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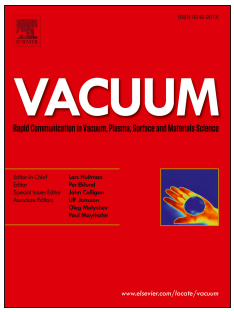

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Effect of vacuum re-melting on the solid particles erosion behavior of Ni60-NiCrMoY composite coatings prepared by plasma spraying

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Abstract: Ni60-NiCrMoY composite coatings prepared by supersonic atmospheric plasma spraying were subjected to vacuum re-melting. The effect of vacuum re-melting on erosion behavior of the as-sprayed coatings was examined at various impact angles. The erosion mechanism of the as-sprayed and re-melted coatings were also investigated. At low impact angles, metal removal of coatings and substrate was controlled by microcutting. The erosion resistance of the coatings was higher than that of substrate, and the re-melted coatings exhibited best erosion resistance. With increasing the impact angle, the erosion rate of substrate first increased and then decreased, while that of the coatings increased gradually. The highest erosion rate of substrate occurred at an impact angle of 45°, which was lower than that of the as-sprayed coatings and higher than that of the re-melted coatings. Vacuum re-melting