Applied Research

Second Winner

- **Project Title:** Producing Know - Howof Tungsten based Heavy Alloy (MMC) and applications
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Abstract :

This project has described to gain Know - How of production of Tungsten based Heavy alloys (MMC).

At first , wide library studies , primary researches , applying concerned theory were used to approve necessary softwares and hardwares for producing samples in laboratorial and industerial scales .

Production of high density Tungsten alloys samples was done in an accurate and controlled processes from powder mixing , cold isostatic pressing , sintering in a furnace with Hydrogen protection atmosphere at 1600 C temperature.

Properties of prepared samples modified by modification heat treating and made ready for desired applications.

The conclusion of this project is production of Tungsten based heavy alloys with 90%W - 7%Ni - 3%Fe components analysis that have very important industrial and military applications.

Due to special and strategic applications of dense materials , despite of existense of foreign products , manufacturing of this product has great importance.

One of the most important results of this project is eliminating one of the serious throats in preparing tungsten heavy alloys for some special military usages.

In this project , all of the efforts have done by combination inverse engineering and basic researches.

The approved Know - How as excellent experiences in all of steps like powder preparing , mixing, dieing , pressing , sintering , and modification heat treating ,(besides gaining cycle data time , temperature and ...) , warrants production heavy alloys with desired properties and developing phase of this project .