PERSONAL PROTECTIVE EQUIPMENT

COMPLIANCE GUIDE

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These guidelines are intended to provide information to employers working toward compliance with certain provisions of Subpart I of 29 CFR 1910. This information is not considered a substitute for any of the aforementioned provisions. This guide was derived from OSHA standards and interpretations.

PERSONAL PROTECTIVE EQUIPMENT GUIDE

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APPENDICES

Appendix A - OSHA Interpretation Document

PERSONAL PROTECTIVE EQUIPMENT GUIDE

INTRODUCTION

OSHA's standards for the selection and use of personal protective equipment (PPE) in the workplace are contained in Subpart I of the General Industry Standards, 29 CFR 1910. Originally derived from ANSI standards issued in the late sixties, OSHA saw the need to modify these workplace requirements to reflect the current technology and improvements in PPE. On July 5, 1994, a final rule became effective which updated the standards to be more consistent with the later editions of ANSI standards. These revised standards provide guidelines for the selection and use of PPE as well as performance-oriented requirements, where appropriate. One principal performance requirement is a certified written Hazard Assessment of the workplace. From this Hazard Assessment, the employer would then select the appropriate PPE for a given hazard.

This process of Hazard Assessment, as required by 1910.132(d), is the focus of this resource document. We hope to offer ideas and suggestions to management seeking compliance with certain programmatic aspects of the personal protective equipment standard. The guidelines presented here are primarily derived from the appendices of Subpart I.

Excluded from consideration are the requirements of 1910.134 - Respiratory Protection and 1910.95 - Occupational Noise (Hearing Conservation). Guidance for complying with those standards may be found in other documents, "Respiratory Protection Guidelines" and "Hearing Conservation Program", also available from Safe State.

To make the best use of these materials, it is suggested that you first become familiar with the requirements of Subpart I. We also suggest that you coordinate your efforts with a Safe State consultant as part of an onsite survey to help identify workplace hazards.

OVERVIEW OF 29 CFR 1910, Subpart I

Subpart I of the General Industry Standards actually consists of many separate-but-related standards, all pertaining to personal protective equipment. They are:

1910.132 - General Requirements

1910.133 - Eye and Face Protection

1910.134 - Respiratory Protection

1910.135 - Head Protection

1910.136 - Foot Protection

1910.137 - Electrical Protective Equipment

1910.138 - Hand Protection

Standards 1910.133 through 1910.138 outline OSHA's specific criteria for PPE acceptability, i.e. selected equipment must meet minimum standards of performance per ANSI, ASTM, NIOSH, or other widely-recognized consensus standards. OSHA may provide you with some very specific information on how to select PPE, as in 1910.137 - *Electrical Protective Equipment*, or 1910.133 - *Eye and Face Protection*. By contrast, 1910.138 - *Hand Protection* - is much shorter and more broadly worded. To ensure compliance, employers are advised to obtain technical information on glove selection from the manufacturers or other recognized sources such as NIOSH, professional journals, publications, etc. Appendix B of Subpart I also offers more specific guidance on how to comply with various aspects of the Personal Protective Equipment standard.

OSHA standard 1910.132 - *General Requirements* - requires employers to assess the workplace to determine if hazards are present of if they are likely to be present. Based on this determination, the employer must select, and have each affected employee use, the types of PPE that will protect against identified hazards. PPE must properly fit each affected employee and the hazard assessment must be "certified" as such, in writing. Damaged or defective equipment must never be used in the workplace.

This standard also specifies minimum training which must be provided to each employee. Employees must understand when it is necessary to use PPE, what equipment is required, how to use or wear it, how to care for it, how to know when the equipment has reached the end of its useful life and how to dispose of PPE. At the conclusion of training, OSHA mandates that employees must be capable of demonstrating their knowledge and skill in the use of PPE. Failing that, retraining would be required. For more information on these issues refer to the training section of this guide and to Paragraph (f) of 1910.132.

