



The Evogen Dry Cyclone collector is a novel blend of attributes from traditional cyclone separation technology, wetted wall cyclone technology, and SpinCon technology. It allows an aerosol to be sampled dry for extended periods of time, but then is able to convert this dry sample to liquid enabling it to be compatible with standard methods of particle analysis.

In the Evogen Dry Cyclone, air tangentially enters a vertically mounted cyclone particle separator. Similar to a traditional cyclone, the air is made to turn by the cylindrical geometry of the cyclone and spiral down to the base where a vortex break is located wherein the air changes direction and moves upward towards a vortex finder located in the center of the cyclone. By the action of changing the direction of the air, particles suspended in the air are separated by inertial means and collected onto the walls of the cyclone. This collection process can take place for extended periods of time as the extracted particles continually collect on the dry surfaces of the cyclone and in the vortex break.

In the Evogen system, when a sample is desired to be extracted, a small volume of fluid is injected into the inlet of the cyclone along the outer wall causing the areas in the cyclone where significant particle deposition has occurred to be washed. Once injected, the fluid is then allowed to spiral down the walls of the cyclone similarly to the air, extracting particles from the walls as it goes, and then can be pumped out of the cyclone through a port located at the bottom of the vortex break.

The cyclone portion of the system is characteristic of a traditional cyclone, the main difference in the Evogen system from a traditional cyclone is that Evogen's cyclone is

operated at much higher air flows than traditional cyclone design dictates for the geometry of the cyclone. This allows the surface area of the system to be minimized enabling the liquid sample volume to be minimized. The Evogen DryCyclone is capable of extraction volumes as small as 1.5mL, and up to 12mL, both providing excellent overall collection efficiency.

