UCI EH&S Position Statement
Ductless Fume Hood Systems
Revised March 22, 2011

I. Introduction

The Environmental Health and Safety office (EH&S) is researching the possible use of ductless fume hood systems (DFHSs) at UCI. Some DFHS manufacturers purport that a ductless fume hood is able to handle most, if not all, of the chemicals found in the NIOSH Pocket Guide. Manufacturers claim that these devices are safe and extremely energy efficient because no air is exhausted from the laboratory. These systems typically have a particulate filter and/or a charcoal filter for the removal of organic vapors. Regardless, users must recognize that these systems have use limitations.

II. Responsibilities

The User:

1. Must use the DFHS and its features safely.
2. Must comply with the use limitations.
3. Must develop the details of the use limitations.
4. Must report any changes in use to EH&S.
5. Must develop and execute the proper filter replacement and disposal procedures.

EH&S:

1. Must review and approve any proposed DFHS use limitations.
2. Must periodically evaluate the DFHS for proper performance.

II. DFHS Limitations of Use

Based on the current available information, EH&S offers the following DFHS use limitations:

1. *Use should be limited to a consistent process involving small quantities of a fixed group of known (not synthesized) chemicals.*
2. *The chemicals used in the ductless fume hood system should be low hazard, non-carcinogenic chemicals.*
3. *No reactive chemicals (i.e. sodium), pyrophorics, highly toxic chemicals, biological agents, carcinogens or radionuclides may be used.*
4. *No flammable chemical in quantities which may exceed the LEL may be used.*
5. *Proper fume hood control must be verified via full ASHRAE 110 testing. This includes exposure monitoring, visual smoke testing and other testing as deemed necessary.*
6. *The fume hood must be used within Manufacturer's specifications.*
7. *A feasibility study should be conducted by the Manufacturer to determine whether the ductless fume hood system is appropriate for UCI's intended use.*
8. *Any change in processes and chemical use must be reviewed and approved by EH&S.*
9. *All processes must have a written SOP. Copies of all SOPs must be submitted to EH&S for review.*

III. Change of Use

In some cases, the volume and type of chemical used may need to be changed. Any changes in use, chemical compounds or chemical quantities must be approved by EH&S. Additional steps may need to be taken, including:

- Comparing the installation and maintenance costs of the DFHS versus a ducted fume hood.
- Providing documentation that flammable vapor levels within the DFHS will not exceed 10% of the lower explosive limit (LEL).
- Installing a fire suppression system within the DFHS in cases of heated operations involving use of flammable solvents.
- Conduct a code analysis (to be done by the UCI Designated Campus Fire Marshal).

IV) Periodic System Evaluation

DFHSs must be periodically monitored to ensure that hood containment characteristics and filtration efficiency does not change over time.

V) Replacement of Filters and Disposal of Used Filtration Media

The replacement of filters in DFHSs must follow manufacturer's recommendations at a minimum. In some cases, EH&S may request more frequent replacement. The disposal of used filtration media must be coordinated by EH&S. The cost for the replacement of filters and the proper disposal of used filters will be the responsibility of the department that owns the DFHS.

VI) Summary

1) Ductless fume hood systems (DFHSs) should only be used when traditional ducted fume hood systems are not feasible.
2) DFHSs may be used at UCI with the approval of EH&S, within the limitations specified in Section II of this document
3) Once the use of a DFHS is approved, any changes in use, chemicals or chemical quantities must be reviewed and approved by EH&S. Additional hazard controls and/or documentation may be requested at that time.
4) DFHSs must be periodically evaluated by EH&S to ensure proper performance.
5) DFHS filters must be replaced according to manufacturer's recommendations. The cost of new filters and the proper disposal of used filters will be the responsibility of the department that owns the DFHS.
6) Applications where ductless chemical fume hoods might be appropriate include the control of particulate and nuisance odors.