

Study the toughness behavior of aluminium A355 and A356 composites reinforced with SiC particles after the extrusion process

The influence for group of variables on the resistance to failure of a material to a suddenly applied force. The test measures the impact energy for aluminium A355 and A356 composites reinforced with SiC particles after the extrusion process was investigated by the finite element method. These variables are the percentage of liquid fraction. The volume percentage of the SiC particles was 10%,15% and 20% percentage and the investigation is carried out at room temperature . The results show that Impact energy decreases by increasing the volume fraction of particles.



M. rshdan. Ibrahim

INTRUCTION

A Composite in engineering sense is any materials that have been physically assembled to form one single bulk without physical blending to form a homogeneous material. The resulting material would still have components identifiable as the constituent of the different materials [1]. One of the advantages of composite is that two or more materials could be combined to take advantage of the good characteristics of each of the materials. Composite materials will consist of two separate components, the matrix and the filler. The matrix is the component that holds the filler together to form the bulk of the material. It usually consists of various epoxy type polymers but other materials may be used. Metal matrix composite and thermoplastic

matrix composite is some of the possibilities. The filler is the material that has been impregnated in the matrix to lend its advantage (usually strength) to the composite. The fillers can be of any material such as carbon fiber, glass bead, sand, or ceramic. Composites offer many advantages over other materials; Stronger and stiffer than metals on a density basis; Capable of high continuous operating temperatures; Highly corrosion resistant; Tailorable thermal expansion properties; Tunable energy management characteristics; Exceptional formability; Outstanding durability; Corrosion Resistance.

Semi-solid metal forming processes are of large industrial interest for the production of various components because they have advantages over casting, forging and powder