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Report on:

Examination of a Glass Sample Reported from Cottage Pie

Work performed by Campden BRI (Chipping Campden) Limited
Report number: MI/REP/170532-00526/1 ♦ Issue date: 31st May 2017

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tomato or garden/chilli pepper, cells consistent with the skin of a tomato (Plate 5), 'hook' hairs consistent with a herb (Plate 6), plant leaf tissue possibly from parsley (Plate 7) fat and fungal hyphae (Plate 8).

X-ray microanalysis was performed on the complaint sample (Figure 1). This showed the presence of oxygen, sodium, aluminium, silicon and potassium. This is a typical composition of heat-resistant glass, such as 'Pyrex'.

X-ray microanalysis was also performed on the metallic scuff marks (Figure 2). This showed the presence of the above elements, in addition to nickel, chromium, manganese and iron, all of which are constituents of stainless steel. An elemental map showing the distribution of these elements can be referred to in Figure 3.

CONCLUSIONS

It was concluded that the complaint sample was a worn piece of a rim from a heat-resistant glass, such as 'Pyrex', thought to have originated from an item measuring approximately 12cm in diameter. Potential sources include domestic items, such as bowls and casserole dishes. The stainless steel scuff marks on the apex of the fragment may have originated from contact with a tap/similar item, which may in turn have caused the initial breakage. Alternatively, the scuff marks could have originated from repeated contact with a metal drainage board. The surface deposit adhered to the complaint sample was consistent with contact with the reported product in addition to tomato. The fungal matter seen within the surface deposit was considered to be due to degradation of the surface deposit.

PLATE 1 Shows the complaint sample photographed as received against a millimetre-squared background

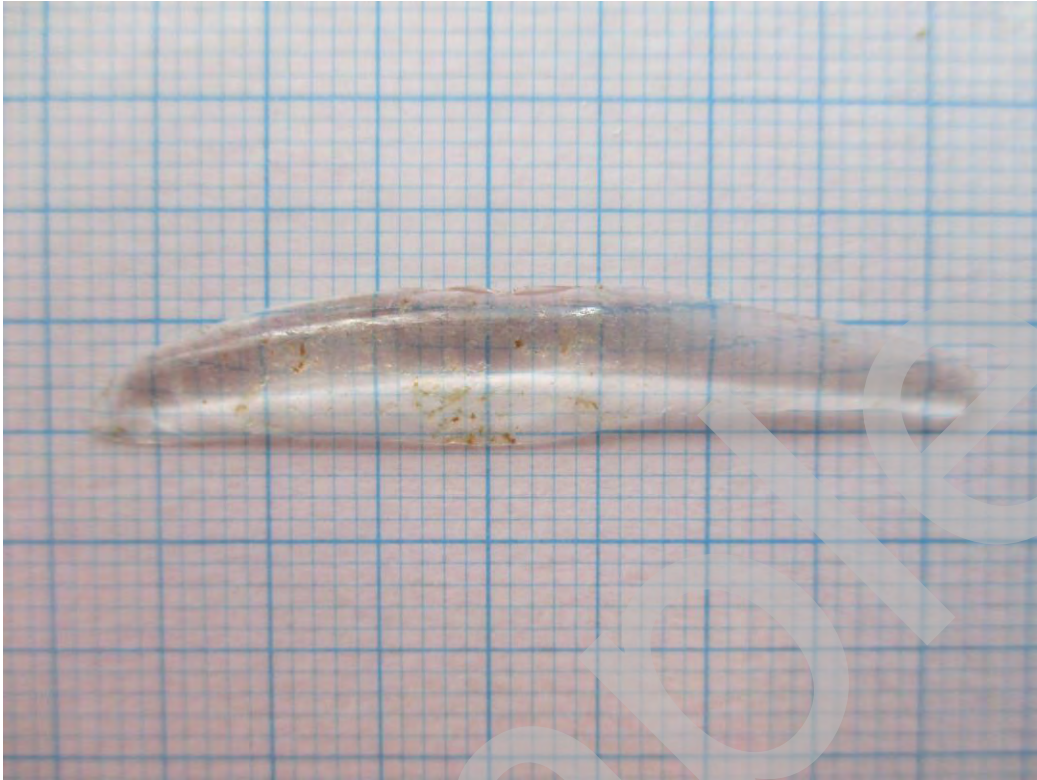


PLATE 2 Shows an example of the scuff marks (circled) seen along the apex of the fragment (top) and a close up (bottom)

