

# CHAPTER 6

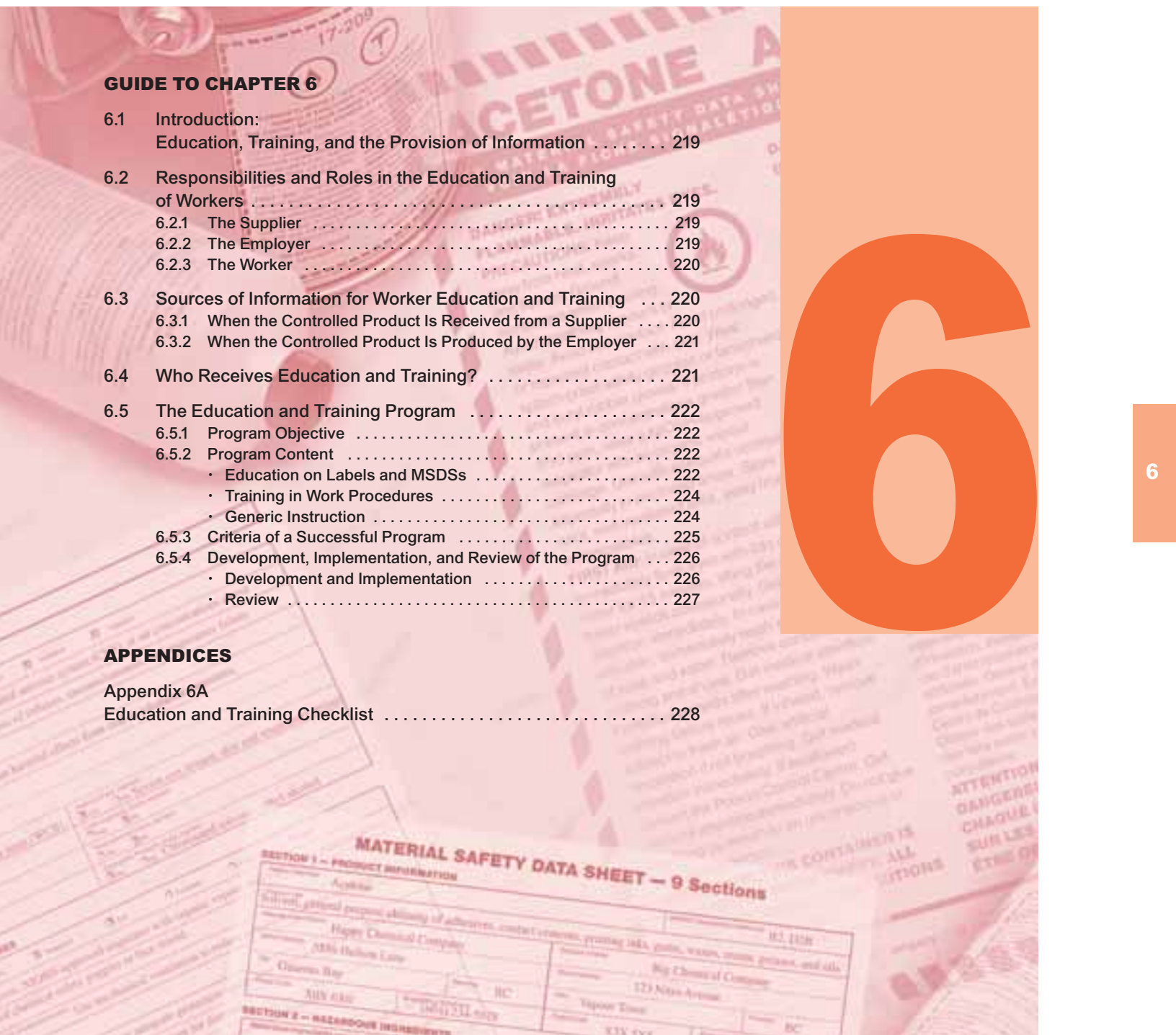
## Worker Education and Training

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## 6.1 Introduction: Education, Training, and the Provision of Information

Educating and training workers about controlled products is an essential part of the WHMIS information delivery system. Legal requirements for worker education and training are adopted through the various occupational health and safety regulatory agencies, based on the WHMIS Model OSH Regulations.

