

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



PERSONAL

PROTECTIVE

EQUIPMENT

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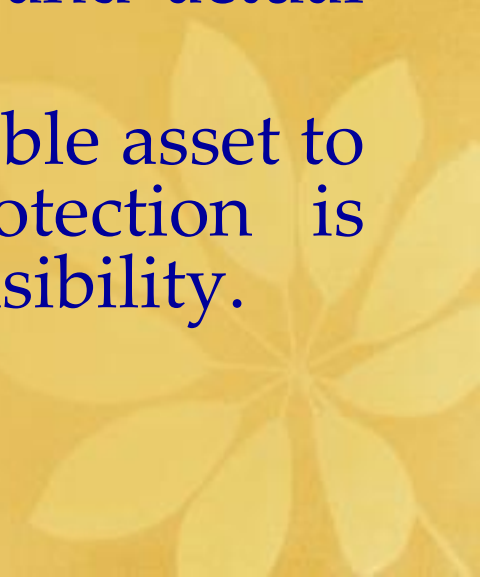
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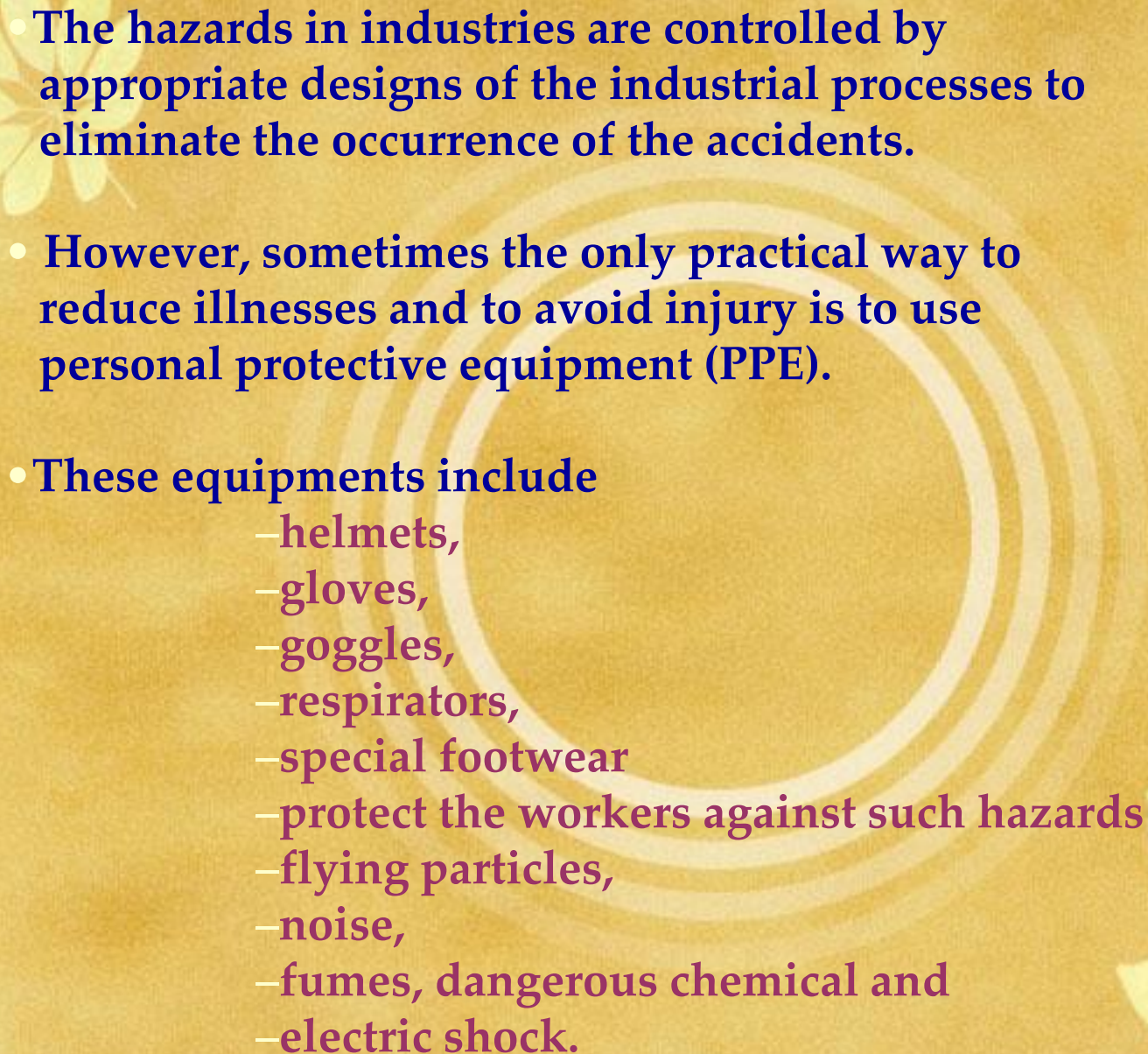
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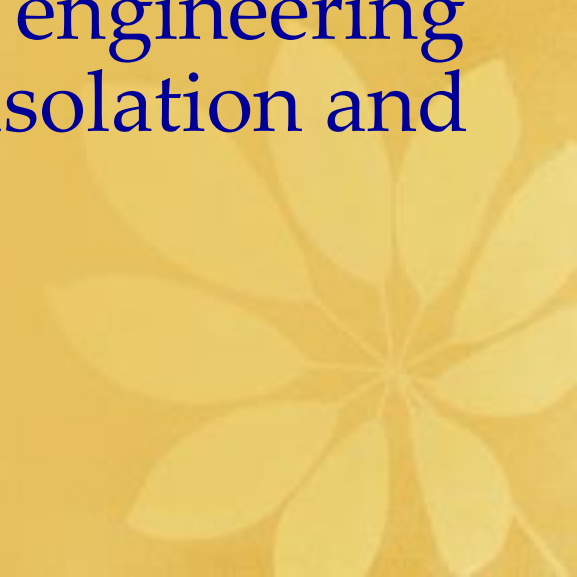




