

# MEPNN Supplier Scouting Opportunity Synopsis

## Section 1: General Information

Scouting Number	2024-307
Item to be Scouted	Particulate Monitor
Days to be scouted	30
Response Due By	11/08/2024
Description	<p>seeking Diameter Resolved and Time Resolved (&gt;1 Hz) Particulate Monitor with size resolved filter collection</p> <p>At the U.S. EPA's National Vehicle and Fuel Emissions Laboratory (NVFEL), an initiative has been started to understand PM emissions from tire and brake wear and the potential impacts of these emissions on air quality and human health. With the electrification of the U.S. motor vehicle fleet, PM emissions from tire and brake wear will become increasingly important. An important diagnostic instrument will be an analyzer that incorporates measurement of PM mass and number concentrations across a wide range of particle sizes at near real-time resolution together with size resolved particle deposition onto filters to understand the complexities of emissions and impacts. This is a procurement to acquire a high time resolution, near 10 Hz, wide particle size distribution analyzer that incorporates a particle size resolved multi-filter collection capability for use at the EPA's NVFEL.</p>
Notify Requester Immediately	
State item to be used in	Michigan

## Section 2: Technical Information

Type of supplier being sought	Distributor
Reason	BABA
Describe the manufacturing processes (elaborate to provide as much detail as possible)	Electronic Assembly

<p>Provide dimensions / size / tolerances / performance specifications for the item</p>	<p>The analyzer must meet the following specifications for each of the items (1 – 4) listed below.</p> <p>1) Ability to simultaneously measure PM size concentrations and collect PM on filters over a wide particle size range 0.006 - 10 <math>\mu\text{m}</math></p> <p>a. Ability to collect aerodynamic diameter size differentiated aerosols on filters for up to 14 sintered collection plates with impactor 50% cutpoints whose aerodynamic diameter bins are on the order of 5 per decade <math>[\log(d_i) - \log(d_{i-1})] \sim 0.15</math> to 0.3 where <math>d_i</math> and <math>d_{i-1}</math> are the 50% cutpoint aerodynamic diameters for two adjacent impactors]</p> <p>b. Report time resolved (10 Hz) aerodynamic size distributions with diameter bins on the order of 30 to 150 per decade</p> <p>c. With a sensitivity of:</p> <p>i. 250 particles/cm<sup>3</sup> for 10 nm particles</p> <p>ii. 20 particles /cm<sup>3</sup> for 100 nm particles</p> <p>iii. 1.0 particles /cm<sup>3</sup> for 1 <math>\mu\text{m}</math> particles</p> <p>iv. 0.1 particles /cm<sup>3</sup> for 5 <math>\mu\text{m}</math> particles</p> <p>d. Dry scroll pump capable of 20 m<sup>3</sup>/h @ 40 mbars</p> <p>e. Ability to sample at temperatures from 10-180 °C</p> <p>f. Ability to sample at 0-90 % RH</p> <p>g. Power capabilities at 100-250 V, 50-60 Hz, 200 W</p> <p>2) User interface/data control and acquisition software and hardware:</p> <p>a. Hardware</p> <p>i. Ethernet communication port for instrument control, data transfer and compatibility with NVFEL engine and vehicle dynamometer test cell communication protocols</p> <p>ii. Front panel user display with appropriately labeled control knobs, buttons, and/or switches</p> <p>iii. Panels with appropriately labeled input gas and sample connectors</p> <p>b. Software</p> <p>i. Able to monitor and log multiple instrument operation parameters, but not limited to, raw sample and dilution gas flows, mass concentration, sample gas temperatures and pressures</p> <p>ii. Compatible with Microsoft Windows 10</p> <p>iii. Data output to standardized, non-proprietary file format nonspecific to a particular software application (e.g., ASCII or text file format with standard delimiters that do not contain specialized formatting characters)</p> <p>3) Dual power (500 watts maximum):</p> <p>a. 120 volt AC, 60Hz, 2 amp</p> <p>b. 24 volt DC, 20 amp</p> <p>4) Minimal impact on facility resources in terms of safety considerations (electrical connections insulated and covered, safety switches, guards for rotating parts, ...). All safety considerations and mitigation will be explained in writing in the proposal.</p>
<p>List required materials needed to make the product, including materials of product components</p>	<p>Various, dependent on implementation</p>
<p>Are there applicable certification requirements?</p>	<p>No</p>
<p>Are there applicable regulations?</p>	<p>No</p>
<p>Are there any other standards, requirements, etc.?</p>	<p>No</p>
<p>NAICS 1</p>	<p>334516 Analytical laboratory instrument manufacturing</p>
<p>NAICS 2</p>	<p></p>

Additional Technical Comments	<p>Additional information.</p> <p>Do you have a diagram, image, and/or illustration of the item?</p> <ul style="list-style-type: none"> <li>o Please see the following link (<a href="https://dekati.com/products/high-resolution-elpi/">https://dekati.com/products/high-resolution-elpi/</a>)</li> </ul> <p>Please see the links below for examples of brake and tire wear emissions measurements and facilities</p> <ul style="list-style-type: none"> <li>o <a href="https://www.sciencedirect.com/science/article/pii/S004896972306391X">https://www.sciencedirect.com/science/article/pii/S004896972306391X</a> (Direct measurement of brake and tire wear particles based on real-world driving conditions)</li> <li>o <a href="https://www.linkeng.com/aerospace-testing-solutions/">https://www.linkeng.com/aerospace-testing-solutions/</a></li> <li>o <a href="https://www.sciencedirect.com/science/article/pii/S004896972306391X">https://www.sciencedirect.com/science/article/pii/S004896972306391X</a> (Direct measurement of brake and tire wear particles based on real-world driving conditions)</li> <li>o On-Road Vehicle Measurement of Tire Wear Particle Emissions and Approach for Emission Prediction   Tire Science and Technology (allenpress.com)</li> <li>o Model 3900 NVH Brake Dynamometer   Link Engineering   Equipment - Testing - Support</li> <li>o Tires and Wheels Testing   Test Equipment &amp; Engineering Support (linkeng.com)</li> </ul>
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## Section 4: Business Information

Estimated potential business volume	One-time purchase
Estimated target price / unit cost information (if unavailable explain)	\$110,000
When is it needed by?	2 months
Describe packaging requirements	individually packaged
Where will this item be shipped?	Ann Arbor, MI

## Additional Comments

Is there other information you would like to include?	
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