

UNIT 3 WOOD PRODUCTS AND WOOD COMPONENTS

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1.0 INTRODUCTION

The early migration of man including the exploration of the world are closely associated with the utilization of wood. Similarly, the advancement in science and technology has brought about diverse and more sophisticated uses for wood, such as lumber, poles, posts, wood veneer, plywood, particleboard, fibreboard, match splint, toothpick, transparent filament, charcoal, etc. Thus, there is also a close association between the level of economic development of a nation and the dependence of the nation on wood both in its conventional and modified forms.

2.0 OBJECTIVES

By the end of this unit, you should be able to explain:

- wood as a complex forest material, and
- the valuable uses of wood.

3.0 MAIN CONTENT

3.1 Wood

Wood is a complex material of biological origin derived from the forest such as trees, shrubs, certain climbers and woody liana in the process of growth. They are composed of cellulose (reinforcing material), hemicelluloses (matrix and binding materials) and lignin (cementing material). Extraneous materials are of diverse chemical composition, and include sugars, starches, gums, pectins, polyphenols, tannins, dyestuff, proteins, organic acids and ash minerals. These materials are responsible for the beautiful colour, durability, susceptibility to bio-

deteriorating agents, impermeability, greasy, feel, smell, difficulties in sawing, bonding and pulping characteristics of certain wood species.

3.2 Uses of Wood

The use of wood by humans dates back to antiquity, when the pre-historic man relied on wood for survival, shelter, tools and hunting implements (weapons, such as clubs, spears, bows and arrows), fuel, and construction of primitive furniture (small-sized trees stems and branches). The advancement of science and technology has facilitated the development of different wood product industries that engage in the production of sawnwood, wood-based panel products, pulp and paper, furniture and joinery, energy, chemically-treated wood, wood-derived chemicals and specialty products such as toothpicks and tool handles.

3.3 Manufacturing Wood Products

These include

- i. Chemical products and extractives- These are products of wood obtained through chemical processing resulting in complete structural transformation of wood. The products include those from pulping such as cellulose (pulp), lignin, alcohol and yeast, di-methyl sulphide, lingo-sulphates and purified lingo-sulphate; tall oil, wood bark products such as esters and rubber latex, chemicals from foliage such as chlorophyll and leaf protein.
- ii. Semi-finished wood products- These are primary products of wood which serve as input raw materials for other wood products e.g. sawn timber, plywood, particle boards and fibre boards.
- iii. Final (finished) wood products- These are made up of construction materials, furniture products, packaging materials, technical articles and special products. The construction materials include products which range from doors, windows, formwork frames to prefabricated wood buildings. Furniture products are variable depending on their area of use, namely household furniture, school furniture, office furniture, and furniture used in standing position (shelves, cupboards, wardrobes, work benches), in sitting position (chairs, tables, desks), and in sleeping position (wooden beds). Other furniture items are peculiar to people and places depending on history, culture, conception, technology, interaction and standard of living. Packaging materials are cases/ boxes and drums. Technical articles are partially produced from wood and completed with other components which are non-wood materials e.g. pencils, match splints, ice-cream holder and rulers.

Special products are products of wood that are used in special areas such as sports (skis, crosses for hockey, tennis rackets), music (drums, violin, guitar) and transportation (veneer, plywood and densified wood for boats, platforms and body of vehicles).

4.0 CONCLUSION

In this unit, you have learned that wood has diverse structural extraneous components, which have valuable primary uses and industrial applications.

5.0 SUMMARY

The significance of wood to Man dates back to pre-historic times. However, current developments in science and technology have led to the production of more versatile industrial materials such as sawnwood, extractives and furniture items.

6.0 TUTOR-MARKED ASSIGNMENT

- 1) What is a wood?
- 2) List and enumerate the three major components of wood.
- 3) Write short notes on extraneous wood materials.

7.0 REFERENCES/FURTHER READING

Oluyege, A.O. (2007). 'Wood: *A versatile material for National Development*'. Inaugural Lecture Series 45, The Federal University of Technology, Akure, Nigeria.

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