



Molecular Analysis



Model 1000M NMCI

Description

These cascade impactors are designed for sampling and collecting size-fractionated aerosol particle samples for gravimetric and/or chemical analyses. That preferred by aerosol researchers worldwide for environmental and laboratory research.

New nozzle plates

The new nozzle plates with smooth and sturdy structure fabricated by the LIGA process (Lithography, Electroplating, and Molding) are installed on the 7th-10th stages of the NMCI. The new nozzles show great performance on preventing nozzle clogging and allow for ultra-sonication to clean nozzles thoroughly. The particle collection efficiency curves of the NMCI have cutoff diameter d_{pa50} that match well with the nominal values given in Marple et al. (1991).

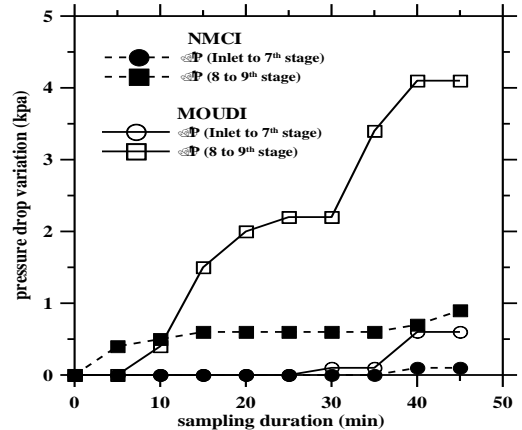
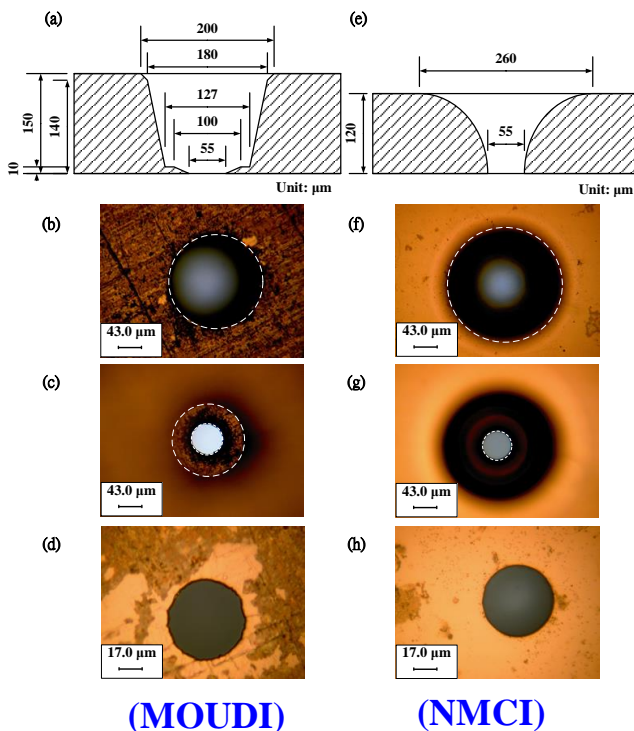


Fig 2. The variations of the pressure drop during 45-min incense smoke sampling

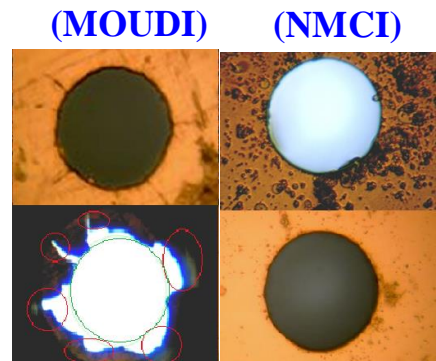


Fig 3. The nozzle after 1-min (MOUDI) and 1-hr (NMCI) ultra-sonication, respectively

Fig 1. The cross-section schematic, front and back views of the 9th stage nozzle of the MSP MOUDI and the present NMCI. (Liu et al., 2013)

