

Wood and Wood Derivatives

(Wood Fiberboard
Manufacture, Particleboard
Manufacturing and Processing)

Introduction

Wood has been used for hundreds of thousands of years for both fuel and as a construction material. Wood is an organic material, a natural composite of cellulose fibers (which are strong in tension) embedded in a matrix of lignin which resists compression. In the strict sense wood is produced as secondary xylem in the stems of trees (and other woody plants). Wood is used for millennia for many purposes, primarily as a fuel or as a construction material for making houses, tools, weapons, furniture, packaging, artworks, and paper. Wood is composed of cells, and the cell walls are composed of micro fibrils of cellulose and hemicellulose impregnated with lignin.

The derivation of chemicals from wood is carried out wherever technical utility and economic conditions have combined to make it feasible. In a living tree it performs a support function, enabling woody plants to grow large or to stand up for themselves. It also mediates the transfer of water and nutrients to the leaves and other growing tissues. Wood may also refer to other plant materials with comparable properties, and to material engineered from wood, or wood chips or fiber. Wood and man have coexisted on this planet from the beginning and wood, as a renewable resource, has provided man with tools, weapons and shelter. Wood, when dry, has unique physical properties in that its tensile strength, bending strength, compression strength, impact resistance and hardness per unit weight are the highest of all construction materials.

Wood polymer composites (WPC) are materials in which wood is impregnated with monomers that are then polymerized in the wood to tailor the material for special applications. The resulting properties of these materials, from lightness and enhanced mechanical properties to greater sustainability, has meant a growing number of applications in such areas as building, construction and automotive engineering. Other uses of wood in furniture, buildings, bridges, and as a source of energy are widely known. Wood is perhaps the most used component in our daily life, from home building and furnishings to everything from the tables to the doors are made of wood, and for the people living in colder climates, wood holds even greater importance.

Fiberboard is a low-density insulation board used for housing, roofing, and office furnishings. Hardboard is similar to fiberboard, except that hardboard is more dense than fiberboard. Hardboard is used for applications in housing (e.g., exterior siding, garage doors, and interior door facings), furniture, store fixtures, automotive interiors, and toys. The most frequently used raw material for production of fiberboard products is wood chips which are first softened in a pressurized steam vessel (digester) and then refined or pulped into wood fibers. The fibers may then be mixed with resin, formed into mats, and pressed and/or dried to form panel products.

Other materials may be added during manufacture to improve certain properties such as stiffness, hardness, finishing properties, resistance to abrasion and moisture, as well as to increase strength, durability and utility.

Like every living organism, each tree is unique. There are hundreds of different tree species, and individual trees within a species vary widely, depending on age and the amount of water, food, and sunlight during growth. Even within one tree there are many variables; knots, sap, heart wood, etc. Wood as a raw material is infinitely variable.

Hardboard is a manufactured product made from wood. Ideally each piece should be perfectly uniform. Of course, perfect uniformity is never attained but the degree to which it is approached is one of the most important factors in determining the utility of particular types of hardboard. Certainly the over-riding quality control consideration in every hard-board plant is making a uniform product from an infinitely variable raw material.

There is huge demand of particle board in India and all over world. Particle board market growing very fast. Due to growing deforestation there is bright future of particle board. Any entrepreneur can well venture in this project.

Demand of good quality of building materials to replace the traditional materials and the need for cost effective and durable materials for the low cost housing has necessitated the researchers to develop variety of new and innovative building materials. Construction materials of special requirements for the houses in different geographical region to overcome the risk of natural hazard and for protection from sever climatic conditions has also emphasised the need for development of lightweight, insulating, cost effective, durable and environment friendly building materials.

Some of the fundamentals of the book are wood structure and chemical composition, chemical change in wood associated with wood fiberboard manufacture, chemical changes in wood effected by furnish preparation processes, bark extracts as bonding agent for particle board , wood polymer composites and their industrial applications , chemical reactions of preservatives with wood, activation of wood surface and nonconventional bonding , chemistry of weathering and protection , weathering of chemically modified woods, energy and chemicals from wood, charcoal and other chemicals, etc.

The developments in wood industry in the country are mainly attributed to the pioneering work carried in the field of wooden products. There are lots of chemicals and other products extracted from wood. This book contains processes of various wooden products and its derivatives. This is the first book of its kind which is invaluable resource to research scholars, entrepreneurs, technocrats, institutes, libraries and existing one.

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can provide Process Technology Book on
Wood and Its Derivatives

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Contact us

Niir Project Consultancy Services

106-E, Kamla Nagar, New Delhi-110007, India.

Email: npcs.ei@gmail.com , info@entrepreneurindia.co

Tel: +91-11-23843955, 23845654, 23845886

Mobile: +91-9811043595

Fax: +91-11-23841561

Website :

www.niir.org

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Who are we?

