

## Quantitative Bypass Testing (D.O.P.)

D.O.P. (originally known as Di-Octyl Phthalate, however since this chemical is now considered hazardous the acronym stands for Dispersed Oil Particulate) testing is used by environmental remediation companies to test the effectiveness of the HEPA (High Efficiency Particulate Air) filters in the machines that are being used to keep their containments negatively pressurized. The negative air machines (NAMs) installed inside of the containments draw dirty air from inside of the contained work area through the HEPA filter. As the “dirty” air is drawn through the HEPA filter, the contaminants are prevented from passing all the way through the filter. The “clean” side of the NAM is vented outside of containment where the decontaminated air is exhausted to.

It is recommended that environmental testing laboratories also D.O.P. the safety cabinets that are used when employees are performing analyses on materials that may be hazardous in order to ensure cross-contamination is not occurring in the work area. E.I.C.S. will visually inspect the HEPA filters for factory defects and damages resulting from transportation to the job site and general “wear and tear.” We will also ensure that that the machines are in proper working order and that the HEPA filters are correctly installed.

Once the visual inspection is complete and any minor repairs have been made to the machines and/or HEPA filters the Quantitative Bypass Testing process will begin. Using an aerosol smoke generator filled with a liquid product called, Emery 3004 (brand name for Poly-Alpha Olefin which has replaced Di-Octyl Phthalate) will turn into a smoke substance that will be used to test the efficiency of the HEPA filter. The smoke will be directed at the “dirty” side of a running NAM or safety cabinet. The Emery 3004 smoke produces a heavy concentration of 0.3 micron particles which will be used to determine the effectiveness of the HEPA filter. While the smoke is being drawn into the HEPA filter on the dirty side of the machine, a photometer is placed in the path of the exhausted clean air. The photometer measures the concentration of the 0.3 micron particles that have bypassed the HEPA filter. In order for a NAM or safety cabinet to pass D.O.P. the HEPA filter must be 99.97% efficient. In the event that a NAM or safety cabinet does not pass D.O.P., within reason E.I.C.S. will try to determine the cause of the failure and attempt to repair the HEPA filter and/or NAM in order to achieve the minimum efficiency percentage.