

Report No. R12485 (RC20084)

Sample and Testing

The sample was a "memory foam" used in a pillow and alleged to be manufactured from *Hevea* latex products. The aim of the testing was to determine how much *Hevea* rubber was in the foam.

In the first instance a chunk from the foam was examined by FTIR using the ATR accessory to scan the surface. In the second instance some of the foam was heated at 600°C on the TGA and vapour from decomposition examined by FTIR.

Results

FTIR showed main peaks attributed to urethane and not a NR based natural products.

3467-3328 cm ⁻¹	may be OH or NH (NH fits with other peak)
1726 + 1535/1510 cm ⁻¹	urethane NH-C=O.O group
1596 cm ⁻¹	aromatic ring C=C
1100 cm ⁻¹	ether group C-O-C from polyethers associated with urethane

NR latex (*Hevea* milk) contains polyisoprene and would be expected to give a C=C group at 834-830 cm⁻¹. Although a small peak was visible at 831 cm⁻¹ it was very low intensity compared to the rest of the spectrum and hence cannot be a major component.

FTIR spectra of the vapour products from heating at 600°C showed peaks related to carbon dioxide, carbon monoxide, ester or aldehyde carboxyl (1760-1740cm⁻¹) and various C-O groups 1210-1000cm⁻¹. Such products may be expected from a urethane.

Although there was some allylic C=CH₂ groups 952-912cm⁻¹ there was no evidence of the trisubstituted -C(CH₃)=CH₂ group near 890-880 cm⁻¹ normally produced from NR related rubber products.

Conclusion

Despite the alleged source and use of *Hevea* latex milk products there was no evidence of any polyisoprene that could confirm the *Hevea* origin.

Although it is possible that non-polyisoprene related components were separated and incorporated into the urethane this cannot be confirmed.