INTRODUCTION. For some specific purposes, the wood will undergo some mechanical working processes, such as cutting, planning, cleaving, sanding, shaping, and being holed. One important woodworking factor in determining the success of woodworking process is mechanical wear of cutting tools, which affect the quality of work and electricity consumption. Thus, it is important to know what material is the best for wood-working cutting tools in improving production effectiveness and efficiency. High speed steel and tungsten carbide cutting tools which widely used in the woodworking industry were investigated in this work.

MATERIAL AND METHOD. Blade from High Speed Steel (HSS) and Tungsten Carbide (TC) material were tested both chemically and mechanically for cutting tapi-tapi wood, ulin wood, particle board, and OSB.

RESULT AND DISCUSSION The result showed that, mechanically, the silica in wood and wood composite affect the rate of mechanical wearing of cutting tools. Chemically, the present of extractive compound in the wood and wood composite affect the rate of weight-loss. Tapi-tapi wood and particle board which contained the highest silica content than the other woods cause higher mechanical wearing of cutting tools. Tapi-tapi wood which more corrosive extractive compound cause higher weight loss of cutting tools. High speed steel tool materials suffered a higher percentage of weight loss and mechanical wearing of tools compared with tungsten carbide for all wood and wood composite.

Keyword: high speed steel, tungsten carbide, silica, extractive