

**THE INVESTIGATION OF TENSILE PROPERTIES OF VULCANIZED
NATURAL RUBBER BASED ON DIFFERENT CURING TEMPERATURE**

WAN NUR AIN SYAFIQAH BINTI WAN AZMAN

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Assoc. Prof. Dr. Razif Muhammed Nordin
Supervisor
B. Sc. (Hons.) Applied Science
Faculty of Applied Sciences
Universiti Teknologi MARA,
02600, Arau
Perlis

Ts. Muhammad Salihin bin Zakaria
Co-Supervisor
Program Kejuruteraan Bahan
Fakulti Teknologi Kejuruteraan Kimia
Universiti Malaysia Perlis (UniMAP)
02600, Arau
Perlis

Dr Siti Nurlia binti Ali
Project Coordinator
B. Sc. (Hons.) Applied Chemistry
Faculty of Applied Sciences
Universiti Teknologi MARA
02600 Arau
Perlis

Dr Zuliahani binti Ahmad
Head of Programme
B. Sc. (Hons.) Applied Chemistry
Faculty of Applied Sciences
Universiti Teknologi MARA
02600 Arau
Perlis

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ABSTRACT

THE OBSERVATION OF TENSILE PROPERTIES OF VULCANIZED NATURAL RUBBER BASED ON DIFFERENT CURING TEMPERATURES

During the past studies, the vulcanization of natural rubber (NR) using sulphur as the vulcanizing agent has been widely used and discussed in most research. The majority of elastomer cure systems currently include the formation of sulphur-containing crosslinks, typically using elemental sulphur in combination with an organic accelerator. Sulphur vulcanization by sulphur alone is an extremely slow process that can take many hours at high temperatures and may cause oxidative deterioration due to the prolonged exposure to heat and oxygen, resulting in poor mechanical properties. Accelerators are frequently used to reduce rubber degradation and accelerate vulcanization. In comparison to sulphur vulcanization, peroxide vulcanization produced a more thermally stable compound with higher high temperature resistance qualities. A small amount of DCP (3 phr) was used as the vulcanizing agent. The DCP/NR exhibit a high tensile strength of 1.73 MPa with the elongation at break of 379.63% at the curing temperature of 150°C with 5 minutes curing time. When higher temperature and higher curing time used, the tensile strength and %elongation at break decreases. Meanwhile, the tensile modulus increases as the vulcanizates became stiffer.

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