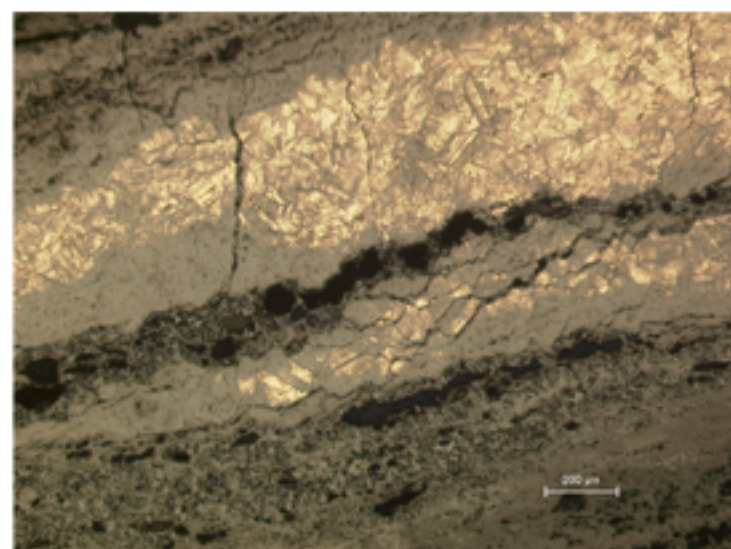


A32 - MIRROR



A32.1

Identification

Sample: A32
Card reference: C58
Origin: Etruria
Location: Musée du Louvre

Description

The copper base metal is heavily corroded; equiaxial grains attesting for annealing treatment and massive presence of slip lines throughout the thickness (not only at the surface) due to intensive cold work after heat treatment. Transgranular and intergranular cracks.

Figure captions

A32.1

General view of cross section: corrosion has advanced from the surface along grain boundaries and strain lines.

A32.2

General view showing intergranular cracks due to residual stress and corrosion orientated parallel to the surface.

A32.3

Detail showing transgranular cracks perpendicular to the surface: corrosion along slip lines.

A32.4

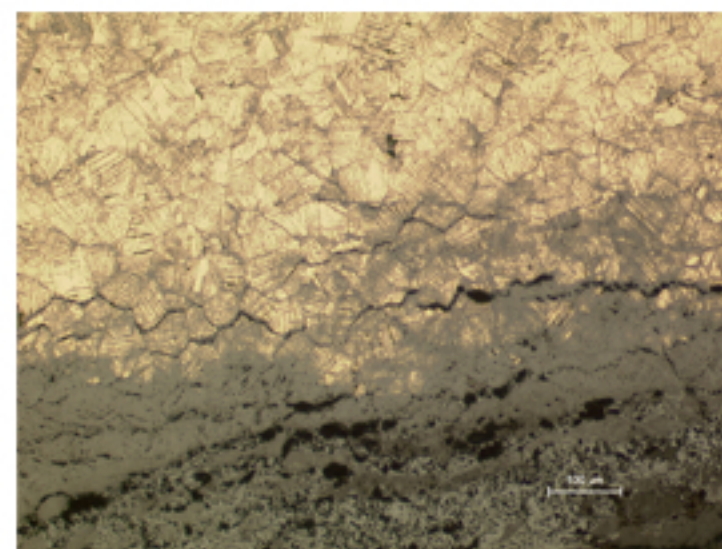
Detail showing the original surface (epidermis): a straight line evidences the limit between external deposits of copper corrosion products and internal oxidation layer, in which slip lines are still visible inside corroded grains.

