

FRACTURE ACTIVITIES IN THE METALLURGY

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The research on fracture at present being developed by the Materials Testing Laboratory (Metallurgy Department) is focused on the study of the correlation between the morphology of fracture surfaces and the type and level of stresses applied to the metal.

This research is being carried out on several aluminium, magnesium and titanium alloys.

A great number of test specimens of these alloys are subjected to tension and impact tests and also to fatigue tests at various stress levels ($R = 0, 1$).

The fracture surfaces of the specimens are analyzed by scanning electron microscopy, relating the microfractographic characteristics observed with chemical composition, microstructure and heat treatment of the alloy, and also with the type of test and the level of stress applied to failure.

The aim of this work is to obtain a systematize of the different microfractographic characteristics that can appear on fracture surfaces of alloys for aeronautical applications and to correlate them with the stresses responsible for failure.

The research will result in greater knowledge of crack growth processes in these alloys and will provide very useful data for obtaining maximum information from the fracture surfaces of elements which have failed in service, in order to find out the type of stress responsible for the failure.