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Abstract

New bionic function surface inspired from desert scorpion was developed for erosion resistance application in this research. Three elements, bump, groove-shape and curvature, were applied on the surface. Using of Stereo Microscope, the micro-structures of the scorpion (Androctonus australis) were analyzed. According to information, bionic samples were manufactured. Solid particle erosion behavior is investigated using a blasting jet machine at particle impact angle (30 °) and stress of air compressor is 0.5MPa. The experimental results of bionic samples were compared with traditional smooth sample and each other, respectively. Results of erosion test and Scanning Electron Microscope (SEM) were selected as evaluation standard and explored anti-erosion mechanisms of these micro-structures which were on the bionic surface. The experimental results show that bionic samples have superior solid particle erosion resistance than traditional smooth sample, owing to the micro-structures on the