A32.5

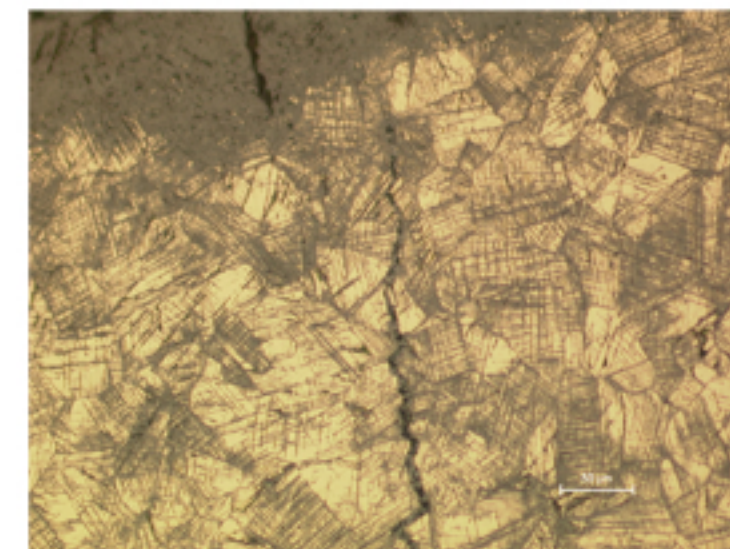
Same as A32.4 under polarized light, showing from top to bottom: the Cu-containing deposits overlying the brown internal oxidation layer.

A32.6

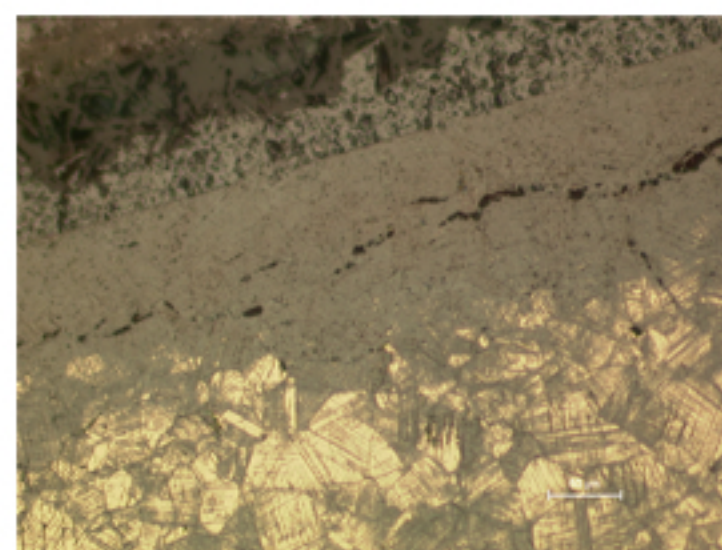
SEM image from another area of the sample (image orientation is upside down to previous figures) clearly showing the Sn enriched epidermis (white straight line).



