

Effect of the base metal surface roughness on the bag-8 spreading behaviour

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Abstrak

This research was done to investigate influence of the base metal surface roughness on the BAg-8 spreading behavior and to get a proper surface roughness number for large area brazing. The filler metal was melted at 830o C for 15 minutes on a S50C surface for with various roughness levels. After solidified, the spreading area was observed and characterized in macro and micro scale. The results show that physically the filler spreading consists of two kinds of spreading forms: true and apparent filler spreading with composition of the both being almost same; 77% Ag and 23% Cu. For some roughness numbers, irregularities in uniformity of the heating and cooling process on the filler and dissolving of contaminant into the molten filler caused the true spreading that tend to separate became several parts and tend to flow out from initial placement. Increasing of the surface roughness tends to increase the capillarity effect and to decrease imbalance in the surface tension. Optimum surface roughness was obtained at $Rz = 0.92$. At this number, the ratio, as well as fitness of the true spreading with initial condition, was at the maximum. During the application process, this condition is predicted as being able to prevent or avoid weaknesses in the joint, thereby increasing the joint strength and its appearance quality.