



Name of the Technology/knowhow/process: High-Volume PM10 Sampler

Summary: A high-volume PM₁₀ cyclone sampler is developed. This cyclone is a multi-inlet cyclone which can segregate particulate matter >10 micron size and facilitate to collect ≤ 10 micron size particles suspended in ambient air on filter size (8 × 10) inch. The cyclone is designed for sampling air with a high flow rate (1.13 m³/min, i.e. 40 CFM). Also, the design of this cyclone is made in such a way which can be retrofitted on the filter holder of conventional high-volume total suspended particulate matter (TSPM) sampler to make it high-volume PM10 sampler. The performance of the sampler under all Indian weather conditions has been checked and found better than the existing sampler with several advantages.

Applications: Ambient PM₁₀ mass, extensive chemical analyses, perfect sampler for source apportionment studies.

Novelty features: Multi inlet cyclone design, no cutoff shift even at high particle mass loading and humidity condition, consistent sampling flow even after 24 hours sampling.

Advantages: Simple design, No cutoff shift even at high particle mass loading and humidity condition, consistent sampling flow even after 24 hours sampling.

Readiness level of the Technology:

Idea	Concept Definition	Proof of Concept	Prototype	Lab Validation	Technology Development	Technology Demonstration	Technology Integrated	Market Launch

IPR related details: Patent filed in India

Whether patent(s) has already been granted for this technology/process (Yes/No): No

Whether patent(s) has already been filed for this technology/process (Yes/No): Yes

If Yes, please provide the following details

Patent Application Title: Tangential Six-Inlet Co-Cylindrical Cyclone for PM10 Sampling

Country(s): India

Application Number(s) and Date(s): 202111014940, 31.03.2021

Publication Date(s) (if applicable):



Whether the technology/knowhow/process is patentable (Yes/No): Yes

If yes, whether the patent application of the technology/knowhow/process has been submitted to CSIR-NPL IPR division

(Yes/No): Yes

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Related Patents (if any): Nil

Year of Introduction of the technology/knowhow/process: May 2023

User Industries: Air monitoring instrument manufactures, air monitoring device manufacturers