

 **Met One Instruments, Inc.**

## SASS/SUPER SASS Speciation Samplers

**Met One Instruments' Speciation Samplers are designed to comply and exceed EPA Speciation requirements.**

Two models provide a choice for compliance monitoring: SASS is a 5 channel sampling system and SUPER SASS is 8 channel, multiple event sampling system. The SASS conforms to original EPA requirements and SUPER SASS adds benefits suggested by state and local authorities.

Both models use concepts pioneered by Met One Instruments, such as the contamination free Canister, solar radiation shield, and modular design. SASS and SUPER SASS not only comply to EPA specifications they exceed the specifications, as proven in EPA and California Air Resources Board field studies.

### SASS

- Portable integrated ambient particulate sampling system
- Inlet for PM<sub>2.5</sub> at 6.7 liter/minute sample rate
- Solar shield maintains cassettes to less than 5°C over ambient temperature
- Canister provides data integrity - contamination proof
- New multi-cell denuder and multiple filter medias

### SUPER SASS

- Up to 8 Channel Operation
- One to Eight day Sampling, Sequential
- Automatic Volumetric Flow Controllers
- Each Channel may be operated independently
- Advanced Field Audit Screens



**Supplied Software, SASSComm allows the user to transfer data to LapTop PC, Modem, or Data Transfer Module.**

## Testing and Experience

The SASS and SUPER SASS are based on designs that have been field tested for eight years with 3 years of testing in the EPA program. This testing has proven the concept and helped to refine the design.

## Portability

Designed for programs on the move, both units offer superior flexibility and portability. SASS and SUPER SASS are composed of a portable pump box, tripod, sample head and controller, they are easy to carry and easy to install. Installation takes less than one hour.

## No Field Maintenance

The SASS allows all critical maintenance to be performed in the lab. Other instruments suffer contamination of inlet, manifold and PM<sub>2.5</sub> separator because they must be serviced in the field. With the integrated canister every element of the sampler that is contacted by the sampled air stream is cleaned with each sample change.

## No Field Contamination

Sample Canisters are loaded in the lab, with blank filter cassettes. Sealed canisters are shipped to speciation field sites for deployment. After exposure the canisters are sealed for shipment to the lab. This approach circumvents contamination due to field handling of the sample.

## Temperature Control

SASS incorporates a convective solar radiation shield to maintain the samples within 5°C of ambient temperature.

## Field and Lab Tested PM<sub>2.5</sub> Inlet

A Sharp Cut Cyclone (SCC) with a flow of 6.7 liters/min is integrated in every sampling canister to remove particles larger than 2.5µm aerodynamic diameter. Test report available upon request.

## Canister Configurations

The sample canister contains the SCC all necessary components for excluding particles above 2.5 µm aerodynamic diameter, for removing interfering gases, and for collecting particles including semi-volatile. The sampling canisters are designed to accommodate denuders and one or two filters for sampling of semi-volatile species, and for collection of gases such as nitric acid, ammonia, and formic acid. For example, a Teflon Nylon filter pair can be operated behind a nitric acid denuder to give inorganic ions and nitrate in the same cassette. Canisters can be used as follows: (1) Teflon filter for mass and trace metals, (2) Teflon or Quartz for inorganic ions by ion chromatography, (3) Denuded Nylon or impregnated filter for nitrate, (4) Tandem Quartz for organic and elemental carbon, with backup filter for artifact correction, (5) Denuded carbon impregnate filter for semi-volatile organic compounds.





## Specifications

## SASS/SUPER SASS Speciation Samplers

Analytes:	PM <sub>2.5</sub> mass and trace metals PM <sub>2.5</sub> organic and elemental carbon PM <sub>2.5</sub> sulfate, nitrate and other ions PM <sub>2.5</sub> elements
Number of Canisters:	SASS = Five (5), SuperSASS = Eight (8) maximum
Sample Flow Rate:	6.7 Liters/minute $\pm$ 2% per canister (active flow controlled channels) 6.9 Liters/minute per canister (critical orifice channels)
Inlet:	Sharp cut cyclone (SCC, (D50 2.5 $\mu$ m AED Detachable from Canister
Denuders:	Multicell, magnesium oxide, sodium carbonate, citric
Filter size:	47 mm OD typical FRM filter
Filters per canister Plenum:	One or two in series None
Transport Lines	None
Logged Parameters	Ambient temperature, °C (-30 to 50 Filter temperature, °C (-30 to 50 Sample start date and time, Sample stop date and time Status of Sampler, Flags  Volumetric flow rates (L/m, and Volume (m <sup>3</sup> /hr
Logging Interval	5 minute averaging
Support Stand	Tripod with mounting feet and mast.
Solar radiation	Shield, 20" Diameter. x 12"H, Wind Aspirated
Control Box	NEMA Environmental Enclosure 14"L x 14"W x 19.5"H including mounting base.
Pump	Two head diaphragm vacuum, 110/60AC
Power	110AC/60 Hz input to pump system and fan 12 VDC
Ambient Temp	(-30 to 50°C Bead thermocouple in naturally aspirated radiation shield
Filter Temp	(-30 to 50°C Bead thermocouple at inlet of each canister

*Specifications are subject to change at any time.*