Providing both theory and practice

Effective education and training of workers involves all activities that enable workers to work safely with or in proximity to controlled products in the workplace. These activities include both an explanation of facts—for example, the hazards of controlled products, the WHMIS system, product labels, and MSDSs—and practical instruction in safe, specific procedures developed from WHMIS information.

Providing hazard information

Also, under WHMIS, the employer must provide workers with hazard information received from suppliers as well as any information of which the employer is or ought to be aware. A large part of this responsibility will be discharged through programs of instruction. However, some information, such as updates on a product, may be circulated to workers by less formal means such as announcements at staff or tool-box meetings, or information circulars.

## 6.2 Responsibilities and Roles in the Education and Training of Workers

### 6.2.1 The Supplier

The supplier has no direct responsibility for the education and training of workers. The supplier does, however, play a role in the process by providing up-to-date supplier labels and MSDSs as a condition of sale/importation.

### 6.2.2 The Employer

The employer has the basic responsibility for educating and training workers. Specifically, the employer must meet these requirements:

Provision of hazard information

- Provide, on each controlled product *supplied* to the workplace, all hazard information received from the supplier and any additional information of which the employer is or ought to be aware on the storage, handling, use, and disposal of the controlled product.
- Provide, on each controlled product *produced* in the workplace, all hazard information of which the employer is or ought to be aware on the storage, handling, use, and disposal of the controlled product.

Worker education

- Develop and implement a program of worker education on controlled products that covers:
  - The principles and application of WHMIS
  - The required content, purpose, and significance of information on WHMIS labels and MSDSs
  - The use of other means of identification such as signs, placards, or colour, number, letter, or other codes used with transfer or reaction systems and wastes

Worker training

- Develop and implement a training program covering:
  - Procedures for the safe storage, handling, use, and disposal of controlled products
  - Procedures to be followed in an emergency involving a controlled product
  - Procedures to be followed when fugitive emissions are present

Application of information

- Ensure, as far as reasonably practicable, that the education and training program results in workers who are able to apply the information to protect their health and safety.

Computer training

- Train employees (at least one per shift), a health and safety representative, or any members of the joint health and safety committee to access computer-stored MSDSs, if MSDSs are stored on a workplace computer terminal.
- Review the education and training program **at least annually**, but more frequently if work conditions change, new or reformulated products with different hazards are used, or new hazard information becomes available.

Program review

- Provide further education and training if a review indicates that workers are not adequately informed. (The four questions on page 225 can be used to determine if workers are effectively educated and trained.)

Consultation

- Consult with the joint health and safety committee (if any) or health and safety representative (if any) during the development, implementation, and review of the education and training program. An employer has consulted with the joint occupational safety and health committee (or representative) about WHMIS education and training if two conditions are met:
  - Before the program is finalized, the committee (or representative) has the opportunity to review and provide information or advice on the entire program including its content, structure, and means of implementation. *Content* includes education about the WHMIS system and the hazards of controlled products, as well as training in safe work and emergency procedures. *Means of implementation* includes choice of instructors and the use of any in-course evaluation.
  - After the program is implemented, the employer asks for information and advice from the committee on the effectiveness of the program.

### 6.2.3 The Worker

While the employer is responsible for providing education and training, the worker must:

- Receive and learn the information that the employer is required to provide
- Inform the employer if the worker has inadequate information on a controlled product or insufficient training on its storage, handling, use, or disposal to ensure worker health and safety
- Work with the employer in the development, implementation, and review of education and training programs on controlled products, when acting as a health and safety representative or a member of the joint health and safety committee

## 6.3 Sources of Information for Worker Education and Training

The information sources on a controlled product that an employer must use when establishing a worker education and training program will depend, in part, on whether the product is received from a supplier or is produced in the workplace.

### 6.3.1 When the Controlled Product Is Received from a Supplier

Types of hazard information

The employer must ensure that employees who work with or in proximity to the product are informed about:

- All hazard information received from the supplier concerning the product
- Any information of which the employer is aware or ought to be aware concerning the product's storage, handling, use, and disposal

Hazard information from the supplier will normally be on the label and MSDS. However, a supplier may also provide information in the form of a letter (for example, in response to inquiries from the employer) or a circular warning of new hazard information for previous customers who may not have received a revised MSDS.

