

Thesis Title                    A Study of Foaming of Rubber  
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### ABSTRACT

Studies were made of various factors affecting the structures and properties of rubber foams. The objectives were to establish the production and control technologies for the manufacturing of good quality rubber foams, in particular the ethylene-vinyl acetate rubber (EVA) foams.

The method of control of mixing was established by using the combination of light microscopy and monitoring the power consumption during mixing. This enabled optimisation of mixing to be made. The EVA compounds for foaming were best prepared by sheeting the compounds to ca. 1 mm. thickness and cooled normally in air at room temperature. These EVA compound sheets could be stored for up to 5 days before being foamed without causing any deleterious effect on the properties of the foams. Oscillating disc rheometer (ODR) could be used to control the quality of EVA compounds for foaming.

The properties of the foams were greatly affected by the relative rates between the blow rate of the blowing agent and the cure rate of the rubber, the amounts of blowing and curing agents used but the heating time of the compound in the press had relatively little effect on the properties of the foams. For foams to occur, the blow rate of the blowing agent must be shorter than the cure rate of the rubber.