

The method relates to the field of mechanical engineering, and more specifically relates to a method of chemical heat treatment for surface hardening of machine parts. The method includes applying a chemical coating to the surface from a solution containing, g/l: cobalt sulfate 10-20, nickel sulfate 25-35, sodium acetic acid 80-100, sodium hypophosphite 25-35, ammonium chloride 40-50, ammonia 40-60 ml, and the rest is water. The coating is applied at a temperature of 90-95°C for 60 minutes. After that, a seven-hour borating diffusion is carried out in a powder mixture with the following ratio, wt. %: boron carbide 50-58, silicon carbide 27-33, sodium tetra borate 7-4, sodium fluoride 6-2, cryolite 10-3 at a temperature of 940-960°C. When the temperature reaches 800°C, isothermal holding is carried out for 60 minutes. After hardening, a composite hardened layer is formed with a thickness of 210 microns and a microhardness of 21 GPa, which makes it possible to increase wear resistance and service life.