DOMESTIC APPLIANCE MAINTENANCE

Lesson 13: Teacher's guide

Personal Protective Equipment (PPE) - Part 1

A. Uses and importance of gloves

B. Competencies

Main competency:

Safely handle simple tools, electrical components, and potentially hazardous materials.

Sub competency:

Use personal protective equipment (PPE) (for example, gloves) where necessary during maintenance

C. Learning outcomes

By the end of this lesson, students should be able to show understanding of the different types of gloves and their uses.

D. Resources and materials

Different types of gloves (if available):

i. Leather gloves
ii. Rubber gloves
iii. Electrical insulated rubber gloves
iv. Fabric/cotton gloves
v. Coated fabric gloves
vi. Latex gloves
vii. Plastic gloves
viii. Woolen gloves

E. Implementation guidelines

Introduction

There are various types of gloves that are commonly used, however in this sections we will focus on safety gloves and their importance.

Safety Gloves

Safety gloves are essential for workers who handle hazardous materials, chemicals, tools, or machinery. They protect the hands from injuries such as cuts, burns, punctures, abrasions, and infections. However, not all gloves are the same. Different types of gloves provide varying levels of protection, comfort, and dexterity. Choosing the appropriate glove for a specific task is crucial for ensuring safety and productivity.

1. **Leather gloves**

Leather gloves

Leather gloves are durable, flexible, and resistant to abrasion, heat, and fire. These gloves are suitable for tasks that involve handling rough or sharp objects, such as metal, wood, or glass. Leather gloves also offer a good grip and help prevent slippage. Some leather gloves feature liners or coatings to improve their protection against cold, moisture, or chemicals.

2. Rubber gloves

Rubber gloves

Rubber gloves are made from natural or synthetic rubber. Their primary purpose is to protect the hands while performing tasks involving chemicals. Rubber gloves can be worn during dishwashing to protect the hands from detergent and to enable the use of hot water.

3. Electrical insulated rubber gloves

Electrical insulated rubber gloves

Electrical insulated rubber gloves, also referred to as dielectric gloves, are a type of personal protective equipment (PPE) that protects the user's hands from electrical shock. They are constructed from non-conductive materials, such as rubber. Consequently, an electrician wears rubber gloves to protect him/her against electric shock and ensure his/her safety.

4. Fabric/cotton gloves

Fabric or cotton gloves serve as a thin, breathable layer between the worker's skin and the tools and materials they are handling. These gloves offer minimal protection against puncture hazards, sharp materials, open flames, and hot surfaces. However, they are effective in keeping hands clean and can help prevent minor scrapes and abrasions. Fabric gloves are occasionally used as liners worn inside larger safety gloves to provide additional warmth.

5. Coated fabric gloves

Coated fabric gloves

Coated fabric gloves are general-purpose gloves that provide enhanced puncture and cut resistance, protection from skin damage due to the alkalinity of concrete products. They are also more resistant to chemicals compared to standard fabric gloves. The coatings can be made from various materials, including latex and PVC (polyvinyl chloride). Furthermore, although coated fabric gloves offer some level of chemical resistance, they should not be considered a replacement for specialised chemical gloves.

6. **Latex gloves**

Latex gloves

Latex gloves are a common choice in the healthcare industry where protection against viruses is more critical than protection against chemicals. They are comfortable enough to wear for extended periods and are form-fitting enough to allow for unrestricted movement. The disadvantages include their ineffectiveness against chemicals, as rubber swells, softens, and weakens when exposed to many chemicals. Latex gloves are disposable gloves.

7. **Plastic gloves**

Plastic gloves

Plastic gloves are also disposable gloves that are used once and then discarded. They can protect your health as well as the health of the person you are caring for. They help prevent the spread of germs.

8. **Woolen gloves**

Woolen gloves

Wool fibres are designed to trap body heat, making woolen gloves excellent heat insulators. They are like cosy blankets for your hands.

NOTE TO TEACHER

Teacher may bring these different types of gloves (if available) to show to the students.

Safety Aspects

- Choose the appropriate type of gloves according to the specific hazards present and the voltage levels in the work environment. Adhere to safety regulations and guidelines to ensure compliance and adequate protection.
- Carry out regular inspections of the gloves to identify any signs of damage, wear, or deterioration. Check for cuts, tears, or other defects that may compromise their protective qualities and replace any damaged gloves without delay.
- Follow proper procedures for donning (putting on) and doffing (taking off) gloves to ensure maximum safety.

Conclusion

Summarise the key points:

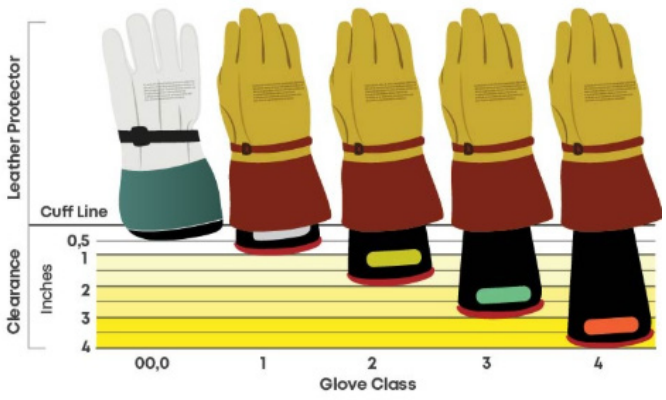
- The different types of gloves and their uses.
- The importance of each type of glove.

F. Assessment (in worksheet)

G· Extension activity

Encourage students to find out about voltage-rated gloves.

Natural Rubber Electrical Insulating Gloves			
Class Color	Proof Test Voltage AC/DC	Max. Use Voltage AC/DC	Insulating Rubber Glove Label
00 Beige	2,500 / 10,000	500 / 750	10 ASTM D120 CLASS 00 MAX USE VOLT 500V AC EN60903 TYPE I
0 Red	5,000 / 20,000	1,000 / 1,500	10 ASTM D120 CLASS 0 MAX USE VOLT 1000V AC EN60903 TYPE I
1 White	10,000 / 40,000	7,500 / 11,250	10 ASTM D120 CLASS 1 MAX USE VOLT 7500V AC EN60903 TYPE I
2 Yellow	20,000 / 50,000	17,000 / 25,500	10 ASTM D120 CLASS 2 MAX USE VOLT 17000V AC EN60903 TYPE I
3 Green	30,000 / 60,000	26,500 / 39,750	10 ASTM D120 CLASS 3 MAX USE VOLT 26500V AC EN60903 TYPE I
4 Orange	40,000 / 70,000	36,000 / 54,000	10 ASTM D120 CLASS 4 MAX USE VOLT 36000V AC EN60903 TYPE I



These ratings range from Class 00 to Class 4, with each class indicating the maximum voltage that the gloves can withstand. For instance, Class 00 gloves are designed for a maximum usage voltage of up to 500 volts, whereas Class 4 gloves can handle voltages of up to 36,000 volts. Additionally, each class is associated with a specific colour. For example, Class 00 is beige, Class 0 is red, Class 1 is white, Class 2 is yellow, Class 3 is green, and Class 4 is orange.