



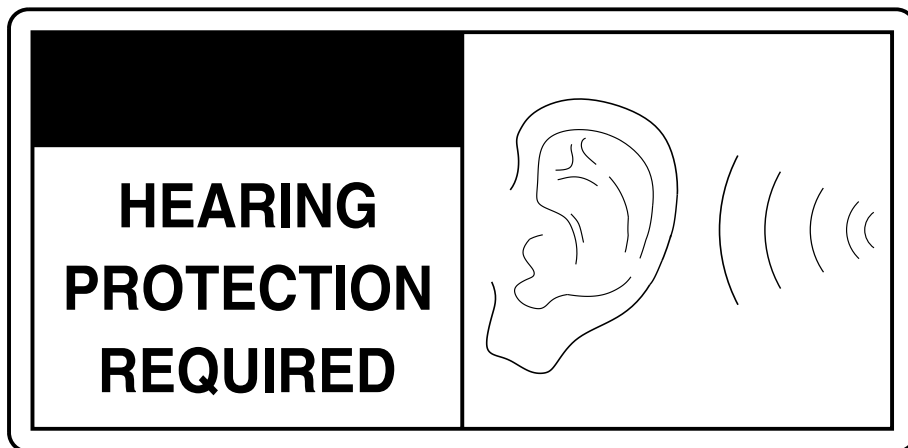
Environment

I N F O R M A T I O N F R O M K O D A K

Occupational Noise Exposure Requirements for Photographic Processing Facilities

J-313(ENG) \$10.00

Kodak's health, safety, and environmental publications are available to help you manage your photographic processing operations in a safe, environmentally sound and cost-effective manner. This publication is a part of a series of publications on health and safety issues affecting photographic processing facilities. It will help you prepare for a workplace emergency.



Protecting an employee's hearing is an important part of providing a safe workplace. While a photographic processing facility is typically considered a low hazard workplace, there are certain operations that may expose employees to excessive noise levels. Understanding these potential sources and the measures to protect employees from occupational noise should be an important element in the health and safety program at your facility.

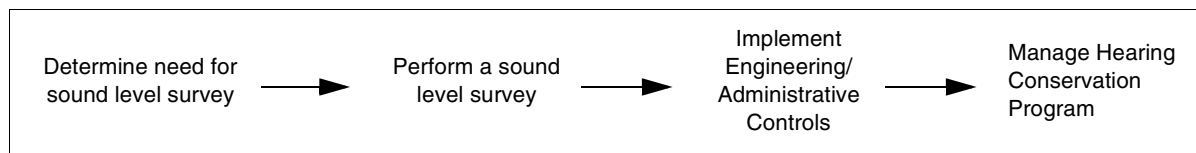
The Occupational Safety and Health Act (OSHA) presents a framework of federal regulations that govern workplace safety. These regulations are based on the principles that:

- Every employee has a need and a right to know the hazards in their workplace.
- Every employee has a need and a right to be protected from hazards in their workplace.

The OSHA Occupational Noise Exposure Standard was established to identify and control employee exposure to noise levels that could cause damage to their hearing. OSHA estimates that over 5 million American workers are exposed to noise levels that require employees to be in a Hearing Conservation Program. Continual exposure to excessive noise levels can cause permanent hearing loss or damage. This standard requires employers to determine if employees are exposed to high levels of occupational noise, and requires them to institute a Hearing Conservation Program when employee overexposure is identified.



Occupational Noise Exposure Process



This publication reviews how the OSHA Occupational Noise Exposure Standard may apply to a photographic processing facility. Also included is a self-assessment checklist for managers of photographic processing facilities to assist you in building or reviewing your current program.

COMPLIANCE REQUIREMENTS FOR PHOTOGRAPHIC PROCESSING FACILITIES

SOUND LEVEL SURVEYS AND EXPOSURE ASSESSMENT

Typically, most photographic processing facilities do **not** have operations that generate high levels of occupational noise. However, in general, if you have to raise your voice to be heard during a normal conversation in the workplace, or if employees complain about the loudness of noise in their work area, you need to perform a sound level survey.

A sound level survey is performed to determine if employees are being exposed to noise levels higher than the OSHA action level. The OSHA action level for implementing a Hearing Conservation Program is 85 decibels (dBA) for an 8-hour time-weighted average (TWA). The decibel is a unit of measurement for sound levels which is a unitless number used to express a logarithmic ratio of intensity. As a result, an increase of

5 dBA doubles the noise levels. Areas in a photographic processing facility where noise levels may be at or higher than the OSHA action level are: maintenance and machine areas, compressed air nozzles in printing rooms, air compressors, printers, pressroom operations, and binding operations.

