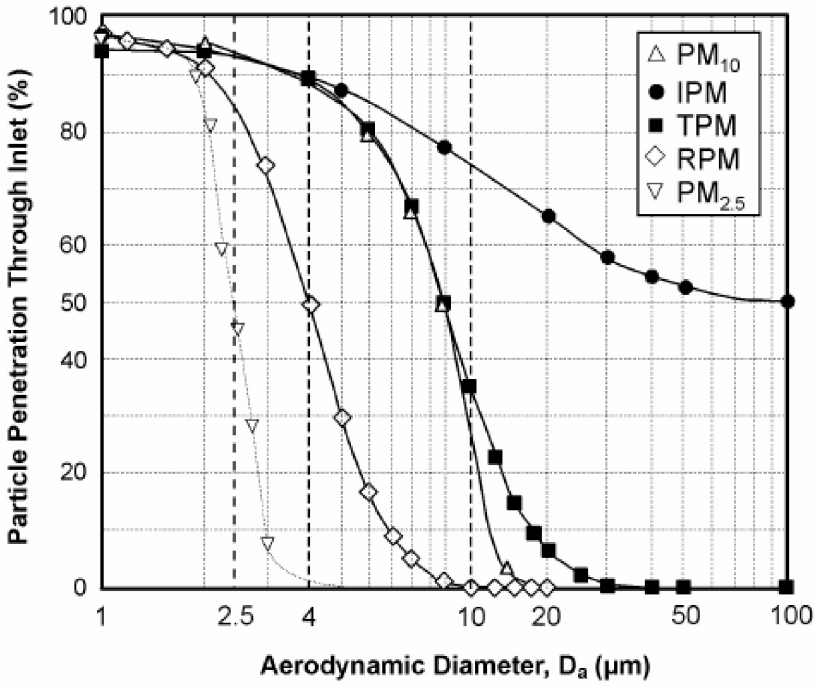
Comments of Philip K. Hopke
on the the Development of an Low-Volume TSP Sampler for Lead

A stumbling block for the development of a new sampler from"scratch" is what are the criteria that would be desired in such a sampler. My suggestion is that if we are concerned about a combination of inhaled risk including deposition in the head airways that would result in transport to the GI tract as well as hand-to-mouth behavior, then we should look at developing a sampler that would meet the "inhalable" curve defined by industrial hygienists. Figure 1 presents the penetration curves for the typical PM size fractions.



Clearly such development would take some time so I would suggest as multi-pronged approach. There are at least three commercially available low-volume TSP heads currently on the market (Thermo, BGI, and URG). These could be tested by Dr Kenny in the UK or there are wind tunnels at universities where sufficient testing is possible even it if does not fully meet 40CFR58 requirements. Depending on the outcome of these tests, it might be possible to denote one or more of these as sufficiently close to the IPM curve to move ahead with these. If none of the heads provide adequate response characteristics, then an effort can be initiated to design an inlet that meets the established criteria.

It should be noted that any TSP head is going to be sensitive to wind speed. They are cylindrically symmetric and thus, wind direction invariant.