The employer should be aware of any additional information on the product. Appropriate sources include:

- Publications and computerized information available from the CCOHS or the CSST
- Publications from industry or trade associations of which the employer is a member and labour organization(s) representing workers at the workplace
- Publications of the regulatory agency with jurisdiction at the workplace

The employer may not need to consult every reference on this list if, for example, a supplier has already included, on the supplier MSDS, information from a reference. Likewise, the employer is not limited to the references on the list.

Chapter 8, "Resources," provides information on obtaining many of these and other reference materials.

### 6.3.2 When the Controlled Product Is Produced by the Employer

In this case, the employer must ensure that employees who work with or in proximity to the product are informed about all hazard information of which the employer is aware or ought to be aware concerning the controlled product and its storage, handling, use, and disposal.

This requirement means that the employer must inform workers about all classification information that brings the product into the WHMIS system, and provide any additional information related to the product as discussed in 6.3.1.

Chapter 8, “Resources,” includes a section of information on all reference documents specified in the *CPR* for classification.

## 6.4 Who Receives Education and Training?

Education and training must be provided to all workers who work with or in proximity to a controlled product. A *worker who works with a controlled product* is any worker who stores, handles, uses, or disposes of a controlled product or who immediately supervises another worker performing these duties. *In proximity* refers to the area in which worker health and safety could be at risk during:

- The storage, handling, use, or disposal of the product
- Maintenance operations
- Emergencies such as accidental release or spill

The physical area of risk depends on factors such as the quantity and form (gas, dust, liquid or solid) of the product, the extent of enclosure during use, scheduling of work activity, and persistence of the product after its release.

#### Examples:

- Bulk quantities of chlorine are piped above ground from the receiving point at a pulp and paper mill to a location onsite for use as a bleaching agent. Education about the hazards of chlorine will be required for all workers at the plant, at minimum, for emergency evacuation.
- A bottle of formaldehyde is received at a hospital for transfer to a laboratory. Instruction on the product will be required for the shipper/receiver, the worker who takes the container to the laboratory, the lab personnel who store, handle, use, or dispose of the product, the workers responsible in emergencies with the product, and the appropriate supervisors.
- Boxes of welding rods are received by five welders in an assembly area at an auto manufacturing plant employing 600 workers. No workers other than the welders are likely to be exposed to welding fumes. Instruction will be required only for the five welders and appropriate supervisors (and for first aid personnel if exposure could produce acute ill health effects).
- In a retail store, information/instruction must be provided to those workers who routinely handle large quantities of controlled products (including those regulated as consumer restricted products) and those who may be exposed to harm as the result of a spill or other accident (for example, warehouse staff).

## 6.5 The Education and Training Program

An organized program of instruction must be provided to workers at risk of exposure to controlled products. The program must achieve a basic objective, provide specified areas of content, be established in cooperation with safety and health committees or representatives when required, and be reviewed and upgraded regularly. Appendix 6A, “WHMIS Education and Training Checklist” summarizes the essential elements of the education and training program.

### 6.5.1 Program Objective

The basic objective is to ensure, as far as reasonably practicable, that workers receiving education and training are able to apply the information to protect worker health and safety. This objective has several implications:

Occupation-specific training

- While everyone who works in proximity to a controlled product is likely to receive the same basic education and training on the product, the content may vary from worker to worker depending on the work they do. For example, a warehouse worker may need detailed information on storage and handling while a first aid attendant requires information on toxicological properties and emergency measures. Similarly, office workers at a pulp mill will not need procedures training in the storage, handling, use, or disposal of chlorine, but will need training in emergency procedures in the event of a major gas release.

Integrated hazard prevention program

- Instruction must be integrated into the overall hazard prevention program in the workplace. Procedures training must take into account not only the information available from the label and MSDS, but also the particular circumstances of the workplace. Knowing that the MSDS suggests a particular type of respirator for protection against a product is not enough—the worker must know where to obtain and use the respirator; how to test for fit; and, where necessary, how to maintain and store it.

