

Development of Chemical Conversion Coating for Blackening of a Grade of Stainless Steel Useful for Fabrication of Optical Devices

Lakhi Ram Chauhan^{1*}, Majar Singh¹, J. K. Bajpai¹, Kshipra Misra² and Amit Agarwal¹

¹Instruments Research and Development Establishment (IRDE), DRDO, Dehradun – 248008, Uttarakhand, India;
lakhiramchauhan@yahoo.com

²Defence Institute of Physiology and Allied Sciences (DIPAS), DRDO, Delhi - 110054, India

Abstract

An improved chemical conversion coating process for blackening of a specific type of stainless steel has been developed. In this process a new optimized bath compositions and operating procedures were set-up by using different trial & error methods to get the desired coating. The technique is also developed for the simplicity, and economical aspect than other techniques. Characterization of coating is done in terms of morphology, optical, hardness by using SEM, Spectrophotometer, and Indentation Hardness methods. Sea-water and temperature variations effects on the coated surface are also studied.

Keywords: Black Oxide Coating, Characterizations, Opto-Mechanical Components, Stainless Steel