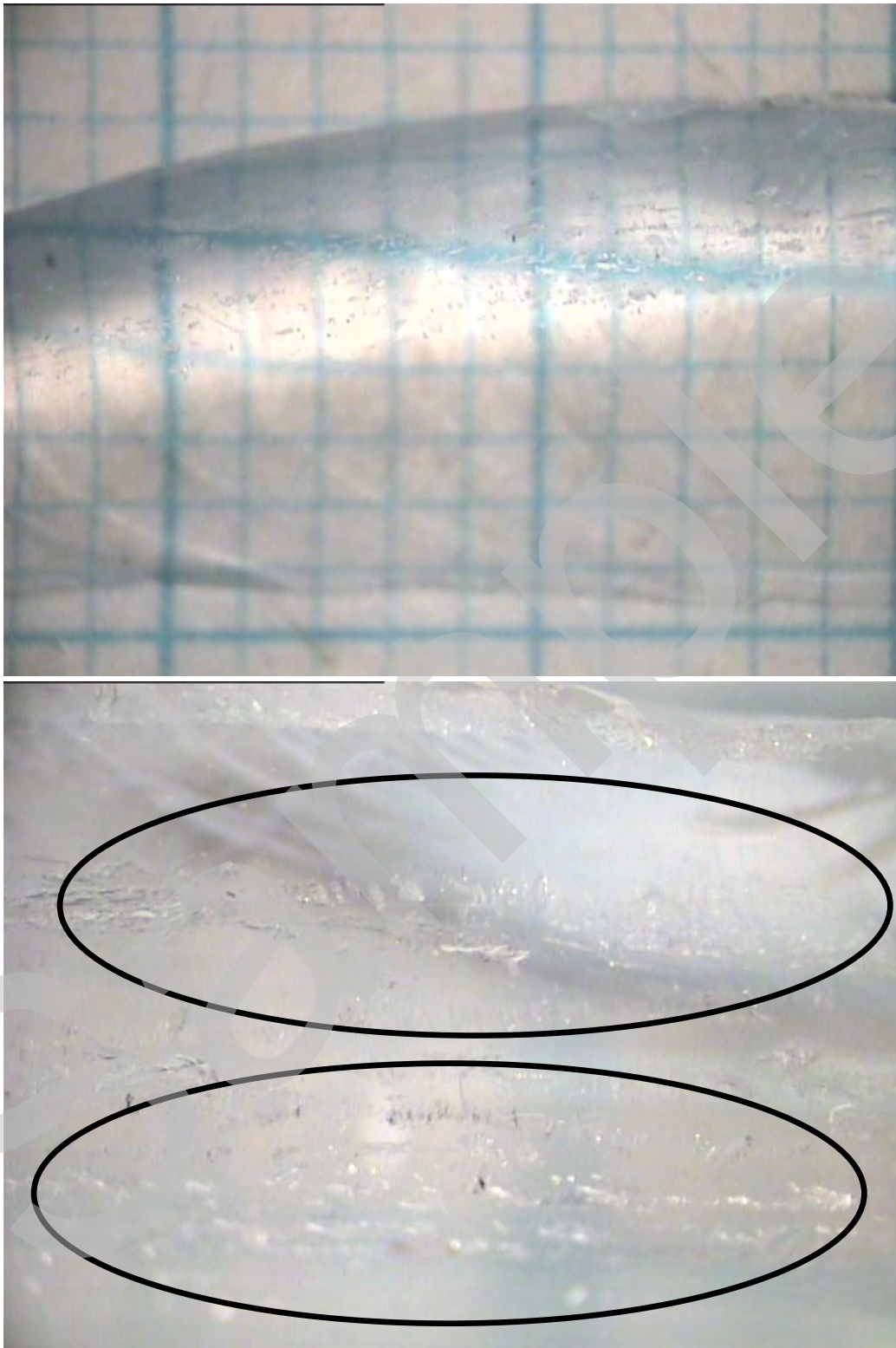


PLATE 3 Shows some of the potato cells seen within the surface deposit adhered to the complaint sample. Magnification x 109

