acoustic microscopy

Rubber

Inclusions in rubber show up in high contrast due to different acoustic impedances. Hard metal oxids contrast particulary well against soft rubber, although soot particles are clearly visible as well.
Different rubber mixtures of different hardnesses and therefore acoustic impedances can also be observed separatly.

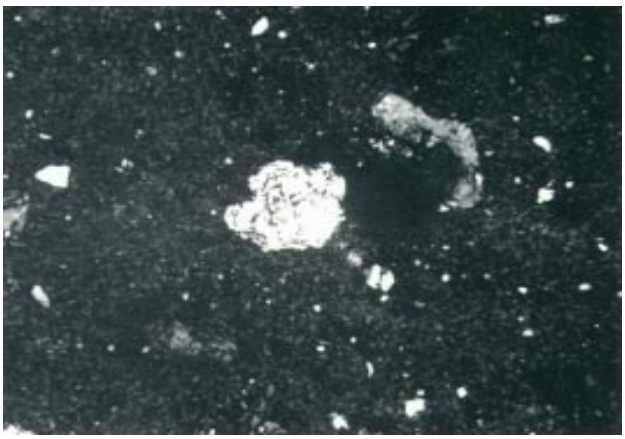

Fig. a: Rubber with both soot and metal oxide inclusions
Frequency: 1.3 GHz
Image width: 200 µm

Fig. b: Soot particles in rubber. Interference fringes round the inclusion show that the rubber has undergone mechanical change here.
Frequency: 400 MHz
Image width: 1mm

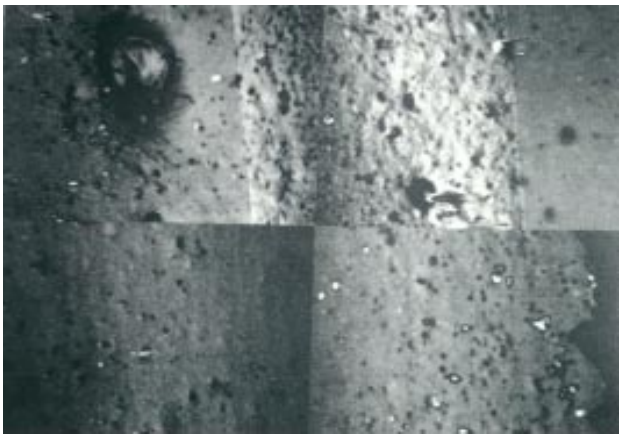

Fig. c: Composite illustration of a cross section of rubber about 2 mm wide (arranged in lines from left to right).
The rubber consisted of several different rubber mixtures.
Frequency: 400MHz