INTRODUCTION

- Life is a precious gift of the Lord Almighty and must be valued.
 - Quality of life lies in protecting it against the hazards of abuse, illness and accidents.
 - Managers, supervisors and workers respectively have the responsibility to maintain the quality of life by procurement, putting in use and actual proper use of protective equipments.
 - Each trained worker is the most valuable asset to an industry and his personal protection is collective as well as individual responsibility.
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- The hazards in industries are controlled by appropriate designs of the industrial processes to eliminate the occurrence of the accidents.
 - However, sometimes the only practical way to reduce illnesses and to avoid injury is to use personal protective equipment (PPE).
 - These equipments include
 - helmets,
 - gloves,
 - goggles,
 - respirators,
 - special footwear
 - protect the workers against such hazards
 - flying particles,
 - noise,
 - fumes, dangerous chemical and
 - electric shock.

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- Personal protective equipments have a major shortcoming;
 - these do nothing to reduce or eliminate the hazards
 - they are considered normally the last line of defense.
 - PPE dose not take the place of engineering controls such as substitution, isolation and ventilation.
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SELECTION OF PERSONAL PROTECTIVE EQUIPMENT

Six main considerations:

1. Extent of hazard must be determined

- Hazard's potential must be evaluated;
- How often it can recur and
- What potential damage it can make to the worker






SELECTION OF PERSONAL PROTECTIVE EQUIPMENT

Six main considerations: (Contd..)

2. Nature of hazard should be determined

- where it originates, what harm it can cause and chances of its occurrence

3. Appropriate equipment must be selected

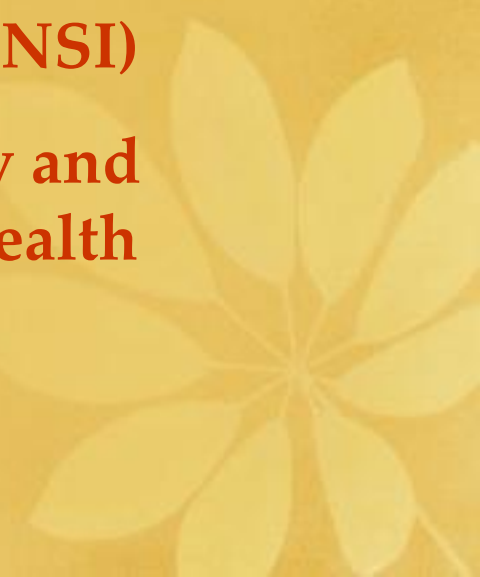
- Two dangers are present in selecting PPE. The danger of overkill and
 - The danger of selecting equipments which offers inadequate protection
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SELECTION OF PERSONAL PROTECTIVE EQUIPMENT

Six main considerations: (Contd..)

