

Bio-Cascade, Inc.
79 Readville St.
Boston, MA 02136
800-983-2420
www.BioCascade.net

CAP Technology Eliminates Nail Solvent Fumes CAP Approved as Alternative to Exhaust Systems

CAP™ CLEAN AIR PLANT

Benefits:

- Destroy VOCs, emissions, fumes, and vapors;
- Treat fugitive emissions;
- Remove particulates and solids;
- Eliminate odors;
- Save on energy usage & costs;
- Create a healthier environment.

Selected Applications:

Cleanrooms: xylene, tetrahydrofuran, dimethylacetamide
Silk Screening: methylene chloride
Printer: petroleum naphtha, glycol methyl ether, VOCs
Ink Manufacturer: ammonia
Beauty Salon: liquid monomers, ethyl methacrylate, ethyl acetate, butyl acetate
Flavor & Fragrance Manufacturer: odors, scents, and emissions
Manufacturer: vinyl chloride
Auto Mechanic: car & diesel exhaust and emissions, hydrocarbons, benzene, CO
Remediation: gasoline & heating oil fumes
Baker; Building Manager: mold control
Wood Treatment Facility: naphthalene, phenanthrene, fluoranthene, pyrene
Pesticide Manufacturer: toluene, organic-metallic compounds, pesticide residue
Superfund Site: TCE, toluene, acetone, MEK, MIBK
School: petroleum vapors
Scented Candle Manufacturer: assembly line odors
Homeowner: control of mold, odors, pet dander, pollen, allergen/asthma triggers

The Bonita Springs, Florida Fire Control & Rescue District has chosen the CAP technology as an alternative method for Florida beauty and nail salons to comply with state and federal exhaust and ventilation requirements. In a letter to all beauty and nail salons in their district, the Fire Marshall accepted Air & Water Solutions, Inc.'s CAP™ Clean Air Plant technology as an alternative to exhaust systems and ventilated tables, which are recommended by the U.S. Department of Health and Human Services, Center for Disease Control and Prevention (CDC), and National Institute for Occupational Safety and Health (NIOSH).

In August 2001, Air & Water Solutions, Inc. was invited to Bonita Springs to demonstrate the efficiency of the CAP technology to

control the flammability hazards associated with the storage and use of nail and other beauty products. Ventilation, the conventional treatment for many odor and flammability problems, merely dilutes the hazard but leaves the existing chemical contaminants intact.

The CAP was demonstrated to reduce the flammability and explosivity of liquid monomers, acetone, non-acetone, nail lacquer thinner, nail adhesive, and nail lacquer remover. CAPs actually digest the hazardous chemicals using biological oxidation, a natural process which changes the chemical makeup of hazardous compounds and renders them harmless.

In addition to creating a flammability hazard, multiple hours of exposure



The CAP™ Clean Air Plant Model CAP-90

to chemicals such as liquid monomer, ethyl methacrylate, ethyl acetate, butyl acetate, and 2-propanone (all contained in nail products) can cause headaches, light-headedness, dizziness, nausea, and can affect the central nervous system.

Results of the study (see figure) show that the CAP kept levels of nail solvents below OSHA recommended limits of 100 ppm for indoor air and far below the fire hazard limits of 2500 ppmv for recirculated air as required under NFPA33.

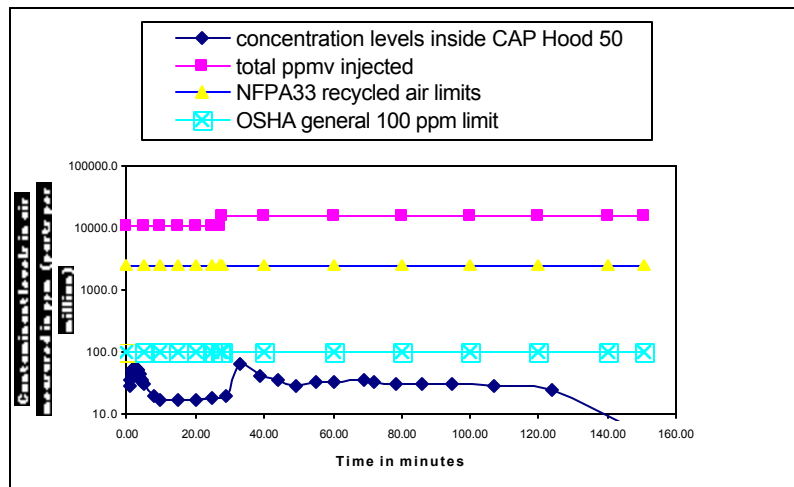


Figure: 1 ml (11,000 ppmv) nail paint solvents, acetone, and non-acetone are injected at time=zero. 1/2 ml (5,000) acetone injected at 28 min.