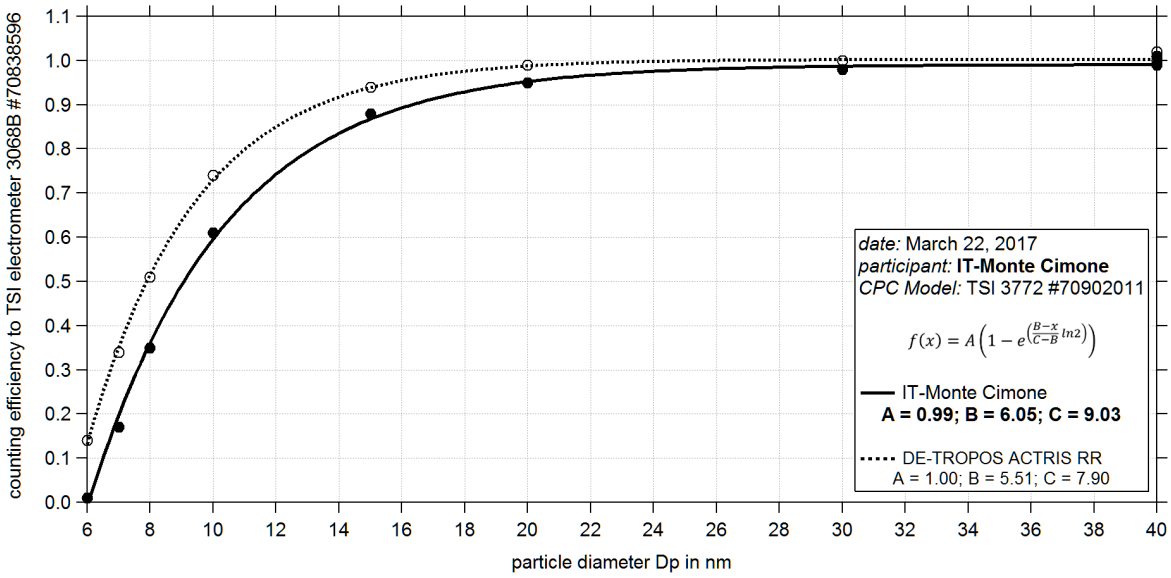

Figure 01: CPC efficiency curve. Based on Electrometer TSI 3068B. Serial number: 70838596

Measured data of the candidate: Status

Dp in nm	counting efficiency
40 nm	*1.01*
40 nm	*0.99*
30 nm	*0.98*
20 nm	*0.95*
15 nm	*0.88*
10 nm	*0.61*
8 nm	*0.35*
7 nm	*0.17*
6 nm	*0.01*
5 nm	*0.00*

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Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin
Nationales Metrologieinstitut

Kalibrierschein
Calibration Certificate

Gegenstand: *Object:*	Aerosol Elektrometer ID-Nummer: TSI_3068B_70838596
Hersteller: *Manufacturer:*	TSI Incorporated
Typ: *Type:*	3068B
Kennnummer: *Serial No.:*	70838596
Auftraggeber: *Applicant:*	AG 3.23 - Herr Nowak, Tel.: 3228
Anzahl der Seiten: *Number of pages:*	4
Geschäftszeichen: *Reference No.:*	PTB AG 2.11-1461323527-0327
Kalibrierzeichen: *Calibration mark:*	20790 PTB 16
Datum der Kalibrierung: *Date of calibration:*	22.04.2016

Im Auftrag: *On behalf of PTB:*

Dr. B. Schumacher

Braunschweig, 04. Mai. 2016

Siegel
Seal

Im Auftrag: *On behalf of PTB:*

C. Rohrig

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