Timber

❖ Market Form of Timber

- **Batten:** Thin piece of timber (breadth and thickness≤50 mm)

- **Board:** It is plank (thickness<50 mm; width>150 mm)

Timber

❖ Market Form of Timber

❖ **Log:** It is the trunk of tree obtained after removal of branches.

❖ **Plank:** It is a timber piece with parallel sides (thickness<50 mm; width>50 mm)

Timber

❖ Market Form of Timber

- **Veneers**: Thin sheets or slices of wood of superior quality (thickness varies from 0.4 mm to 6 mm)
- Veneers are used to produce ply wood, laminboards etc.

- **Plywood:** Plywoods are boards prepared from three of more thin layers of wood or veneers in odd numbers.

6×3 = 18

Timber

❖ Market Form of Timber

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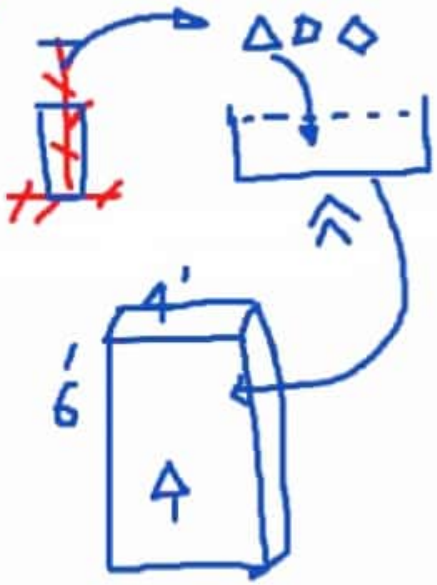
- **Plywood:** Plywoods are boards prepared from three of more thin layers of wood or veneers in odd numbers.
- Plywoods are used in ceiling, doors, furniture, partitions, railway coaches etc.

Timber

❖ Market Form of Timber

- **Fibreboards**: They are rigid boards.
- They are also known as pressed board.
- Thickness varies from 3-12 mm
- They are used in wall paneling, partition wall, flush door, top of table, formwork for cement concrete, etc.



Timber

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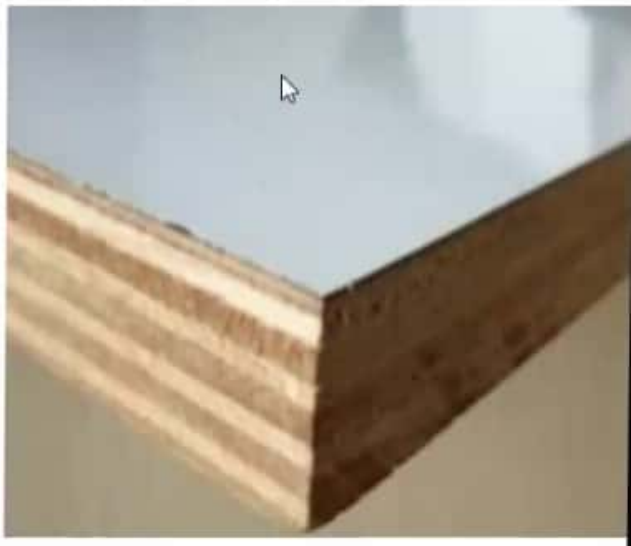
Timber

❖ Market Form of Timber

- ❖ **Impreg Timber**: Fully or partially covered by resin.
- ❖ Phenol formaldehyde is used as resin.
- ❖ Veneer is immersed in resin and a consolidated mass is developed
- ❖ Formica, Sunmica, Sunglass etc. are commercial name.
- ❖ Used for mould, furniture, decorative articles.



Timber

❖ Market Form of Timber

Compreg Timber:

- Process of compreg timber is same as impreg timber
- Curing is done by pressure rather than by temperature
- Strength of compreg timber is more than impreg timber

Timber

❖ Uses of Timber

- ❖ In making doors and windows
- ❖ As a formwork of cement concrete
- ❖ In making furniture
- ❖ In making agricultural instruments
- ❖ In railway coach wagons
- ❖ In making toys
- ❖ As a railway sleepers
- ❖ In making boats

Rubber

❖ Chapter Outline

- ❖ Definition of rubber
- ❖ Types of rubber
- ❖ Preparation and Properties of natural rubber
- ❖ Vulcanization of rubber and its effect
- ❖ Application of vulcanized rubber

Rubber

❖ What is Rubber?

- ❖ An elastic material obtained from a milky liquid (for natural rubber) or
- ❖ derived from petroleum and natural gas (for synthetic rubber)

Rubber

❖ Natural Rubber

- Extracted from rubber trees in the form of milky juice.
- Filtered, purified and coagulated.
- Water and rubber are separated
- Rubber sheets are dried out
- It melts when hot and gets hard and brittle when cold

Rubber

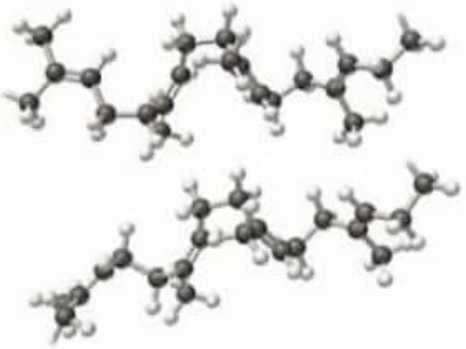
❖ Properties of Natural Rubber

- ❖ Low melting point
- ❖ Low tensile strength
- ❖ Too rigid when cooled
- ❖ Too soft and sticky when hot
- ❖ Insoluble in water

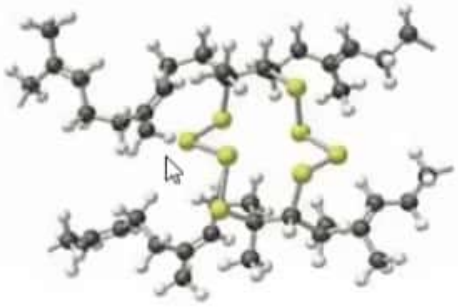
Rubber

❖ Vulcanization of Rubber

- 1-3% by weight of sulphur is added to raw rubber.
- It is mixed and heated carefully.
- Sulphur atoms form cross-links between adjacent chains of rubber polymer at the carbon-carbon double bonds.
- It makes the rubber stiffer and stronger.



Before vulcanization



After vulcanization

Rubber

❖ Effect of Vulcanization of Rubber

- ❖ Increase tensile modulus
- ❖ Increase slightly the dynamic modulus
- ❖ Rubber becomes insoluble in any solvent
- ❖ Rubber becomes less susceptible to temperature change

Rubber

❖ Application of Vulcanized Rubber

- ❖ Belts
- ❖ Tire
- ❖ Shoe soles
- ❖ Bowling balls
- ❖ Bouncing balls
- ❖ Toys
- ❖ Erasers
- ❖ Instrument mouthpieces, etc.

Rubber

❖ Synthetic Rubber

- ❖ Artificial elastomer.
- ❖ Obtained mainly from petroleum
- ❖ Elastic materials
- ❖ Good qualities and cheap
- ❖ Recyclable

Rubber

❖ Properties of Synthetic Rubber

- ❖ Solid, flexible, durable
- ❖ It hardens when it is cooled
- ❖ It can be moulded when heated
- ❖ Resistant to heat, light and chemicals
- ❖ Heat and electrical insulator

Rubber

❖ Uses of Synthetic Rubber

- ❖ Car tires
- ❖ Flexible rubber toys
- ❖ Paints
- ❖ Rubber gloves
- ❖ Tubes
- ❖ Hoses