GETTING STARTED WITH YOUR HAZARD ASSESSMENT

A recent addition to the OSHA Personal Protective Equipment Standard is a non-mandatory guideline for conducting Hazard Assessments. Found in Appendix B of Subpart I, this guideline suggests that a Hazard Assessment should include, at a minimum, an evaluation of the following seven hazard categories:

- 1. <u>Impact/Collision</u> (i.e. sources of motion hazards) Identify processes where the movement of tools, machine elements, etc. may injure employees. Impact/Collision sources could involve:
 - Moving machine elements
 - Moving or automated tools
 - Motorized truck or other vehicular activity
 - Flying particulate materials
 - Personnel traffic in congested areas
 - Objects placed on elevated surfaces
 - Falling or dropped materials
 - Breakable/shatterable materials
 - Unstable/unsecured equipment or materials
 - Tasks involving impact
 - Heavy or oversized items handled or transported
 - Low overhead clearance zones
- 2. <u>Penetration</u> Identify sources which may expose employees to penetration hazards. Penetration sources could involve:
 - Power and impact tools
 - Sharp or breakable materials
 - Sharp-edged equipment
 - Cutting tools
 - Compressed air
 - Flying particulates
 - Animal, insect hazards
- 3. <u>Compression</u> (i.e., rollover-type hazards) Identify rolling or pinching sources which would most likely involve the feet or hands. Compression hazard sources could involve:
 - Rounded or tubular materials
 - Stacked materials
 - Vehicular activity
 - Falling/dropped materials
- 4. <u>Chemical</u> Identify various types of chemical exposures which may cause external and internal bodily damage. Sources of chemical hazards could involve:
 - Flammable materials
 - Acid/alkali materials
 - Poison/toxic materials

- Carcinogenic materials
- Irritating substances
- Sources of splashing or aerosols
- Skin-absorptive substances
- Chemically-treated materials being handled
- Gases used/generated
- Sources of heating/combustion
- Sensitizing agents
- Hot work
- Dipping processes
- Chemical mixing
- 5. <u>Heat</u> Identify high temperature sources that could result in burns, eye injury or ignition of clothing, PPE, etc. Hazards arising from heat sources could involve:
 - Hot work
 - Heated chemicals or water
 - Heat treating processes
 - Open flames or heated elements
 - Molten materials
 - Extrusion/heat forming processes
 - Heat build-up from friction, electrical resistance, etc.
- 6. <u>Harmful Dust</u> Identify sources of dust hazards which could result in injury to the respiratory system or pose other systemic hazards. Sources of harmful dust could involve:
 - Grinding/chipping operations
 - Sanding/polishing operations
 - Cutting operations
 - Blasting
 - Molding processes
 - Compressed air usage
 - Animal/biological sources
 - Raw materials in particulate form
- 7. <u>Light (Optical) Radiation</u> Identify sources of light radiation which could result in injury to the eyes and/or other exposed areas of the body. Sources of light (optical) radiation hazards could involve:
 - Hot work operations (welding, brazing, etc.)
 - Furnaces
 - Heat treating
 - High intensity lights
 - High glare
 - Lasers
 - Curing processes involving light energy

It should be noted that your PPE Hazard Assessment would not necessarily be limited to the areas listed above. For example, operations involving the use of non-visible light, or perhaps energy from electrical sources, etc. would also be included in your Hazard Assessment if these sources are present in your workplace. The full range of hazards to be included in the Assessment would be expected to vary from workplace to workplace.

Other important factors to be considered in your Hazard Assessment would include:

- * Previous Accident Experience Including near-miss incidents, do your records demonstrate a need for personal protective equipment? Does your accident analysis take the use or absence of PPE into consideration? What are management policies regarding the use of PPE? Are disciplinary measures taken when employees fail to use PPE? Bear in mind that the <u>absence</u> of prior accident experience may have little or no bearing on your prospects for avoiding accidents in the future.
- * Layout of Work Area Is the layout of your workplace such that employees are working closer to hazard sources than is necessary? Is unauthorized traffic in hazardous areas a potential problem? Distance is a mitigating factor in reducing the opportunity for employees to become "involved" with hazardous sources. Is congestion a problem and, if so, how might that be relieved?
- * Engineering Out the Hazards Personal protective equipment may be expected to work within certain limitations. Aside from the physical limitations of these devices (ability to resist impact, prevent penetration, etc.) there is a performance limitation which was alluded to earlier. For PPE to do its job, your employees must remember to use it whenever needed. By engineering out the hazards, issues like this may be avoided altogether. Engineering solutions may include process redesign, guards, barriers, spatial redesign, ventilation, personnel or machine enclosures, etc.

