E-02

SYNERGISM IN BINARY AND TERNARY COMBINATIONS OF VULCANISATION ACCELERATORS

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Vulcanisation characteristics of non-filled Natural Rubber compounds containing semi-efficient vulcanization systems are investigated using a Monsanto Rheometer. Binary and ternary combinations of six commonly used accelerators, viz. zinc diethyl dithio carbamate, mercaptobenzthiazole, mercaptobenzthiazolyl disulphide, tetramethyl thiuram disulphide, diphenyl guanidine and N-oxy diethylene benzthiazyl sulphenamide have been investigated. A total accelerator dosage of 4.0% and sulphur at 1.0% are used. The effects of these systems on processing safety, cure rates, cure times, ultimate modulus, revision, etc. are discussed with possible mechanisms. The wide range of cure characteristics which can be obtained by different acclerator combinations point out to an easy method to avoid the use of special single ingredients to suit particular end uses.