
YOUR EARS®
ROCK
TRANSFORM YOUR RELATIONSHIP
WITH SOUND™
PROTECTION. CONCENTRATION. RELAXATION.

YOUR EARS ROCK
PARTNERS

3M

MacPhail
CENTER FOR MUSIC

AUTISM SOCIETY
Improving the Lives of All Affected by Autism

RECORDING ACADEMY
GRAMMY MUSEUM

COMPANY OVERVIEW

Your Ears Rock™ is an Occupational and Recreational Hearing Conservation, Education, and Personal Safety Consumer Product Company for infants, youth, and adults.

EXECUTIVE SUMMARY

3M's best-in-class hearing solutions is now offered with aesthetic designs provided by Your Ears Rock.

Your Ears Rock increases awareness on the dangers of hearing loss, motivates and trains workforces, and artistically designs 3M products to fit the customers needs.

The result, a super premium segment that inspires new users to protect and care for their hearing health, personal safety, and wellness.


WE ARE
ALL
EXPOSED TO
LOUD NOISES

KNOWING THE PROBLEM

1. Caused by a one-time exposure to hazardous sound levels
2. **1.1 billion** teenagers and young adults are at risk of hearing loss
3. Approximately **50 million** Americans are affected by Tinnitus
4. On a daily basis as many as **22 million** people are exposed
5. **5.2 million** children (ages 6-19) suffer from hearing loss

NOISE INDUCED HEARING LOSS

TINNITUS

WHY LEARN ABOUT NOISE-INDUCED HEARING LOSS (NIHL)

NOISE INDUCED HEARING LOSS CAN

- Occur at any age
- Be instant if loud enough
- Cause Tinnitus (ringing or buzzing of the ears)
- At least 10 million cases of hearing loss can be directly attributed to exposure to dangerous sounds

25% of people in the US are exposed to loud noise off the job (NIOSH)

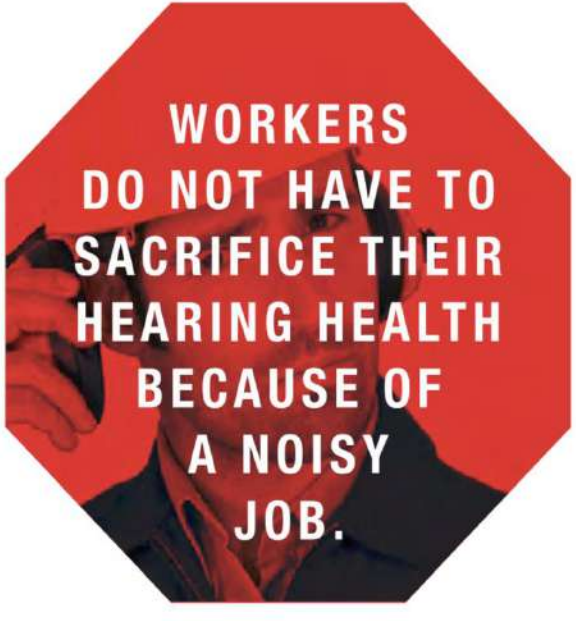
GOOD NEWS!

Hearing loss caused by excessive sound exposure is in most cases

PREVENTABLE!

- WORLD HEALTH ORGANIZATION

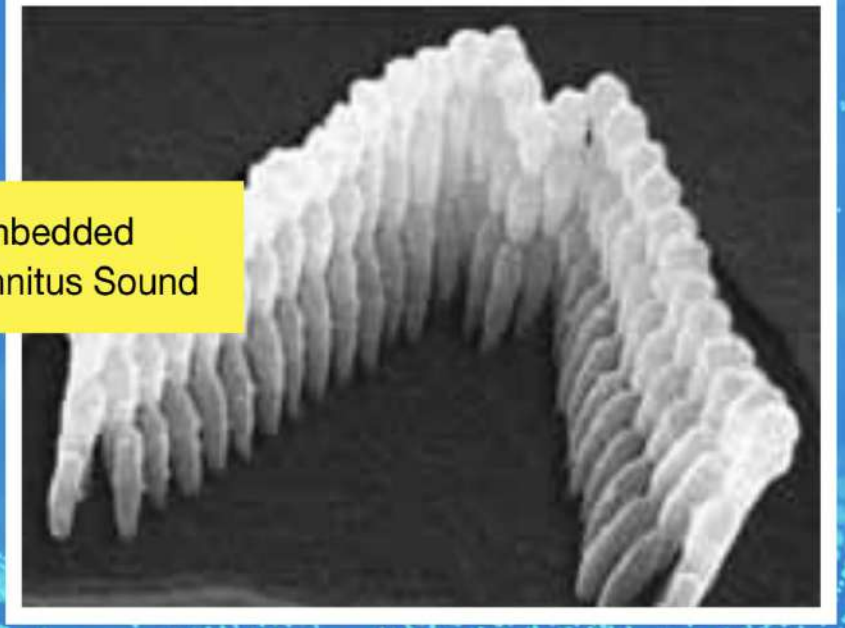
CONSEQUENCES OF UNTREATED NOISE-INDUCED HEARING LOSS



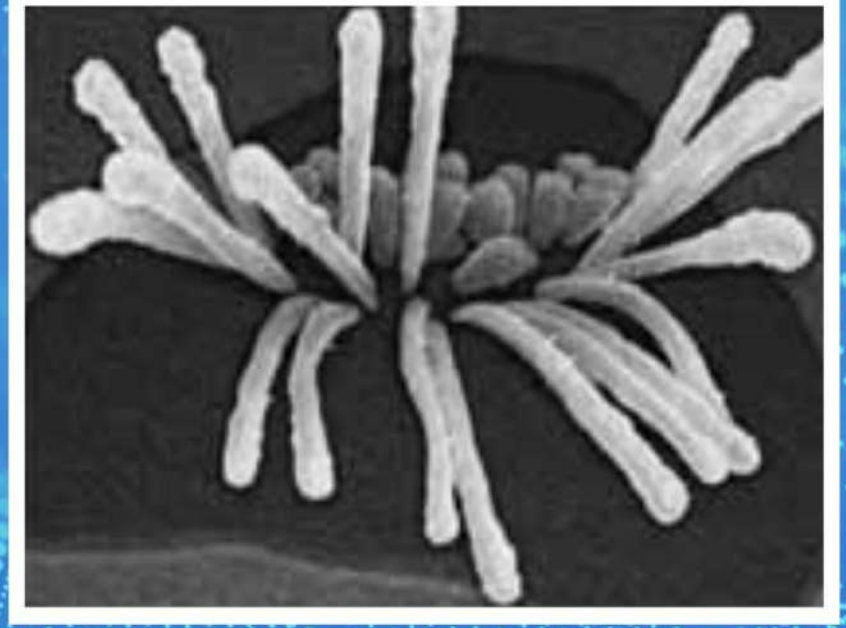
- Misunderstandings
- Neurological, Cardiovascular
- Frustration & Fatigue
- Avoid social functions
- Feel “left out”
- Impact on social relationships
- Job qualifications
- Tinnitus

WHAT HEARING LOSS LOOKS LIKE:

Embedded Tinnitus Sound



Healthy Inner Ear Bundle



Inner Ear Bundle After Excessive Noise Exposure

YOU MAY NOT ONLY LOSE SOMETHING...
YOU MAY GET SOMETHING YOU NEVER WANTED.

TINNITUS IS A RINGING OR BUZZING IN YOUR EARS

TINNITUS

(tin-NY-tus)

HOW LOUD IS TOO LOUD?

POTENTIAL HEARING DAMAGE BEGINS AT 85 dBA

EXPOSURE TIMES

EVERY INCREASE OF 3dBA CUTS YOUR EXPOSURE TIME LIMIT IN HALF

Noise Induced Hearing Loss Is Preventable By Simply Choosing To:

Turn It Down

Protect Your Ears

Walk Away

Limit Exposure Time

Brian,

I thought you'd like to know that several students told me that they set their iPod master volume lower as a result of your presentation.

Kudos!

Mary Zielund
ASL Teacher
Edina High School

CASE STUDY

PROSE RECALL

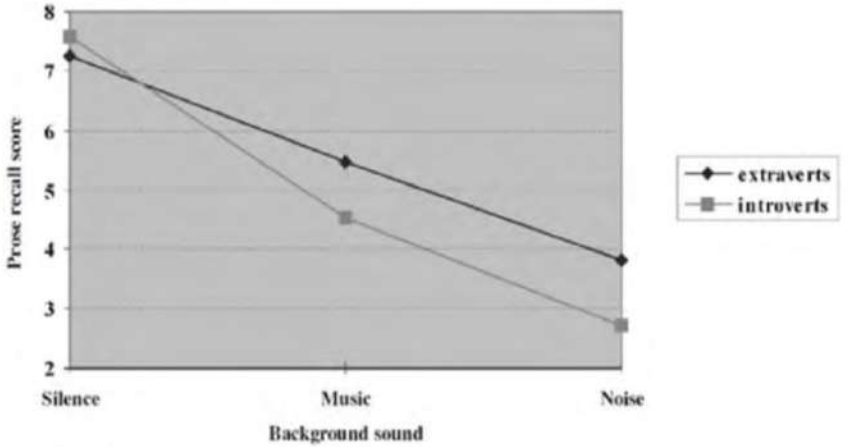


Figure 2. Mean scores of introvert's and extravert's performance on the prose recall task, in the presence of background music, noise and silence.

CASE STUDY

MENTAL ARITHMETIC

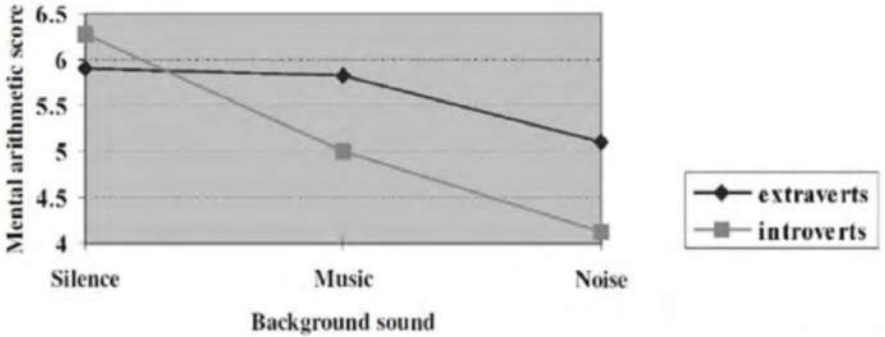


Figure 3. Mean scores of introvert's and extravert's performance on a mental arithmetic task, in the presence of background music, noise and silence.

CASE STUDY

COMPREHENSION SCORE

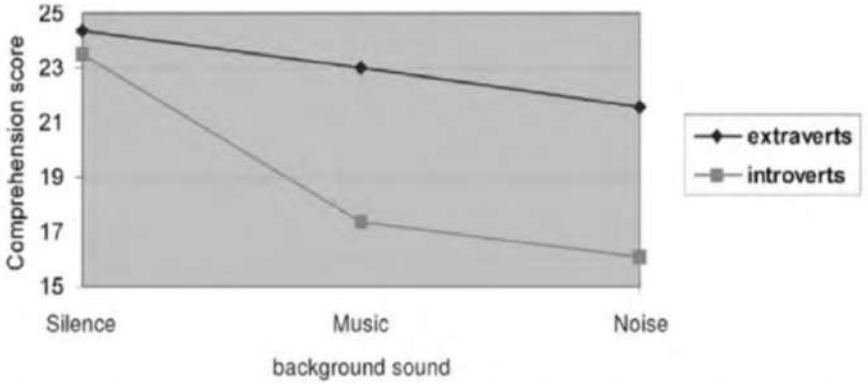


Figure 1. Mean scores of introvert's and extravert's performance on a reading comprehension task, in the presence of background music, noise and silence.


120 dB
HEARING LOSS CAN OCCUR IN AS LITTLE AS
30 SECONDS

WHAT IS THE BIG DEAL ABOUT HEARING DAMAGE?

- Permanent. But preventable
- Tinnitus
- Garbled conversation
- Distorted music
- Hypersensitivity to “loud” sounds

Are you okay with that?

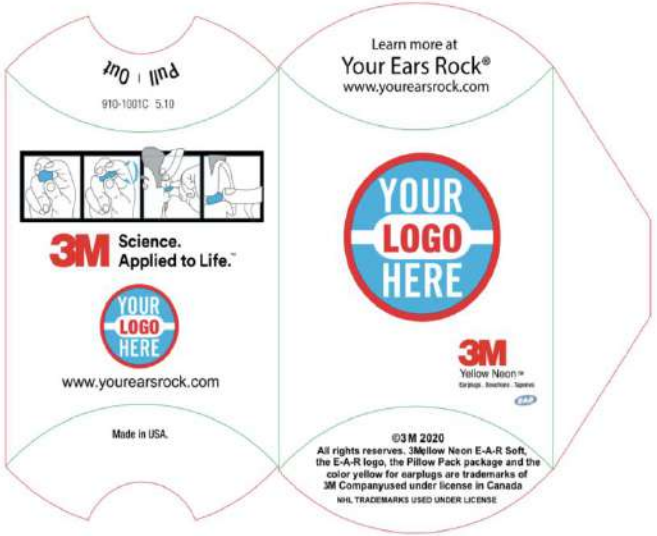


THE EVOLUTION OF PROTECTION PRODUCTS



CUSTOM DECORATED & IMPRINTED EARPLUGS

Promote your brand, wellness, and safety with earplugs, earmuffs, earplug keychain containers, educational handouts, and more



Available Earplug Colors

Yellow	OrangeB	lue
Purple	Red*	Custom

(*minimum quantity required for custom color)

CUSTOM DECORATED & IMPRINTED EARMUFFS

- Keep your employees, customers, and brand looking its best
- Useful everyday essential
- Expose people to your logo every time they use
- Users will appreciate and think of company when used

EDUCATING EARS AS YOUNG AS POSSIBLE

ENTERTAINMENT

Ordinance requiring free earplugs moves forward in Minneapolis

But First Avenue and other music venues worry about lost revenue.

By Eric Roper Star Tribune APRIL 2, 2014 — 3:37AM

Brian Felsen, with his specially wired dummy designed to show the dangerous decibel levels from earbuds, testified in favor of the earplug measure Tuesday at Minneapolis City Hall.

MUSIC

Are you ready to rock? Just don't forget your earplugs

More rock and classical fans (and musicians) are protecting their ears from loud performances.

By Richard Chin Star Tribune NOVEMBER 17, 2013 — 8:48PM

Hearing protection is being seen more often at music venues.

Next weekend, when the University of Minnesota Marching Band holds its 97th annual indoor concert at the Northrop, there will be plenty of energetic marching, flying flags and twirling batons.

