44.13 - Densified wood, in blocks, plates, strips or profile shapes.

Densified wood covered by this heading has been chemically or physically treated to increase its density or hardness and improve its mechanical strength or resistance to chemical or electrical agencies. Such wood may be solid or consist of several layers bonded together, in the latter case the treatment applied being in excess of that required merely to produce a good bond between the layers.

Two main processes, impregnation and densification, are used to produce the products of this heading. These processes may be used separately or together.

In **impregnation** the wood is deeply impregnated, usually with thermosetting plastics or with molten metal.

Impregnation with thermosetting plastics (e.g., amino-resins or phenolic resins) is more often applied to very thin veneers built up into laminated wood than to solid wood, since penetration is thereby facilitated.

Metallised wood is obtained by plunging pieces of solid wood, previously heated, into a bath of molten metal (e.g., tin, antimony, lead, bismuth or their alloys) under pressure in a closed vessel. The density of metallised wood generally exceeds 3.5 g/cm^3.

Densification has the effect of contracting the cells of the wood; this may be done by transverse compression by means of powerful hydraulic presses or between rollers, or by compression in all directions at high temperature in an autoclave. Densified wood may have a density as great as 1.4 g/cm^3.

Impregnation and densification may be carried out simultaneously by glueing very thin sheets of wood (usually beech) with thermosetting plastics under heavy pressure at a high temperature so that the wood is deeply impregnated and compressed as well as bonded.

Densified wood is generally used in the manufacture of gears, shuttles, bearings and other machine parts, propellers, insulators and other electric goods, vessels for the chemical industry, etc.