SAMPLE HAZARD ASSESSMENT - OVERVIEW

As mentioned before, Paragraph (d) of the PPE General Requirements Standard, 1910.132, states that employers must "assess the workplace to determine if hazards are present or are likely to be present". Information gathered during this assessment would then be used to determine where PPE is needed or where it needs to be improved. In this section, you will find a Sample Hazard Assessment Form. It is provided as one example of how management might go about assessing hazards and PPE needs, as well as other types of employee protection (such as engineering and administrative controls). You need not feel confined to utilize this particular format. The performance-oriented nature of this standard gives employers great flexibility in performing these assessments. Entries on this Sample Hazard Assessment include:

Work Area: This may vary considerably, depending on the scope of your assessment. For small, low hazard workplaces, the work area may be the entire facility. In most

cases, it is expected that the work area covered by the Assessment may need to be subdivided by department. For work areas with many varied processes and potential hazards, the focus may need to be confined to specific processes within a department. Example - The "Work Area" may be a "Maintenance Shop".

Job:

For many reasons, looking closely at each individual job is regarded as the preferred method of analyzing potential workplace hazards. Enter the job being evaluated in this blank. Continuing our example, the "Job" may be "Maintenance Technician".

Hazardous Location:

This describes the specific work station being evaluated. This format assumes that there will be multiple locations in the work area to be considered. Back to our example; the "Hazardous Location" in the Maintenance Shop may include a "welding station", "drill press", "grinder", and "degreaser".

Hazard Type:

This describes the nature of the hazards associated with each location. For example, at the "welding station", we may expect Hazard Types to include "light radiation" (including UV), "heat", and "chemical" hazards.

Body Parts Exposed to Hazard:

Identify parts of the body most likely exposed to the hazard sources listed.

Prior Injuries/Complaints:

Indicate whether the hazards under review have already resulted in employee injuries or illnesses. This information is useful in helping to assess the degree of hazard severity and urgency. The absence of injury data should not be regarded as an indication of a non-hazardous condition.

Estimated Injury/Illness Risk:

Based on the nature of the hazards, the parts of the body affected, the severity of potential injuries, and prior accident data, the employer would estimate the risk of employee injury/illness to each hazard source.

PPE Required:

Indicate where PPE would be required to protect employees from each hazard source.

PPE Description:

Briefly describe the PPE to be selected and used for protection to each identified hazard source, as applicable.

Other Controls Needed:

Indicate whether engineering controls are needed to control the hazards identified by this assessment. Remember that PPE would need to be used by employees until engineering controls are installed and their effectiveness at removing/controlling the hazard is verified.

SAMPLE HAZARD ASSESSMENT FORM

| Department: | Date | |
|-------------|-----------------|--|
| | | |
| Job: | Evaluator Name: | |

| Tasks | Hazard Type | I | mated In Ilness Ris Med | jury/ sk High | Body Parts Exposed To Hazards | Prior Injury/ Complaints | PPE Required Yes/No | PPE Description | Other Controls Needed |
|-------|----------------|---|-------------------------------|---------------------|-------------------------------------|--------------------------------|---------------------------|--------------------|-----------------------------|
| | | | | | | | | | |
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ASSIGNING EQUIPMENT AND TRAINING YOUR EMPLOYEES

Under Subpart I, employees must be trained to know, at a minimum, the following:

- (a) When PPE is necessary;
- (b) What PPE is necessary;
- (c) How to don, remove, adjust and wear PPE;
- (d) Limitation of the PPE; and,
- (e) Proper care, maintenance, useful life and disposal of PPE.