And earplugs. Lots of earplugs.

Heard this Mpls. proposal? Free earplugs at clubs

Article by: ERIC ROPER , Star Tribune Updated: March 22, 2014 - 3:39 PM

LA WEEKLY

MUSIC VENUES SHOULD GIVE OUT FREE EARPLUGS

BY BEN WESTHOFF WEDNESDAY, APRIL 16, 2014 | 10 MONTHS AGO

I blame Jay-Z for my hearing loss

Christopher Victorio

As reported in our sister paper *City Pages*, starting this weekend, all Minneapolis bars and clubs hosting live music will be required to provide free earplugs to concertgoers.

This is an outrage! How dare the intrusive arms of the Minneapolis City Council erode our freedoms by groping our eardrums with their foam!

SOUNDPRINT

Platform where users help each other discover quieter or noisier venues by measuring and submitting noise ratings

Noise Induced Hearing Loss Is Preventable By Simply Choosing To:

Turn It Down

Protect Your Ears

Walk Away

Limit Exposure Time


PROTECT YOUR HEARING
IN LESS TIME THAN IT TAKES TO
DAMAGE IT™

YOUREARSROCK.COM

612.900.2100

YOUR EARS® ROCK

TOGETHER WE CAN AMPLIFY CHANGE

PROTECT YOUR HEARING IN LESS TIME THAN IT TAKES TO DAMAGE IT

Brian Felsen

Hearing loss is a national epidemic! On a daily basis **22 million** Americans are exposed to hazardous sound levels in the workplace. Noise-induced hearing loss is caused by a one-time exposure to hazardous sound levels as well as repeated exposure to various sound levels over an extended period of time.

Noise-induced Hearing is no respecter of age. **5.2 million** children ages **6-19** suffer from hearing loss attributed to excessive amounts of hazardous sound levels. Approximately **30 million** Americans ages **20-69** have high frequency hearing loss due to exposure to hazardous sound levels or noise at work or in leisure activities. Approximately **50 million** Americans are affected by tinnitus (ringing or buzzing sensation of the ear)

OVERVIEW OF PRESENTATION

Whether the participants are executives, front-line workers, or the entire organization, Brian engages his audiences with the "ultimate hearing experience" that involves unique demonstrations of how sounds is involved in even the most surprising activities at work, home, and recreation. Features of this educational, interactive presentation include group discussion and experience-based demonstrations of the following:

- **What is sound**
- **Basic anatomy of the human ear**
- **How we damage our hearing**
- **The effectiveness, advantages, and disadvantages of various types of hearing protection strategies**
- **How to properly select and wear various types of hearing protection products**
- **Specific activities, equipment, or operations that produce high noise levels**

safetyinstitute.com
800.259.6209

OBJECTIVES AND OUTCOMES

Participants in this workshop will gain:

- **Improved knowledge and awareness about noise-induced hearing loss,**
- **Increased accessibility to noise-induced hearing loss practice,**
- **Understanding and motivation to be a role model for healthy hearing, and**
- **More self-efficacy regarding hearing protection.**

This program, created and delivered by Brian, is an OSHA-certified occupational hearing conservation program in compliance with Standard 29 CFR 1910.95. He demonstrates ways to incorporate hearing conservation in your organization's health and safety practices.

ABOUT BRIAN FELSEN

Brian Felsen is a certified occupational hearing conservationist (COHC), a Dangerous Decibels certified educator, and proud Minnesota native who studied business management in Santa Barbara, CA.

Today, with a lifetime of mostly self-imposed, unknowing overexposure to hazardous sound levels from playing music, performing, attending live shows and countless sporting events, Brian travels to school districts, private music schools, organizations, and companies throughout the country inspiring others to protect and preserve their hearing health. Brian works with domestic and international organizations to improve people's understanding of, appreciation for, and commitment to caring for their ears.

In addition to his presentations, Brian offers on-site HIPPA-verified Audiometric Testing, E-A-R fit validation, 3M custom-branded consumer and promotional hearing protection, and OSHA-certified Occupational Hearing Conservation Programs in compliance with Standard 29 CFR 1910.95.

Aside from his life's work, Brian is a golfer, reader, volunteer to many causes, musician, music aficionado of all genres and a lover of all animals, especially dogs and particularly his late, beloved border collie rescue, Minnea (pronounced like "Mini", short for Minneapolis).

For more information or to book Brian, contact the Safety Institute:

Email: info@safetyinstitute.com
Phone: 800-259-6209

The SAFETY Institute
ESTD 1992

safetyinstitute.com
800.259.6209

HEARING CONSERVATION CHECKLIST

Every company is responsible for ensuring that employees do not suffer hearing loss from exposure to excessive noise while performing their jobs.

Since **1971**, The Occupational Safety and Health Administration's (OSHA) Noise Standard (29 CFR 1910.95) requires employers to have a hearing conservation program in place if workers are exposed to a time-weighted average (TWA) noise level of 85 decibels (dBA) or higher over an 8-hour work shift.

- **90 dBA** is OSHA's Permissible Exposure Limit (PEL)
- **85 dBA** is OSHA's "Action Level" where hearing protection is required

	YES	NO	N/A
Have all work areas been evaluated to determine if noise monitoring is warranted?			
Have sound level measurements been taken in areas suspected of having noise levels that exceed those specified in Table G-16?			
Has a noise monitoring program been developed and implemented?			
Has 8-hour noise monitoring been done for employees performing jobs in noisy areas or working with loud equipment to identify which employees to include in a hearing conservation program?			
Has proper hearing protection been identified and provided at no cost to the employees?			
Is noise monitoring repeated when there is a change in equipment or controls?			
Are employees notified of the results of the noise monitoring?			
Is audiometric testing provided, at no cost, to all employees whose exposure is equal to or exceeds an 8-hour time weighted average of 85 dBA?			
Are baseline audiograms given within 6 months of an employee's first exposure to noise levels equal or exceeding the action level?			
Are annual audiograms administered, reviewed and evaluated by competent trained or personnel?			
Are annual audiograms compared to the baseline to determine if a standard threshold shift has occurred in an employee's hearing?			
Are problem audiograms reviewed by an audiologist, otolaryngologist or physician to determine if further action is necessary?			
Does the supervisor ensure that proper hearing protectors are worn by the affected employees?			

Is a variety of protectors provided for the employees to choose?			
Has a training program been instituted for all employees in the hearing conservation program?			
Is the training done annually?			
Does the training include information on:			
• The effects of noise on hearing?			
• The purpose, advantages, and disadvantages of hearing protection?			
• Instruction on section, fitting and care of hearing protection?			
• The purpose of audiometric testing and an explanation of test procedures?			
Is a copy of the OSHA noise standard posted in the workplace?			
Is a copy of all noise exposure measurements retained for two years?			
Are audiometric test records retained for the duration of the affected employee's employment plus thirty years?			
Are all records relating to an employee's noise exposure provided to that employee or employee representative upon request?			
Have the employees been trained in the proper use, selection, and care of hearing protection?			

NOTE: This checklist is to be used as a "tool" to assist in determining if the basic requirements of a hearing conservation program are in effect. The checklist is not all inclusive and OSHA Standard 29 CFR 1910.95, Occupational Noise Exposure, should be used as a reference for additional requirements for hearing conservation and hazardous noise exposure. The OSHA website, www.OSHA.gov, is an excellent resource for all occupational related safety and health requirements.

- Noise-induced Hearing Loss is caused by a one-time exposure to hazardous sound levels as well as repeated exposure to various sound levels over an extended period of time
- Approximately **50 million** Americans are affected by Tinnitus (ringing or buzzing sensation of the ear)
- On a daily basis **22 million** Americans are exposed to hazardous sound levels in the workplace
- Approximately **30 million** Americans ages **20-69** have high frequency hearing loss due to exposure to hazardous sound levels or noise at work or in leisure activities
- **5.2 million** children ages **6-19** suffer from hearing loss attributed to excessive amounts of hazardous sound levels

Department of Administration & Office of Enterprise Technology **Effective Date: 05/2006**	**Employee Right To Know (ERTK)**	**Page 1 of 20:** **Date Revised: 11/24/08**

Policy Statement

To ensure those affected workers are adequately informed of hazards in the workplace, and are better able to control and protect themselves against those hazards.

Scope

This policy applies to all employees who are routinely exposed to hazardous chemicals, harmful physical agents and infectious agents.

Standards

In January 1983, the State of Minnesota enacted the Minnesota Employee Right To Know Act requiring periodic training of workers whose jobs routinely expose them to certain chemicals, physical agents, or infectious agents. Collection of hazard information on chemicals is also required.

Program Components

1. Responsibility

2. Hazard Evaluation

201388848. Custodial Products

201388849. MSDS Availability
201388850. Labeling
201388851. Training
201388852. Definitions
201388853. Appendices

1. Responsibility

Supervisors

- Assure new employees receive new employee training and are trained on the hazards to which they may be exposed before they begin work.
- Complete Part Two of "New Employee Safety Orientation Checklist".
- Keep an inventory list of products containing hazardous chemicals used by employees and obtain MSDS's for all products on the list.
- Provide a copy of MSDS to an employee within 24 hours upon request.
- Assure that products containing hazardous chemicals and their containers are labeled as to contents and hazards.
- Provide training to employees on new products introduced to the work environment through safety meetings.
- Complete ERTK training form (Appendix A) and send a copy to the Safety Director.
- Send a copy of the New Employee Safety Orientation Checklist to the Safety Director for documentation purposes.
- Provide a system to maintain MSDS book and process new MSDSs into system.
- Monitor employee ERTK Training Status.
- Conduct or coordinate annual ERTK refresher training.
- Order labels, charts, pocket guides as needed for individual.
- Provide Safety Committee with MSDS for approval before supervisor can purchase a new chemical.

Employees

- Attend initial and annual ERTK training and sign "Record of Training Form" (Appendix A) to document attendance.

- When hired complete "New Employee Safety Orientation Checklist" with the aid of your supervisor.

- Demonstrate knowledge of training material through written or practical exam if required by supervisor.

- Assure chemical containers in one's own work areas are labeled as to contents and hazards.

- Follow safety procedures to prevent exposure to hazardous chemicals, physical or infectious agents during the course of work assignments.

Safety Director

- Develop written ERTK program; evaluate, update, and revise as necessary.

- Assist Supervisor to provide MSDS to employees within 24 hours upon request.

- Assist Supervisor by providing training materials for annual ERTK training.

- Provide technical assistance to supervisors for training.

2. Hazardous Evaluation and Inventory Control

Work areas and work activities must be evaluated to determine potential chemical, physical, or infectious agent hazards to workers. The supervisor shall prepare and submit an inventory of hazards and update the list whenever a new hazardous substance or physical agent is introduced into the workplace. This list shall be completed with the assistance of the field staff and returned to the Safety Director. Appendix F and G have been designed to complete the respective lists.

All new chemicals shall be reviewed by the Supervisor, and the crew should be trained on the hazards and safe work practices for the chemicals.

3. Custodial Products

_____If employee wants a new chemical to be used, the Safety Committee must first approve it.

1. To start the review of a chemical the supervisor must receive a MSDS sheet from the vendor.

2. An MSDS sheet must be submitted to the Safety Committee with the New Material Request Form (Appendix J), which is to be filled out by the supervisor requesting the new product.
3. Once the committee reviews the chemical, it will appoint a special task force to perform a field test. The task force will report back with their findings in a timely manner (three to six weeks). If the chemical is not approved, the evaluation will be filed by the Safety Director if future reference is needed.

4. After the Safety Committee approves the change purchasing will be notified. This information will be distributed to all custodial supervisors and the Safety Director so the MSDS book can be kept up to date.

4. MSDS Availability

The supervisor is required to have MSDSs on file for all hazardous substances to which workers may be routinely exposed. An MSDS of a new substance must be obtained before workers are allowed to work with that substance. An MSDS not found in the work unit may be obtained from the Manufacture, Distributor or the Safety Director.

The supervisor must incorporate the operating units MSDS book into the master file located within the Safety Directors Office. The area from which the MSDS was sent should be indicated in the upper right hand corner so that records may be kept on file in the Safety Office. Copies of the MSDSs must be readily accessible for review by workers on each shift in areas which a hazardous substance is used or handled. Location in a central office, which is accessible during work hours, is adequate for workers who are sent out to various complex locations.

If a chemical is no longer used in a particular area, the MSDS can be removed from the area MSDS book. Although the chemical is not used, the MSDS must still be filed away within that area for no less than 30 years.

5. Labeling

Hazardous Substances

Hazardous substances must be labeled with this minimum information:

1. Name of substance(s)
2. Appropriate hazard warning - Label Personal Protective Equipment (PPE) Section
3. Named manufacture

The above information is needed any time a chemical is transferred from its original container to another container. This information can be obtained from the MSDS or sometimes from the original container. If a label is missing, please see your supervisor.

Pipes need not be labeled but employees must be trained in the hazards associated with unlabeled pipes in their work areas.

If chemicals are transferred from a labeled container to a portable container intended only for immediate use, no labels are required on the portable container.

Harmful Physical Agents

Equipment or a work area that generates harmful physical agents at a level expected to approximate or exceed the exposure limits shall be labeled with the following information:

1. Name of physical agent
2. Appropriate hazard warning - PPE

6. Training

Hazard Awareness Training

Training must be provided to all workers assigned to jobs in which they are routinely exposed to hazardous substances, harmful physical agents, or infectious agents (See Appendix D for training outline).

Training must be done upon initial assignment, annually and when a new substance is introduced into the work place. Completed "Training Forms" must be sent to the Safety Director.

Training may relate to specific exposure hazards, to hazards of a broad class of hazardous substances, harmful physical agents, infectious agents, or to hazards of a complete work operation.

An outline that summarizes the complete training session must accompany the training form.

New Employee Training

ERTK training for new employees is available through the supervisors.

Annual Training

Annual training should be operating area specific and may include audio-visual

resources, handouts, guest speakers, or hands-on demonstrations. These annual updates may be brief summaries of information included in previous sessions. Training may be accomplished through monthly, quarterly, or annual sessions, but must be repeated at intervals of not greater than one year.

7. Definitions

Harmful physical agent: The following physical agents are covered under ERTK: heat, noise, ionizing and non-ionizing radiation. These must be covered in ERTK training when there is a reasonably foreseeable potential for exposure at or above the permissible exposure limit.

Hazardous substance: A chemical or substance, or mixture of same, which is toxic, an irritant, corrosive, a strong oxidizer, a strong sensitize, combustible, flammable, dangerously reactive, pyrophoric, pressure generating, a compressed gas, a carcinogen, teratogen, mutagen, or reproductive toxic agent. (A list of the majority of hazardous substances encountered in Minnesota is included in Minnesota OSHA rule 5206.0400).