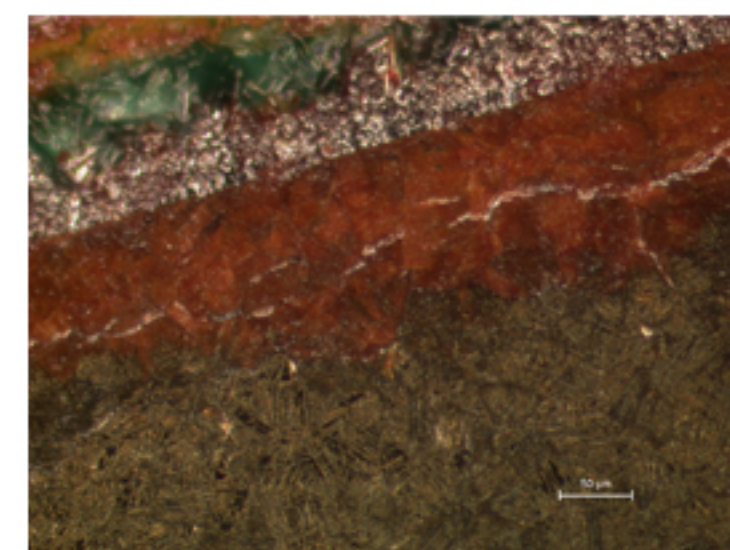
A32.2



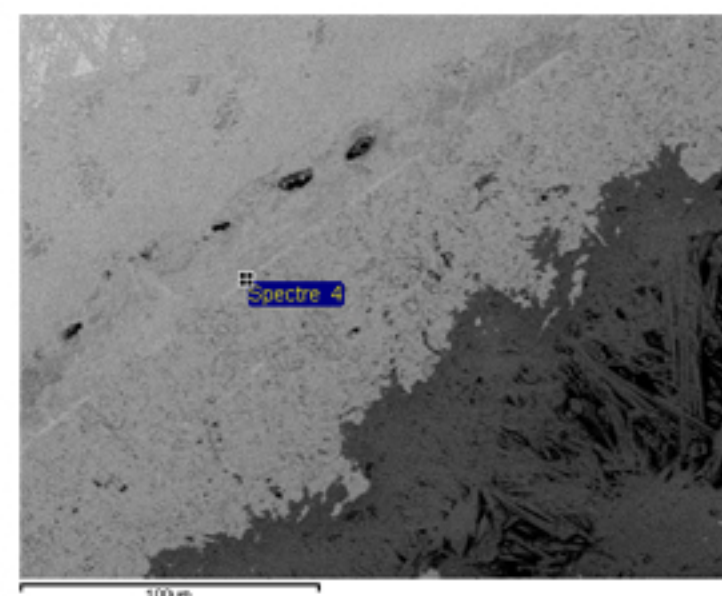
A32.3



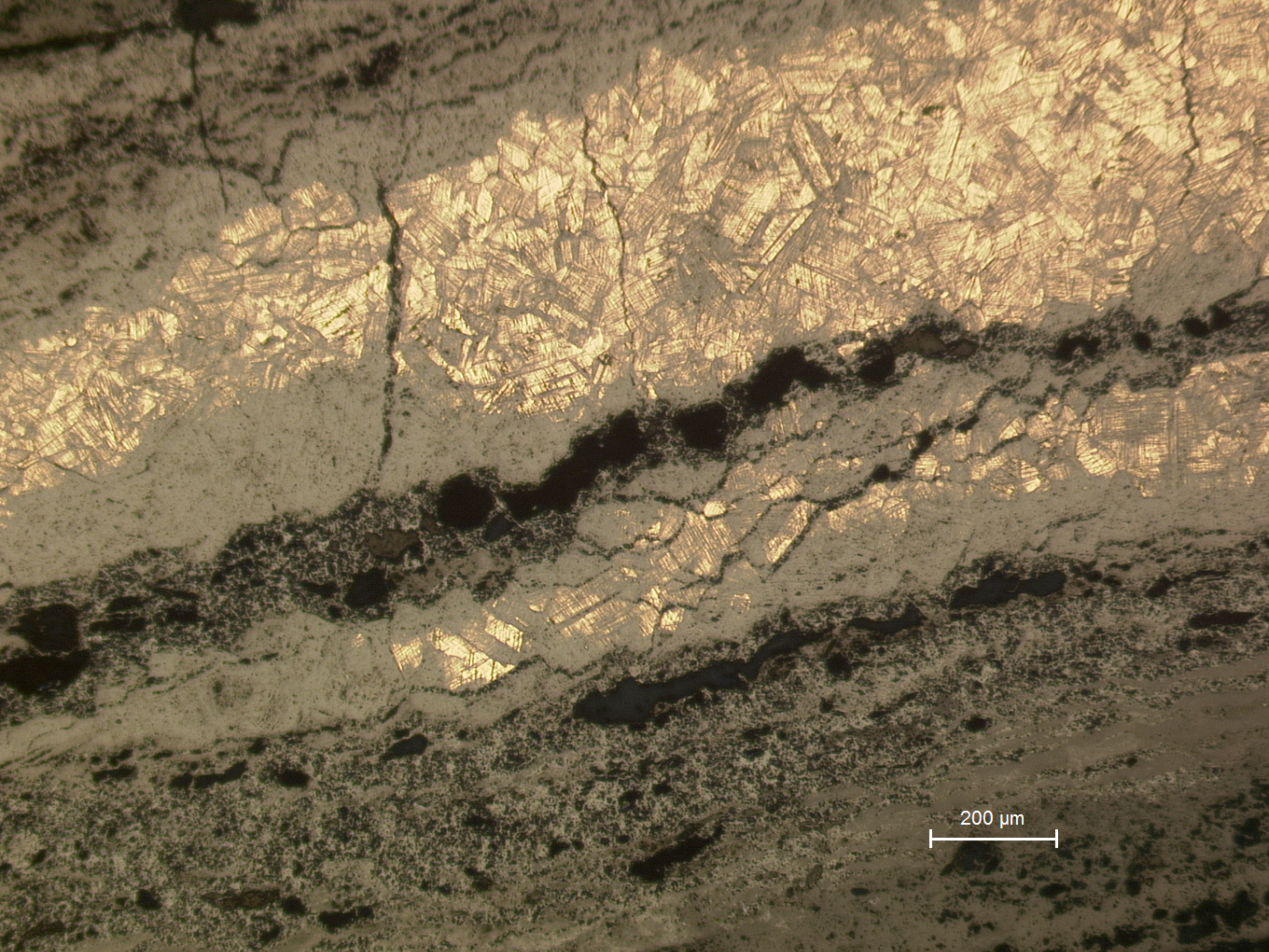