Demonstrated skills and knowledge

- The proof of a successful program is the ability of workers to demonstrate both safe procedures with controlled products and a knowledge of the reasons for those procedures.

### 6.5.2 Program Content

Employers must provide instruction on each controlled product supplied to or produced in the workplace. Instruction will be of two kinds:

Overall content

- Education about labels, MSDSs, and identifiers
- Training in safe work procedures

Education on labels, MSDSs, and identifiers will include an explanation of the content WHMIS requires on these information sources as well as an explanation of the purpose and significance of the information on the documents for each controlled product. Procedures training will be based not only on the content of the applicable label and MSDS, but also on the specific circumstances in the workplace affecting the likelihood of exposure to the product and the appropriate corrective measures.

#### Education on Labels and MSDSs

Labels, MSDSs, and other means of identification

Workers must be taught the content required on the supplier label, workplace label, and the MSDS, as well as the purpose and significance of the information contained on these information sources for each controlled product. In addition, workers must learn to identify products labelled with other modes of identification (such as colour coding, numbers, or abbreviations) and know how to obtain additional information on the product from MSDSs or WHMIS labels.

### *Required Content:*

#### Required elements

Workers must be instructed in the elements of information required on the different types of supplier labels found in the workplace, the elements of workplace labels, and the categories and associated information elements of the MSDS.

For example, for the standard supplier label, workers must be told that the label has a distinctive hatched border and contains seven basic elements of information (product identifier, supplier identifier, hazard symbols, risk phrases, precautionary statements, first aid measures, and a statement advising that an MSDS is available). If other types of supplier labels are found in the workplace, for laboratory supply house chemicals or laboratory samples, for example, workers will need to know the different types of information that must appear in each case.

### *Purpose of Information:*

#### Purpose

*Purpose* refers to the reason information is present. For example, workers must be instructed in both:

- The purpose of the label as an alert and of the MSDS as a supportive technical document
- The purpose of the various elements on the label and MSDS: for example, the hazard symbol quickly and clearly communicates the WHMIS hazard Class(es) and Division(s) of the product, and the odour threshold and exposure limit of an organic solvent help determine the warning properties of the product

### *Significance of Information:*

#### Significance

*Significance* refers to how the employer and worker must respond to the information provided for a specific product, and what they must do to ensure worker health and safety. For example:

- The corrosive material symbol on the supplier label signifies to the employer and worker the need for protection against corrosive effects, particularly for the skin and eyes and, if airborne, the lungs. The employer and worker must examine the MSDS with particular attention to information related to corrosive effects. Appropriate control measures must then be implemented.
- An odour threshold of 20 ppm and a short-term exposure limit of 1 ppm for a product as reported on an MSDS signifies very poor warning properties, and alerts against the use of air-filtering respirators to protect against toxic effects.
- A skull and crossbones symbol on a supplier label signifies that the product is poisonous, considered either “very toxic” or “toxic,” and is capable of causing immediate and serious toxic effects and possibly other toxic effects such as adverse chronic effects. The symbol prompts the employer and worker to ensure that workers are instructed in the type(s) of toxic effect(s) and the measures needed to protect against exposure.

An important point to address when educating workers on the significance of symbols is the incorrect assumption that the presence of the skull and crossbones symbol signifies acute effects only. A product may be included in WHMIS Class D because it meets criteria for Division 1 (immediate and serious toxic effects) as well as Division 2 (other effects); however, while the supplier must provide the skull and crossbones symbol in this case, the stylized “T” signifying Division 2 is optional.

#### Non-WHMIS symbols

If an employer uses a non-WHMIS hazard symbol system (such as icons representing different forms of personal protective equipment) on workplace labels, the employer must educate workers on the significance of that system. This education must include the meaning of each symbol, the criteria used to assign symbols to products, and the differences between such workplace symbols and WHMIS hazard symbols on supplier labels.

For example, the NFPA symbol system relies on a set of number and colour codes (for more information on the NFPA system, see Appendix 4B, “Labelling Requirements and Standards Outside Canada” in Chapter 4, “The Label”). Workers must know the meaning of the codes, including the criteria used for assigning a colour/number combination to a product. Workers must know that the NFPA system has limitations and is intended to apply to acute effects resulting from short-term exposure to products in emergency situations. Workers using such symbol systems must be aware of all the additional hazard information that WHMIS labels and MSDSs would provide.