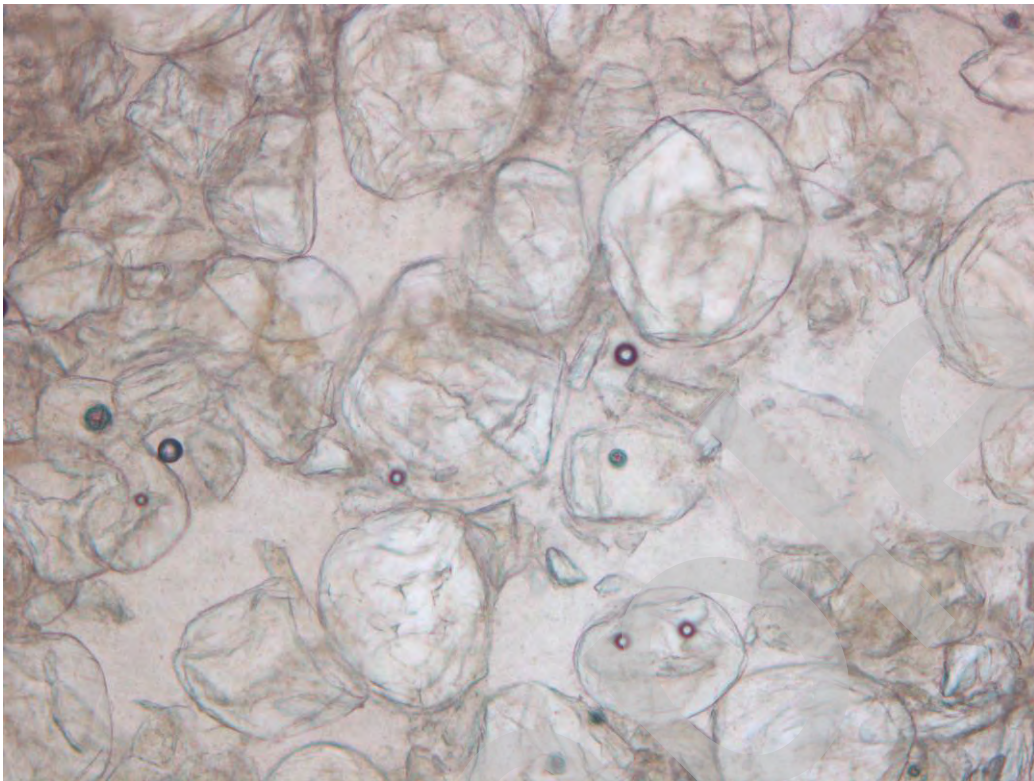


PLATE 4 Shows an example of the muscle fibres seen within the surface deposit adhered to the complaint sample. Magnification x 109

