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MECHANICAL BEHAVIOR AND COMPOSITION OF GUTTA-PERCHA

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Gutta-percha is a dried coagulated extract of plants of Palaquium, these trees are natural inhabitants of South East Asia, particularly Malaysian and Indonesian archipelago. These Gutta-percha yielding trees are medium to tall trees, in which a series of cuts (concentric or v- shaped cuts) are made to obtain the juice. The purpose of this paper was to scrutiny on Structural, Composition, and Mechanical Properties of Gutta-Percha used in Endodontics. Standardized ADA of Endodontics size 100 gutta-percha points were Used in this study. The sample (1.000 mg) was dissolved in 10 ml of chloroform and centrifuged at 104 g for 15 minutes. The supernatant was removed and 10 ml of acetone was added to precipitate the gutta-percha. A universal testing machine was used to determine the mechanical properties. The mechanical properties were found to be strain rate sensitive. Specimens loaded in tension at temperatures less than 23 °C appeared to fail at relatively low strain. However, those loaded at temperatures greater than 25°C failed at relatively high strain. Premature failure at relatively low strain levels was also noted when the specimens were elongated at rates less than 22.5 cm per minute. At rates of the order of 2.5 cm per minute the specimens appeared to fail in a brittle fashion. Gutta-percha endodontic points are composed of approximately 20% gutta-percha, 66% filler, 11% radio pacifier, and 3% plasticizer. There appears to be some chemical interaction between zinc oxide and gutta-percha, that is, the zinc oxide apparently does not function exclusively as inert filler.



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