

OWEN EVANS

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ACMA4000

MATERIALS AND INTRODUCTION TO PROCESSING

THIS IS DUE TO THE MATERIAL COOLING AT A DIFFERENT RATE TO THE RATE IT WAS ORIGINALLY COOLED. THE MATERIAL BECOMES LESS DUCTILE AND REDUCES THE ABILITY OF THE MATERIAL UNDER FATIGUE SITUATIONS. THIS CAN BE DUE TO THE MATERIAL EXPANDING WHEN HEATED, AND CONTRACTING WHEN COOLED, PLACING AN INTERNAL STRESS ON THE MATERIAL AS IT PULLS ON THE JOIN. THE MATERIAL CAN ALSO BE WEAKENED BY HYDROGEN CRACKING BY INTRODUCING HYDROGEN INTO FERRITIC METAL, LEADING TO EMBRITTLEMENT.

BRAZING IS MORE DESIRABLE AS IT JOINS MATERIALS THROUGH THE MELTING OF A ^{DIFFERENT} METAL AT A LOWER TEMPERATURE OF THAT OF THE PRIMARY METAL