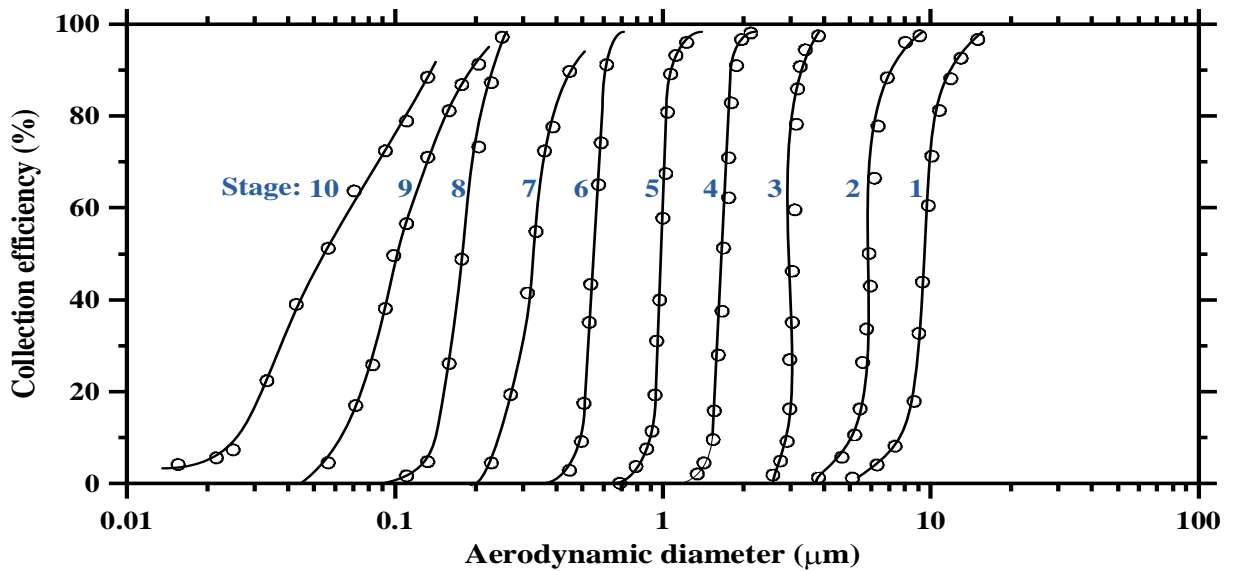


Fig4. Particle collection efficiency curves of the 0th -10th stages of the NMCI.

➤ Design and calibrated value of the NMCI

Stage	d_{pa50} (μm)	Num. of nozzles	Nozzle dia. (mm)	S/W	P/P _a
0	18	1	17.1	0.78	1
1	10	3	8.89	0.5	1
2	5.6	10	3.8	0.98	1
3	3.2	10	2.47	0.97	1
4	1.8	20	1.37	0.89	1
5	1	40	0.72	0.97	1
6	0.56	80	0.4	1.3	0.99
7	0.32	900	0.136	4.04	0.95
8	0.18	900	0.108	5.38	0.89
9	0.1	2000	0.0541	14.39	0.72
10	0.056	2000	0.0538	12.68	0.47

Features

- NMCI has relatively smaller pressure drop than low pressure impactors for reducing potential evaporation of volatile aerosol species.
- Sturdy nozzle plates allow for ultrasonic cleaning.
- The new smooth nozzle plates in the lower stages of the NMCI outperform those of the MOUDI in preventing nozzle clogging.
- Patented nozzle design (7th-10th Stage)
- Can replace the existing nozzles of the MODUI with new patented nozzles
- Each jet-to plate distance of Impactor has been calibrated to obtain highly accurate data
- With CE mark

Technical Data

Impactor Stages	10
Sample Flow rate	30 L/min. (recommend)
Cut-point diameter, μm	0.056, 0.10, 0.18, 0.32, 0.56, 1.0, 1.8, 3.2*, 5.6, 10, 18 (*note: 2.5 μm stage can be provided upon request)
Dimensions (DxH)	290 x 690mm
Power	100-230VAC, 50-60Hz
Pump Power	100-230VAC, 50-60Hz, 0.4kw

Applications

- Environmental air sampling for air pollution and air quality
- Production testing in the factory
- Work place aerosol analysis
- Engine emission testing
- Automotive air bag testing
- Industrial hygiene studies



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