Contribution à l'analyse de l'endommagement des matériauxcomposites

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Abstract: The composite materials with an organic matrix have become a serious competitor to traditional materials in avariety of industrial and domestic areas. However the inter-laminar defects induced during implementation or duringstress are the main sources of its progressive damage. The promotion and use of these materials require the study of themechanical behavior and the various formes of damage. The main of this work is study the mechanical behavior anddamage of tubular composite materials with glass fiber and organic matrix obtained by the filament winding method.The experimental investigation is to cut specimens from composite tube for determination of mechanical tensileproperties and the toughness expressed by the energy release rate of the double cantilever beam specimens atdélamination, and the evolution of resistance with R curves. The aim of numerical study is the modeling of the damagewith element finit method from « ABAQUS » logiciel for determination of the energy release rate.

Keywords : Composites materials, characterization, damage, fracture, delamination, Cracking