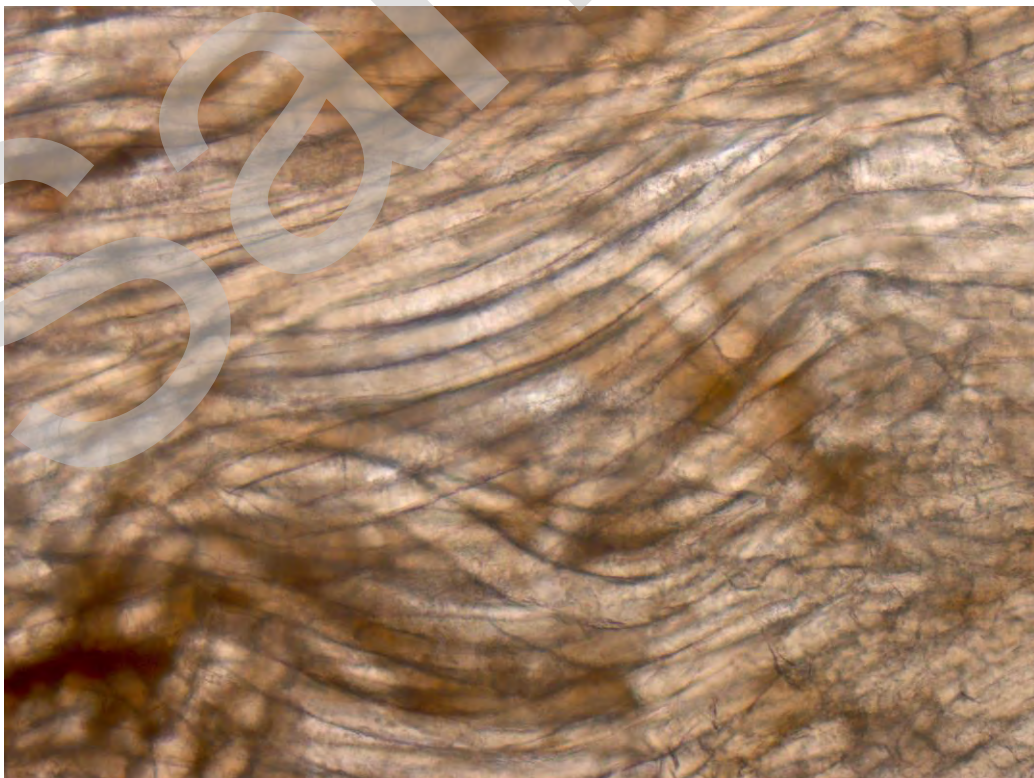


PLATE 5 Shows the cells consistent with the skin of a tomato, seen within the surface deposit adhered to the complaint sample. Magnification x 220

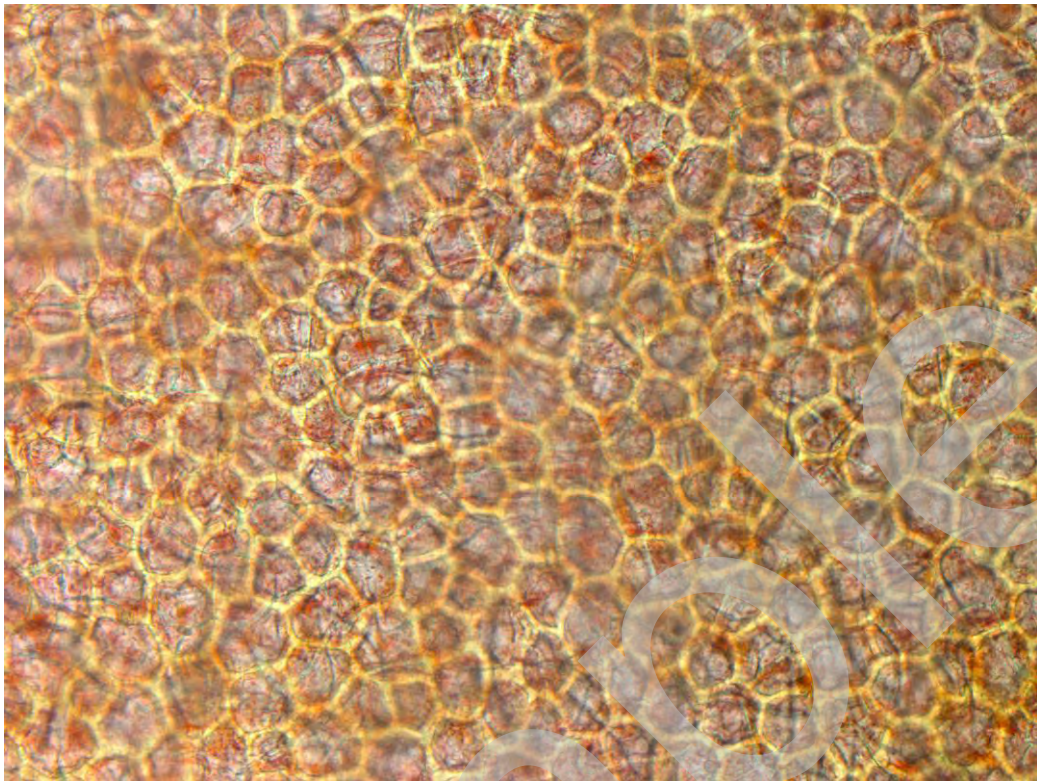


PLATE 6 Shows one of the 'hook' hairs seen within the surface deposit adhered to the complaint sample. Magnification x 435



