

Barrier Integrity of Punctured Gloves: NR Superior to Vinyl and Nitrile

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The barrier performance of NR, vinyl and nitrile examination gloves was determined by assessing the amount of virus (ϕ X174) suspension penetrating through the fingers punctured with acupuncture and syringe needles of 0.22 to 0.45 mm diameter. The water leak test showed a 100% failure in vinyl and nitrile gloves when punctured with 0.3 mm and 0.4mm needles, respectively. NR gloves, however, showed markedly less failure even when puncture with needles up to 0.45 mm diameter. Failure in water leak test indicated a virus penetration of $> 2 \mu\text{l}$. Puncture with 26G syringe needle showed $> 2500 \mu\text{l}$ of virus suspension penetrating through vinyl and nitrile gloves compared to $< 25 \mu\text{l}$ with NR gloves. The low leak from punctured NR gloves was observed to be associated with their low modulus and high tear strength resistance compared to those of vinyl and nitrile gloves.

SOURCE: Malaysian Rubber Board