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# Layer carbides eliminating process and optimization of high-speed steel (HSS) properties

**k. Sadrnezhad (1) - M.Malekjafarian (2) - A.Abazarpoor (3)**

**Sharif University of Technology, Tehran, Iran**

***Malekjafarian@mehr.sharif.ir***

## Abstract :

Alloy steel DIN 1.3247 is a high speed steel that contains chromium, vanadium, molybdenum, and tungsten elements. In some cases it could contain a combination of these elements or cobalt as well. These steel are used for machining or forming the other materials. Different carbides like M2C, M6C, and MC in this steel are performing the main role against erosion. The size and uniform distribution of these carbides in the structure are important because large size and non-uniform distribution of these carbides cause less strength in steel. This paper is the outcome of 45 heat treatment processes on this steel and according to the processes, suitable cycle was chosen. The results indicated that grain growth and forming of layer carbides in the sample were prevented due to heat treatment process.

## Keywords :

heat treatment, high-speed tool steel, brine bath, austenitizing, tempering

1-2-3-Professor of Sharif University of Technology