Infectious agent: A communicable bacterium virus, or fungus which causes substantial acute or chronic illness or permanent disability as a foreseeable and direct result of any routine exposure to the infectious agents encountered in Minnesota (included in Minnesota OSHA rule 5206.0600).

Manufacturer: Anyone who produces, synthesizes, extracts, or otherwise makes processes, blends, packages, or repackages a hazardous substance or harmful physical agent. This includes anyone who imports into or distributes within this state a hazardous substance or harmful physical agent. It does not include anyone whose primary business is in retail sales to the public.

Material Safety Data Sheet (MSDS): A data sheet that contains information regarding physical, chemical, and hazardous properties of a substance or mixture.

New Employee Safety Orientation Checklist: A list of worker health and safety items that a supervisor should discuss with a new employee and then return it to the Safety Director.

Permissible Exposure Limit (PEL): An exposure level established by OSHA. It is the highest airborne concentration of material in which the majority of adults can be repeatedly exposed, day after day without experiencing adverse health effects. The concentrations are usually expressed as time weighted averages taken over an eight-hour period.

Record of Training Form: A document to be signed by the worker certifying attendance at ERTK training session.

Routinely exposed: A reasonable potential for exposure exists during the normal course of assigned work. It includes the exposure of an employee when assigned to work in an area where the hazardous substance has been spilled. It does not include walk through or assignment to work in an area where a container of hazardous substance is present but there is no actual exposure unless spill should occur.

Tyler Treichel, Safety Director
Department of Administration &
Office of Enterprise Technology

APPENDIX A

Safety Training Record _____ Month:

Supervisor:

Crew(s): _____

_____ **Instructor:**

TOPIC:	**ERTK Training**

Employee will:

Objective 1: Knows where hazardous materials are used or stored in their work area.

Objective 2. Knows the labeling system for these materials.

Objective 3. Knows what a Material Safety Data Sheet (MSDS) is, the specific location of the MSDS book in work area and the process for obtaining an MSDS.

Objective 4. Understands how to safely handle the hazardous materials will be using, including PPE.

Objective 5. Understands the bloodborne pathogens/infectious agents that they may be **routinely** (reasonable potential for exposure exists during normal course of assigned work) exposed to in work area.

Objective 6. Understands how to clean up a bloodborne pathogen spill. (Link to Standard Operating Procedure for Bloodborne Pathogens http://www.mainserver.state.mn.us/admin/hr/DOC/sop-bbp.doc)

Objective 7. Understands the postexposure process if exposed to a bloodborne

- ✔ pathogen.

.

Objective 3: *Understand the means to obtain an MSDS.*

Objective 4: *Know how to label unlabeled products correctly.*

Objective 5: *Understand the hazards of the specific chemicals, physical hazards (noise, heat, radiation) and infectious agents that will routinely exposed to..*

Objective 6: *Know where to obtain PPE and spill kits and how to use them.*

- ✔ Knows where hazardous materials are used or stored in their work area.
- ✔ Knows the labeling system for these materials.
- ✔ Knows what a Material Safety Data Sheet (MSDS) is and the specific location of the MSDS book in work area.
- ✔ Understands how to safely handle the hazardous materials will be using.
- ✔ Understands the bloodborne pathogens/infectious agents that they may be **routinely** (reasonable potential for exposure exists during normal course of assigned work) exposed to in work area.

	✔ Understands how to clean up a bloodborne pathogen spill. (Link to Standard Operating Procedure for Bloodborne Pathogens http://www.mainserver.state.mn.us/admin/hr/DOC/sop-bbp.doc) ✔ Understands the postexposure process if exposed to a bloodborne ✔ pathogen.

MEETING SUMMARY:	
Discussion Safety Issues, FRI, Near Misses:	

Date: *Start Time:*	*Site:* *Ending Time:*

Next Topic: _____

Safety Meeting Attendance Record

Month: _____

NAME	SIGNATURE	DEPT.	Employee ID #

APPENDIX B

Area:

Chemical Name	Location/Building #	Hazard Warning (if applicable)	MSDS obtained: Yes/No

APPENDIX C
PHYSICAL AND INFECTIOUS AGENT CHECKLIST

Area	Building/Room #	Physical Agent	Infectious Agent

For examples of hazardous physical agents and infectious agents, please refer to definition section on page 7.

APPENDIX E
ERTK QUIZ

NAME:_____ DATE:_____
Employee ID:_____

T/F 1. All chemicals should be considered hazardous.

T/F 2. As an employee, you have the responsibility to ask questions when you are unsure about hazardous chemicals.

T/F 3. The container label is only important for identifying its contents.

T/F 4. Chemical labels should tell if a respirator is needed for protection from hazardous vapors and gas.

5. You have the right to review copies of the following document (circle one).
A. Material Safety Data Sheet (MSDS)
B. Company ERKT policy
C. OSHA ERKT State Regulations
D. all of the above
E. none of the above

T/F 6. MSDS's can only be reviewed during breaks.

T/F 7. Chemicals have to be capable of causing death in order to be listed as hazardous.

T/F 8. If your department has a good safety record, training is not required for MERKTA.

T/F 9. Carcinogens cause cancer.

T/F 10.Labels that are difficult to read should be reported to your supervisor and replaced.

11. Where can you find specific information on chemicals (such as ingredients, characteristics, and acute and chronic symptoms)?
A. Material Safety Data Sheet (MSDS)

B. The Random House dictionary (TRHD)
C. Occupational Safety and Health Association (OSHA)
D. American National Standard Institute (ANSI)

APPENDIX F
ERTKA QUIZ - Answer Guide

T/F 1. All chemicals should be considered hazardous.

T/F 2. As an employee, you have the responsibility to ask questions when you are unsure about hazardous chemicals.

T/**F** 3. The container label is only important for identifying its contents.

T/F 4. Chemical labels should tell if a respirator is needed for protection from hazardous vapors and gas.

5. You have the right to review copies of the following document (circle one).
A. Material Safety Data Sheet (MSDS)
B. Company MERKTA policy
C. OSHA MERKTA State Regulations
D. **all of the above**
E. none of the above

T/**F** 6. MSDS's can only be reviewed during breaks.

T/**F** 7. Chemicals have to be capable of causing death in order to be listed as hazardous.

T/**F** 8. If your department has a good safety record, training is not required for MERKTA.

T/F 9. Carcinogens cause cancer.

T/F 10. Labels that are difficult to read should be reported to your supervisor and replaced.

11. Where can you find specific information on chemicals (such as ingredients, characteristics, and acute and chronic symptoms)?
A. **Material Safety Data Sheet (MSDS)**
B. The Random House dictionary (TRHD)
C. Occupational Safety and Health Association (OSHA)
D. American National Standard Institute (ANSI)

APPENDIX I

New Material Request Form

It is required to complete this form before the Safety Committee will review this new material for approval to bring on site. After you've completed this form and have attached an MSDS, route all materials to the Committee to begin the review for approval process.

*Requested by:*_____ *Date:*

PRODUCT IDENTIFICATION

Vendor Name:

Chemical Name:

Manufacturer: | Trade:

☐ yes ☐ no Is the direct cut sheet attached to this form?

Product Classification: *(check all that apply, use blank to specify other areas)*

☐ Floor Finish	☐ Floor Sealer	☐ Floor Stripper	☐ Floor Restorer
☐ Glass Cleaner	☐ Quaternary Disinfectants	☐ All Purpose Cleaner	☐ Restroom Cleaner
☐ Degreasers	☐ Carpet Cleaners/Spotters	☐ Odor Eliminator	☐ Shower Cleaners
☐ Stainless Steel Cleaner	☐ Hand Soaps/Lotions	☐ Graffiti Remover	☐ Polishes/Protectors
☐ Ice Melts	☐ Mop Oils/Sweeping Compound	☐ Lubricants	☐
☐ Specialty			

1. ☐ yes ☐ no Is the chemical a custodial cleaning chemical?
2. ☐ yes ☐ no Does this chemical replace another chemical or product?
3. ☐ yes ☐ no If yes to question two, have you compared the hazards of the two chemicals/products to ensure we are not increasing our hazard level?

What product(s) will be replaced by this product?

Identify locations where chemical will be used:

What precautions are needed to work with this chemical?
☐ yes ☐ no Can we accommodate the manufactures recommended precautions?
How will the chemical be used?

PRIMARY STORAGE AREA OF THE CHEMICAL *(check all that apply, use blanks to specify other areas)*

☐ Closets	☐ Bathrooms	☐ Outside	☐ Other
☐ Mechanical Space	☐ Entry Ways		

PLEASE CITE SPECIFIC ADVANTAGES OF THIS PRODUCT OVER CURRENT APPROVED PRODUCTS IN SAME CLASSIFICATION *(i.e. time savings, cost, durability, ease of use, safety, etc.)*

1)

201389616)

201389617)

201389618)

OTHER:

APPENDIX J
Health and Safety and Environmental Attributes Evaluation Form

Purpose: Responses will be scored and rated to reflect the products overall safety, health, and environmental attributes. This rating will determine if the particular product advances to functional performance testing per the S.O.P. on Chemical Purchasing, Receiving, Storage, and Handling. The rating criteria shall apply to all constituent chemical components of the product, both active and inert. A Material Safety Data Sheet (MSDS) must accompany each product evaluated.

Brand Name:_____ Stock #:_____

Product Application (check those that apply)

Acids	Adhesives	All Purpose Cleaner	Deodorant	Disinfectant
Extraction Cleaner	Finisher	Glass Cleaner	Graffiti Remover	
Mop Oils	Odor Eliminator	Polishers	Sealers	Shampoo
Spotter/Remover	Spray Buff	Strippers	Treatments	

PHYSICAL PROPERTIES

What's the Product's: Boiling point?_____ Vapor pressure?_____
Evaporation rate?_____

PRODUCT SAFETY

· For oral exposure, the product Lethal Dose 50 is: [1 and 2]
less than or equal to 50 mg/kg 50 mg/kg to 500 mg/kg greater than or equal to 500 mg/kg

· For skin exposure, the product Lethal Dose 50 is: [1 and 2]
less than or equal to 200 mg/kg 200 mg/kg to 1,000 mg/kg greater than or equal to 1,000 mg/kg

· For inhalation exposure, the product Lethal Concentration 50 is: [1 and 2]
less than or equal to 200 ppm 200 ppm to 2,000 ppm greater than or equal to 2,000 ppm

· Product ingredients are listed in Minnesota's OSHA's current Employee Right-to-know Standards as a regulated carcinogen (see attached handout)
Yes, ingredient(s) appear on list No, ingredient(s) do not appear on list

· Product has a flash point of _____ degrees Fahrenheit
less than 73 between 73 and 100 between 100 and 140 between 140 and 200
greater than or equal to 200

· Product's % volatility by weight is:
0-30% 31-55% 56-71% 72-84% 85-90% 91-95%
96-100%

· Product requires the use of a respirator: Yes No

· Product's ventilation requirements:
Local General None

· Product has a pH of _____
pH less than 2.0 or greater than 12.5 pH between 2.0 and 12.5

Total Points Scored for Product Safety:_____

[1] The LD 50 and LC 50 tests are further defined in 29 CFR 1910.1200 Appendix A- Health Hazard Definitions

[2] If a mixture/product has not been tested as a whole to determine its hazards, the mixture shall be assumed to present the same health hazards as do the components which comprise 1% (by weight or volume) or greater of the mixture

ECOLOGICAL STRESSORS

· Product ingredients are listed by the Minnesota Toxics Indexing System as a concern for their potential environmental impact (see attached handout). (Check all boxes that apply)

Yes, ingredient(s) appear on list 1 of Index Yes, ingredient(s) appear on list 2 of the Index
Yes, ingredient(s) appear on list 3 of Index No, ingredient(s) do not appear on list 1,2,3 of the Index

· Percentage of the product formulation that is derived from plant matter:

0-9 % 10-39 % 40-59 % 60-79 % 80-100 %

List bio-based or plant components: _____

· Product ingredients are listed by the Montreal Protocol as an ozone depleting substance (see attached handout)

Yes No

· Phosphate and phosphonate concentrations are:_____

greater than 0.5 % by weight less than or equal to 0.5 % by weight

· Recommended disposal method for product? _____

Total points Scored for Ecological Stressors _____

PACKAGING

· Product comes in concentrate (defined as a liquid product that contains less than 20 % water by weight) or bulk form

Yes No

If yes, is dispensing equipment available? (List)
If yes, any features to minimize exposure to concentrate. (List)_____
If yes, what is the manufacture's mixing ratio?_____

· Size of container delivered

Quart Gallon 5-gallon Bulk drum (greater than 5-gallons)

· Product is available in:

only in aerosol container both aerosol and non-aerosol containers only non-aerosol containers

· Product label contains Hazardous Material Identification System (HMIS) ratings

Yes No

· Product can come in color coded containers per specifications for color identification and association

