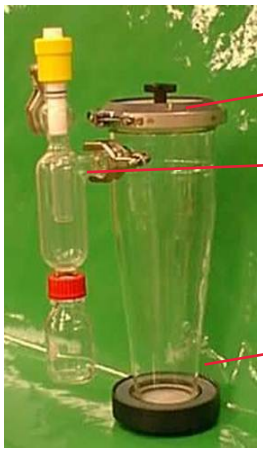
The Classifier assembly may be used to separate a wide range of mixed particle sizes and bi modal mixtures using Stokes' parameters of particle size shape and density as well as the removal of fines.

As a particle falls through a fluid medium (such as air) the drag force exerts energy that pushes the particle upward in direct proportion to the particle's cross-sectional area.
At the same time, gravity exerts a force pulling the particle downward. The classifier assembly uses this force relationship to separate low-mass or low-density particles from high-mass or high-density particles.



The vertical chamber (tub) is designed to allow air in at the bottom and flow upwards. Air flow out the top of the main tub is inhibited by the presence of a solid blanking plate. The side collection vessel has a vortex separator. in which particles flowing from the main tub hit the central tube in the vortex separator and drop to the bottom of the collection vessel.

After thoroughly drying, a sample is placed in the base of the Classifier main tub.

(Alternatively - Drying the sample prior to "separating" can be achieved within the main classifier tub if the side valve is closed and the blanking plate removed from the outlet filter at the top of the tub.
Removal is simply a case of twisting to release the bayonets pins from the top ring assembly and lifting the plate off the fixed top cap (check the outlet filters are not damaged).
Once the material is dried and free flowing, turn of the blower and heater , reposition the sealing plate in the tub top cap).

When the blower is switched on (start at low speed setting) the airstream carries lighter particles up through the main tub towards the top. The side vortex collection valve is opened a little to the collector to allow fines to be carried out of the main tub; so while fines discharge at the top, heavier particles remain either suspended in the tub or still within the fluidised bed at the tub base. If fines are transferring and being collected in the side vessel, leave the fan setting as is until no more fines appear to be transferred. If at that point you wish to isolate the fines collected, close the valve, remove the collection vessel and empty. Reposition the collection vessel, open the valve and then increase the blower speed by 5% and collect another fraction. So by adjusting the classifier's operating parameters (such as air velocity and the opening of the valve to the side vortex collector), you can control which particles rise to be collected and which particles remain in the body of the tub.
The fractions collected can be as many or as few as you want depending on the step changes made in blower speed; i.e. whether you increase the blower by just 5% each time or 10% each time.
Care must be taken when opening the valve to the side collection vessel. If the valve is opened too much with high blower settings, the air can pick up collected particles from the bottom of the collection vessel and material can be lost from the open vent.
I think the above serves to illustrate that each material will require some trial and error development runs before settling on a preferred approach to classification of the material being studied.