A32.4



A32.5

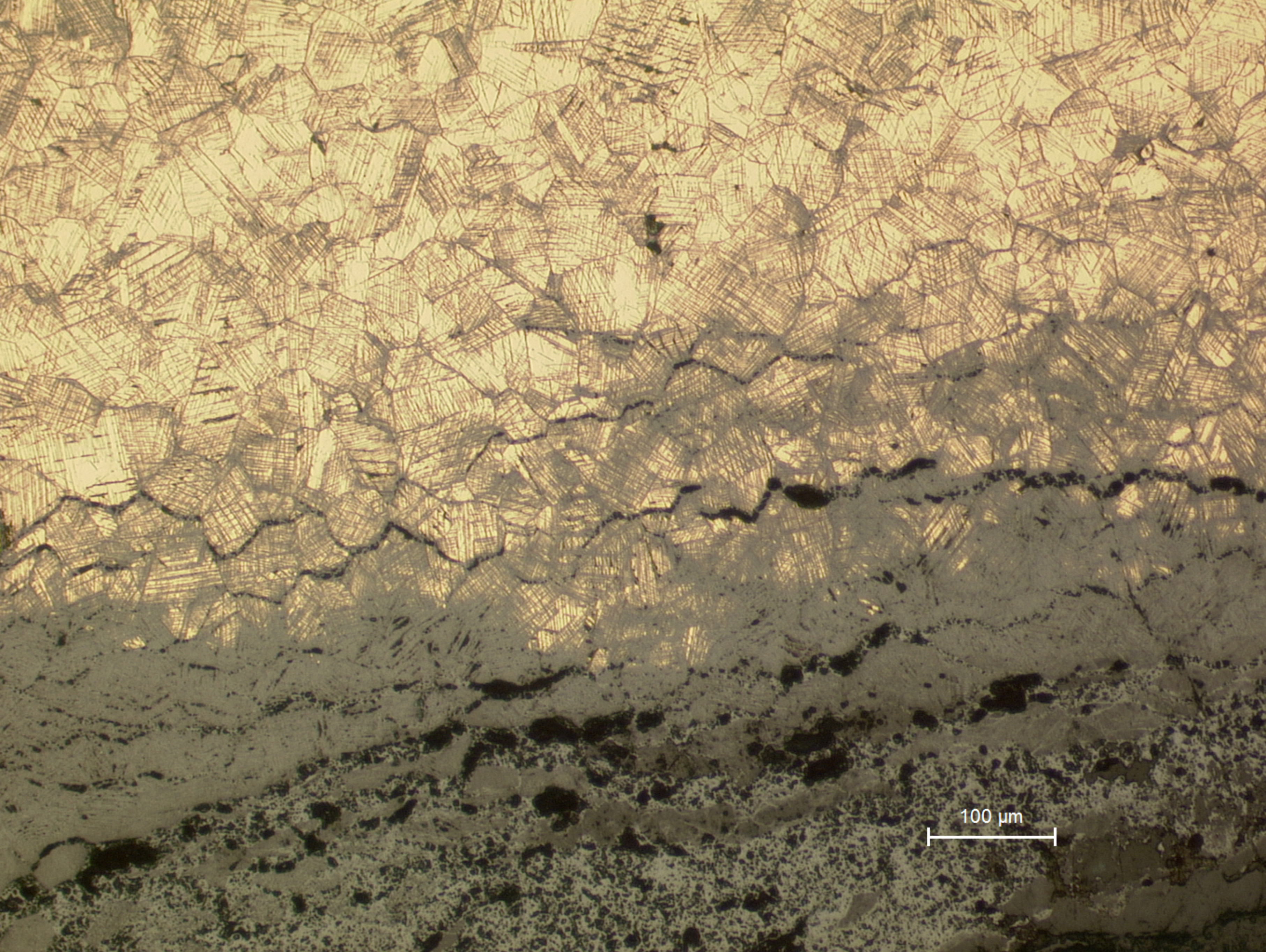


A32.6



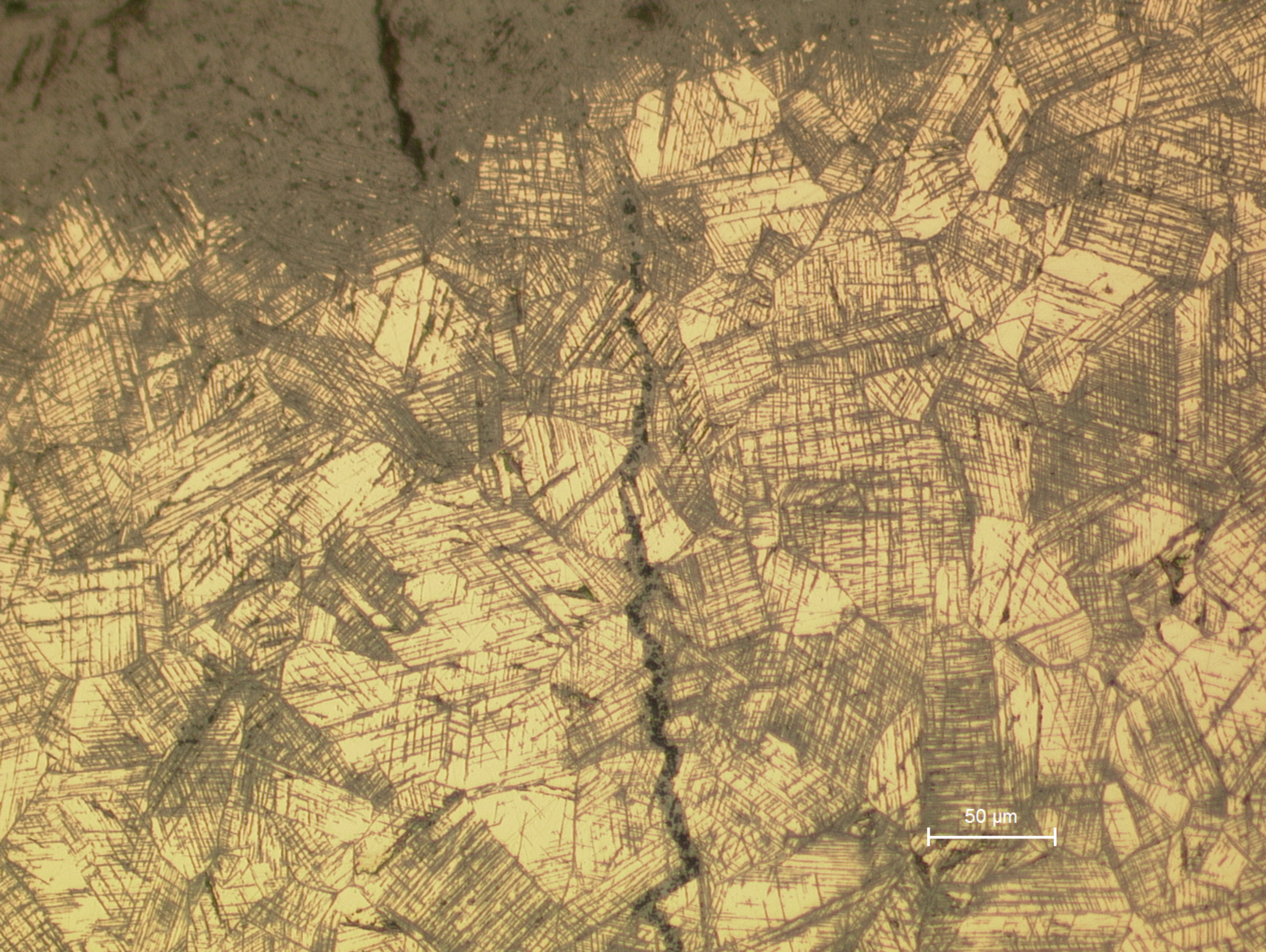
200 μm

A32.1
General view of cross section: corrosion has advanced from the surface along grain boundaries and strain lines.