Yes No

· Additional labels are available for secondary containers

Yes No

Total Points for Packaging: _____

FRANGRANCE AND DYES

· Product contains synthetic fragrances

Yes No

· Product contains synthetic dyes

Yes No

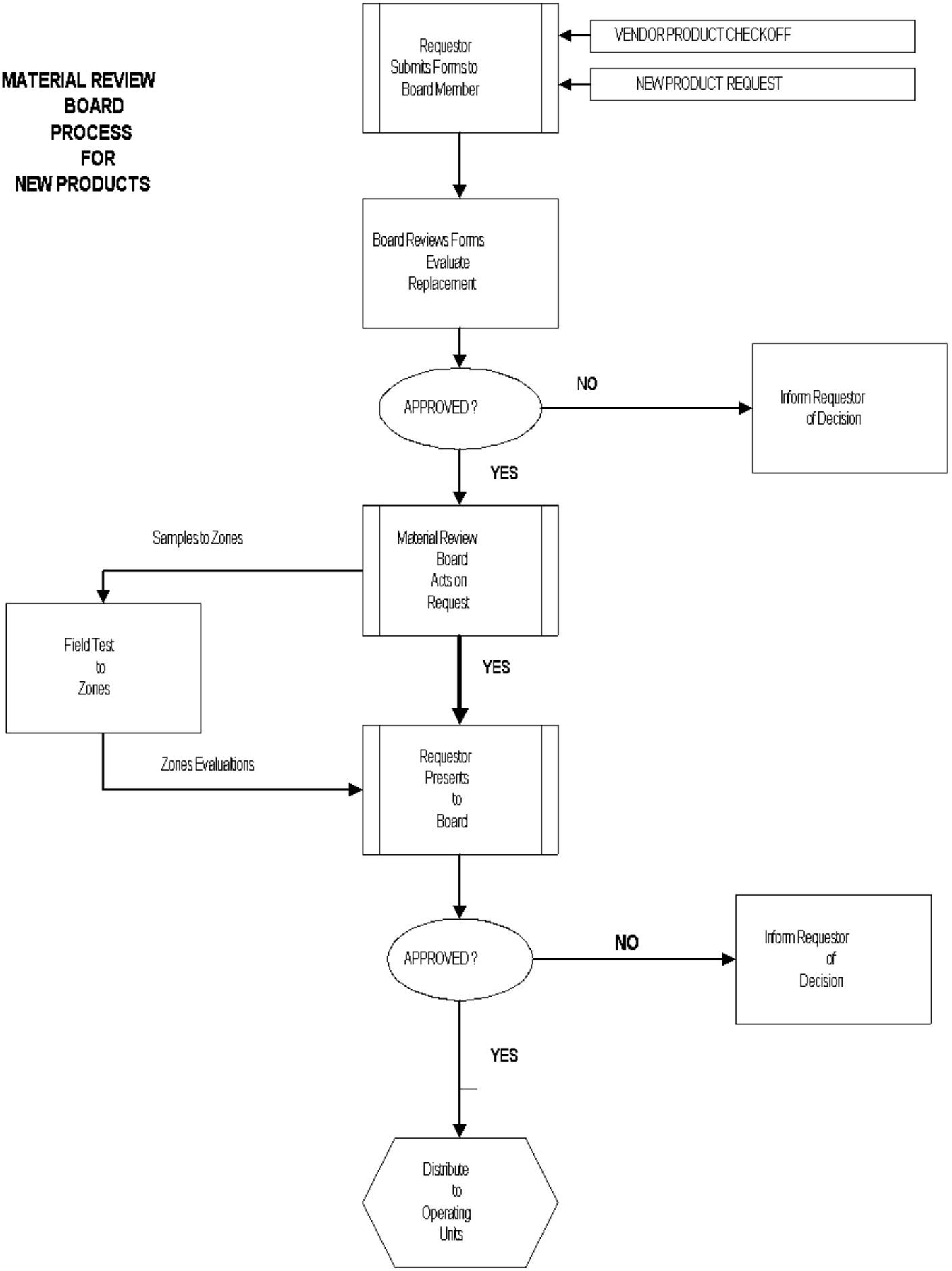
Total Points for Fragrances and Dyes:_____

TOTAL POINTS FOR HEALTH AND SAFETY AND ENVIRONMENTAL ATTRIBUTES: __

Sources:

Luck, K., Moore, E., Patrick, S. (1997). "Vendor Certification of Environmental Attributes". Minnesota Office of Environmental Assistance (OEA). Minnesota Department of Administration.

MATERIAL REVIEW BOARD PROCESS FOR NEW PRODUCTS



Hearing Conservation

OSHA 3074
2002 (Revised)

OSHA Occupational Safety and Health Administration

U.S. Department of Labor

This informational booklet provides a generic, non-exhaustive overview of a particular topic related to OSHA standards. It does not alter or determine compliance responsibilities in OSHA standards or the *Occupational Safety and Health Act of 1970*. Because interpretations and enforcement policy may change over time, you should consult current administrative interpretations and decisions by the Occupational Safety and Health Review Commission and the Courts for additional guidance on OSHA compliance requirements.

This information is available to sensory impaired individuals upon request.

Voice phone: (202) 693–1999;
Teletypewriter (TTY) number: (877) 889–5627.

Hearing Conservation

U.S. Department of Labor
Elaine L. Chao, Secretary

Occupational Safety and Health Administration
John L. Henshaw, Assistant Secretary

OSHA 3074
2002 (Revised)

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Hearing Conservation

What is occupational noise exposure?

Noise, or unwanted sound, is one of the most pervasive occupational health problems. It is a by-product of many industrial processes. Sound consists of pressure changes in a medium (usually air), caused by vibration or turbulence. These pressure changes produce waves emanating away from the turbulent or vibrating source. Exposure to high levels of noise causes hearing loss and may cause other harmful health effects as well. The extent of damage depends primarily on the intensity of the noise and the duration of the exposure.

Noise-induced hearing loss can be temporary or permanent. Temporary hearing loss results from short-term exposures to noise, with normal hearing returning after period of rest. Generally, prolonged exposure to high noise levels over a period of time gradually causes permanent damage.

OSHA's hearing conservation program is designed to protect workers with significant occupational noise exposures from hearing impairment even if they are subject to such noise exposures over their entire working lifetimes.

This publication summarizes the required component of OSHA's hearing conservation program for general industry. It covers monitoring, audiometric testing, hearing protectors, training, and recordkeeping requirements.

What monitoring is required?

The hearing conservation program requires employers to monitor noise exposure levels in a way that accurately identifies employees exposed to noise at or above 85 decibels (dB) averaged over 8 working hours, or an 8-hour time-weighted average (TWA). Employers must monitor all employees whose noise exposure is equivalent to or greater than a noise exposure received in 8 hours where the noise level is constantly 85 dB. The exposure measurement must include all continuous, intermittent, and impulsive noise within an 80 dB to 130 dB range and must be taken during a typical work situation. This requirement is performance-oriented because it allows employers to choose the monitoring method that best suits each individual situation.

Employers must repeat monitoring whenever changes in production, process, or controls increase noise exposure. These changes may mean that more employees need to be included in the program or that their hearing protectors may no longer provide adequate protection.

Employees are entitled to observe monitoring procedures and must receive notification of the results of exposure monitoring. The method used to notify employees is left to the employer's discretion.

Employers must carefully check or calibrate instruments used for monitoring employee exposures to ensure that the measurements are accurate. Calibration procedures are unique to specific instruments. Employers should follow the manufacturer's instructions to determine when and how extensively to calibrate the instrument.

What is audiometric testing?

Audiometric testing monitors an employee's hearing over time. It also provides an opportunity for employers to educate employees about their hearing and the need to protect it.

The employer must establish and maintain an audiometric testing program. The important elements of the program include baseline audiograms, annual audiograms, training, and followup procedures. Employers must make audiometric testing available at no cost to all employees who are exposed to an action level of 85 dB or above, measured as an 8-hour TWA.

The audiometric testing program followup should indicate whether the employer's hearing conservation program is preventing hearing loss. A licensed or certified audiologist, otolaryngologist, or other physician must be responsible for the program. Both professionals and trained technicians may conduct audiometric testing. The professional in charge of the program does not have to be present when a qualified technician conducts tests. The professional's responsibilities include overseeing the program and the work of the technicians, reviewing problem audiograms, and determining whether referral is necessary.

The employee needs a referral for further testing when test results are questionable or when related medical problems are suspected. If additional testing is necessary or if the employer suspects a medical pathology of the ear that is caused or aggravated by wearing hearing protectors, the employer must refer the employee for a clinical audiological evaluation or otological exam, as appropriate. There are two types of audiograms required in the hearing conservation program: baseline and annual audiograms.

What is a baseline audiogram?

The baseline audiogram is the reference audiogram against which future audiograms are compared. Employers must provide baseline audiograms within 6 months of an employee's first exposure at or above an 8-hour TWA of 85 dB. An exception is allowed when the employer uses a mobile test van for audiograms. In these instances, baseline audiograms must be completed within 1 year after an employee's first exposure to workplace noise at or above a TWA of 85 dB. Employees, however, must be fitted with, issued, and required to wear hearing protectors whenever they are exposed to noise levels above a TWA of 85 dB for any period exceeding 6 months after their first exposure until the baseline audiogram is conducted.

Baseline audiograms taken before the hearing conservation program took effect in 1983 are acceptable if the professional supervisor determines that the audiogram is valid. Employees should not be exposed to workplace noise for 14 hours before the baseline test or wear hearing protectors during this time period.

What are annual audiograms?

Employers must provide annual audiograms within 1 year of the baseline. It is important to test workers' hearing annually to identify deterioration in their hearing ability as early as possible. This enables employers to initiate protective followup measures before hearing loss progresses. Employers must compare annual audiograms to baseline audiograms to determine whether the audiogram is valid and whether the employee has lost hearing ability or experienced a standard threshold shift (STS). An STS is an average shift in either ear of 10 dB or more at 2,000, 3,000, and 4,000 hertz.

What is an employer required to do following an audiogram evaluation?

The employer must fit or refit any employee showing an STS with adequate hearing protectors, show the employee how to use them, and require the employee to wear them. Employers must notify employees within 21 days after the determination that their audiometric test results show an STS. Some employees with an STS may need further testing if the professional determines that their test results are questionable or if they have an ear problem thought to be caused or aggravated by wearing hearing protectors. If the suspected medical problem is not thought to be related to wearing hearing protection, the employer must advise the employee to see a physician. If subsequent audiometric tests show that the STS identified on a previous audiogram is not persistent, employees whose exposure to noise is less than a TWA of 90 dB may stop wearing hearing protectors.

The employer may substitute an annual audiogram for the original baseline audiogram if the professional supervising the audiometric program determines that the employee's STS is persistent. The employer must retain the original baseline audiogram, however, for the length of the employee's employment. This substitution will ensure that the same shift is not repeatedly identified. The professional also may decide to revise the baseline audiogram if the employee's hearing improves. This will ensure that the baseline reflects actual hearing thresholds to the extent possible. Employers must conduct audiometric tests in a room meeting specific background levels and with calibrated audiometers that meet American National Standard Institute (ANSI) specifications of SC-1969.

When is an employer required to provide hearing protectors?

Employers must provide hearing protectors to all workers exposed to 8-hour TWA noise levels of 85 dB or above. This requirement ensures that employees have access to protectors before they experience any hearing loss.

Employees must wear hearing protectors:

- For any period exceeding 6 months from the time they are first exposed to 8-hour TWA noise levels of 85 dB or above, until they receive their baseline audiograms if these tests are delayed due to mobile test van scheduling;
- If they have incurred standard threshold shifts that demonstrate they are susceptible to noise; and
- If they are exposed to noise over the permissible exposure limit of 90 dB over an 8-hour TWA.

Employers must provide employees with a selection of at least one variety of hearing plug and one variety of hearing muff. Employees should decide, with the help of a person trained to fit hearing protectors, which size and type protector is most suitable for the working environment. The protector selected should be comfortable to wear and offer sufficient protection to prevent hearing loss.

Hearing protectors must adequately reduce the noise level for each employee's work environment. Most employers use the Noise Reduction Rating (NRR) that represents the protector's ability to reduce noise under ideal laboratory conditions. The employer then adjusts the NRR to reflect noise reduction in the actual working environment.

The employer must reevaluate the suitability of the employee's hearing protector whenever a change in working

conditions may make it inadequate. If workplace noise levels increase, employees must give employees more effective protectors. The protector must reduce employee exposures to at least 90 dB and to 85 dB when an STS already has occurred in the worker's hearing. Employers must show employees how to use and care for their protectors and supervise them on the job to ensure that they continue to wear them correctly.

What training is required?

Employee training is very important. Workers who understand the reasons for the hearing conservation programs and the need to protect their hearing will be more motivated to wear their protectors and take audiometric tests. Employers must train employees exposed to TWAs of 85 dB and above at least annually in the effects of noise; the purpose, advantages, and disadvantages of various types of hearing protectors; the selection, fit, and care of protectors; and the purpose and procedures of audiometric testing. The training program may be structured in any format, with different portions conducted by different individuals and at different times, as long as the required topics are covered.

What exposure and testing records must employers keep?

Employers must keep noise exposure measurement records for 2 years and maintain records of audiometric test results for the duration of the affected employee's employment. Audiometric test records must include the employee's name and job classification, date, examiner's name, date of the last acoustic or exhaustive calibration, measurements of the background sound pressure levels in audiometric test rooms, and the employee's most recent noise exposure measurement.

Beginning January 1, 2003, employers also will be required to record work-related hearing loss cases when an employee's hearing test shows a marked decrease in overall hearing. Employers will be able to make adjustments for hearing loss caused by aging, seek the advice of a physician or licensed health-care professional to determine if the loss is work-related, and perform additional hearing tests to verify the persistence of the hearing loss.

OSHA Assistance, Services, and Programs

How can OSHA help me?

OSHA can provide extensive help through a variety of programs, including assistance about safety and health programs, state plans, workplace consultations, voluntary protection programs, strategic partnerships, alliances, and training and education. An overall commitment to workplace safety and health can add value to your business, to your workplace, and to your life.

How does safety and health management system assistance help employers and employees?

Working in a safe and healthful environment can stimulate innovation and creativity and result in increased performance and higher productivity. The key to a safe and healthful work environment is a comprehensive safety and health management system.

OSHA has electronic compliance assistance tools, or eTools, on its website that "walk" users through the steps required to develop a comprehensive safety and health program. The eTools are posted at **www.osha.gov**, and are based on guidelines that identify four general elements critical to a successful safety and health management system:

- Management leadership and employee involvement,
- Worksite analysis,
- Hazard prevention and control, and
- Safety and health training.

What are state programs?

The *Occupational Safety and Health Act of 1970* (*OSH Act*) encourages states to develop and operate their own job safety and health plans. OSHA approves and monitors these plans and funds up to 50 percent of each program's operating costs. State plans must provide standards and enforcement programs, as well as voluntary compliance activities, that are at least as effective as Federal OSHA's.

Currently, 26 states and territories have their own plans. Twenty-three cover both private and public (state and local government) employees and three states, Connecticut, New Jersey, and New York, cover only the public sector. For more information on state plans, see the list at the end of this publication, or visit OSHA's website at **www.osha.gov**.

What is consultation assistance?

Consultation assistance is available on request to employers who want help establishing and maintaining a safe and healthful workplace. Funded largely by OSHA, the service is provided at no cost to small employers and is delivered by state authorities through professional safety and health consultants.

What is the Safety and Health Achievement Recognition Program (SHARP)?

Under the consultation program, certain exemplary employers may request participation in OSHA's Safety and Health Achievement Recognition Program (SHARP). Eligibility for participation includes, but is not limited to, receiving a full-service, comprehensive consultation visit, correcting all identified hazards, and developing an effective safety and health program management program.

Employers accepted into SHARP may receive an exemption from programmed inspections (not complaint or accident investigation inspections) for 1 year initially, or 2 years upon renewal. For more information about consultation assistance, see the list of consultation projects at the end of this publication.

What are the Voluntary Protection Programs (VPPs)?

Voluntary Protection Programs are designed to recognize outstanding achievements by companies that have developed and implemented effective safety and health management programs. There are three levels of VPPs: Star, Merit, and Demonstration. All are designed to achieve the following goals:

- Recognize employers that have successfully developed and implemented effective and comprehensive safety and health management programs;
- Encourage these employers to continuously improve their safety and health management programs;
- Motivate other employers to achieve excellent safety and health results in the same outstanding way; and
- Establish a cooperative relationship between employers, employees, and OSHA.

