

**EXPANSION OF STORAGE TIME OF TREAD
COMPOUND OF FORKLIFT TYRES WITHOUT
SULPHUR BLOOMING**

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ABSTRACT

With rapid industrialization and agricultural advancement, road transportation is one of the most promising and potent means for existence of all living and non-living things. The nature of road transportation depends on the distance the goods are transported by road. Tyres including both solid and pneumatic tyres involved this process which helps to fulfill all requirements. Solid tyres are used primarily for industrial or light commercial applications like forklifts, lawn mowers, golf carts, baby carriages etc. These tyres are used in light industrial and personal use vehicles since they are significantly more prone to roll-over than pneumatic tyres. When consider about fork lift tyres, sulphur blooming is the major problem caused due to long storage time of calendared compounds. It will cause to loss of tackiness and it can become a serious problem in case of cost and quality since solid tyres are used for heavy lifting. This research study was conducted to develop a suitable chemical compound for the tread component of fork lift tyre which might have significantly high storage time at least up to 72 hours and which might not result in sulphur blooming. Five different compounds including soluble sulphur, insoluble sulphur, silane coupling agent, phenolic resin (bakelite) were prepared and kept for six storage time levels (12 hours, 24 hours...72 hours). The prepared compounds were tested for cure characteristics and physical properties (hardness, specific gravity, tensile strength, elongation at break, 300 % modulus, compression set and abrasion resistance) with respect to product specifications (Samson Rubber Products, 2014) of fork lift tyres. The results revealed that, chemical compound prepared by using soluble sulphur, silane coupling agent and phenolic resin had a maximum storage as 60 hours which did not make sulphur blooms on finished tyre surfaces. And also this chemical treatment had shown significantly positive effect on cure characteristics and physical properties complied with specifications. Therefore, it could be concluded that soluble sulphur along with silane coupling agent and phenolic resin (bakelite) more suitable for fork lift tyre compounding whereas added chemicals have significantly favorable effect on improvement of cure characteristics and physical properties.

Key words; Fork lift tyres, Sulphur blooming, Cure characteristics, Physical properties