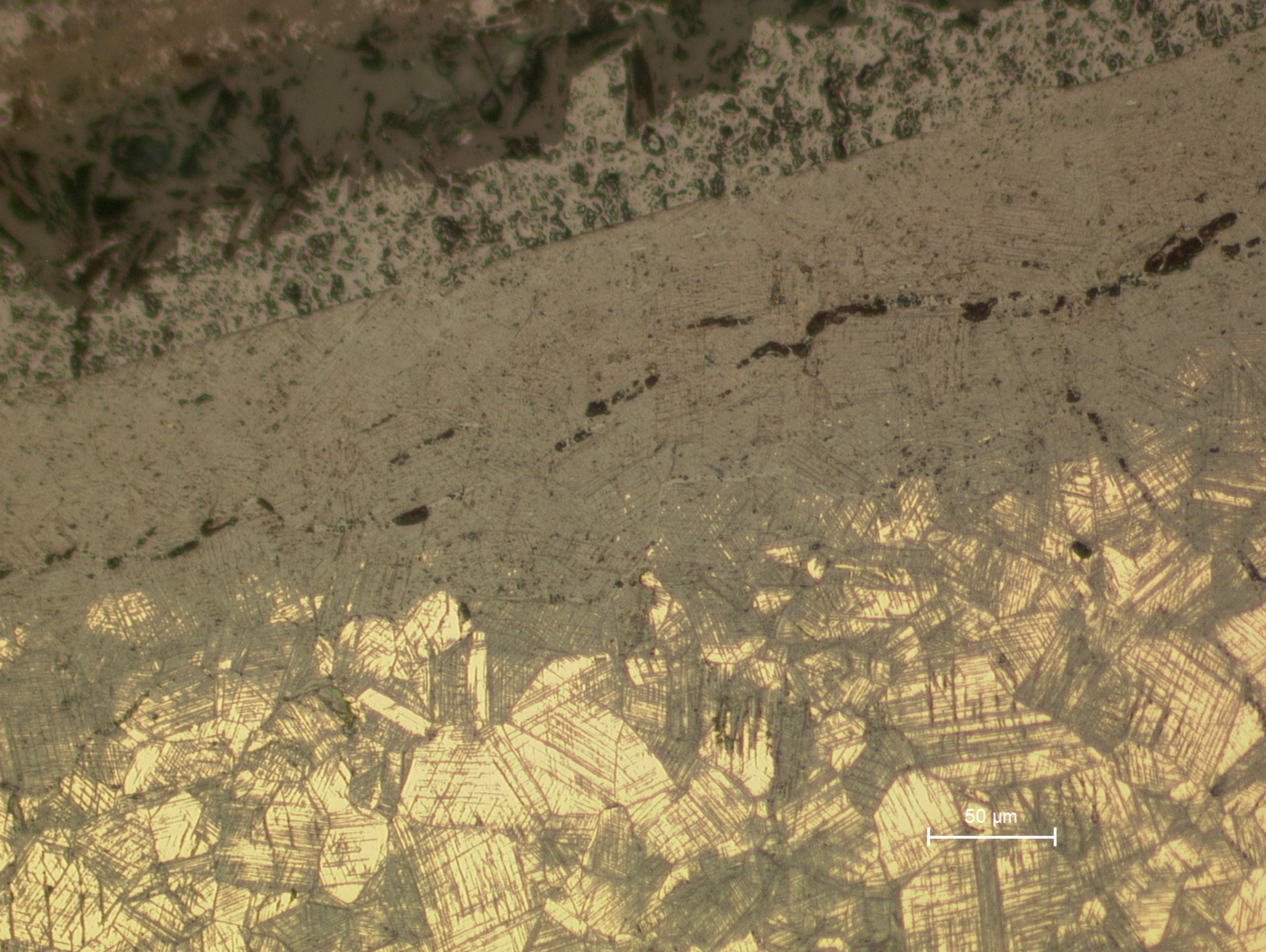
100 μm

A32.2
General view showing intergranular cracks due to residual stress and corrosion orientated parallel to the surface.