VPP participation can bring many benefits to employers and employees, including fewer worker fatalities, injuries, and illnesses; lost-workday case rates generally 50 percent below industry averages; and lower workers' compensation and other injury- and illness-related costs. In addition, many VPP sites report improved employee motivation to work safely, leading to a better quality of life at work; positive

community recognition and interaction; further improvement and revitalization of already-good safety and health programs; and a positive relationship with OSHA.

After a site applies for the program, OSHA reviews an employer's VPP application and conducts a VPP onsite evaluation to verify that the site's safety and health management programs are operating effectively. OSHA conducts onsite evaluations on a regular basis, annually for participants at the demonstration level, every 18 months for Merit, and every 3 to 5 years for Star. Once a year, all participants must send a copy of their most recent annual internal evaluation to their OSHA regional office. This evaluation must include the worksite's record of injuries and illnesses for the past year.

Sites participating in VPP are not scheduled for regular, programmed inspections. OSHA does, however, handle any employee complaints, serious accidents, or significant chemical releases that may occur at VPP sites according to routine enforcement procedures.

Additional information on VPP is available from OSHA national, regional, and area offices listed at the end of this booklet. Also, see "Cooperative Programs" on OSHA's website.

How can a partnership with OSHA improve worker safety and health?

OSHA has learned firsthand that voluntary, cooperative partnerships with employers, employees, and unions can be a useful alternative to traditional enforcement and an effective way to reduce worker deaths, injuries, and illnesses. This is especially true when a partnership leads to the development and implementation of a comprehensive workplace safety and health management program.

What is OSHA's Strategic Partnership Program (OSPP)?

OSHA Strategic Partnerships are agreements among labor, management, and government to improve workplace safety and health. These partnerships encourage, assist, and recognize the efforts of the partners to eliminate serious workplace hazards and achieve a high level of worker safety and health. Whereas OSHA's Consultation Program and VPP entail one-on-one relationships between OSHA and individual worksites, most strategic partnerships build cooperative relationships with groups of employers and employees.

There are two major types of OSPPs. Comprehensive partnerships focus on establishing comprehensive safety and health management systems at partnering worksites. Limited partnerships help identify and eliminate hazards associated with worker deaths, injuries, and illnesses, or have goals other than establishing comprehensive worksite safety and health programs.

For more information about this program, contact your nearest OSHA office or visit the agency's website.

What occupational safety and health training does OSHA offer?

The OSHA Training Institute in Arlington Heights, IL, provides basic and advanced training and education in safety and health for federal and state compliance officers, state consultants, other federal agency personnel, and private-sector employers, employees, and their representatives.

What is the OSHA Training Grant Program?

OSHA awards grants to nonprofit organizations to provide safety and health training and education to employers and workers in the workplace. Grants often focus on high-risk activities or hazards or may help nonprofit organizations in training, education, and outreach.

OSHA expects each grantee to develop a program that addresses a safety and health topic named by OSHA, recruit workers and employers for the training, and conduct the training. Grantees are also expected to follow up with students to find out how they applied the training in their workplaces.

For more information contact OSHA Office of Training and Education, 2020 Arlington Heights Road, Arlington Heights, IL 60005; or call (847) 297–4810.

What other assistance materials does OSHA have available?

OSHA has a variety of materials and tools on its website at **www.osha.gov**. These include eTools such as Expert Advisors and Electronic Compliance Assistance Tools, information on specific health and safety topics, regulations, directives, publications, videos, and other information for employers and employees.

OSHA also has an extensive publications program. For a list of free or sales items, visit OSHA's website at **www.osha.gov** or contact the OSHA Publications Office, U.S. Department of Labor, 200 Constitution Avenue, NW, N-3101, Washington, DC 20210. Telephone (202) 693–1888 or fax to (202) 693–2498.

In addition, OSHA's CD-ROM includes standards, interpretations, directives, and more. It is available for sale

from the U.S. Government Printing Office. To order, write to the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402, or phone (202) 512–1800.

What do I do in case of an emergency or to file a complaint?

To report an emergency, file a complaint, or seek OSHA advice, assistance, or products, call (800) 321–OSHA or contact your nearest OSHA regional, area, state plan, or consultation office listed at the end of this publication. The teletypewriter (TTY) number is (877) 889–5627.

Employees can also file a complaint online and get more information on OSHA federal and state programs by visiting OSHA's website at **www.osha.gov**.

OSHA Regional and Area Office Directory

OSHA Regional Offices

Region I

(CT,* MA, ME, NH, RI, VT*)
JFK Federal Building, Room E340
Boston, MA 02203
(617) 565–9860

Region II

(NJ,* NY,* PR,* VI*)
201 Varick Street, Room 670
New York, NY 10014
(212) 337–2378

Region III

(DE, DC, MD,* PA,* VA,* WV)
The Curtis Center
170 S. Independence Mall West
Suite 740 West
Philadelphia, PA 19106-3309
(215) 861–4900

Region IV

(AL, FL, GA, KY,* MS,
NC,* SC,* TN*)
SNAF
61 Forsyth Street SW, Room 6T50
Atlanta, GA 30303
(404) 562–2300

Region V

(IL, IN,* MI,* MN,* OH, WI)
230 South Dearborn Street,
Room 3244
Chicago, IL 60604
(312) 353–2220

Region VI

(AR, LA, NM,* OK, TX)
525 Griffin Street, Room 602
Dallas, TX 75202
214) 767–4731 or 4736 x224

Region VII

(IA,* KS, MO, NE)
City Center Square
1100 Main Street, Suite 800
Kansas City, MO 64105
(816) 426–5861

Region VIII

(CO, MT, ND, SD, UT,* WY*)
1999 Broadway, Suite 1690
PO Box 46550
Denver, CO 80202-5716
(303) 844–1600

Region IX

(American Samoa, AZ,*
CA,* HI, NV,* Northern
Mariana Islands)
71 Stevenson Street, Room 420
San Francisco, CA 94105
(415) 975–4310

Region X

(AK,* ID, OR,* WA*)
1111 Third Avenue, Suite 715
Seattle, WA 98101-3212
(206) 553–5930

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*These states and territories operate their own OSHA-approved job safety and health programs. The Connecticut, New Jersey, and New York plans cover public employees only. States with approved programs must have a standard that is identical to, or at least as effective as, the federal standard.

OSHA Area Offices

Anchorage, AK
(907) 271–5152

Birmingham, AL
(205) 731–1534

Mobile, AL
(251) 441–6131

Little Rock, AR
(501) 324–6291/5818

Phoenix, AZ
(602) 640–2348

Sacramento, CA
(916) 566–7471

San Diego, CA
(415) 975–4310

Denver, CO
(303) 844–5285

Greenwood Village, CO
(303) 843–4500

Bridgeport, CT
(203) 579–5581

Hartford, CT
(860) 240–3152

Wilmington, DE
(302) 573–6518

Fort Lauderdale, FL
(954) 424–0242

Jacksonville, FL
(904) 232–2895

Tampa, FL
(813) 626–1177

Savannah, GA
(912) 652–4393

Smyrna, GA
(770) 984–8700

Tucker, GA
(770) 493–6644/6742/8419

Des Moines, IA
(515) 284–4794

Boise, ID
(208) 321–2960

Calumet City, IL
(708) 891–3800

Des Plaines, IL
(847) 803–4800

Fairview Heights, IL
(618) 632–8612

North Aurora, IL
(630) 896–8700

Peoria, IL
(309) 671–7033

Indianapolis, IN
(317) 226–7290

Wichita, KS
(316) 269–6644

Frankfort, KY
(502) 227–7024

Baton Rouge, LA
(225) 389–0474/0431)

Braintree, MA
(617) 565–6924

Methuen, MA
(617) 565–8110

Springfield, MA
(413) 785–0123

Linthicum, MD
(410) 865–2055/2056

Bangor, ME
(207) 941–8177

Portland, ME
(207) 780–3178

Lansing, MI
(517) 327–0904

Minneapolis, MN
(612) 664–5460

Kansas City, MO
(816) 483–9531

St. Louis, MO
(314) 425–4249

Jackson, MS
(601) 965–4606

Billings, MT
(406) 247–7494

Raleigh, NC
(919) 856–4770

Bismark, ND
(701) 250–4521

Omaha, NE
(402) 221–3182

Concord, NH
(603) 225–1629

Avenel, NJ
(732) 750–3270

Hasbrouck Heights, NJ
(201) 288–1700

Marlton, NJ
(856) 757–5181

Parsippany, NJ
(973) 263–1003

Carson City, NV
(775) 885–6963

Albany, NY
(518) 464–4338

Bayside, NY
(718) 279–9060

Bowmansville, NY
(716) 684–3891

New York, NY
(212) 337–2636

North Syracuse, NY
(315) 451–0808

Tarrytown, NY
(914) 524–7510

Westbury, NY
(516) 334–3344

Cincinnati, OH
(513) 841–4132

Cleveland, OH
(216) 522–3818

Columbus, OH
(614) 469–5582

Toledo, OH
(419) 259–7542

Oklahoma City, OK
(405) 278–9560

Portland, OR
(503) 326–2251

Allentown, PA
(610) 776–0592

Erie, PA
(814) 833–5758

Harrisburg, PA
(717) 782–3902

Philadelphia, PA
(215) 597–4955

Pittsburgh, PA
(412) 395–4903

Wilkes–Barre, PA
(570) 826–6538

Guaynabo, PR
(787) 277–1560

Providence, RI
(401) 528–4669

Columbia, SC
(803) 765–5904

Nashville, TN
(615) 781–5423

Austin, TX
(512) 916–5783/5788

Corpus Christi, TX
(361) 888–3420

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- **90 dB** is OSHA's Permissible Exposure Limit (PEL)
- **85 dB** is OSHAS's "Action Level" where hearing protection is required

EMPLOYERS MUST:

- Limit employee noise exposure to the permissible exposure limit (PEL) or below
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REQUIRES:

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WHAT IT MEANS TO YOUR ORGANIZATION

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- Better communication means employees are safer and more productive

Noise-induced hearing loss is the most common permanent and preventable occupational injury in the world.

- World Health Organization (WHO)

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To learn more, visit www.yourearsrock.com

5206.0500 HARMFUL PHYSICAL AGENTS.

Subpart 1. **In general.** The commissioner has determined that the list of harmful physical agents in subpart 3 shall be covered by the provisions of this chapter. The harmful physical agents list includes the majority of physical agents that may be encountered in Minnesota. Where there is a reasonably foreseeable potential for exposure to one or more of these physical agents at a level which may be expected to approximate or exceed the permissible exposure limit or the applicable action level the employer must provide training to employees as required in part 5206.0700.

Subp. 2. **Updating list.** The list of harmful physical agents shall be updated by the commissioner at least every two years.

Subp. 3. **Harmful physical agents list.**

A. Heat.

B. Noise.

C. Ionizing radiation. Any employer who possesses or uses by-product material, source material, or special nuclear material, as defined in the Atomic Energy Act of 1954 as amended, under a license issued by the Nuclear Regulatory Commission shall be deemed to be in compliance with the harmful physical agent provisions of the Employee Right-to-Know Act of 1983.

D. Nonionizing radiation.

Statutory Authority: *MS s 182.655*

History: *8 SR 1949*

Published Electronically: *June 11, 2008*

DEPARTMENT OF LABOR AND INDUSTRY

Hazard communication, employee right-to-know model program

Minnesota OSHA Compliance

May 2016

This material can be provided in different formats (audio, Braille, large print) by calling the MNOSHA Training/Outreach office at 651-284-5050 or 877-470-6742.

For more information, contact the:
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Web: www.dli.mn.gov

In 1983, the Minnesota Legislature passed the Employee Right-to-Know (ERTK) Act, requiring employers to develop written training programs for their employees regarding the hazardous chemicals, harmful physical agents and infectious agents they are routinely exposed to in the workplace. Also in 1983, federal OSHA adopted the Hazard Communication (HAZCOM) standard, 1910.1200. Unlike ERTK, HAZCOM covered only hazardous chemicals. In 2012, the standard underwent a major revision with the alignment with the U.N. Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Minnesota OSHA (MNOSHA) decided to replace the ERTK requirements for hazardous chemicals with the federal HAZCOM standard, while keeping the annual refresher training and recordkeeping requirements under ERTK. Employers must comply with all aspects of HAZCOM no later than June 1, 2016. The requirements for harmful physical agents and infectious agents under ERTK have not changed. Because the purpose and content of the two standards are nearly identical, this guide will refer to the HAZCOM requirements when discussing hazardous chemicals.

A written HAZCOM program must include:

- a description of how labels, placards and signs will be used to identify hazardous chemicals or work areas where harmful physical agents are present at levels approaching regulatory limits;
- the methods for making ERTK information, such as safety data sheets (SDSs), readily accessible to employees in their work areas;
- a plan for providing training to employees before their first exposure or change in work assignment or conditions, and annual refresher training, including an outline of training content;
- a list of hazardous chemicals and agents present in the workplace; and
- the methods used to inform employees of the hazards of nonroutine tasks and unlabeled pipes.

Employers who work on sites where they might expose other employers' workers to a hazard, such as contractors, must include information in their written program about how they will notify the other employers of the hazard and provide them with the SDSs and labeling information.

The attached program is a sample HAZCOM/ERTK program. If you choose to use the sample program as a model, you must adapt it to fit your needs and your organization. Minnesota OSHA has also developed two guides to further assist you in creating your own program: An employer's guide to developing a hazard communication or employee right-to-know program and Hazard communication or employee right-to-know on construction sites. Both documents are available online at www.dli.mn.gov/business/workplace-safety-and-health/mnosha-compliance-resources-all-industries or by contacting MNOSHA.

Minnesota hazard communication/employee right-to-know program for [company name]

General company policy

The purpose of this notice is to inform you our company is complying with the Minnesota OSHA (MNOSHA) Employee Right-to-Know standard and Hazard Communication standard by providing you with training about the hazardous chemicals, harmful physical agents and infectious agents you are exposed to on the job. As part of this effort, we have compiled a list of the hazardous chemicals used in our facility, collected safety data sheets (SDSs) from our vendors for these chemicals, received reference material about the harmful agents you are exposed to, ensured our containers are labeled and posted signs in the hazardous areas.

This program applies to all work operations in our company where you may be exposed to hazardous chemicals, harmful physical agents or infectious agents during normal working conditions or an emergency situation.

(The) [name or job title] is the program coordinator and has overall responsibility for the program. [Name or job title] will review and update the program, as necessary. Copies of the written program may be obtained from [name or job title].

