“Protective clothing” is a type of “personal protective equipment”. In addition to being used as working clothes or uniforms, it also protects workers against injuries caused by hazards such as contact with chemicals or flame, striking, stabbing, radiation, extreme cold, hot, or adverse weather conditions. This booklet provides practical guidelines in the selection and maintenance of protective clothing.

Besides providing employees with appropriate protective clothing and equipment, employers are also responsible for providing them with relevant information, instructions, training and supervision. Employers should also ensure that workers are aware of why they have to use personal protective clothing and equipment and how to use them properly.

Employees should co-operate with their employers by taking instruction, undergoing training and making use of the personal protective equipment provided.

Through co-operations between employers and employees, the potential safety and health hazards at work can be reduced, with work efficiency improved and unnecessary injuries prevented.

Selection of suitable protective clothing begins with thorough risk assessment.

Protective clothing is a degree of protection, material, design and labelling. We should select suitable protective clothing according to the results of the risk assessment. When concluding the assessment, the following should be noted:

1. Ensure that the risk analysis is in order. When assessing the risk, consider whether there are other safety measures that are more effective than using protective clothing.
2. Assess the risk in the workplace as a whole. When assessing the risk, consider whether there are other safety measures that are more effective than using protective clothing.
3. Assess the effectiveness of protective clothing against hazards and decide when protective clothing has to be used. Employers or other representatives should take part in the assessment. Based on the assessment, select the type and level of protection of the required protective clothing.
4. Assess the potential hazards related to the work concerned as the basis for consideration. Other information like accident rates, case studies on occupational diseases, results of chemical and physical analysis of the hazardous materials should also be taken into account. Moreover, the workbook and the guidelines provided by the protective clothing manufacturer should also be considered.
5. Document the assessment results as part of the company record on the provision of personal protective equipment.
6. Review the assessment methods and the relevant safety measures at appropriate time and recall when necessary.

Two important roles of protective clothing are:

a. To protect workers from the immediate effects of hazards. Although many materials and devices may provide complete protection against certain hazards, the protective clothing should also be able to provide some degree of protection against other hazards. As a result, the design and material used must be suitable for the level of protection required to protect the workers.

b. To assist in the lifting of loads by cranes or handling containers at container yards.

Tips for selecting protective clothing

1. Fire and heat resistance

- During the fighting, casting, welding or related processes, firemen or workers are exposed to fire and high heat. To avoid burns and severe scorching, fireproof and heat resistant protective clothing should be selected. For adequate protection for the work concerned, the resistance of the protective clothing against flame, radiant heat or direct contact with other heat source (such as sparks and metal material) should be verified by the management.

- The design of protective clothing for welders and casting workers should be free from pleat or pocket to prevent sparks or spatters of hot metal penetrating from the sleeves process from being trapped and burning holes in the clothing. For the same reason,爱尔兰protective clothing should have wide flaps; side pockets opening should be vertical.

2. Protection against chemical hazard

- When selecting protective clothing against chemical hazards, the following questions have to be addressed:

- Is the chemical in liquid or solid form (such as powder), acidic, alkaline or a solvent in nature?
- Is the protective clothing able to provide adequate protection against acid, alkali or solvent?
- Is disposable or reusable protective clothing to be used?
- Is the chemical protective clothing material impervious. Arrangement should be made for workers to work in shirts to avoid heat stress resulting from exhaustion under high temperature.

- A list of chemical proofing clothing materials is impervious.

3. Cold resistance

- When selecting protective clothing for a cold working environment, factors like temperature, humidity and strong wind may have to be taken into account.

- In cold and highly humid environment, the following have to be considered in particular:

- Is the work light or strenuous?
- Is the work to be carried out indoors or outdoors?
- Is the user exposed to windchills or adverse weather conditions?

- Selecting suitable underwear is another important issue. When working in a cold environment, avoid wearing underwear made of materials that absorb moisture, e.g. cotton, bamboo and wool, for moisture may lead to the cold and frostbite. In extreme condition, silk and wool is the best material out for underwear. If workers wearing wading, non-made materials such as nylon polycotton that is not absorb-moisture will make us feel warmer than cotton. The clothing material over the underwear should be of moisture absorbing material. The outermost layer in best made of breathabled clothing material.

