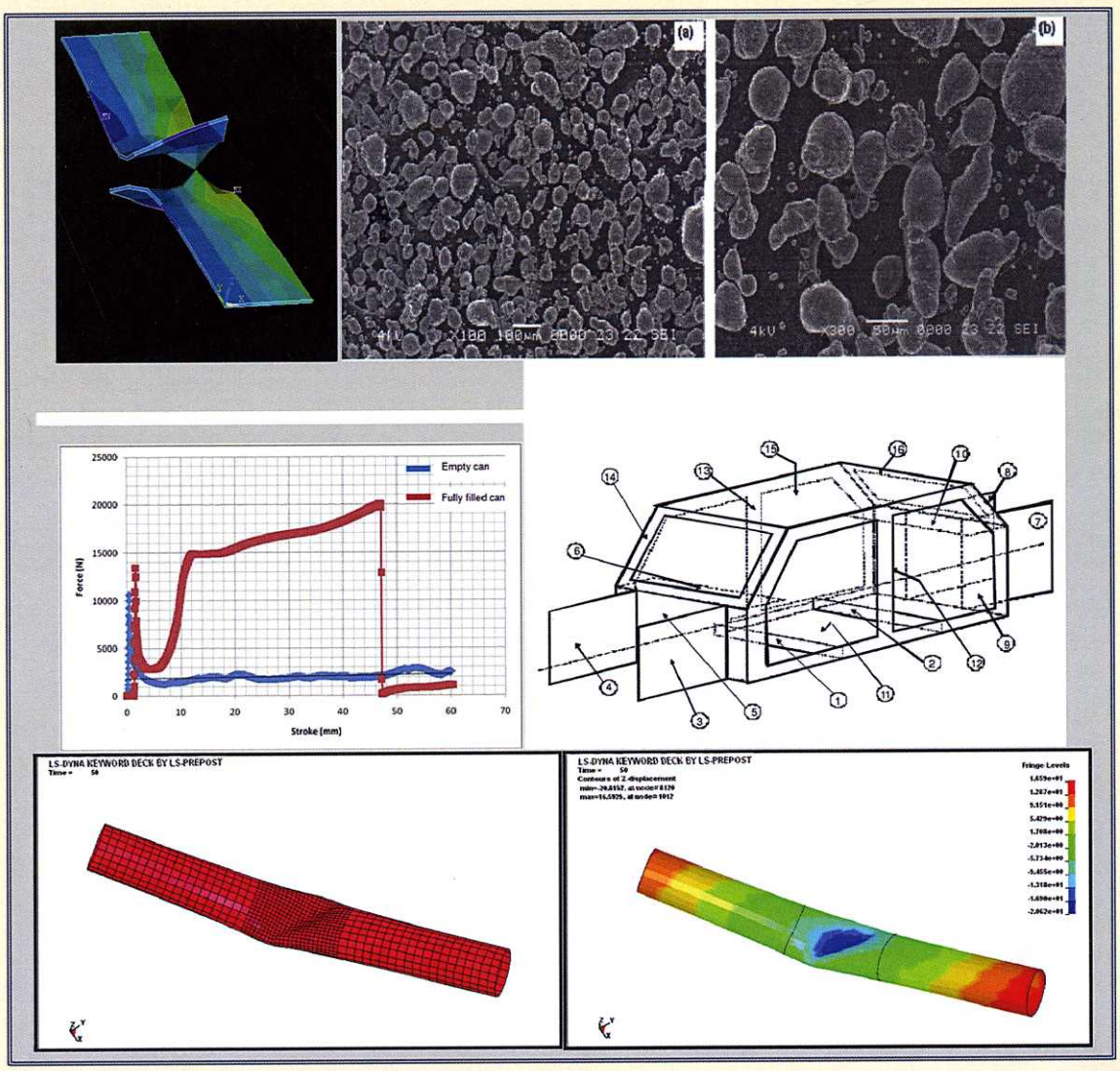
ADVANCED TOPICS IN MECHANICAL BEHAVIOR OF MATERIALS



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Meftah Hrairi

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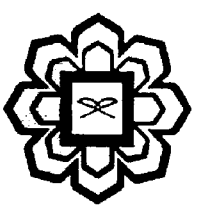

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DAMAGE ASSESSMENT OF LIQUID FILLED CONTAINER SUBJECTED TO FREE FALL ON RIGID STEEL PLATE

Qasim H. Shah, Hasan M.Abid, Adib B. Rosli

1. INTRODUCTION

Chemicals can be a great threat to society and to the environment, despite its wide usage in industrial applications. Extra precautions have to be taken into account, considering the increasing numbers of accident cases involving chemical-transporting tanks. Precautions should be taken especially when transporting chemicals of radioactive nature. Should any spill of such chemicals occur, its effects on the environment and human life can be catastrophic. In terms of passive safety, the tank designer has to study the probable effect on the tank body such that the transporter gets involved in a crash, thus enhancing the design. In this project, we have performed drop testing on liquid filled containers. The deformation of the specimen was observed after the impact. Prediction for the deformation occurred on the container after being dropped through a 6 meter pipe was taken as the result. The damage assessment of the water-filled container is very important for some industries in order to avoid danger that might occur to the container when it accidently falls. Some chemical liquids can pose great danger to the environment. Therefore, if we can predict something before it happens, we can use many possibilities to avoid it.

2. METHODOLOGY

Basically, in this project experiment, two tests were performed namely tensile test and drop test. For the drop test experiment, the observation of possible damage done by the impact to