With this program, you will be informed of the contents of the MNOSHA Employee Right-to-Know standard, the Hazard Communication standard, the hazardous properties of the chemicals you work with, safe handling procedures and measures to take to protect yourselves from these chemicals. You will also be informed of the hazards associated with nonroutine tasks and the hazards associated with chemicals in unlabeled pipes. [For construction contractors and other multi-employer worksites, insert: We will also inform you of any hazards created by other employers and their employees working in the same area.]

Training

Everyone who works with or is potentially exposed to hazardous chemicals, harmful physical agents or infectious agents will receive initial training about the Employee Right-to-Know and Hazard Communication standards and the safe use of those chemicals or agents prior to their work assignment. A program has been prepared for this purpose and is outlined below. Whenever a new hazard is introduced, additional training will be provided. Training updates will be performed at least annually and may be brief summaries of information included in past training sessions. The program coordinator is responsible for ensuring this training is provided.

Training plan

The employee right-to-know and hazard communication training will include:

- a summary of the standards and this written program;
- the chemical and physical properties of hazardous chemicals and methods that can be used to detect the presence or release of chemicals (including chemicals in unlabeled pipes);
- the physical hazards of chemicals (e.g., potential for fire, explosion, etc.);

- the name of the chemical or agent and the level, if established, at which exposure to the hazard has been restricted according to MNOSHA standards or, if no standard has been adopted, according to guidelines established by competent professional groups;
- the health hazards, including signs and symptoms, associated with exposure to chemicals, harmful physical agents and infectious agents, and any medical condition known to be aggravated by exposure to these hazards;
- the procedures to protect against those hazards (e.g., use and maintenance of personal protective equipment, work practices or methods for proper use and handling of chemicals, and procedures for emergency response);
- the work procedures to follow to assure protection when cleaning up incidental spills and leaks of hazardous chemicals;
- the location in the facility of SDSs, physical agent data sheets (PADSs) and infectious agents information;
- instruction about how to read and interpret the information on labels, SDSs and PADSs; and
- direction about how to obtain more hazard information.
- Records of training will be maintained for three years in [location] and will include:
- the dates of training;
- the name, title and qualifications of the person who conducted the training;
- the names and job titles of the employees who completed the training; and
- a brief summary or outline of the information that was included in the training session.

List of hazardous chemicals

[Name or job title] has created the list of all hazardous chemicals used at the company and related work practices in the facility, and will update the list as necessary. A separate list is available for each individual work area. Each list also identifies the corresponding SDS for each chemical. The master list of all chemicals used by [company name] can be found below.

[Insert the hazardous chemical list here.]

List of harmful physical agents (if applicable to the facility)

[Name or job title] has created a list of the harmful physical agents that are present in the workplace in amounts approaching regulatory limits through equipment use, product handling, etc. Heat, noise, and ionizing and nonionizing radiation sources have been identified for each work area. Each list also identifies the corresponding PADS for each source. The master list of all physical agents can be found below.

[Insert the harmful physical agents list here.]

List of infectious agents (if applicable to the facility or when workers are assigned first aid responsibilities as part of their job duties)

[Name or job title] has created a list of infectious agents workers are routinely exposed to in the course of assigned work. This includes designated first aid providers who have potential exposure to bloodborne pathogens. For further information, see the written exposure control plan for the facility that meets the

requirements set forth in 29 CFR 1910.1030 and that covers all infectious agents, including bloodborne pathogens.

Safety data sheets

Safety data sheets provide you with specific information about the hazardous chemicals you use. The program coordinator will maintain a binder in [location] with an SDS for every chemical on the list of hazardous chemicals. (If SDSs are available on the company's network, provide that electronic location.) Facilities with a computer available to all employees to view SDSs are not required to keep paper copies on site.

The program coordinator is responsible for acquiring and updating SDSs. He or she will contact the manufacturer or vendor if additional research is necessary or if an SDS has not been supplied with an initial shipment. All new chemicals to be brought into the facility must be cleared by the program coordinator.

Harmful physical agents information (if applicable to the facility)

The program coordinator is responsible for acquiring a PADS or similar written information about the identified harmful physical agents you may be exposed to in the course of assigned work. The PADS or other written information will be maintained in a binder in [location].

Infectious agent information (if applicable to the facility)

A current copy of the American Public Health Association publication Control of communicable diseases manual or similar written information is available in [location]. Further information about infectious disease hazards in the workplace can be found in the organization's exposure control plan located in [location].

Labels and other forms of warning

The program coordinator will ensure all hazardous chemicals in the facility are properly labeled and updated as necessary. Manufacturer's container labels should be left on the containers if possible and must list, at a minimum, the product's identity, a signal word ("danger" or "warning"), the appropriate hazard statement, pictogram(s), precautionary statements (how employees can protect themselves) and the name, address and telephone number of the manufacturer, importer or other responsible party.

If you transfer hazardous chemicals from a manufacturer's container into another container, the new container must have a label that identifies the chemical's identity and any appropriate hazard warning. Immediate-use containers, which are containers of hazardous chemicals under the control of one employee and that are emptied during the same work shift, do not have to be labeled.

Pipes or piping systems do not have to be labeled, but their contents will be described in the training session.

(If applicable to the facility) The program coordinator will ensure equipment or work areas that specifically generate harmful physical agents at a level that may be expected to be near or greater than the permissible

exposure limit or applicable action level are posted with the name of the physical agent and the appropriate hazard warning.

(If applicable to the facility) The exposure control plan for the facility addresses the labeling procedures for receptacles containing potentially infectious material.

Nonroutine tasks

When you are required to perform hazardous nonroutine tasks, a special training session will be conducted by the [job title] to inform you about the hazardous chemicals you might be exposed to and the proper precautions to take to reduce or avoid exposure. SDSs will be available about the hazardous chemicals used. The program coordinator is responsible for ensuring this training is provided.

Multi-employer workplace (if applicable to the facility)

If another employer has its employees working at the facility, such as service representatives or subcontractors, the program coordinator will:

- provide the other employer with copies of the SDSs for the hazardous chemicals its employees may be exposed to while working at the facility;
- inform the other employer of any precautionary measures that need to be taken to protect the employees during both normal working conditions and in foreseeable emergencies; and
- inform the other employer about the labeling system used in the facility.
- The program coordinator will document in writing that the above information was conveyed to the other employer.

Frequency of training

The program coordinator will review our employee training program on a regular basis and will advise management regarding initial or annual refresher training needs. Retraining is also required whenever a new hazard is introduced into the workplace. As part of the assessment of the training program, the program coordinator will obtain input from employees regarding the training they have received and their suggestions for improving it. This review will be performed annually; necessary changes will be made to keep the program up to date.

_____ _____

Program coordinator Date

_____ _____

Reviewed by Date

5206.0700 TRAINING.

Subpart 1. **In general.** The requirements in items A to J apply to training programs provided to employees concerning hazardous substances, harmful physical agents, and infectious agents.

A. Training shall be made available by, and at the cost of, the employer.

B. The employer shall develop and implement a written Employee Right-to-Know program which, at a minimum, describes how the training, availability of information, and labeling provisions of this chapter will be met for hazardous substances, harmful physical agents, and infectious agents. The written program shall also include:

(1) A list of the hazardous substances known to be present using an identity that is referenced on the appropriate material safety data sheet. The list may be compiled for the workplace as a whole or for individual work areas.

(2) The methods the employer will use to inform employees of the hazards of infrequent tasks that involve exposure to hazardous substances, harmful physical agents, or infectious agents and the hazards associated with hazardous substances contained in unlabeled pipes in their work areas.

(3) Employers shall make the written Employee Right-to-Know program available, upon request, to employees, their designated representatives, and representatives of the Occupational Safety and Health Division.

(4) For infectious agents, a written exposure control plan that meets the requirements of Code of Federal Regulations, title 29, section 1910.1030, and covers all infectious agents to which employees may be exposed in the workplace meets the requirements of this chapter.

C. In multiemployer workplaces, employers who produce, use, or store hazardous substances in such a way that the employees of other employers may be exposed shall additionally ensure that the Employee Right-to-Know program developed and implemented under item B includes the following:

(1) the methods the employer will use to provide the other employers with a copy of the material safety data sheet, or to make it available at a central location in the workplace, for each hazardous substance the other employers' employees may be exposed to while working;

(2) the methods the employer will use to inform the other employers of any precautionary measures that need to be taken to protect employees during normal operating conditions and in foreseeable emergencies; and

(3) the methods the employer will use to inform the other employers of the labeling system used in the workplace.

D. Records of training provided under the requirements of this chapter must be maintained by the employer, retained for three years, and made available, upon request, for review by employees and representatives of the Occupational Safety and Health Division. At a minimum, training records must include:

(1) the dates training was conducted;

(2) the name, title, and qualifications of the person who conducted the training;

(3) the names and job titles of employees who completed the training; and

(4) a brief summary or outline of the information that was included in the training session.

E. Information and training programs may relate to specific exposure hazards; the common hazards of a broad class of hazardous substances, harmful physical agents, and infectious agents; or to the hazards of a complete production operation, whichever is more effective. Specific information on individual hazardous substances or mixtures, harmful physical agents, and infectious agents must be available in writing for employees' use.

F. Access to a display device shall constitute compliance with the requirement for a written copy of required information which shall be readily accessible in the area or areas in which the hazardous substance, harmful physical agent, or infectious agent is used or handled, provided that a hard copy printout is available to the employee requesting it within 24 hours excluding nonworkdays.

G. Frequency of training:

(1) Training must be provided to an employee before initial assignment to a workplace where the employee may be routinely exposed to a hazardous substance, harmful physical agent, or infectious agent.

(2) Additional training must be provided to an employee before the time the employee may be routinely exposed to any additional hazardous substances, harmful physical agents, or infectious agents.

(3) All employees who have been routinely exposed to a hazardous substance, harmful physical agent, or infectious agent before January 1, 1984, and who will continue to be routinely exposed to those substances or agents, must be provided with training with respect to those substances and agents by July 1, 1984.

(4) Training updates must be repeated at intervals of not greater than one year. Training updates may be brief summaries of information included in previous training sessions.

H. The commissioner may, upon request of an employer or an employer's representative, certify an existing training program as complying with this chapter.

I. The employer shall maintain current information for training or information requests by employees.

J. Technically qualified individuals shall be notified of and may elect to participate in any training or update programs required to be provided under this part to employees who are not technically qualified individuals. The employer shall make a reasonable attempt to allow technically qualified individuals to attend training or update programs which may be held during the employee's scheduled work day.

Subp. 2. **Training program for hazardous substances.** Training for employees who may be routinely exposed to hazardous substances shall be provided in a manner which can be reasonably understood by the employees and must include the following:

A. the name or names of the substance including any generic or chemical name, trade name, and commonly used name;

B. the level, if any and if known, at which exposure to the substance has been restricted according to standards adopted by the commissioner, or, if no standard has been adopted, according to guidelines established by competent professional groups which have conducted research to determine the hazardous properties of potentially hazardous substances;

C. the primary routes of entry and the known acute and chronic effects of exposure at hazardous levels;

D. the known symptoms of the effects;

E. any potential for flammability, explosion, or reactivity of the substance;

F. appropriate emergency treatment;

G. the known proper conditions for use of and exposure to the substance;

H. procedures for cleanup of leaks and spills;

I. the name, phone number, and address of a manufacturer of the hazardous substance; and

J. a written copy of all of the above information which shall be readily accessible in the area or areas in which the hazardous substance is used or handled.

Subp. 3. **Training program for harmful physical agents.** The training program for employees who may be routinely exposed to harmful physical agents at a level which may be expected to approximate or exceed the permissible exposure limit or applicable action levels shall be provided in a manner which can be reasonably understood by the employees and

shall include the information required by the standard for that physical agent as determined by the commissioner including the following:

A. the name or names of the physical agent including any commonly used synonym;

B. the level, if any and if known, at which exposure to the physical agent has been restricted according to standards adopted by the commissioner, or, if no standard has been adopted, according to guidelines established by competent professional groups which have conducted research to determine the hazardous properties of potentially harmful physical agents;

C. the known acute and chronic effects of exposure at hazardous levels;

D. the known symptoms of the effects;

E. appropriate emergency treatment;

F. the known proper conditions for use of and/or exposure to the physical agent;

G. the name, phone number, and address, if appropriate, of a manufacturer of the equipment which generates the harmful physical agent; and

H. a written copy of all of the above information which shall be readily accessible in the area or areas in which the harmful physical agent is present and where the employees may be exposed to the agent through use, handling, or otherwise.

Subp. 4. **Training program for infectious agents.** Training for employees who are routinely exposed to infectious agents shall be provided in a manner which can be reasonably understood by the employees and must include the following:

A. a general explanation of the epidemiology and symptoms of infectious diseases including hazards to special at-risk employee groups;

B. an explanation of the appropriate methods for recognizing tasks and other activities that may involve exposure to infectious agents including blood and other infectious materials;

C. an explanation of the chain of infection, or infectious disease process, including agents, reservoirs, modes of escape from reservoir, modes of transmission, modes of entry into host, and host susceptibility;

D. an explanation of the employer's exposure control program;

E. an explanation of the use and limitations of methods of control that will prevent or reduce exposure including universal precautions, appropriate engineering controls and work practices, personal protective equipment, and housekeeping;

F. an explanation of the basis for selection of personal protective equipment, including information on the types, proper use, location, removal, handling, decontamination, and disposal of personal protective equipment;

G. an explanation of the proper procedures for cleanup of blood or body fluids;

H. an explanation of the recommended immunization practices, including, but not limited to, the HBV vaccine and the employer's methodology for determining which employees will be offered the HBV vaccine, and the efficacy, safety, and benefits of being vaccinated;

I. procedures to follow if an exposure incident occurs, method of reporting the incident, and information on the postexposure evaluation and medical follow-up that will be available;

J. information on the appropriate actions to take and persons to contact in an emergency involving blood or other potentially infectious materials;

K. an explanation of the signs, labels, tags, or color coding used to denote biohazards;

L. an opportunity for interactive questions and answers with the person conducting the training session;

M. an accessible copy of the regulatory text of this standard and an explanation of its contents; and

N. how to gain access to further information and reference materials that must be made available in the workplace including the location, contents, and availability of pertinent materials that explain symptoms and effects of each infectious agent.

Statutory Authority: *MS s 182.655*

History: *8 SR 1949; 13 SR 2219; 17 SR 1456*

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HEALTH & FITNESS › AUDIO

Noise-Induced Hearing Loss in Kids Is a Growing Problem. Here's How to Protect Little Ears.

By Lauren Dragan

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Photo: Lauren Dragan

It's easy to shrug off hearing loss as an unfortunate part of getting older, but that doesn't have to be true. Experts increasingly believe that some progressive

hearing decline is due to extended exposure to loud sounds, and that exposure seems to be starting at even younger ages. The Journal of the American Academy of Pediatrics estimated in 2001 that about 12.5% of US children ages 6 to 19 already had some degree of noise-induced hearing loss. That's a lot of kids. The good news is, this type of hearing loss is usually preventable.