Information accumulated by your Hazard Assessment will be important in addressing requirements (a) and (b). You will also need to use information from PPE manufacturers and your in-house inspections to fully address the remaining elements.

OSHA will expect each trained employee to be capable of demonstrating their understanding of the training material and their ability to use the PPE prior to being assigned to tasks for which PPE is required. To have a successful training program, you need to set measurable training objectives. You should plan to test your employees' knowledge and abilities and document the results. If an employee fails to demonstrate proficiency and understanding on the subjects listed above, he/she must be retrained until satisfactory results are obtained. Only at that time may that employee be permitted to work in areas where PPE is required.

Retraining may also be required when (1) changes in the workplace render obsolete any previous training, (2) changes in the types of PPE to be used renders previous training obsolete or (3) there is evidence of any type which indicates that employees have not retained the knowledge and abilities required by this standard. A written certification must be maintained of your training activity. A sample training and PPE specifications form is attached for your guidance.

INDIVIDUAL RECORD OF ASSIGNED PERSONAL PROTECTIVE EQUIPMENT (PPE)

| Employee Name: | Job Title: |
|---|--|
| Department: | |
| ASSIGNED PPE | SPECIFICATIONS |
| | |
| | |
| | |
| | |
| Training Date | Topic |
| hazards. Information a How to put o Limitations o | and training on when to use PPE to protect against workplace and training on the specific types of PPE available for use. In, take off, adjust, and wear PPE. In PPE provided. In ance, useful life and disposal of PPE. |
| Employee Statement: | |
| | y my employer on the topics and dates listed above and have instrate my understanding of these topics and to demonstrate crive equipment provided to me. |
| Employee Sig | gnature Date |
| Employer/Trainer Statement: | |
| I certify that the employee named or proficiency and understanding of the | n this individual record has demonstrated adequate e topics listed above. |
| Employer/Tra | ainer Date |

SAMPLE SUMMARY STATEMENT OF CERTIFICATION

| Company Name: | | |
|--|--|---|
| Location: | | |
| workplace hazards requiring the u 1910.132(d) of the OSHA Genera | se of Personal Pro I Industry Standar s assessment has b | , a comprehensive assessment of otective Equipment, as required by 29 CFR ds, was conducted at this facility. The been evaluated and, where required, issued to affected employees. |
| The person(s) re | esponsible for per | forming this assessment: |
| Printed Name | | Job Title or Affiliation |
| Signature | | Date |
| Printed Name | | Job Title or Affiliation |
| Signature | | Date |
| As management representative for conducted. | this facility, I cer | rtify that this Hazard Assessment has been |
| Employer Representative Printed Name | Job Title | Date |
| Signature | - | |

PERSONAL PROTECTIVE EQUIPMENT - FAQ

- Q. If I document my employee training on PPE, will that protect me against being cited by OSHA?
- A. Not necessarily. Just documenting that you have trained an employee is not a guarantee of compliance, for PPE or any other training-required standard. That is why OSHA has specifically stipulated in Paragraph (f)(4) of 1910.132 that employers verify the adequacy of their training efforts by getting the employees to demonstrate their understanding. OSHA's philosophy is that whenever an employee is observed performing his or her job in an unsafe manner, some lack of training (or lack of understanding of training) is often the root cause of the problem. Testing your employees and getting them to demonstrate their ability to use and care for PPE reinforces their learning experience and gives you some sense of where they sit on the learning curve.
- Q. What do they mean by "Limitation of the PPE"?
- A. If you have ever looked in a good catalogue of safety equipment, you will notice that there is a huge variety of PPE on the market and not all PPE is created equal.

Some types of PPE are simply not appropriate for use in certain situations. For instance, let's say you have maintenance employees working in a shop area where they have been assigned to wear ANSI-approved safety glasses with side shields for protection against flying particles generated at various grinding machines. One of these employees is called away to work in a treating area where dip tanks are located. Assigned PPE in the treating area consists of chemical-protective splash goggles. If your maintenance employee entered the treating area wearing his safety glasses, his eyes would be potentially exposed to mists or splashes of highly irritating chemicals. In this case, he should have been more aware of the "limitations" of his safety glasses and recognized that he should have donned protective goggles prior to entering the treating area.