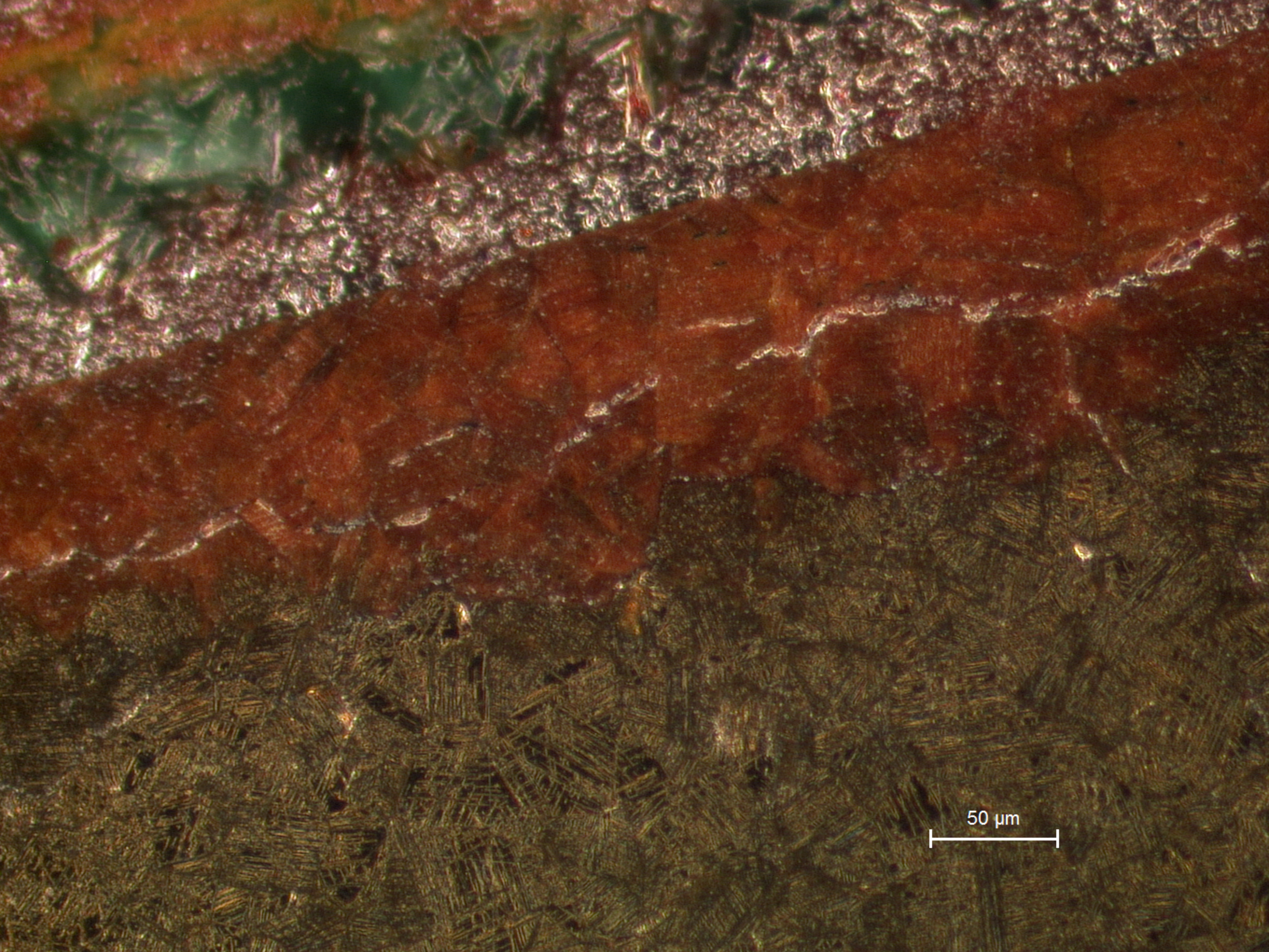
50 μm

A32.3
Detail showing transgranular cracks perpendicular to the surface: corrosion along slip lines.