4. Safety compliance must be implemented


- For most protective equipment (head, eyes, face and foot protection, electrical devices) a laid down compliance is mandatory requirement.
 - American National Standard Institute (ANSI)
 - National Institute of Occupational Safety and Health (NIOSH); and Mines Safety and Health Administration (MSHA)
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SELECTION OF PERSONAL PROTECTIVE EQUIPMENT

Six main considerations: (Contd..)

5. Quality of equipment should be ensured


- Equipment which meets the ANSI Standards, NIOSH and MSHA approvals, the products are not all of the same quality.
 - A product of high quality will be easier to maintain and can be expected to have longer service life than less expensive equipment
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SELECTION OF PERSONAL PROTECTIVE EQUIPMENT

Six main considerations: (Contd..)

6. Economical, not the cheaper equipment


- Cost of equipment good protective equipments is an important factor.
 - It is important to determine how long the equipment will be needed.
 - It will be used for short period
 - Less expensive equipment may serve the same purpose
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SUITABILITY OF PPE TO THE INDUSTRIAL WORKER

- The Personal Protective Equipment should make a suitable good workable fitness to the industrial worker for getting the desired protection.
- A respirator face piece which does not fit properly to the worker's face will allow the toxic substance to enter the face piece and be inhaled by the worker

WORKER TRAINING BEFORE PPE USE

- Unless the person who are required to wear the equipment are trained and informed of its necessity, its proper use and its care and maintenance, protective equipment will do little to fulfill its purpose
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SUITABILITY OF PPE TO THE INDUSTRIAL WORKER

• Personal Protective Equipment may be classified according to the type of protection required from its use.

- Head protection
 - Eyes Protection
 - Face Protection
 - Hearing Protection
 - Respiratory Protection
 - Arms & Hands Protection
 - Body & Legs Protection
 - Foot Protection
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HEAD PROTECTION

For head protection PPE may be classed into three types

Helmet or Safety Hat



Bump Caps



Caps for Long Hairs



EYE PROTECTION



Goggles are the protection of eyes from damages by physical and chemical present in the work situations. These are absolutely necessary in such operations where extreme glare are likely to occur such as in the welding process.

In industry the eyes are exposed to a variety of hazards flying objects, splashes of corrosive liquids, molten metals, dust and harmful radiation. OSHA requires that eyes and face protection be designed to meet the performance for occupational eyes and face protection.

Absence of eyes protection may result into total or partial blindness, a disability which must be avoided most importantly.

FACE PROTECTION




- **Face shields of clear plastic** to protect the eyes and face of a person who is sawing or buffing metal sanding or light grinding or handling chemical
- **Face shield with metal screens** to deflect heat from a person working near furnaces
- **Babbling helmets consisting of :**
 1. a window made of extremely fine wire screen
 2. a tilting support
an adjustable Headgear
 3. a crown protector which is used to protect the head and face
 4. against splashes of hot metal



FACE PROTECTION (Contd.)

Welding helmets shield and goggles to protect the eyes and face against both splashes of molten metal and radiations product by arc welding

Acid proof hoods with a window of glass or plastic to protect the head face and neck of persons exposed to possible splashes from corrosive chemical



HEARING PROTECTION



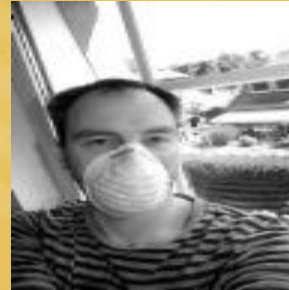
The need for personal hearing protection arises when source of control are not present, when a worker in the Industry cannot avoid a direct exposure to noisy equipment and tool. There are three types of personal hearing protection devices:

Disposable pliable material, such as fine glass wool, mineral fibers and wax impregnated cotton, may be inserted in the ear which must be fresh each day.

