



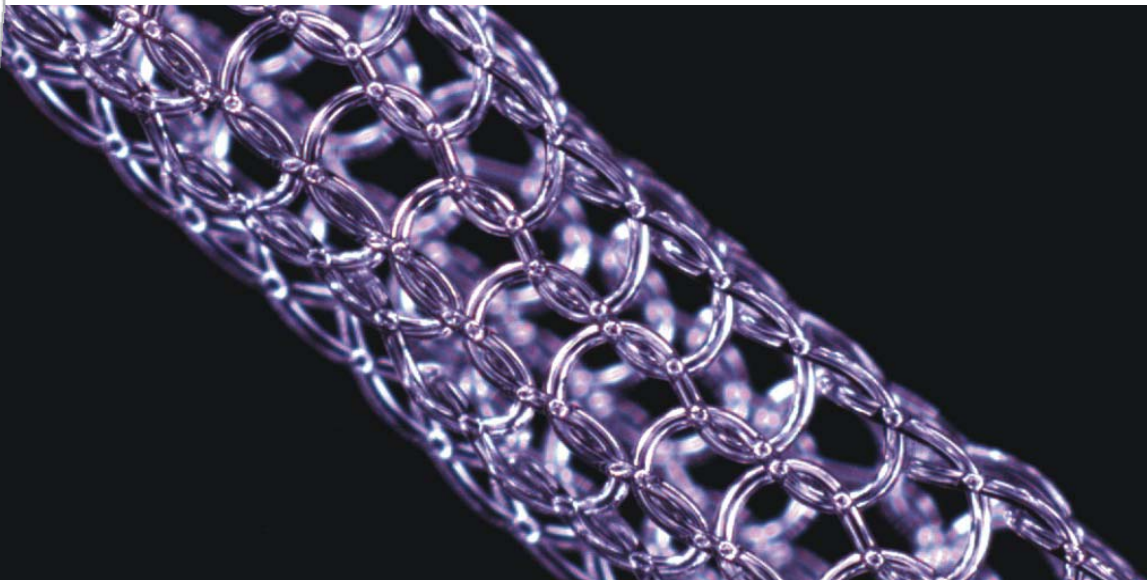
Microscopy Report

Materials Science & Engineering
Report Number: 2751
Date: 16th May 2011

Client Name: All Type Flooring
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Commercial-in-confidence



A piece of each component (the green “grass”, the brown “grass”, the fibrous material from the backing and the rubber backing) of the “Tennessee Cool” artificial turf was placed on conductive carbon tape on a sample holder. The samples were then coated with 20 nm of carbon to improve electrical conductivity. The samples were analysed in the Hitachi S4300 SE/N Scanning Electron Microscope utilising a Vortex EM x-ray detector with WinEDS software. In each case an accelerating voltage of 30 kV was used with a working distance of 20 mm. The magnification was set at 150 times. This ensured the largest possible analysis area giving a more averaged result for each sample.

The following figures show spectra from each component of the sample – green “grass” (figures 1 and 2), brown “grass” (figures 3 and 4), fibrous material from the backing (figure 5) and the rubber backing (figure 6). In each case the large peak at the low energy end of the spectrum is carbon. There were traces of chlorine (Cl) and iron (Fe) in the green “grass” and traces of titanium (Ti), iron (Fe) and zinc (Zn) in the brown grass. There was a small amount of calcium in the fibrous material from the backing. The rubber backing material contained magnesium (Mg), silicon (Si) and calcium (Ca). No heavy metals were detected in the sample.