Noise levels commonly encountered are:

Area	Noise level (decibels)
Quiet room	40
Conversation	60
Vacuum cleaner	70
40 mph truck (at 50 ft.)	85
Power lawn mower	95
Live rock band	110

CONDUCTING A SOUND LEVEL SURVEY

Perform a sound level survey in areas where noise levels make it difficult to carry on a conversation. The survey should focus on noise emitted from specific machines.

You may choose to do the monitoring yourself by following the instructions provided with the noise monitoring equipment, or hire a professional audiologist or industrial hygienist to do a one-time screening. The National Hearing Conservation Association (414-276-6045) offers a list of qualified professionals by geographical area or you may look in the telephone book yellow pages for "safety engineers," "industrial hygienist," or "engineers (acoustical)." You can also purchase or rent equipment from these

resources. Alternatively, OSHA-supported state and private consultation organizations also offer free on-site assistance.

Document the results from the sound level survey. Maintain noise exposure records for a minimum of two years. Your documentation should include the:

- Date of the survey
- Person who conducted the survey
- Monitoring equipment used and calibration
- Noise level reading in each area tested



MEASURING NOISE

Two types of instruments are available to perform sound level surveys which allow you to measure noise in two basic ways:

- A **sound level meter** provides an instantaneous noise level reading in a work area. They are generally used when the noise in an area is constant or consistently below 85 dBA and employees generally stay in the same area for most of the work day. Usually you need to take several different readings during the day to estimate the time-weighted average (TWA) noise level in that work area.

- **Dosimeters** are used to measure individual employee time-weighted exposure. Dosimeters are typically used when employees move about in different work areas, or where the noise intensity tends to fluctuate over time. The dosimeter has a microphone which is clipped to the individual employee's clothing.

Sound level meters cost about \$500 - \$1000, while dosimeters range in price from about \$750 - \$1500.

For assistance in calculating TWA, refer to 29 CFR 1910.95, Appendix A.

RESULTS FROM THE SOUND LEVEL SURVEY EVALUATION

If noise levels are below the OSHA action level, document the findings. Although you are not required to notify your employees of these results, we recommend that you share this information with them. No further action is required.

OSHA Action Levels (50% Dose)

Necessitates a Facility Hearing Conservation Program
82 dBA for a 12-hour, TWA*
83 dBA for a 10-hour, TWA*
85 dBA for a 8-hour, TWA*
90 dBA for a 4-hour, TWA*
95 dBA for a 2-hour, TWA*
100 dBA for a 1-hour, TWA*

* TWA = time-weighted average

NOISE CONTROL

If noise levels equal or exceed the OSHA permissible exposure limit of 90 dBA for an 8-hour TWA, the risk of hearing loss is much greater and OSHA mandates that you must institute feasible engineering or administrative controls. Hearing protection must be used until engineering controls reduce

exposure levels. Engineering controls can include:

- Installing sound-deadening materials, such as acoustical foam or quilted noise absorbers, on or surrounding sources of noise. Also, installing noise barriers, such as modular acoustic screens.
- Increasing the distance between noisy machines
- Relocating noisy machines away from work areas

With the engineering controls in place, re-measure noise levels. If the noise levels have been reduced below the OSHA action level of 85 dBA TWA, document the test results. No further action is required.

If noise exposures are still above the OSHA action level and cannot be further reduced by engineering controls, consider applying administrative controls. Examples of administrative controls are: limiting the time employees spend in noisy areas and posting signs or other warnings.



You should conduct awareness training for employees in the work area, so that they understand the changes in work procedures.

If the noise exposure is still above OSHA's action level after the installation of engineering and/or administrative controls, then you must implement a **Hearing Conservation Program**.

✓ Compliance Review

- Perform a sound level survey
- If results are below the OSHA action level, document results and keep records for at least two years. We recommend that you communicate results to employees.
- If results are above action level, first institute engineering controls. If engineering controls are not fully effective, then apply administrative controls to reduce noise exposures.
- If results are still above the OSHA action level, institute a **Hearing Conservation Program**.

