

**WEEK: NINE & TEN (9&10)**

**DATE:**

**CLASS: JSS 2**

**TOPIC: PROCESSING OF PLASTIC AND RUBBER**

### **PROCESSING OF PLASTIC AND RUBBER**

**Plastic** is a synthetic material made from a wide range of organic polymers, such as polyethylene, PVC, Nylon, etc. that can be molded into shapes, while soft, and then set into rigid or slightly elastic form.

#### **TYPES OF PLASTIC**

The two types of Plastic are;

1. **Thermosetting Plastic:** The type of plastic that do not melt when heated, but chars (burns) when heated.
2. **Thermoplastic:** The type of plastic that melts and turn molten when heated and solidifies when cold.

#### **METHODS OF PROCESSING PLASTICS AND USES**

1. **Extrusion:** During extrusion, plastic pellets or powder is fed into a heated cylinder. Rotating screws mix it and squeeze it through a die to give a finished or semi-finished products. Extrusion blow molding is used to make hollow articles; such as plastic bottles.
2. **Injection molding:** This is used to produce objects that have an awkward shape. During injection molding, the raw plastic is forced, into a mold under very high pressure. The mold is then kept at a certain temperature while the plastic becomes solid. The halves of the mold are opened and the finished plastic object is removed.

#### **USES OF PLASTICS**

Plastics are versatile in use, such as;

- a. Containers; Buckets, plates.
- b. Spoon, fork and bottles.
- c. Plastic wrapping, bags and packaging.
- d. Parts of electronic devices.
- e. Parts of cars.
- f. Chairs and tables etc.

The major difference between plastics and rubbers is that plastics are made from synthetic polymers while rubbers are made from latex.

## METHODS OF PROCESSING RUBBER

Rubber processing starts with the tapping of rubber trees to get latex. The latex is smoked to produce sheets of latex rubber.

The latex is chemically treated and heated to pre-vulcanize it. This is the beginning of the process of producing actual rubber. Vulcanization is a chemical process that changes natural rubber into stronger and usable rubber by sulphur addition. Synthetic rubber is made from petroleum base chemicals.

**Injection molding and compression moldings** are the two method of processing of rubber.

- a. Tyres- used from bicycles, automobiles to aeroplanes.
- b. Latex gloves
- c. Rubber bands
- d. Rubber pipes and tubes
- e. Rubber shoes and soles etc.

## ADVANTAGES AND DISADVANTAGES OF PROCESSING METHODS OF PLASTICS AND RUBBERS

### PLASTICS

S/n	ADVANTAGES	DISADVANTAGES
1.	Fairly cheap raw materials	Raw materials become expensive if Petroleum price rises.
2.	Easy to transport and work with.	Cannot be done as a home hobby or industry.
3.	Can be made into dozens of different products	Commercial production needs expensive machinery.
4.	Do not react with other products; plastics are safe.	Not always as tough as metals.

### RUBBERS

S/n	ADVANTAGES	DISADVANTAGES
1.	Very useful; there alternative or substitutes	Heavy rubber industries can cause air Pollution.
2.	Raw rubber sheets are easy to transport	Need specialize equipment and tools
3.	Can be shaped and molded into many different items.	An expensive industries to establish.

### Assignment

1. **In any two way, differentiate glass from ceramics**
2. **In any two ways, state the similarities between glass and ceramics.**