The research

What causes noise-induced hearing loss?

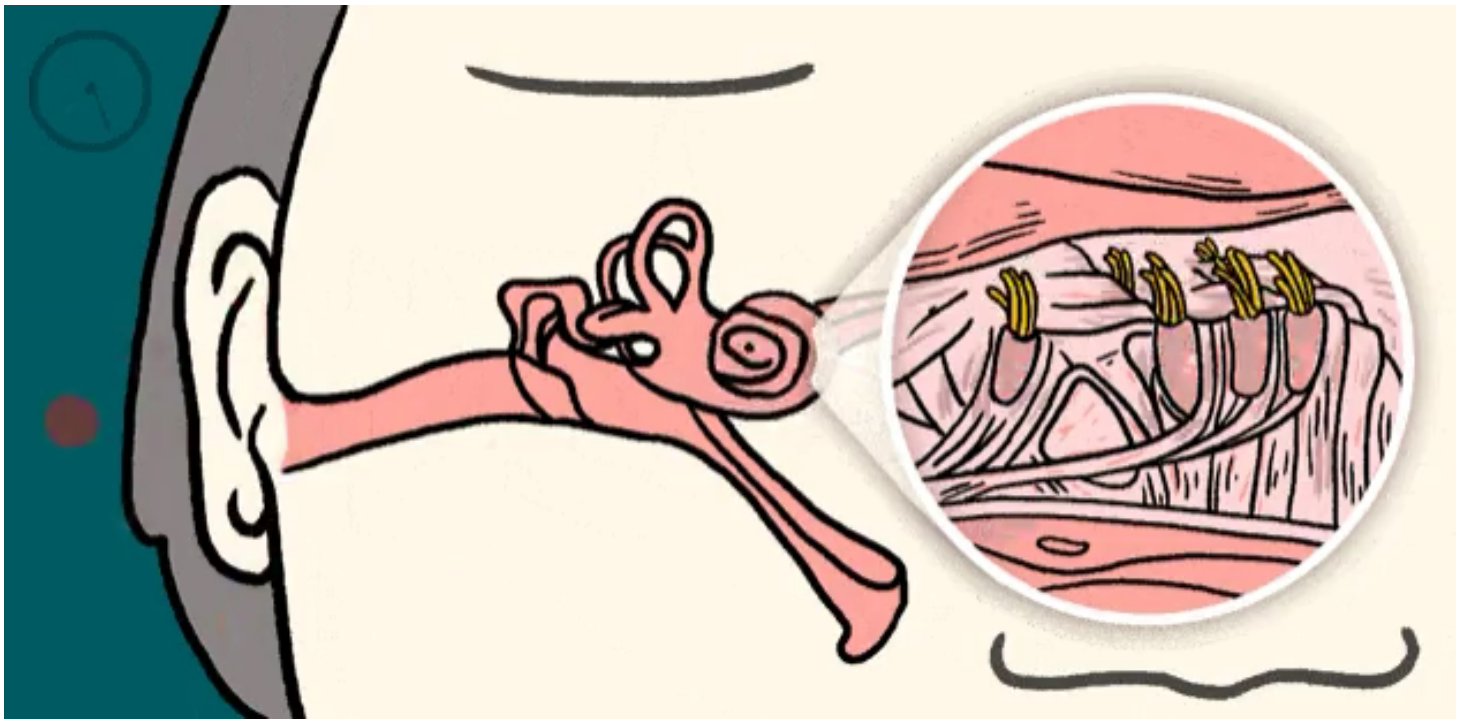
If you're like us, when you first see the phrase "noise-induced hearing damage," you probably imagine a loud blast of sound physically damaging the eardrum. And yes, that is one way hearing loss can happen—in an explosion, for example. However, that isn't the way the majority of people damage their hearing. Rather, most noise-induced hearing loss is due to the cumulative effects of excessive noise exposure, listening to fairly loud noise over a longer period of time. (People encounter "fairly loud noise" more frequently than you might think, but more on that in a minute.)

If you were paying attention in biology class, you may recall that sound waves enter the ear and vibrate the eardrum, which in turn moves the middle-ear bones (malleus, incus, and stapes) and causes the fluid and tiny hairs inside the cochlea (inner ear) to move. Those hairs stimulate nerve cells that send a signal to your brain, which it interprets as sound.

Human ears weren't made to handle excessively loud sounds most of the time, explains Brian Fligor, ScD, chair of the World Health Organization's Make Listening Safe Taskforce, author of ***Understanding Childhood Hearing Loss***, and clinical strategic advisor of Lantos Technologies, a company that helps develop better custom molds for clinical hearing devices. Human ancestors had to listen for tiny sounds—a crack of a branch in the woods, for example, or a bird call, indicators of prey they wanted to eat or predators that wanted to eat them. It was rare to encounter anything loud enough to damage the ears, namely around 110 dBA (A-weighted decibels) or more. Maybe being too close to a lightning strike or a volcanic eruption would do it, but that would probably damage a lot more than just a person's hearing.

Noise exposure is a lot like sun exposure: Long enough, and bright enough, and you'll burn.

But in today's post-industrial society, people are regularly exposed to those kinds of loud sounds, from motorcycles, chainsaws, concerts, and—yes—headphones. And that's where the modern problem comes in. When the tiny hairs of the inner ear trigger the nerve cells to fire, those cells create a waste product; as Fligor explains, it's somewhat similar to your leg muscles building up lactic acid after a very long run. If the noise is quiet, not much waste is produced. If it's loud but short, the cells get a chance to rest and clear out the waste. But listen loud enough and long enough, and the cells can't clean out the waste quickly enough—and eventually the waste kills cells. This is why noise duration matters. Noise exposure is a lot like sun exposure: Long enough, and bright enough, and you'll burn.



Volume + duration = damage. After hours of exposure, even a few decibels above 85 dB can cause the ear's hearing-related cells to become overwhelmed with waste and die. Illustration: Kim Ku

Even if you or your child doesn't show signs of damage now, noise exposure could catch up with you later in life. A study published in 2017 by the CDC states that "[h]earing loss is the third most common chronic physical condition in the United States and is twice as prevalent as diabetes or cancer." In fact, "one in five ... persons aged 20–29 years" had "audiometric notches," or sections of

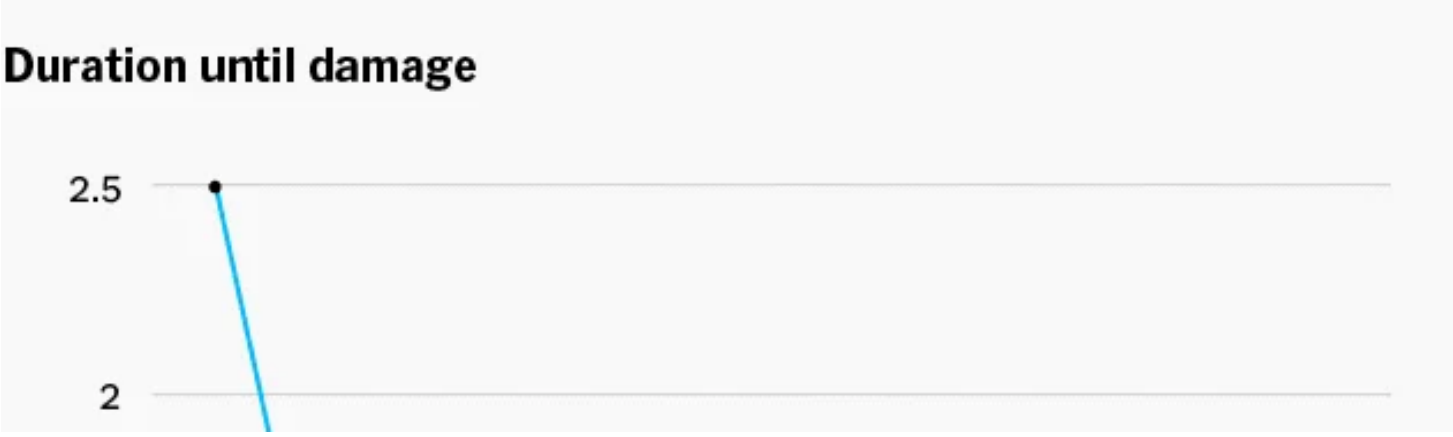
their hearing frequency range that were damaged or missing. Additionally, "[d]amage to hearing accumulates over time so that hazardous exposure that begins earlier in life has the potential to be more damaging as persons age."

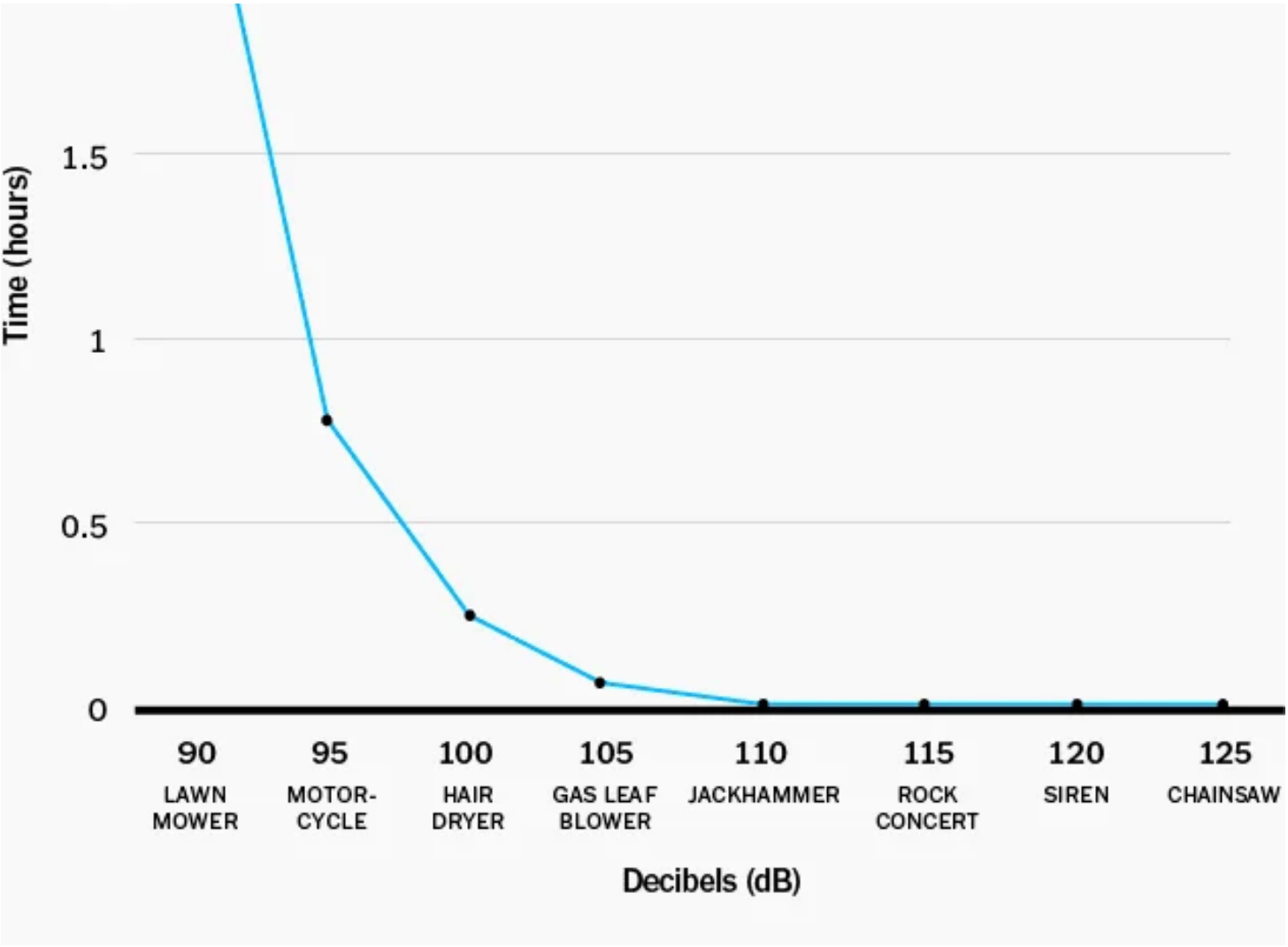
You might have damage already and not even know it yet, as the study states: "Persons with auditory damage caused by noise frequently do not recognize it; one in four U.S. adults who reported excellent or good hearing had an audiometric notch."

How loud is too loud?

So, how loud is loud, and how long is long? Generally speaking, 70 dBA (PDF), about the volume of a washing machine or dishwasher, is a safe level for any duration of time. But when you play some music at that level, it can seem to lack clarity, and the louder and quieter parts of a song seem about the same. So people tend to pump up the volume.

Organizations such as NIOSH and OSHA have set occupational guidelines that recommend limiting overall sound exposure to 85 to 90 dBA over eight hours. But those recommendations focus on the workplace and don't paint a complete picture of the complexities of everyday noise exposure. Limiting levels to 85 dBA does not mean, in itself, that the listener will be safe. As with damage done to your skin, damage done to your hearing is most often due to prolonged and continuous exposure to noise over 70 dBA. If you or your child is exposed to any environmental noise louder than 70 dBA during the day—say, traffic noise, construction by your house, airplane engines, loud sounds at school (which the CDC says is a concern)—the amount of safe listening time you have left is reduced. Over enough time, even a recommended limit of 85 dBA can be problematic.





As the volume level goes up, the time it takes to damage your hearing drops dramatically. You can listen to conversation around 60 dB all day, and even listen to traffic noise at 80 dB for about eight hours, but it takes only a few minutes of exposure to rock-concert noise levels at 115 dB to potentially damage your hearing permanently. Source: World Health Organization (PDF)

Further complicating matters is that some people are more susceptible to hearing loss than others, and it is partly genetic. To continue the sun-exposure analogy, some people burn, others tan. Some burn quickly, others do only after a long exposure. The same applies to sound damage, as some people can metabolize faster and may not experience as much damage from the same loud exposure as other people.

The WHO recommends that the equivalent continuous sound level (or L_{eq}) should be kept below 70 dBA for music played through headphones or limited to one hour at 85 dBA. And music exposure should never exceed 110 dBA.

But no tests exist for this tendency, and therefore no one can predict who will be susceptible and who will not. So the World Health Organization suggests proceeding as though you or your loved ones are predisposed, and it builds upon the OSHA and NIOSH guidelines, recommending that the equivalent continuous sound level (or L_{eq}) should be kept below 70 dBA for music played through headphones or limited to one hour at 85 dBA. And music exposure should never exceed 110 dBA (PDF).