HEARING CONSERVATION PROGRAM

A Hearing Conservation Program is required by OSHA if an employee's noise exposure equals or exceeds an 8-hour, TWA of 85 decibels. A Hearing Conservation Program must consist of the following basic elements:

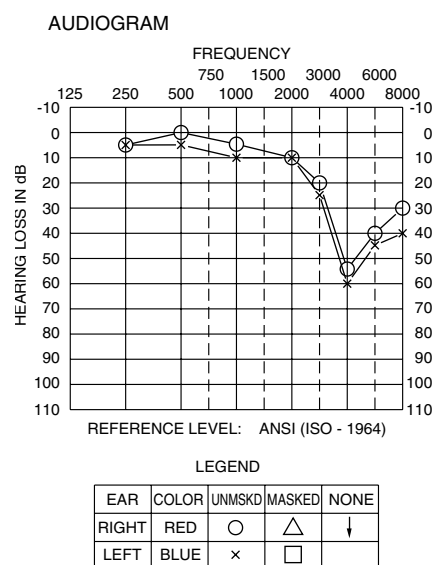
- Exposure monitoring and employee notifications
- Audiometric Testing Program
- Hearing protective equipment
- Employee training
- Recordkeeping

Employee Exposure Monitoring and Notification. Noise monitoring ensures proper selection of protective hearing equipment. You must implement a Noise Monitoring Program for any employee experiencing noise exposure that equals or exceeds an 8-hour, TWA of 85 decibels. All the instruments must be calibrated to OSHA

standards. The program needs to determine:

- The extent of an employee's exposure
- Any changes in exposure
- The type of hearing protection needed

Employees or their representatives have the right to observe the monitoring and must be notified of the monitoring results. The employer can decide on how to notify employees of monitoring results. Testing must be repeated whenever conditions in the workplace change that may increase noise exposures or when additional employees are exposed to noise at or above the OSHA action level.



Audiometric Testing Program. An Audiometric Testing Program monitors employee hearing levels over a period of time. If a Hearing Conservation Program is required in the workplace, testing must be provided free to all employees and must be performed by a licensed or certified audiologist, physician, or experienced technician, or one certified by the Council of Accreditation in Occupational Hearing Conservation.

A baseline hearing test must be performed within six (6) months of

an employee's exposure to noise at or above the OSHA action level. Employees should not be exposed to high noise levels at least 14 hours prior to the baseline test being conducted. Annual audiograms must be conducted and professionally evaluated for each employee exposed to noise.

Additional requirements exist for audiometric testing and follow-up procedures if employees experience a change in their hearing. These requirements are not covered in this publication.

Hearing Protective Equipment.

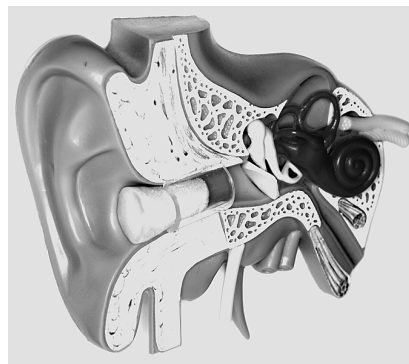
Hearing protection equipment must be made available to employees exposed to an 8-hour TWA of 85 dBA or more. Although not required, you may choose to make hearing protection available for those employees who are exposed to noise levels below the OSHA action level of 85 dBA 8-hour TWA. A variety of suitable hearing protection equipment must be made available so that employees may be given the opportunity to select their own hearing protection. This must be provided at no cost. You must also ensure proper initial fitting and supervise the correct use of all hearing protection.

OSHA requires that hearing protection must reduce an employee's noise exposure to at least an 8-hour TWA of 90 decibels. However, we recommend that you select hearing protection that further reduces noise below 85 dBA.

Hearing protection equipment must be re-evaluated whenever there is an indication that it may not be providing adequate protection. It is the employer's responsibility to provide more effective hearing protection when necessary.

If employees choose to wear non-required hearing protection equipment for their personal comfort, it is still the employer's responsibility to ensure that the

hearing protection equipment is properly maintained and in good sanitary condition.



Employee Training. Hearing conservation training is required for each employee who is exposed to noise at or above the OSHA action level. There are no specific requirements on how the training must be given. You can train employees on a one-on-one basis or give group presentations. You can also use videotapes or workbooks that guide the employee through the information.

Training must be conducted annually and the employer must ensure employee participation. To verify an understanding of the hearing conservation training, we recommend that you give employees a quiz. You may also require an employee's signature on a training certificate as additional verification that they understand that hearing protection is mandatory. Annual training must be updated to reflect any changes in protective equipment and noise in your workplace.



Training must include the following elements:

- *The effects of noise on hearing.* Noise is hazardous to hearing and can cause permanent damage to hearing.
- *The purpose of hearing protectors: the advantages, disadvantages, and various types of hearing protectors.* Employees can prevent hearing damage by wearing hearing protectors.
- *Instructions on selection, fitting, use, and care of protectors.*
- *Purposes and procedures of audiometric testing.* Testing is performed annually to monitor an employee's hearing level and to ensure that hearing loss is being prevented through your Hearing Conservation Program.

Employee Access to Information. If you have a Hearing Conservation Program, you must make copies of the OSHA Occupational Noise Exposure Standard available to employees and their representatives. Post a copy of the standard in the workplace. In addition, you must make a copy of the OSHA Noise Exposure Standard available to employees when requested.

