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# MATERIALS SCIENCE AND ENGINEERING

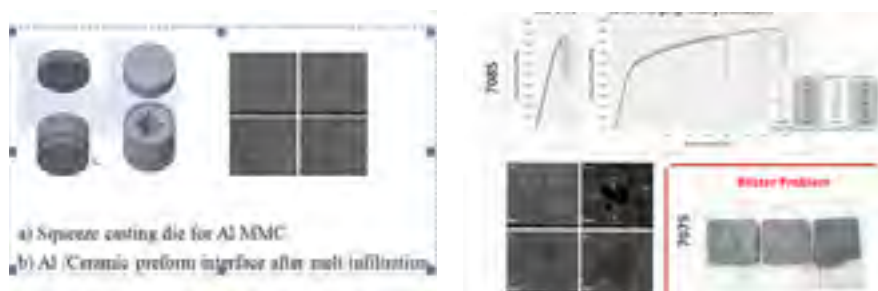
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## Melt infiltration casting of alumina, silicon carbide and boron carbide reinforced aluminium matrix composites

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A series of metal matrix composites were produced using 7075 and 7085 aluminum alloys as matrix alloys and  $Al_2O_3$ , SiC and  $B_3C_4$  ceramic preforms. Melt infiltration casting was performed with a vertical squeeze caster applying 70 ton pressure during processing. Sintering of ceramic preforms were carried out at 1000, 1100 and 1300°C for one hour then preheated hot sintered preforms at 1000°C were placed into a die cavity before aluminum infiltration casting. During processing vertical 70 ton and upward 40 ton hold down pressure was applied for three minutes for melt infiltration. Mechanical characterizations were done by three point bending tests and flexure strength values obtains for 7075 alloy infiltrated  $Al_2O_3$  preforms as 520-600 MPa.



c) Flexural strength of 7085 matrix alloy and cast composites

### Biography

Ali Kalkanlihas has his expertise in processing of aluminum, magnesium alloys and metal matrix composites. He completed his MS thesis on metal powder atomization at METU Turkey and PhD thesis on melt overflow stainless steel strip casting processing in Milton Keynes at Open University, England. Alloy development and various casting and metal processes are his main interest areas.

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