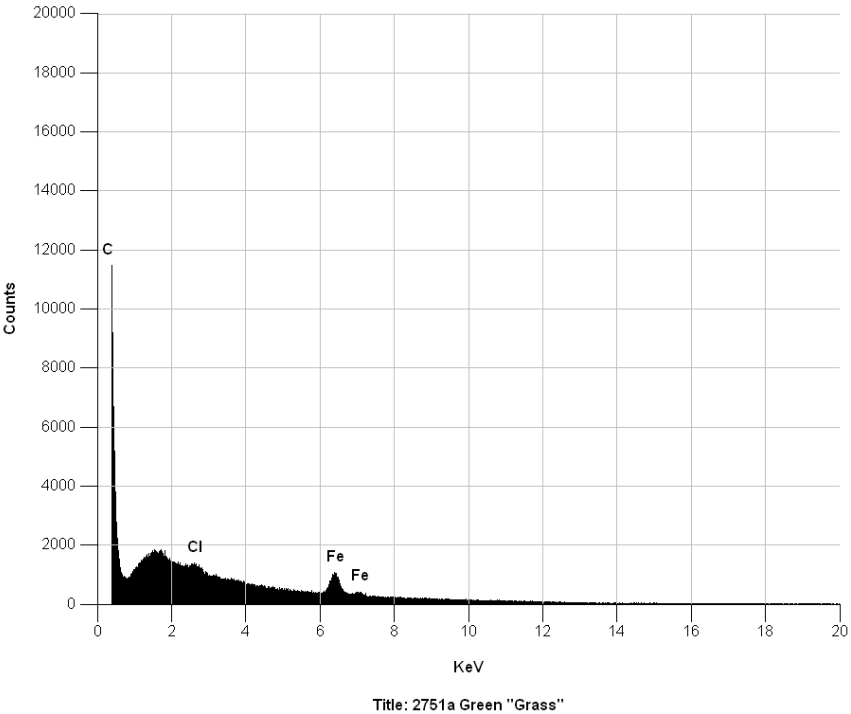


Figure 1

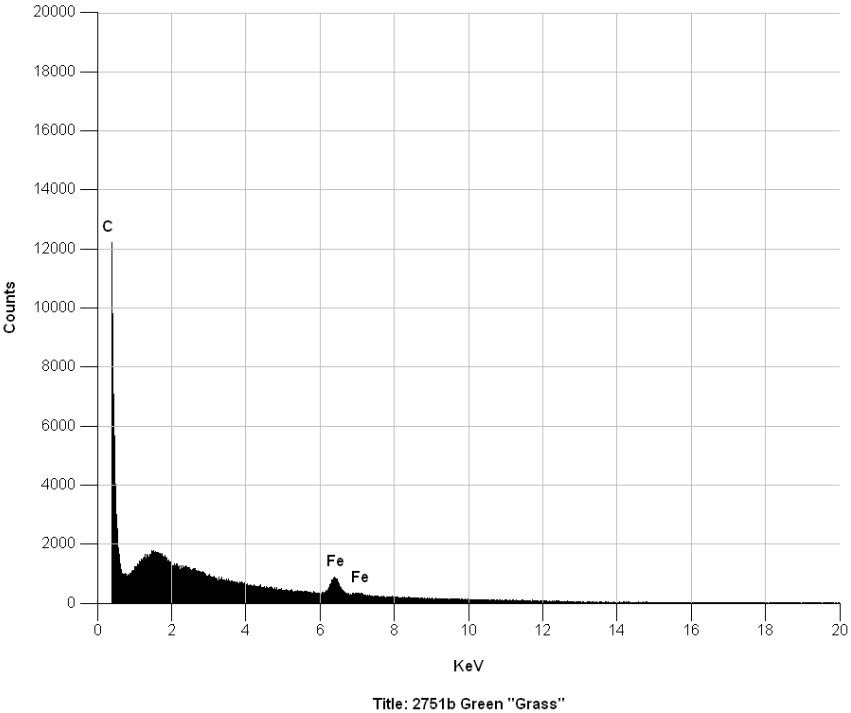