PLATE 7 Shows the cells consistent with parsley, highlighted purple with toluidine blue seen within the surface deposit adhered to the complaint sample. Magnification x220

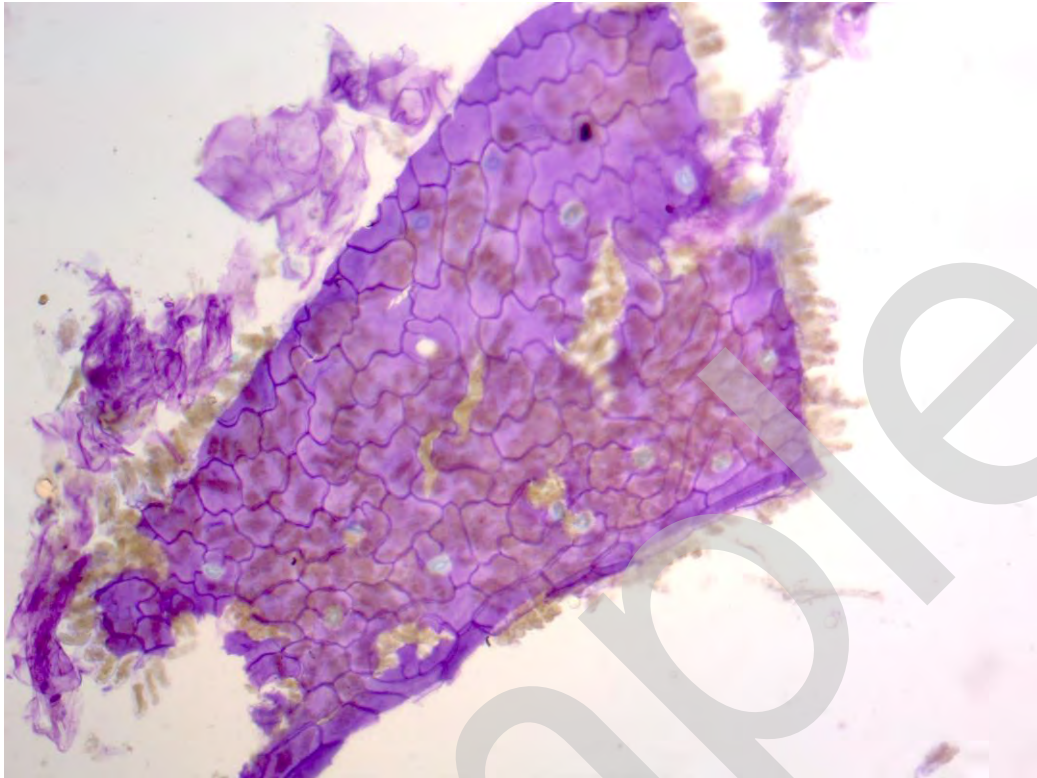
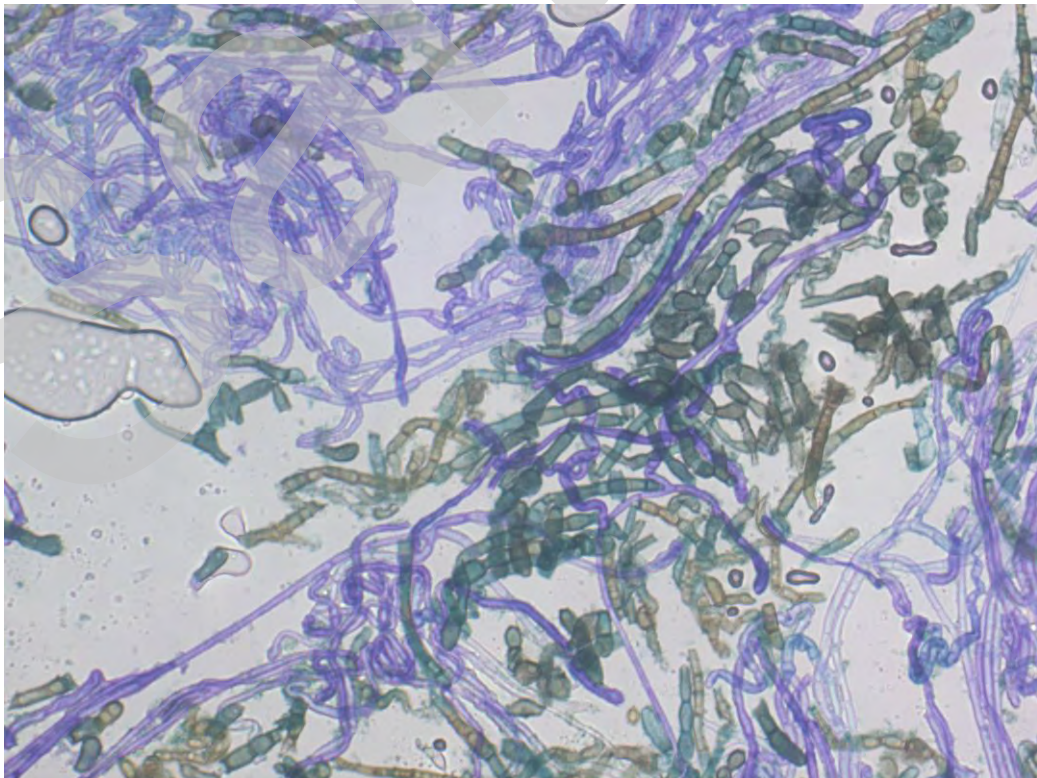