4. High visibility clothing

- Many accidents resulting in injuries and deaths occur when workers are working in environments where they could not be easily seen. When making work arrangements, it is important to ensure that the work environment is such that workers could be easily seen.

- When selecting protective clothing for a cold working environment, factors like temperature, humidity and strong wind may have to be taken into account.

- Workers working along highways to set up signalling system for directing traffic, performing road works or street cleaning.

- Workers who must be seen to avoid being subject to danger at work, e.g. workers assisting in the lifting of heavy load or handling containers at container yards.

- The degree of visibility, the fluorescent materials and the position of reflective strips should be taken into account when selecting high visibility clothing. Reflective strips should be placed at the front and back. If workers need to bend down frequently, reflective strips should also be placed on the sleeves and trousers.

Guide on the types and use of protective clothing

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- Full body protective clothing that is made of fire resistant or heat resistant material for those who are working in metal casting, welding operation, etc.)
- Fireproof and heat resistant full body protective clothing (when used in conjunction with appropriate breathing apparatus, is suitable for work affected with acid, alkali or solvent) etc.

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5. Maintenance of protective clothing

- Wash protective clothing regularly to ensure that it is clean, hygienic and can provide adequate protection. Store it properly so that it can be more durable.

- Avoid storing protective clothing in the following environments:
  - high temperature;
  - humid;
  - dirty;
  - under direct sunlight;
  - with chemicals or chemical gases; and
  - with rats or insects.

- Place protective clothing that is not frequently used into its original packing and store in designated places.

- Examine protective clothing regularly. If damage is found, replace it immediately.

- Follow manufacturers’ instructions on the storage and durability of different personal protective clothing.

6. Comfort and cleaning

- Protective clothing should be well fit and comfortable. Try it on before buying. In addition, the following should also be considered:
  - Is flexibility or movement affected?
  - Is the clothing durable?
  - Is cleaning of the clothing easy?
  - What types of under garments should be used with the protective clothing?

- For certain protective clothing, such as full body protective clothing for handling asbestos, the way of how to handle it after use shall be considered.

- Read and understand the information on the labels on the protective clothing. Such information includes:
  - product name;
  - trademark or other means to identify the manufacturer;
  - types of product;
  - business name or coding;
  - size;
  - international safety standard that the clothing conforms to;
  - symbols (to indicate the appropriate environment for using it and the level of protection); and
  - cleaning instructions.

5. Beware of dangers caused by clothing

Protective clothing may pose hazards. For example, sleeves or pockets could be trapped by machinery or revolving drums. When operating machinery, workers should wear clothing that is not too loose but a tight-fit. Zips, buttons and other protruding features should be covered. Thread should be flat and only inner pockets are provided.

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Relevant publications

(1) A Guide to the Factories and Industrial Undertakings (Protection of Eyes) Regulations
(2) A Guide to the Factories and Industrial Undertakings (Dangerous Substances) Regulations
(3) A Guide to the Factories and Industrial Undertakings Ordinance (Section 6B) – General Guidelines of Persons Employed
(4) A Guide to the Factories and Industrial Undertakings Ordinance (Section 6A) – General Guidelines of Employers
(5) Code of Practice : Safety and Health at Work for Gas Welding and Flame Cutting
(7) Safety at Work – A Guide to Personal Protective Equipment
(8) Safety at Work – Use Eye Protectors (Chinese version only)

Enquiry

If you wish to obtain more occupational safety and health information, you may contact the Occupational Safety and Health Branch of the Labour Department through:

- Telephone : 2559 2297 (auto-recording after 8:00am)
- Fax : 2915 1410
- E-mail : enquiry@labour.gov.hk

Information on the services offered by the Labour Department and on major legislation can also be found by visiting our Home Page at http://www.labour.gov.hk.

Information on the services offered by the Occupational Safety and Health Council can be obtained through the hotline 2739 9000.

If you have any complaints about unsafe workplaces and practice, please call the Labour Department’s occupational safety and health complaint hotline on 2542 2172. All complaints will be treated in the strictest confidence.