

Other Hazards

Noise

High-speed copiers and equipment that binds or collates can be noisy, reaching noise levels above 75 decibels, A scale [dB(A)], where 60 dB(A) would be more appropriate. Such noise, especially when continual, can cause irritation and stress to nearby staff.

Ultraviolet light

Fluorescent, metal halide or quartz exposure lamps are commonly used in copiers. They can cause eye irritation and headache after imaging, if viewed directly. Always keep the cover down during use.

Heat and burns

The hot, dry air produced by these machines is likely to be responsible for sore eyes and throats. Improved ventilation may help. Burns from hot components are also a hazard when clearing paper jams. Non-metallic tongs can be used.

For more information

New Jersey Hazardous Substance Fact Sheets (HSFS) are available in English for more than 1,600 chemicals, including these that may be released from copiers: bisphenol A, carbon black, carbon monoxide, ethyl benzene, nitrogen dioxide, ozone, styrene, toluene, and xylene. They are also available in Spanish for more than 600 chemicals. They are available free online at web.doh.state.nj.us/rtkhsfs/indexfs.aspx or call the RTK Program at 609-984-2202.

The Hazard Communication Checklist is used by PEOSH inspectors. It is available at www.state.nj.us/health/eoh/peoshweb/hazcom-check.pdf or by calling the PEOSH Program at 609-984-1863.

Office equipment hazards

The use of copiers, laser printers, fax machines, binding machines, booklet makers, and related office equipment can adversely affect indoor air quality (IAQ), create noise, and present other hazards. Problems may arise if equipment is used on or near staff members' desks, in small rooms, in areas with poor ventilation, is poorly maintained, or is used frequently or for lengthy runs.

Chemical hazards

While inhalation exposure to any one chemical is likely to be within legal limits on air contaminants, there is concern about the health effects of low level exposures to a complex mixture.

Ozone gas

Copiers and laser printers produce ozone through the high voltage of their "corona wires" that apply a charge to the paper so the ink will cling to it. Ozone is colorless with a pungent odor. In high concentrations, it can cause eye, nose, throat, and lung irritation, coughing, shortness of breath, headaches, upset stomach, and possibly reproductive and cancer hazards. People with respiratory ailments are particularly sensitive.

Toner and developer

Heat triggers a chemical reaction in the toner or ink creating various chemicals depending on the toner's composition, its additives and impurities, and temperature. Chemicals emanate from the equipment and from fresh copies.

Very fine powder can be released, particularly if the equipment lacks contained toner/developer systems and automatic shut down devices on waste compartments, or during maintenance or when refilling the drum. Look for toner on walls, floors, or air vents near the machine.

Dust may irritate the respiratory tract. The polymer-type plastic resins found in many toners can cause allergic reactions such as skin rashes and burning sensations in the eyes on repeated contact. Contact and inhalation can be avoided by using toner in cartridges that can be fitted directly to the copier.

Where a risk of skin contact or inhalation exists, workers handling cartridges should be provided with disposable gloves and respirators. Carbon black should be treated as a carcinogen because it often contains impurities known to be carcinogens.

Other office equipment emissions

- Volatile Organic Compounds (VOCs): Over 50 VOCs have been detected in office equipment. VOCs can cause cancer; kidney, liver, and brain damage; and damage to the nervous, reproductive, and immune systems.
- Carbon monoxide (CO): CO is produced when toner is heated with an inadequate air supply. Effects include headaches, drowsiness, faintness, and an increased pulse rate.
- Oxides of Nitrogen (NO and NO₂): These are produced when there is a spark in electrostatic copiers and printers. Effects are similar to those produced by CO.

Action points for local associations

The local association should work with its UniServ rep to ensure that the following steps are taken to protect the health of school staff:

Health problems

- Have staff who work near office equipment on a regular basis complete the *Work-Related Health Problems Report* on pages 204 to 206 of the *NJEA Health and Safety Manual*.

Maintenance

- Ensure the district has a maintenance contract that provides for monthly servicing, including changing ozone filters. Regular maintenance, such as removing dust from corona shields and filter and brush replacements, can reduce the levels of ozone produced.
- A maintenance log should be kept for each machine and be available to staff.

Location and ventilation

- Large-volume equipment should be isolated with its own outdoor exhaust ventilation system. This area should have at least 0.5 cubic feet per minute (cfm) outdoor air supply per square foot of floor space. Air from the room should not be recirculated elsewhere in the building.

- Machines that are used occasionally should be located in well-ventilated rooms or within 10 feet of an exhaust vent.
- Do not locate equipment on or near a staff person's desk or workstation.
- Locate the machine in an area where the effect of noise will be minimal. Use sound absorbent material as needed.

New equipment

- Ask the district to choose low ozone emission equipment that has an activated carbon filter fitted to its exhaust. Only accept machines with clear information on filter changing and servicing.

Chemical hazard communication

Ensure the district meets its combined requirements under the *N.J. Right to Know (RTK) Act* and the *Public Employees Occupational Safety and Health (PEOSH) Hazard Communication Standard* to:

- Develop and implement a written hazard communication program.
- Train staff who work regularly with office equipment about health effects and safe handling procedures at the time of initial assignment, including all chemicals.
- Identify and list all hazardous chemicals in the school, including copier and printer supplies.
- Develop a central file where RTK information is kept.
- Complete and submit a *Right to Know Survey* for each school every year.
- Make Material Safety Data Sheets (MSDS) readily available to staff during each work shift and in their work areas. The district must obtain these from their vendors.
- Make N.J. Hazardous Substance Fact Sheets (HSFS) readily available to employees. The district must obtain these from the RTK Program.
- Ensure that all containers entering the workplace are properly labeled.