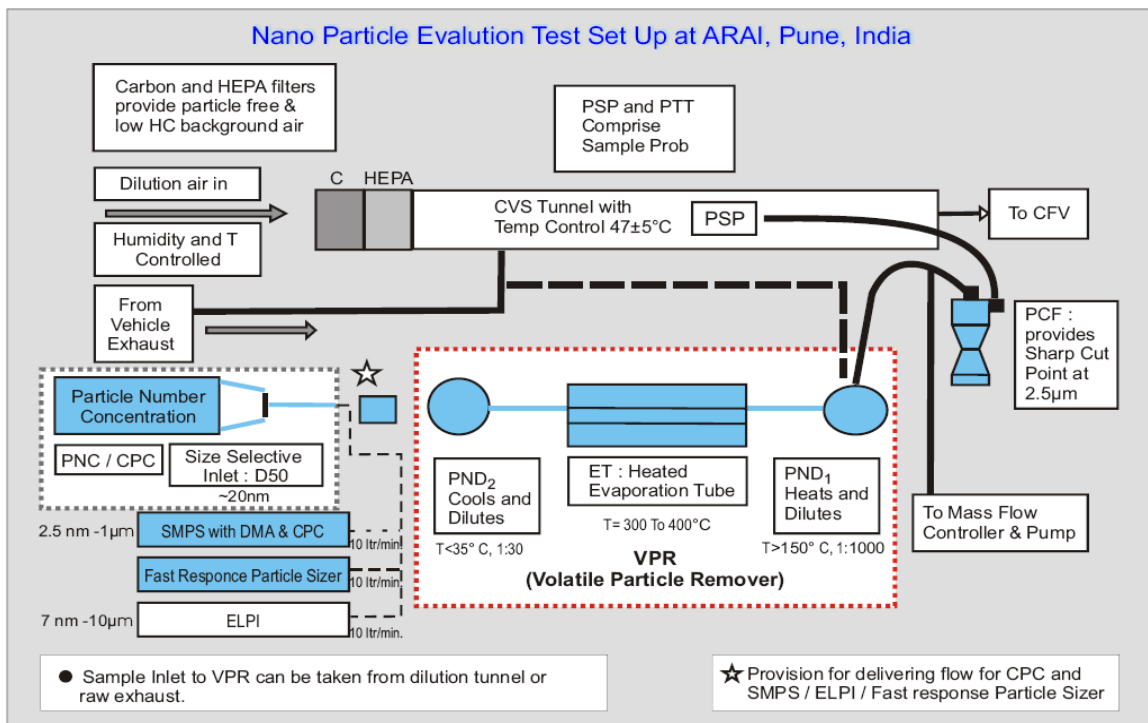


**Nano Particle Evaluation Facility at
 The Automotive Research Association of India, Pune, India**

ARAI has taken initiative for establishment of facility for "Measurement of Nano Particle Emission of Automobiles". The facility will be useful for testing of two, three and four-wheeled vehicles for measurement of regulated pollutants and nano particles in terms of size, numbers and surface area as well as it will be used for export homologation certification and development of engines and vehicles.

- The facility will be based on the test set up recommended by GRPE- PMP group, which mainly comprises of dilution tunnel with PCF (Pre-classifier) to cut down exhaust particles below 2.5 µm and HEPA (High Efficiency Particulate Filter) to provide dilution air with 99.99% filtering efficiency, VPR (Volatile Particle remover) and CPC (Condensation Particle Counter).
- In addition to this certification setup, it consists of Fast Response Particle Sizer(FRPS) for online nano particle measurement for its number, surface area and size distribution pattern, which will be useful for R&D work.
- Facility of nano particle measurement will be used for 2, 3 and 4-wheeled vehicles operating on diesel, gasoline, alternate fuels like CNG /LPG, etc.
- The facility can also be extended to evaluate nano particle assessment of buses and heavy commercial vehicles as Emission Lab of ARAI is equipped with heavy commercial dyno having inertia simulation capacity of 13,000 kg to accommodate vehicles upto 35 ton GVW.
- ARAI has well equipped Chemical Laboratory to carry out further study on the nano particle emissions for chemical speciation in terms of SOF and IOF analysis, and to measure unregulated emissions: like Benzene, 1-3 Butadiene, PAH and aldehydes.
- The facility will be commercially available from December 2009.
- The nano particle measurement test set up is as described in Figure 1 below :



The Automotive Research Association of India, Pune, India