

**EFFECT OF TMTD ON RAW RUBBER  
PROPERTIES OF DIFFERENT GRADES OF  
NATURAL RUBBER**

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by

**BRUNTHA PUVENDRAN**

**Science and Technology Degree Program**

**Uva Wellassa University, Sri Lanka**

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## Abstract

Fresh latex cannot be kept for long without preservative treatment. It should be preserved with suitable chemicals to prevent pre-coagulation until it is used for further processing. Ammonia is widely used as a common preservative for field latex which is used for manufacture of concentration latex. Mainly there are two types of preservatives, HA (high-ammonia) and LA (low ammonia). HA latex cannot be used in light colour products since it discolours the resultant products. Therefore, latex preserved with low ammonia concentration using a secondary preservative system. The most common secondary preservative system used is TetraMethylThiuramDisulphide/ZincOxide combination known as LATZ. Even though LATZ is used to prevent pre-coagulation there are some drawbacks too. The main disadvantage of the rubber is it changes the property of the raw rubber. Mainly it oxidizes the rubber molecule. When applying LATZ, the rubber degradation is mainly due to the presence of TMTD in latex. Therefore, a study was carried out to investigate the effect of TMTD on raw rubber properties of different grades of natural rubber. For that study, different grades of natural rubbers were manufactured according to their standard manufacturing procedure with adding TMTD. After that the raw rubber properties were analyzed with changing the TMTD concentration, temperature and time.

From the results, it could be included that there is no any significant effect on other raw rubber properties of raw natural rubber manufacture using TMTD contaminated latex than PRI and high degradation occurs with minimum concentration of TMTD and nearly no further oxidation with changing the concentration. At low temperatures oxidize the raw rubber treated with TMTD and high temperatures make them harden. Out of the candidate raw rubber grades ADS rubber manufactured from latex containing TMTD yields better resistance to thermal oxidation (PRI) therefore better to produce ADS rubber when TMTD incorporated rubber is used to produce dry rubber grades.