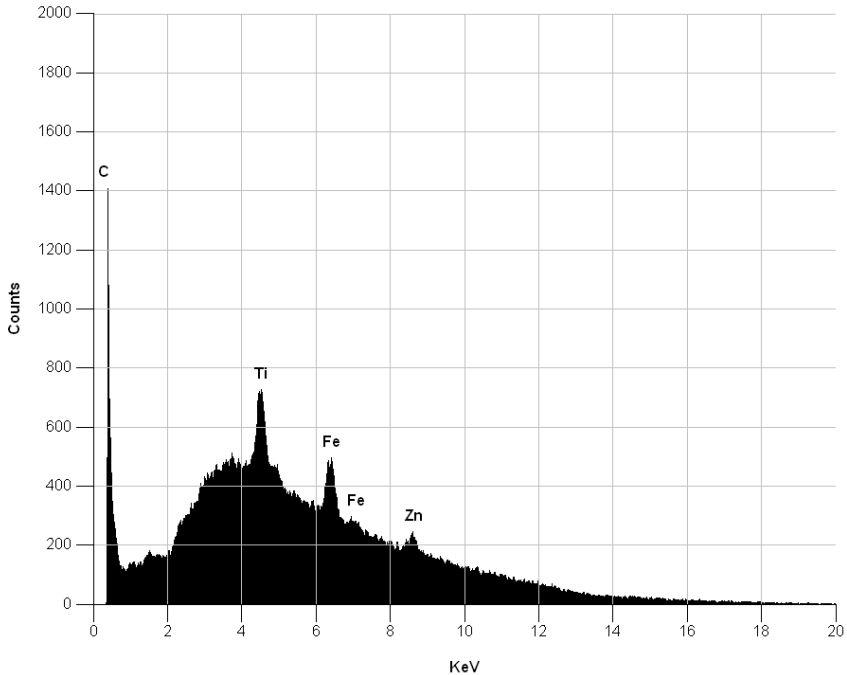
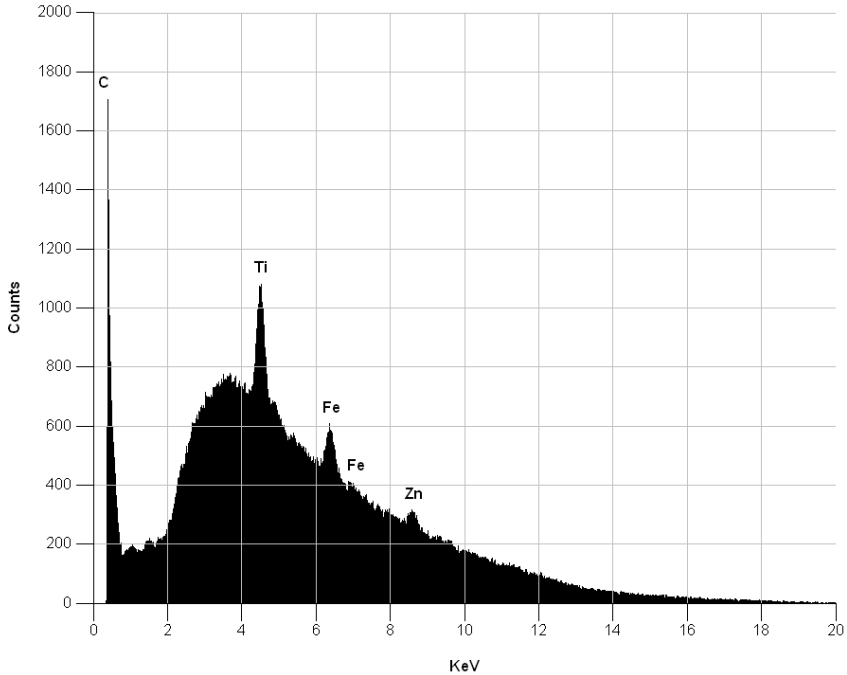


