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| **Abstract:** |  |
| The tribocorrosion behaviour of two different hull steels (namely, EH36 and EH47) was investigated using a ball-on-disk tribometer under varying normal loads from 10 to 100 N in a 3.5 wt% NaCl saline solution. Sliding in pure water was also performed for a comparison purpose. The results indicate that the corrosion products mainly consist of lath lepidocrocite (γ-FeOOH) with residual NaCl crystals when sliding against both steels EH36 and EH47 in the saline solution. Tribocorrosion on EH36 (pearlitic steel) shows lower coefficient of friction (COF) values than those obtained in water, while tribocorrosion on EH47 (bainitic steel) leads to higher COF values instead. The former is due to the formation of considerable hydroxide particulates and films with small sizes. In contrast, the latter is ascribed to the ploughing of hydroxides with smaller amounts and bigger sizes. In particular, the synergistic effects of corrosion and wear in tribocorrosion result in much higher total materials degradation, compared to that obtained through pure mechanical wear in water. | |