

Influence of the dimple density on the corrosion behaviour of 316L stainless steel textured with nanosecond infrared laser

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Laser texturing is finding increasing applications in a range of applications from tribology, wettability modification and biological cell control. The effect of texturing on corrosion resistance has not been widely reported. Here the effect of different dimple texture densities on corrosion resistance and surface free energy of 316L stainless steels is reported. The results indicate that increasing texture density improves the corrosion resistance and raises the surface free energy. Higher texture densities demonstrated spontaneous repassivation, leading to enhanced corrosion resistance.