

Dynamic-mechanical analysis of natural rubber from new clones (IAC 300 series)

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There is a deficit between consumption and production of natural rubber (NR) in Brazil, where the country has imported most of NR from Asia to supply internal market. Nowadays the country needs to import nearly 60% of the consumed NR¹. To change this situation, it is important to invest in research in this area. In this sense, this work is a part of a project devoted to the development of NR in the São Paulo State, which is already the largest NR producer of the country. In this work, it is presented the results of an evaluation of the dynamic-mechanical properties of raw NR from new IAC 300 series clones, namely: IAC 328-333, IAC 335, IAC 337 (GT 1 – witness). In relation to the witness (GT 1), the new IAC 300 series clones (328, 329 and 330) presented significantly higher values of the storage modulus [E'_{\max} (Mpa)] and lower variation in values of the E'_{\max} between other IAC 300 clones and the witness (Figure 1). The glass transition temperatures (T_g), measured at the maximum of the $\tan \delta$ curves as a function of the temperature, without varying in relation to the type of clone (Figure 2). The IAC 333 had the lower T_g value and IAC 328 the highest. The $\tan \delta$ values which were obtained are inside the range of the values usually displayed for viscoelastic materials ($0.001 < \tan \delta < 3$)².

Keyword: natural rubber, clones, rubber tree, dynamic-mechanical properties.

The authors acknowledge the financial support provided by FAPESP, CNPq and CAPES.

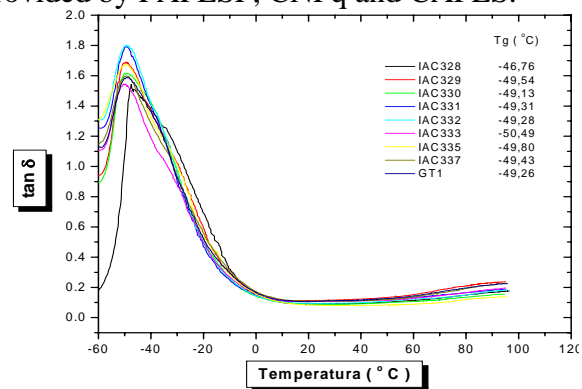
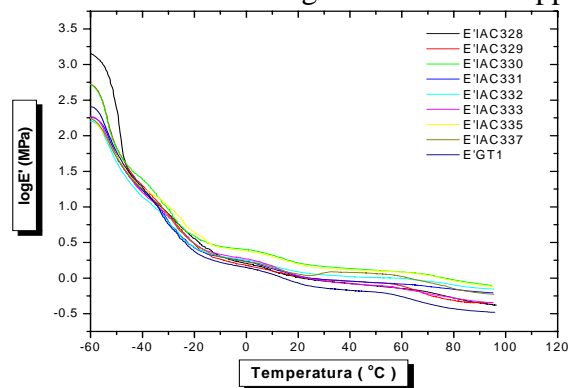


Figure 1 – $\text{Log}(E')$ versus temperature for NR from new clones IAC 300 series.

Figure 2 – $\tan \delta$ versus temperature for NR from new clones IAC 300 series.

[1] International Rubber Study Group, Rub. Stat. Bull. **60**, 9 (2006).

[2] S. V., Canevarolo - Parte 1: O amortecimento ($\tan \delta$). Seção técnico-científica, Associação Brasileira de Polímeros, 36 (1991).

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