What can you do to protect your child's hearing?

Caregivers can't chase kids around all day with a decibel meter and constantly check the volume settings on every device. Nor can they control all the sounds that kids are exposed to. So the best plan of action is to keep a couple of valuable tools on hand—namely, hearing protection for louder situations and headphones that limit the maximum volume and/or cut down on external noise. It's not a perfect fix, but like the foam bumpers on coffee-table corners and "childproof" latches on drawers, these tools provide an extra level of protection that can reduce a child's risk of injury.

Keep hearing protection on hand

Sometimes, life gets loud, be it a concert, a monster-truck rally, or an amusement park. If you have or care for young children, we recommend keeping a set of hearing protectors in your diaper bag or backpack. If you have an Apple Watch, you can enable noise exposure tracking, which can alert you when sounds get to unsafe levels and it's time to pull out the earmuffs.

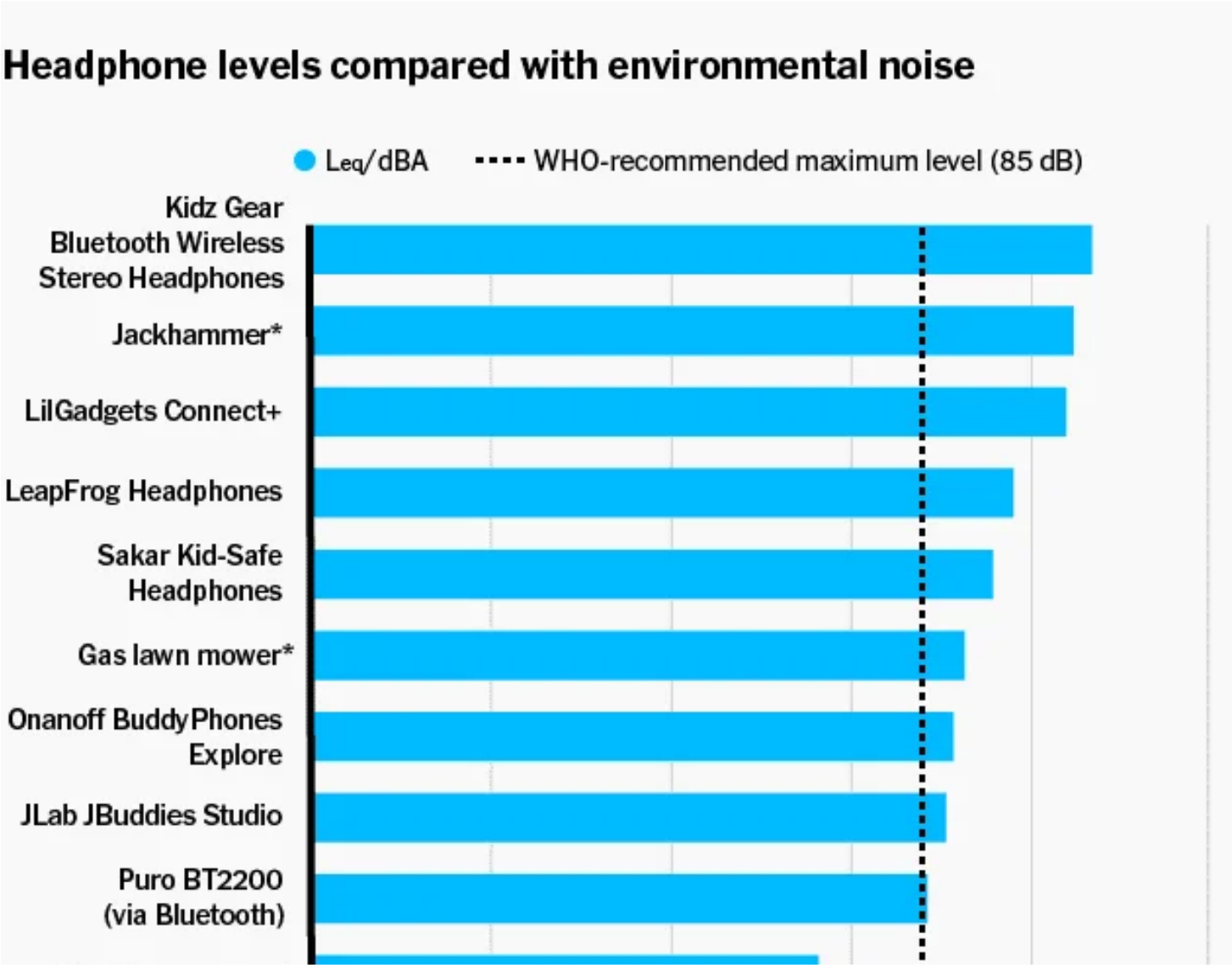
For tweens and teens, a pair of concert earplugs is subtle, surprisingly cool looking, and easy to attach to a keychain. Fortunately, hearing protection is regulated, so any set that has an appropriate noise reduction rating (or NRR) and fits snugly should be helpful in reducing the risk. Generally speaking, the louder the noise and the longer the exposure, the higher the NRR you should have. You can read more in our guide to concert earplugs.

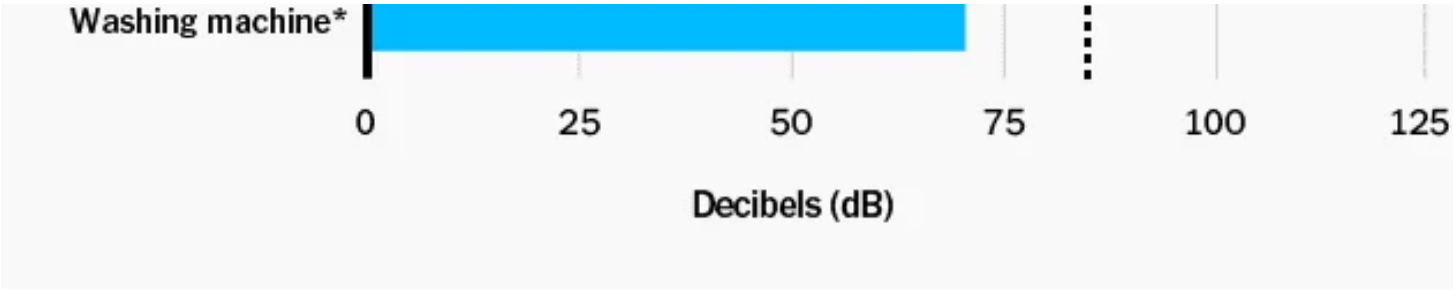
Use volume-limiting headphones for younger children

A 2010 Kaiser Family Foundation study found that children ages 8 to 18 devote an average of seven-plus hours daily to the use of entertainment media. That's equivalent to the time spent at a

full-time job—and if they're listening in excess of recommended volume levels and have exposure to more noise throughout their day, that could mean potential trouble. A 2016 study of 9-year-old children in Sweden concluded that increases in hearing damage could be interpreted as being related to headphone use, and another study found that loud music, clubs, and other forms of "leisure noise" are common causes of noise-induced hearing loss, tinnitus, and hyperacusis.

When you're buying headphones for younger children, we recommend getting a pair that effectively limits the maximum volume to 85 dB as a helpful preventive measure. Unfortunately, unlike with hearing protectors, there is absolutely no regulation of these devices. As part of our testing for our guide to the best kids headphones, we set out to determine which, if any, of the headphones marketed for kids were actually safer to use. Immediately we found a problem: Nearly one-third of the kids headphones in our original test group exceeded safer volume levels. You can see some examples in the chart below.





The maximum volume of some of the original kids headphones we tested in 2016 compared with real-world sounds measured in L_{eq} (equivalent continuous sound level). We obtained these headphone measurements using pink noise at an average level of -10 dBFS, played at the maximum output level of an iPhone 6s. *Approximate dBA according to WHO standards.

We mostly encountered this problem with passive, wired headphones. Active headphones (in other words, internally powered ones) such as our favorite pair of kids headphones, the **Puro BT2200**, can employ a digital limiter that stops the sound from playing any higher than a certain volume level. We measure the volume limiting on every pair of kids headphones we test and keep a detailed database of the results, so if you're wondering about a certain pair, be sure to check our list (Google Sheets).

Of course, a volume-limiting circuit alone doesn't make for safe headphone listening. It's up to adults to monitor and limit a child's overall noise exposure through headphones. As we discuss above, the general consensus among experts is that an environmental noise level of 85 dBA is considered reasonably safe for only an hour of listening, so it's important for your child to take listening breaks if they tend to listen at the maximum allowed volume.

Use noise-cancelling headphones for kids who travel and for tweens or teens

Although listening at lower volumes is ideal, it's impossible to do so if the noises around you drown out the sound of your child's headphones. One of the biggest complaints we hear about volume-limiting headphones is that 85 dB isn't loud enough for use on an airplane. The noise levels in a typical plane can vary significantly. During takeoff and landing, noise levels inside the cabin can reach 105 dB. At cruising altitudes, the loudness sits around 85 dB, but older aircraft and certain areas of the plane, such as the back, can be even louder.

Some headphone companies have tried to address the problem by adding a higher "airplane" or "travel" setting that raises volume limits to around 92 dB, but to us that negates the safety feature that is most important in headphones for children. As you can see in the graph above, 90 dB is equivalent in loudness to a lawn mower—not exactly something you'd want to sit your child next to for hours on end.

The best way to counter this is to buy headphones that also reduce background noise, either through passive noise isolation (physically blocking the sound, in the way earplugs work) or active noise cancellation. Unfortunately, only a handful of the headphones we tested for our kids headphones guide provided notably effective passive isolation; specifically, they weren't great at blocking out sound in the audio spectrum (50 Hz to 2 kHz) that's typically loudest in the backseat of a car or plane, where we expect kids headphones might get a lot of use. This is why we recommend active-noise-cancelling headphones like the **PuroQuiet** pair for children who are frequent travellers on airplanes, subways, and the like. Active noise cancellation helps to bring down the loudness of the airplane hum so that safer, more moderate volume levels are sufficient.

Noise-cancelling headphones are also a good choice for tweens and teens who have moved beyond kids headphones, know how to work around kids headphones' volume-limiting technology, and tend to turn up the volume to tune out … well … everything. Lowering the level of external sounds may at least partially encourage them to listen at lower volume levels.

Make their devices safer, too

As with all things related to raising a kid, the bottom line is this: Supervision adds to safety. But it's challenging, what with the millions of other things to worry about. So here are a few additional steps you can take to protect your kids when you aren't right next to them.

Set volume limits on their mobile devices. Although you can't control every device your child uses (which is why volume-limiting headphones are useful), you can reduce the sound output on their mobile device.

Here's how to do that on an Apple iPhone or iPod touch running iOS 14 or higher:

1. Go to Settings. Tap *Sounds & Haptics*.

2. Next, tap *Headphone Safety*. You'll see the option to receive headphones notifications, which will pop up a reminder if someone is listening too loudly for too long, as well as reduce the volume if a person's seven-day loudness exposure limit is reached. Once you enable this feature, a calendar appears. This calendar tracks how many times the device has hit its exposure limit. It's a great way to check in on listening habits.

3. Under the calendar is an option to reduce loud sounds. Enable that, and you can move a slider down to a safer volume (it defaults to 85 dB). Just be aware that this setting isn't a failsafe;

wireless devices that aren't Apple-compatible can still go above that level if their volume settings are independent. Note too that a low dB setting in addition to a volume-limiting pair of kids headphones may make the headphones too quiet. You may need to make a few adjustments specific to your devices before setting the password lock.

[img]

Next you need to make sure that your tech-savvy kid won't be able to change the limits back. So you need to password-protect the Settings menu.

4. In the Settings menu, tap *Screen Time*, then *Content & Privacy Restrictions*.
5. Tap the button to enable *Content & Privacy Restrictions*.
6. Now scroll all the way down to near the bottom where it says *Reduce Loud Sounds*, and tap. Select *Don't Allow Changes*, and then tap *Back* at the top left.
7. Finally, you need to set a password to protect these settings. Go back to the Screen Time menu, and you'll see *Use Screen Time Passcode* in blue near the bottom. Tap it. Set a passcode, ideally one that's different from the one you use for the device's lock screen. (Don't forget this code! Maybe save it in a password manager.)

You're done!

iPads don't offer the complete suite of headphone safety tools, but you can limit the maximum headphone audio volume (in iOS 14 or higher) by enabling *Reduce loud sounds* in the Sounds settings menu and selecting your desired decibel limit. On older iPads, you can only set a general volume limit in the Music app through the Music settings menu.

Android mobile devices are a little dicier. Here's how to adjust the settings:

1. Open the Settings app on the Android device.
2. Tap *Sounds and vibration*.
3. You'll see a slider under *Media volume*. As we mentioned earlier, the WHO recommends roughly 60% volume for 60 minutes as a guideline for media consumption with headphones. If your child will be using standard, non-volume-reducing headphones, pull this slider down to about 60%.

4. Here's where it gets tricky. To be sure that the settings are password-protected, you need to install Google Family Link on both the child's device and an adult's device. Once you've installed it on both, have the device that the child will be using nearby.

5. Open Family Link on the adult's device and indicate that you're the "parent."

6. Follow the prompts on screen to log in to the child's device using your child's Google account.

7. A prompt will tell you that you'll be logged out of other accounts on that device. This means that you won't be able to check your adult account's email while using this device, as the only other account that can be signed in along with a child's account is an education account. Once your child's profile logs in, you'll be able to use the adult's device to set up restrictions. Keep the two devices near each other as you go through the process.

You're done!

Monitor usage. As we discussed earlier, it's not just the volume but also the duration of noise exposure that matters. Even when a child is listening at safer volume levels, that time can add up quickly. Consider that music isn't the only stuff kids have on their devices. Movies, TV shows, YouTube—if the volume veers even 5 decibels over the recommended 85 dB limit to 90 dB, the WHO's suggested total daily listening time drops to 2 hours 30 minutes. That's only a movie and a TV show.

Fortunately, you have a lot of parental controls that can track the time your child spends on a device. Whether you use built-in controls such as those on the Kindle Fire Kids Edition, Apple Screen Time, or Google Family Link, or a monitoring device or service like **Circle** or **Kidslox**, a time limit is a great way to give your kid's ears a break. If you want to learn more about the capabilities of these systems, Wirecutter has a guide to apps that manage your kid's phone usage. Of course, for little ones at home, you can go old-school and just set a timer.

Whatever methods you choose, the one-two punch of limiting volume and setting time limits for headphone use can reduce the risk of noise-induced hearing loss and the chronic problems it can create down the road.

Sources

Further reading

The Best Kids Headphones

The Best Over-Ear Headphones

The Best Headphones

The Best Headphones Under $100

See comments

Dismiss