Some limitations are imposed by incompatibilities of barrier material with chemical agents. Chemical resistant gloves, suits, etc. are rated on the ability to prevent contact with special types of chemicals. This performance is usually rated in terms of "breakthrough times", that is how long it takes for a particular chemical to pass through a particular barrier material under test conditions.

This kind of information should be obtained from manufacturers (or from other reputable sources of technical information such as NIOSH, OSHA, etc.) and used to determine (a) What types of barrier materials are best suited for working with a specific chemical (or combination of chemicals); (b) How long you can possibly expect the barrier material to remain effective (i.e., determining the "useful life"); and, (c) What types of barrier materials are ineffective for protection. For instance, according to one source, butyl rubber will protect hands for more than 8 hours of contact with the chemical formaldehyde; however, <u>natural</u> rubber gloves will provide less than 1 hour of protection against the same chemical. Depending on anticipated usage and frequency of glove changeout, this information should be considered when selecting optimal protection.

- Q. Who pays for PPE? Can I provide PPE to my employees at a reasonable charge or require them to go purchase PPE?
- A. In some cases, you may be able to do that, but more often than not, the employer will bear the cost of providing PPE. This seems to be particularly true of PPE which has no other useful application outside of the workplace. OSHA has issued a position statement on this question and we have included that memo in Appendix A of this document.
- Q. If our employees work with heavy materials which could possibly cause, say, foot injuries but we have never had any of these injuries in the past do we have to provide foot protection?
- A. According to the guidelines provided by OSHA in Appendix B of the PPE standards, injury/accident data should be reviewed to help identify problem areas. In this case, it would appear that prior experience is not a factor which suggests the use of foot protection. OSHA also says, however, that you must protect employees from hazards which are "likely to be present". It seems that your analysis should perhaps evaluate such issues as (1) What are the weights involved? (2) What would be the maximum falling distance and force transferred to the foot if materials were dropped? (3) What would be the likely outcome? (4) Have your employees experienced any "near-miss" incidents? (5) Is there something about your method of materials handling which correlates to your good record and is this something that you can ensure will always be in place? This is all part of evaluating risk and the decisions that you make can have great impact on your success with preventing future accidents.
- Q. Must all eye protective devices be equipped with side protectors?
- A. No, not in all situations. However, side protectors are required when it is determined (through the hazard assessment) that there is a hazard from flying objects.
- Q. May side protection be detachable?
- A. Yes. Detachable side protectors (i.e., clip-on or slide-on side shields) are permitted if they meet pertinent requirements of 1910.133.
- Q. Is it okay to wear contact lenses with eye protection?
- A. Yes. OSHA believes that contact lenses do not pose additional hazards to the wearer. However, it is important to note that contact lenses are not eye protective devices.

- Q. Since PPE manufacturers are not required to obtain third party certification that their equipment has been tested in accordance with OSHA specifications, what should employers doe when purchasing PPE?
- A. Employers may request the manufacturer to document that the PPE has been tested to meet specified criteria and employers can determine if the PPE is marked as meeting the pertinent ANSI standard. For example, head protective equipment should be marked as meeting ANSI Z41.1. Many PPE manufacturers voluntarily obtain third party certification anyway, so when purchasing PPE, check beforehand to see if the equipment you seek has such certification.
- Q. Does the Hazard Assessment have to be in writing?
- A. Employers are required to verify that the hazard assessment has been performed through a written certification that identifies the workplace evaluated; the person certifying that the evaluation has been performed; the date(s) of the hazard assessment; and, which identifies the document as a certification of Hazard Assessment.
- Q. Many female employees have complained that they have to wear PPE that does not fit properly because PPE has been sized to fit only male employees. Is this situation going to continue?
- A. No. One of the new requirements of the PPE standard is that employers must now select PPE that properly fits employees [per 1910.132(d)(1)(iii)]. PPE is now available in many different sizes and can be adjusted to many sizes (such as head protective devices). Even protective footwear is now available in sizes that will properly fit female employees.