STUDY OF THE OIL-RESISTANCE OF NATURAL RUBBER

by

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abstract

Studies were made of the oil-resistant properties of natural rubber (NR). The effects compounding ingredients such as crosslinking agent, accelerators and fillers on the oil-resistance of NR were determined. The results showed that compounding by changing crosslink type, crosslink density or addition of fillers could modify oil-resistant properties of NR but the effect was small compared with the effect of chemical structure of rubbers. It could be concluded that oil-resistance of rubbers is basically determined by their chemical structures, thus nitrile rubber (NBR) and epoxidised natural rubber (ENR) are oil-resistant while NR is not.

The improvement of oil-resistance of NR was attempted through the method of blending with NBR or ENR-50. Blending of NR with NBR or ENR-50 could lower its swelling in oils and fuels to the extent that depends on NBR or ENR content. However, it was not sufficient to modify the oil-resistance of NR to acceptable levels by blending with NBR or ENR. NR may only be used in small quantity (e.g. 10 - 30%) in order to modify prices of oil-resistant NBR or ENR.