- *One of the leading reliable names in industrial world for providing the most comprehensive technical consulting services*
- *We adopt a systematic approach to provide the strong fundamental support needed for the effective delivery of services to our Clients' in India & abroad*

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How are we different ?

- *We have two decades long experience in project consultancy and market research field*
- *We empower our customers with the prerequisite know-how to take sound business decisions*
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Our Approach

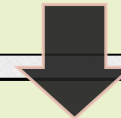
Requirement collection



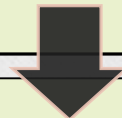
Thorough analysis of the project



Economic feasibility study of the Project



Market potential survey/research



Report Compilation

Who do we serve?

- *Public-sector Companies*
- *Corporates*
- *Government Undertakings*
- *Individual Entrepreneurs*
- *NRI's*
- *Foreign Investors*
- *Non-profit Organizations, NBFC's*
- *Educational Institutions*
- *Embassies & Consulates*
- *Consultancies*
- *Industry / trade associations*

Sectors We Cover

- *Ayurvedic And Herbal Medicines, Herbal Cosmetics*
- *Alcoholic And Non Alcoholic Beverages, Drinks*
- *Adhesives, Industrial Adhesive, Sealants, Glues, Gum & Resin*
- *Activated Carbon & Activated Charcoal*
- *Aluminium And Aluminium Extrusion Profiles & Sections,*
- *Bio-fertilizers And Biotechnology*
- *Breakfast Snacks And Cereal Food*
- *Bicycle Tyres & Tubes, Bicycle Parts, Bicycle Assembling*

- *Bamboo And Cane Based Projects*
- *Building Materials And Construction Projects*
- *Biodegradable & Bioplastic Based Projects*
- *Chemicals (Organic And Inorganic)*
- *Confectionery, Bakery/Baking And Other Food*
- *Cereal Processing*
- *Coconut And Coconut Based Products*
- *Cold Storage For Fruits & Vegetables*
- *Coal & Coal Byproduct*

- *Copper & Copper Based Projects*
- *Dairy/Milk Processing*
- *Disinfectants, Pesticides, Insecticides, Mosquito Repellents,*
- *Electrical, Electronic And Computer based Projects*
- *Essential Oils, Oils & Fats And Allied*
- *Engineering Goods*
- *Fibre Glass & Float Glass*
- *Fast Moving Consumer Goods*
- *Food, Bakery, Agro Processing*

- *Fruits & Vegetables Processing*
- *Ferro Alloys Based Projects*
- *Fertilizers & Biofertilizers*
- *Ginger & Ginger Based Projects*
- *Herbs And Medicinal Cultivation And Jatropha (Biofuel)*
- *Hotel & Hospitality Projects*
- *Hospital Based Projects*
- *Herbal Based Projects*
- *Inks, Stationery And Export Industries*

- *Infrastructure Projects*
- *Jute & Jute Based Products*
- *Leather And Leather Based Projects*
- *Leisure & Entertainment Based Projects*
- *Livestock Farming Of Birds & Animals*
- *Minerals And Minerals*
- *Maize Processing(Wet Milling) & Maize Based Projects*
- *Medical Plastics, Disposables Plastic Syringe, Blood Bags*
- *Organic Farming, Neem Products Etc.*

- *Paints, Pigments, Varnish & Lacquer*
- *Paper And Paper Board, Paper Recycling Projects*
- *Printing Inks*
- *Packaging Based Projects*
- *Perfumes, Cosmetics And Flavours*
- *Power Generation Based Projects & Renewable Energy Based Projects*
- *Pharmaceuticals And Drugs*
- *Plantations, Farming And Cultivations*
- *Plastic Film, Plastic Waste And Plastic Compounds*
- *Plastic, PVC, PET, HDPE, LDPE Etc.*

- *Potato And Potato Based Projects*
- *Printing And Packaging*
- *Real Estate, Leisure And Hospitality*
- *Rubber And Rubber Products*
- *Soaps And Detergents*
- *Stationary Products*
- *Spices And Snacks Food*
- *Steel & Steel Products*
- *Textile Auxiliary And Chemicals*

- *Township & Residential Complex*
- *Textiles And Readymade Garments*
- *Waste Management & Recycling*
- *Wood & Wood Products*
- *Water Industry(Packaged Drinking Water & Mineral Water)*
- *Wire & Cable*

Contact us

Niir Project Consultancy Services

106-E, Kamla Nagar, New Delhi-110007, India.

Email: npcs.ei@gmail.com , info@entrepreneurindia.co

Tel: +91-11-23843955, 23845654, 23845886

Mobile: +91-9811043595

Fax: +91-11-23841561

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