### Training in Work Procedures

#### Procedures training

WHMIS requires that four areas of procedures training be provided, where applicable, to workers:

- Safe storage, handling, use, and disposal of a product
- Safe storage, handling, use, and disposal of a controlled product contained or transferred in any of the following:
  - A pipe
  - A piping system including valves
  - A process vessel
  - A reaction vessel
  - A tank car, tank truck, ore car, conveyor belt, or similar conveyance
- Measures to be followed in case of an emergency involving a controlled product
- Procedures to be followed when fugitive emissions are present.

Procedures training must be based on written, safe work procedures developed by the employer, who has taken into account both information from labels and MSDSs and the specific circumstances of the worksite. The type of training provided to workers will depend on the nature of their work. For example, maintenance staff in an ammonia refrigeration plant will require procedures training in all four types of procedures; in contrast, office workers on the site will likely need training only in emergency procedures in the event of a major gas release.

### Generic Instruction

#### Definition

*Generic instruction* refers to the instruction of workers in WHMIS hazard information without reference to specific products or worksites, for example, when workers are educated about the common hazards of a group of oil-based paints without reference to the specific characteristics and identity of each paint.

#### Application

Generic instruction is acceptable in the following cases:

- Instruction in the types of content required on supplier labels, workplace labels, and MSDSs.
- Instruction in how WHMIS works.
- Instruction in the hazards of a group of products with similar properties, for which a generic MSDS is acceptable (provided instruction in hazards peculiar to any one product in the group is given).
- Instruction in work procedures for a group of products if the procedures are basically the same for all the products in the group.
- Instruction in work procedures that apply to a variety of worksites if the work procedures are basically the same at each site.
- Preliminary stages of instruction in a multi-stage instruction program. For example, a construction industry education program might involve initial generic instruction of workers by trade schools or through programs provided by construction industry health and safety organizations, followed by on-site instruction in specific product hazards and procedures through extended tool-box meetings.

### 6.5.3 Criteria of a Successful Program

#### Testing

The employer is expected, so far as is reasonably practicable, to ensure that each worker has understood the material and is able to put into practice the procedures learned. Each employer must devise a means to determine if a worker has been properly trained. For example, the employer may ask the worker to take a written or oral test, or to participate in a practical demonstration.

#### “so far as is reasonably practicable”

The phrase *so far as is reasonably practicable* may apply to situations in which language or literacy problems make using oral or written means to determine what workers have learned difficult. However, in such cases, employers and supervisors are expected to base their evaluations on the actions of the employees.

Model OSH regulations do not require the employer to keep any records relating to the instruction program; however, records may help the employer demonstrate compliance with education and training requirements. In some jurisdictions, the existing occupational health and safety legislation requires records on education and training to be kept.

#### Education and training outcomes

Outcomes of a successful program include the abilities to:

- Identify and describe the information categories on supplier labels, workplace labels, and MSDSs
- Identify and describe hazard information, for a controlled product, that is significant for worker health and safety
- Identify the controlled product to which a mode of identification other than a label applies
- Describe and follow procedures for the safe storage, handling, use, and disposal of a controlled product, and procedures to follow in case of an emergency involving the product
- Describe and follow procedures required when fugitive emissions are present
- Gain access to MSDSs stored on a computer at the workplace (for workers selected for instruction in accessing MSDSs where required by regulation)

Adequately informed workers can be identified by the ability to answer four questions:

1. What are the hazards of the controlled product?

The answer must reflect the possible adverse effects of the material(s) in question to demonstrate an understanding of generic hazard information (education).

2. How are you protected from those hazards?

The answer must demonstrate knowledge of adequate workplace control of the hazard through engineering or administrative means or the use of personal protective equipment.

3. What do you do in case of an emergency?

The answer must show the worker's understanding of procedures to follow in the event of spill, release, fire, or poisoning involving the controlled product, and include the use of personal protective equipment where applicable.