✓ Compliance Review

- Institute a Hearing Conservation Program, if noise level screening test results are above the OSHA action level after instituting engineering controls and administrative controls
- Institute a Noise Monitoring Program. Allow employees to observe monitoring and notify them of monitoring results
- Provide a variety of hearing protectors to employees at no cost
- Perform a baseline audiogram by a licensed or certified professional
- Perform annual audiograms after the baseline testing
- Train employees annually

Summary of Occupational Noise Exposure Training Requirements

- If you must institute a **Hearing Conservation Program**, training must be conducted:
 - For every employee in the Hearing Conservation Program
 - Annually
- Training must include:
 - The effects of noise on hearing
 - The purpose of hearing protectors; the advantages, disadvantages, and various types of hearing protectors
 - Instructions on selection, fitting, use, and care of protectors
 - Purposes and procedures of audiometric testing
- Be sure that employees participate in your training. You may choose to ensure this through written certified training records verifying the effectiveness of the training. (Training records are not a requirement.)
- You may also want to provide awareness training for employees not in the Hearing Conservation Program so that they keep out of high noise areas.

Summary of Occupational Noise Exposure Recordkeeping Requirements

- Noise exposure records must be retained for at least two years.
- If you have a **Hearing Conservation Program**:
 - You must keep audiometric testing records for the duration of the employee's employment and then transfer them to the employee's next employer
 - Maintain training records, if kept. This is not required under OSHA regulations

SELF-ASSESSMENT CHECKLIST

The following checklist is provided to help managers of photographic processing facilities assess their compliance and identify areas for improvement within their Occupational Noise Exposure Program.

	Yes	No
• You have determined if you need to conduct a sound level survey.	☐	☐
• If you have conducted a sound level survey for your facility, you have documented the results.	☐	☐
• Which of the following conditions exists:		
– Exposure levels are below the OSHA action level in all areas of your facility.	☐	☐
– Your facility has put engineering and administrative controls in place in areas at or above the OSHA action level for noise exposure. These controls are documented.	☐	☐
– Your facility has areas in which noise levels are above the OSHA action level and has a Hearing Conservation Program in place.	☐	☐
• If your facility has a Hearing Conservation Program, it meets all OSHA requirements for:		
– Noise exposure is re-evaluated if exposures might increase.	☐	☐
– You have identified all employees who are overexposed to noise and notified them of their exposure.	☐	☐
– A copy of the OSHA Noise Exposure Standard is posted where employees overexposed to noise can see it.	☐	☐
– All employees overexposed to noise have received baseline and annual hearing tests.	☐	☐
– A variety of hearing protection is made readily available free of cost.	☐	☐
– Supervision/employer enforces the use of hearing protection where it is required.	☐	☐
– Employees overexposed to noise receive annual training.	☐	☐
– Areas that require hearing protection are clearly identified by a 'Hearing Protection Required' sign (recommended, not OSHA required).	☐	☐

REGULATORY REFERENCES

Subject	OSHA Standard
Occupational Noise Exposure	29 CFR 1910.95
Permissible Noise Exposure	29 CFR 1910.95 Table G-16
Hearing Conservation Program	29 CFR 1910.95 (c), Appendix A
Monitoring	29 CFR 1910.95 (d), Appendix G (non-mandatory)
Employee Notification	29 CFR 1910.95 (e) (f)
Audiometric Testing Program	29 CFR 1910.95 (g), Appendix C
Audiometric Testing Requirements (not covered in publication)	29 CFR 1910.95 (h), Appendix A, C, D, E
Hearing Protection	29 CFR 1910.95 (i) (j), Appendix B
Training Requirements	29 CFR 1910.95 (k) (l)
Recordkeeping Requirements	29 CFR 1910.95 (m)



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- J-111 *Determining Workplace Exposure to Formaldehyde*
- J-112 *Formaldehyde Emergencies*
- J-113 *About the OSHA Formaldehyde Standard*
- J-311 *Hazard Communication for Photographic Processing Facilities*
- J-312 *Personal Protective Equipment Requirements in Photographic Processing Facilities*
- J-314 *Indoor Air Quality and Ventilation in Photographic Processing Facilities*
- J-315 *Special Materials Management in Photographic Processing Facilities*
- J-316 *Emergency Preparedness for Photographic Processing Facilities*
- J-317 *Injury and Illness Management for Photographic Processing Facilities*

This publication is a guide to the Federal Health and Safety Regulations that apply to a typical photographic processing facility. Local or state requirements may also apply. Verify the specific requirements for your facility with your legal counsel.



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