

The asbestos samples were deposited onto both sides of a KRS-5 reflector plate approximately $50 \times 20 \times 2$ mm with a 45 degree angle face that yielded approximately 25 reflections. Approximately one third to one half of the KRS-5 reflector plate surface area was covered with the asbestos sample supported in a Wilks MIR-2 steel holder. Pressure was applied to achieve efficient intimate contact of the asbestos with the reflector plate.

Internal reflectance measurements were made by means of the Wilks Scientific Model 9 Single Beam Internal reflectance attachment, including a Wilks Model 2 sample holder, on a Perkins Elmer Model 137B. Infra-red Spectrophotometer with sodium chloride optics. A Wilks MIR-11 beam attenuator was used to attenuate the reference beam. The optical efficiency of the Wilks Model 9 attachment with no sample present is about 50 per cent after reflection losses.

Fine adjustments of the optical alignment were made without the reflectance unit to produce a recorder response of 98 per cent transmission at 2000 cm^{-1} . The multiple internal reflection unit was inserted and produced a recorder response of 37 percent transmission at 2000 cm^{-1} . The reference beam was then attenuated using a Wilks Model 11 beam attenuator such that the recorder pen response was 75 per cent transmission at 2000 cm^{-1} with no sample present.

The infra-red internal reflectance spectra obtained for the asbestos samples are shown in Figs. 1-5.

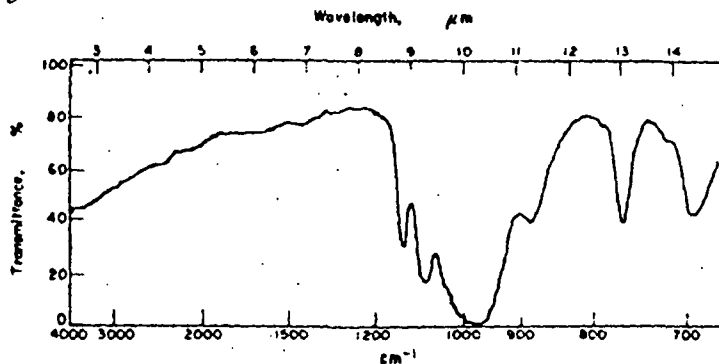


FIG. 1. Infra-red internal reflectance spectrum of Amosite.

3. DISCUSSION

No attempt was made to note band assignments since this part of the study has been directed only to detect instrumentally measured differences between the various UICC standard reference asbestos samples. BELLAMY (1964) has noted the region of transmission absorption area between 1100 cm^{-1} and 900 cm^{-1} for silicate compounds. LAUNER (1952) also shows a transmission spectrum of anthophyllite that was obtained from thin films of powder asbestos (fiber length of less than $2 \mu\text{m}$) deposited on a sodium chloride plate. Launer indicates that the amphibols have a band near 769 cm^{-1} which is characteristic of the double-chain silicates.

There is a strong similarity between the absorption spectrum obtained for anthophyllite by direct transmission measurements by Launer and that which was obtained

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