4. Where can you get further hazard information?

This question focuses on the worker's ability to gain access to the significant information provided on labels and MSDSs. Workers must know how to interpret the supplier label, workplace label, and other means of identification applicable to the use of the product, and how to obtain information significant to health and safety from the MSDS.

## 6.5.4 Development, Implementation, and Review of the Program

### Development and Implementation

#### Criteria for development and implementation

The employer must ensure that a program of worker education and training is developed and implemented as part of the existing hazard prevention and control program at the employer's place of employment. The program must be developed in consultation with the joint health and safety committee, or the health and safety representative, if any.

The program must be based not only on information provided by labels and the MSDS, but also on the specific hazards posed by controlled products in each workplace and on the particular means present for their control.

For example, a supplier who sells paints containing an aliphatic isocyanate, a potent sensitizing agent, should be aware that the product may be used in a variety of ways, from spot touch-up to large-scale spray applications. Although the MSDS may describe a wide range of control measures, from hand protection and cartridge respirators to full body protection, airline respirators, general ventilation, and isolation procedures, the appropriate choice of control measure and the corresponding type of instruction program will depend on the specific workplace design and product use.

#### Consultation

Consultation with workers through the joint health and safety committee or representative will help ensure that the education and training program addresses the practical difficulties of product use in the workplace, and effectively communicates with the people who will be taught.

Conditions for review

## Review

The employer must review the program of instruction at least **once a year**, more often if:

- Conditions at the workplace change
- New information on a controlled product becomes available
- New products or reformulated products with different hazards are introduced

The review must take place in consultation with the joint health and safety committee or worker health and safety representative, if any. A variety of means exists for demonstrating that reviews have been conducted as required by law, through the minutes of the health and safety committee, for example.

The requirement for review does not mean that reinstruction automatically follows, but does identify any need for updating the program and, consequently, reinstructing the workers.

### Example:

Formal reinstruction of workers should not be required in the following situations:

- An updated MSDS received at the workplace provides new hazard information on the product. Management and the health and safety committee conclude that existing control procedures provide adequate protection against the newly identified hazard. After a review of the education program, they decide that the new information can be adequately communicated by posting a copy of the revised MSDS on the staff notice board and making announcements at tool-box meetings.
- A well-managed education program for concrete workers provides hazard education and procedures training not only on cement, but also on various additives and form release agents. At a large construction project, different types of form release agents will be used, in situations that range from spraying of non-erected forms in open air to application on vertical forms in enclosed spaces. After a review of the education program, the joint health and safety committee advises management that supervisors and workers have received enough hazard education on form oils to know when to switch from the use of disposable dust/mist respirators to cartridge respirators for protection against mists and vapours. Their recommendation is that management remind supervisors of the need to consider viscosity of form oil and the location of application when determining the minimum form of protection required.

## Appendix 6A WHMIS Education and Training Checklist

Activity	Assigned to	Date completed
<b>Development</b>		
Consult the occupational health and safety committee or worker representative on the development, implementation, and review of the program.		
Identify all controlled products used in the workplace.		
Evaluate the hazards of each controlled product.		
Identify WHMIS instructors, from either internal or external sources.		
Train instructors (if internal), or evaluate their qualifications (if external).		
Identify employees to be instructed—those who work with or near controlled products.		
Establish a process to identify new employees and contractors who require instruction.		
Evaluate labels and MSDSs to be used in the education program. (Check for clarity, accuracy, and completeness.)		
Evaluate safe work and emergency procedures to be used in education and training program.		
<b>Instruction</b>		
Provide a general introduction to WHMIS (for example, discuss responsibilities, labels, and MSDSs).		
Provide instruction on how to identify controlled products.		
Provide instruction on control measures and safe work procedures.		
Provide instruction on emergency procedures.		
Provide instruction on accessing information on controlled products.		
Evaluate the need for additional or specialized instruction to workers (for example, to those with language or learning difficulties) and provide this instruction where required.		
Provide instruction to workers whenever new products are received or new hazard information becomes available.		
<b>Follow-up activities</b>		
Evaluate workers' understanding of WHMIS, and provide further education and training as required.		
Review the effectiveness of the education and training program at least once a year. (Reviews must be done in consultation with the occupational health and safety committee or worker representative.)		