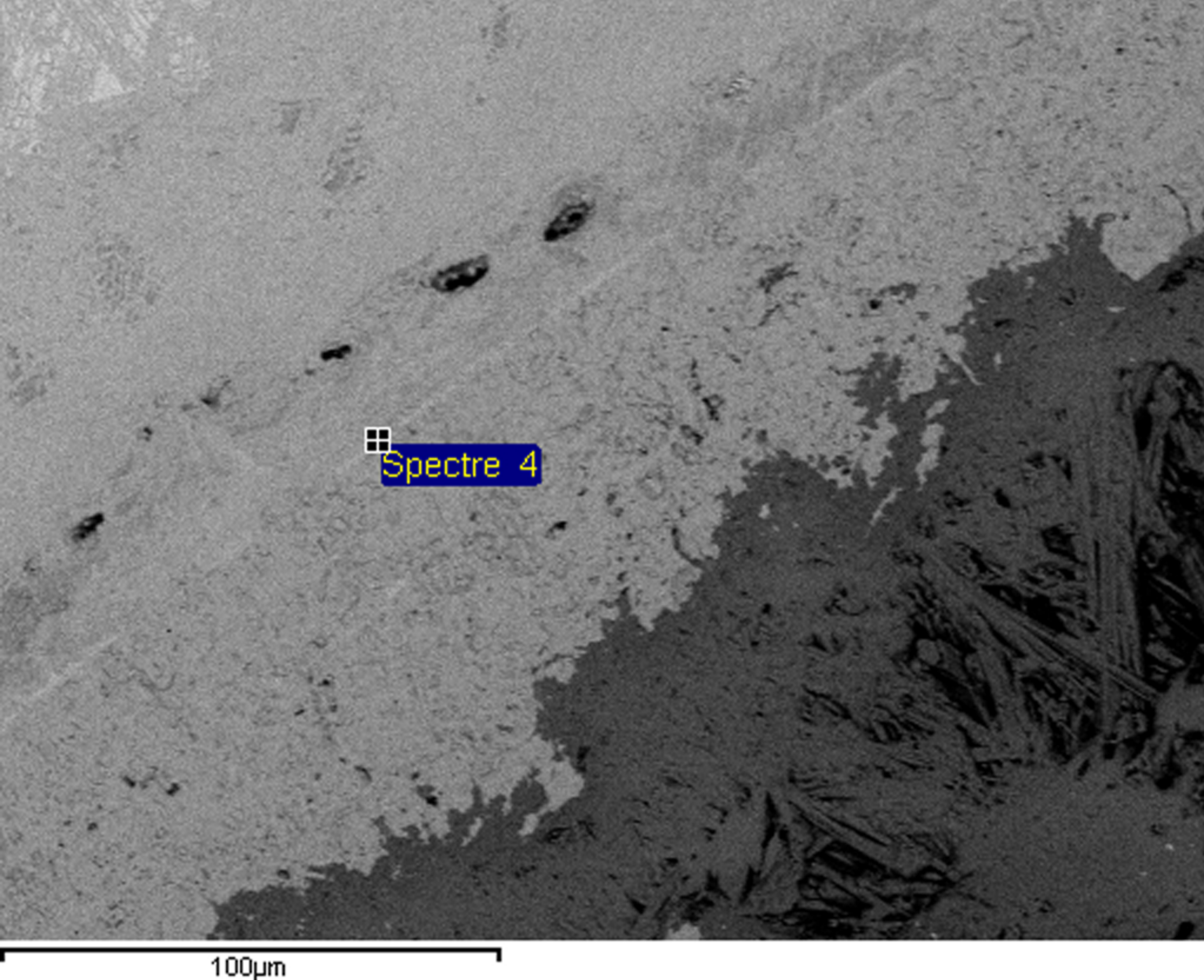


50 μm

A32.4
Detail showing the original surface (epidermis): a straight line evidences the limit between external deposits of copper corrosion products and internal oxidation layer, in which slip lines are still visible inside corroded grains.



A32.5
Same as A32.4 under polarized light, showing from top to bottom: the Cu-containing deposits overlying the brown internal oxidation layer.



100µm

A32.6

SEM image from another area of the sample (image orientation is upside down to previous figures) clearly showing the Sn enriched epidermis (white straight line).