Ear plugs may be inserted into the ear. They must be individually fitted to the worker

Cup type protectors like ear muffs may be worn with the band over the head or the back of the neck or may be filled into the safety helmets

RESPIRATORY PROTECTION



Human respiratory system presents the quickest and most direct avenue of entry of toxic and dangerous gases into the body. It is internally and inextricably connected with the blood circulation system which needs to oxygenate tissue cells to sustain life process

To control the occupational diseases caused by the breathing air contaminated with harmful dust, fogs, fumes, mists, gases, smokes, sprays or vapor, the primary object shall be to prevent atmosphere contamination. This shall be accomplished as far as feasible by accepted engineering control measures.

When effective engineering control is not feasible or while they are being installed, the respiratory hazards may be present may be classified as under:

- **Oxygen deficient atmosphere**
- **Gas and vapor contaminates**
- **Particulate combination of gas vapor and particulate contamination**

TRAINING

Training program should include the following aspects:

- an opportunity to handle the respirator
- proper fitting exercise
- test of face piece to face seal
- a long familiarizing period of wearing

In normal air In the training of worker as well as supervisor it should also include:

- Discussion of the engineering and administration control in use and the need of respirator
- Explanation of the nature of respirator, hazard and the consequences of improper use.
- Explanation of respirator selection

INSPECTION

An important point in the maintenance program is the inspection of the devices. For example if a carefully performed inspection will identify damages or malfunctioning of a respirator. All respiratory equipment must be inspected before and as well as after each use.

During cleaning equipment designated for emergency use must be inspected after each use, during cleaning & at least monthly once a month. Self contained breathing apparatus must be inspected at least monthly a record in thus respect must be kept of inspection dates and findings for respirators maintained for emergency use.

ARAM AND HAND PROTECTION

Most of the accidents suffered by the industry workers are due to operating machine using tools or handling material. If protective gloves were worn to protect the hands from cuts and sliver when operating drills, lathes and other machine tool, the gloves themselves may become a hazard. They could snag in the revolving machine and may pull the hand in along. Safety guard devices and safe correct work procedures are the best line of defense.

Gloves, mitts and hand pads supplement good work practices to prevent hand injuries during the handling of material and using of tools. There is a glove suitable for protection against many hazards that can be named like abrasions, cuts, slivers, pinch point, oil and chemicals, radiation, electrical shock, cold, heat and fumes.

BODY AND LEG PROTECTION

The trunk and legs often require protection from the hazards of molten metal, sparks, splashing liquids, heat and cutting chips. Welders need aluminized aprons of fire resistant fabric or leather. Because of the carcinogenic properties of asbestos, it is recommended that it should be banished from use in the industry.

All parts of the body that might be exposed must be protected in addition to protecting the eyes, hands and arms.

FOOT PROTECTION

Personal protective foot wear can protect feet against such injuries as might result from falling objects, rolling objects or accidental contact with edged tools or sharp sheet metal. Protective footwear falls into two main classes: safety shoes or foot guard:-

- Safety Toe Shoes
- Conductive Shoes
- Electrical Hazard Shoes
- Foundry Shoes (molten substance)

SAFETY BELT

Last of the PPE is the safety belts, but it is more important among all the safety equipments as its used for the workers operating at height and along with respirator safety equipment under the tunnel or confined space. There the one end of the life line or anchorage rope is tightened to the safety belt and the other handled by the person standing outside the tunnel for rescue purpose in case of emergency.

Safety belts are made of leather, rubber and cotton webbing or synthetic webbing.

Generally webbing is superior to the leather resisting impact load. Webbing has greater strength and stretch then leather and can take an impact load of three to four times that of leather of the same size.

SUMMARY

Personal protective equipment is no substitute for engineering control. As a supplement to safe work practices however PPE provides safeguards against hazard common in the Industry flying particles molten metal chemical exposure splashing liquids excessive noise sharp object etc. Industrial operation and process are to take place in an environment where hazard have been evaluated and are being controlled equipment be selected wisely maintained properly and used carefully.

ACKNOWLEDGEMENT

I am indebted to Engr. C. L. Nankani, Chartered Engineer IEP and Safety Consultant, Kelash Safety Enterprises, Karachi, and a retired Joint Director, Health and Safety, Labour Department , Government of Sindh for his valuable contribution for this presentation.

LIFE IS VALUABLE

PROTECT YOURSELF

PROTECT OTHERS

PROTECT ENVIRONMENT



THANK
YOU