PLATE 8 Shows an example of the fungal hyphae seen within the surface deposit adhered to the complaint sample. Magnification x435



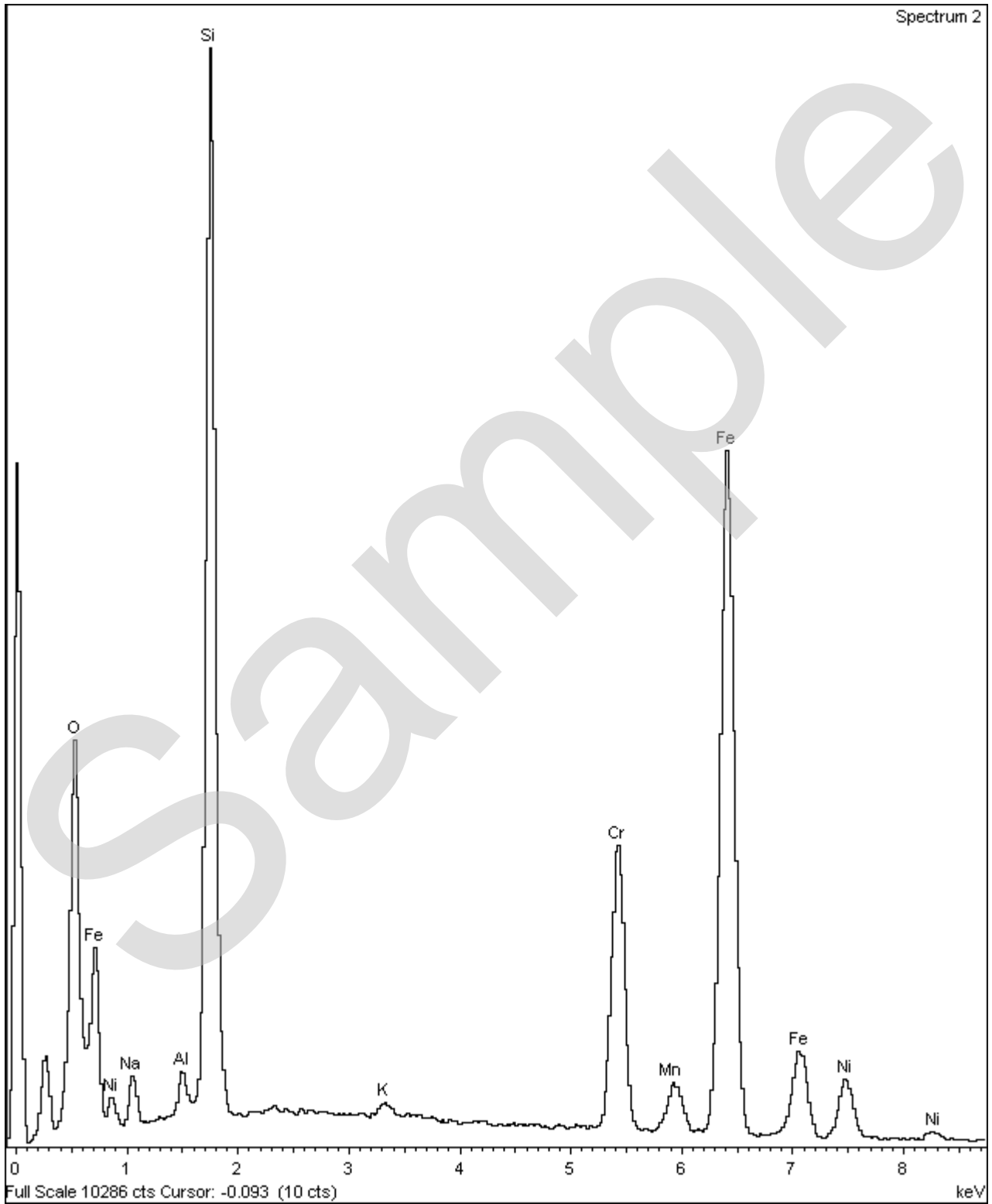
Glass Analysis

LIMS Project Number: 170532-00526
LIMS Sample Number: 15232565



Glass Analysis

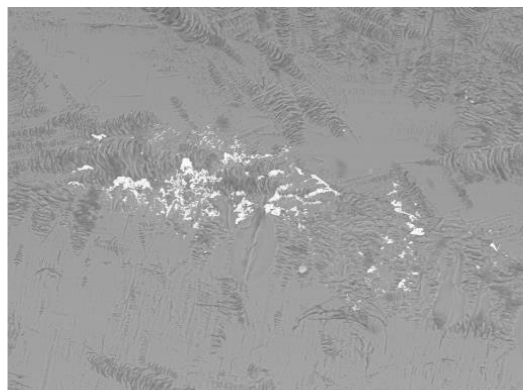
LIMS Project Number: 170532-00526
LIMS Sample Number: 15232565
Metal scuff mark



Glass Analysis

LIMS Project Number: 170532-00526
LIMS Sample Number: 15232565
Metal scuff mark

FIGURE 3



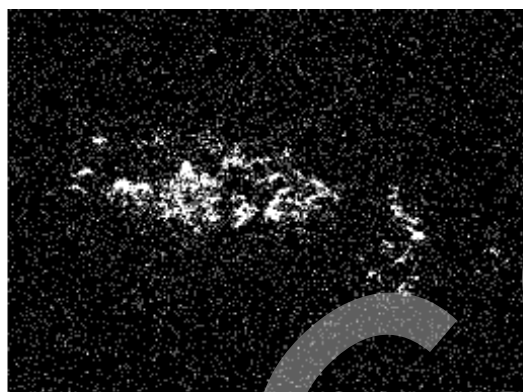
Electron Image 1



Ni Ka1



Cr Ka1



Fe Ka1

Comment:

The top left image is an electron micrograph of one of the metallic scuff marks, taken using the backscatter detector. The bright white area denotes the presence of elements with a higher atomic number compared to the background material (glass). The remaining images are element maps, showing the distribution of nickel (Ni), chromium (Cr), and iron (Fe) in and around the scuffed area, represented by the white regions.