

## EFFECT OF NI TO CU RATIO ON FORMATION OF OXIDE SCALE AT HIGH TEMPERATURE

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**M**etals, which are especially used in the hot forging applications, are stable, when exposed to the atmosphere, at high and low temperatures. Metals such as iron, rusts and get oxidized very rapidly, while the other metals such as nickel, chromium corrode relatively slowly. Therefore it is important to study oxidation process along with film thickness of the oxide layer. The role of various alloying elements and its oxides during oxidation process need to be understood. Copper strongly influences the microstructure of micro alloyed steel since segregation of Cu occurs in steel during oxidation. Samples containing various Ni/Cu ratios are studied in scanning electron microscopy (SEM) and X-ray diffraction (XRD). Four samples of ratio of 1.8, 2.0, 2.5 and 5.0 with dimension size 25 mm X 25 mm are studied. The sample which has ratio of 1.8 gives better results since it shows minimal severity in cracking and optimum thickness is achieved.

### Biography

Shrikant Jadhav has qualified Masters' of Engineering from IIT Bombay with experience in the industry across, Metallurgy, Quality Assurance, Mechanical Functions, Production Line, Operations, Safety and currently spearheading as metallurgical researcher with Bharat Forge Limited, Pune. He has expertise in Material Science and Manufacturing Process. Currently spread heading his knowledge in Research and development department in Bharat forges Ltd which is world's number one forging industry. He is well versed in conceptualizing and implementing new product development failure analysis and materials projects. He is responsible for design and develops the mechanical and thermal forging process to modify steel, aluminum and their alloy. Conduct chemical and physical analytical research on steel, aluminum and its alloys.

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