Figure 2



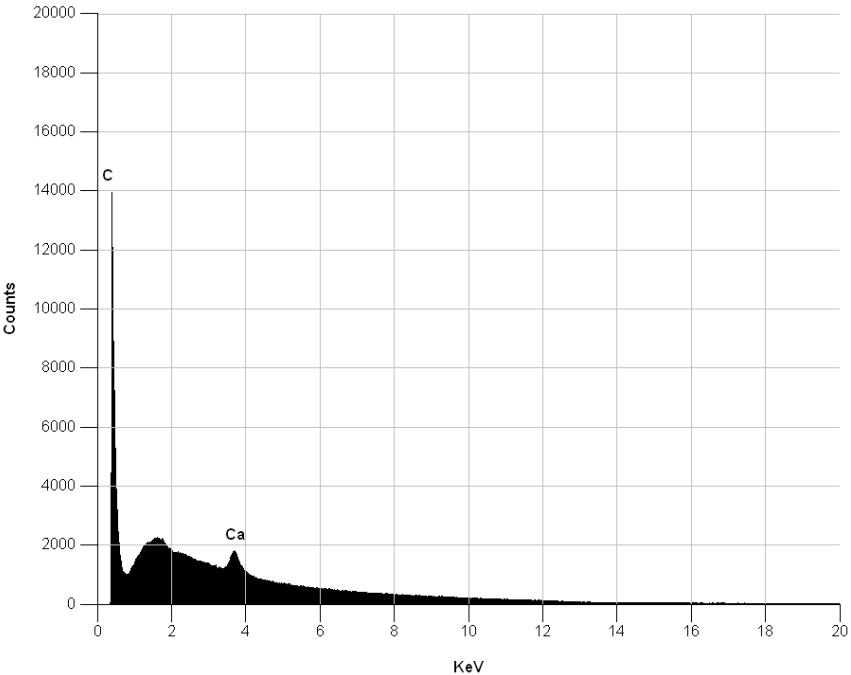
Title: 2751 c Brown "Grass"

Figure 3



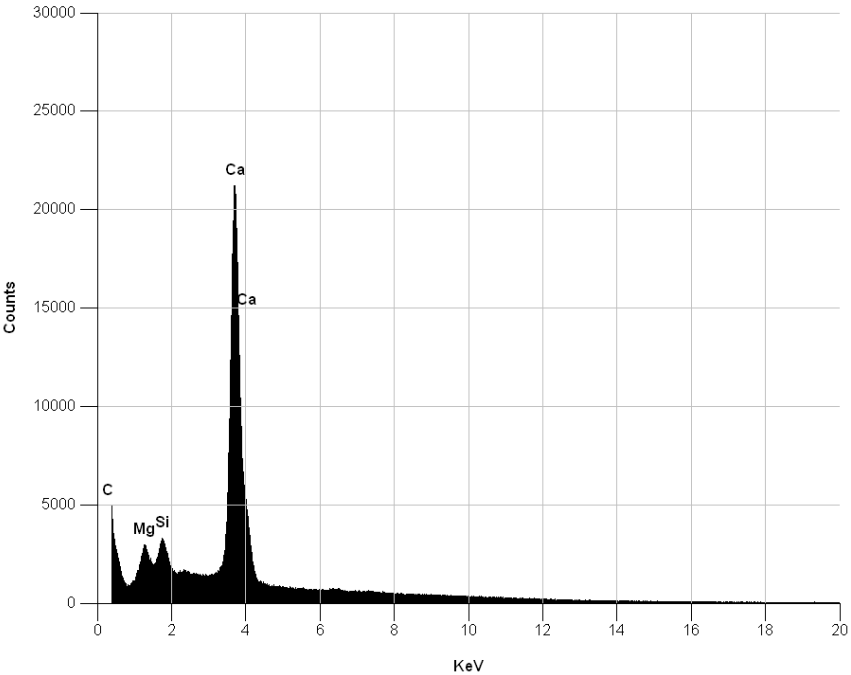
Title: 2751 d Brown "Grass"

Figure 4



Title: 2751e Fibre from backing

Figure 5



Title: 2751f Rubber backing

Figure 6

This Report is a summary of the results obtained from the Services carried out on the Client Contributions both of which are described above. CSIRO will accept no responsibility for any interpretation, opinion or conclusion that any person forms as a result of reading this Report. The results contained in this Report apply only to the sample submitted to the laboratory. This Report must not be reproduced without the written authority of CSIRO and then must only be reproduced in full.

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