Image Identity Phot_01

Material

Wrought aluminium alloy

Preparation Procedure

Preparation Stage	Surface and Abrasive		Machine Base speed	Time of Stage
Primary Grinding	P240g Silicon Carbide		150rpm	1 min
Secondary Grinding	Planocloth H	9µm Diamond WB	250rpm	4 mins
Tertiary Grinding	Durasilk	3µm Diamond WB	250rpm	3 mins
Polishing	Multicloth	0.04µm Opus	100rpm	2 mins

Additional procdures & techniques

Anodised in 2% tetraflouroboric acid electrolytically at 20 volts for 2 minutes

Microscopical Techniques

Reflected light, Polarised Light

Photographic technique.

Imaged using 5 x 4 sheet film and scanned with a Polaroid large format scanner at 2000 dpi. The technique was chosen to get large field of view at low power that could not be accomplished directly with a CCD camera. Slight alterations of brightness and contrast, plus a little unsharp mask using Adobe Photoshop

Description of Final Image

The image shows a longitudinal section of a wrought aluminium alloy. The resultant image shows the details of the grain structure of the material and how the material has distorted during testing. This is evident in the strain history seen by the distortion of the grains. The colours are due to the birefringence of this anodised layer and the orientation of the grains at this surface. This creates both a useful record of the materials structure and a pleasing image.

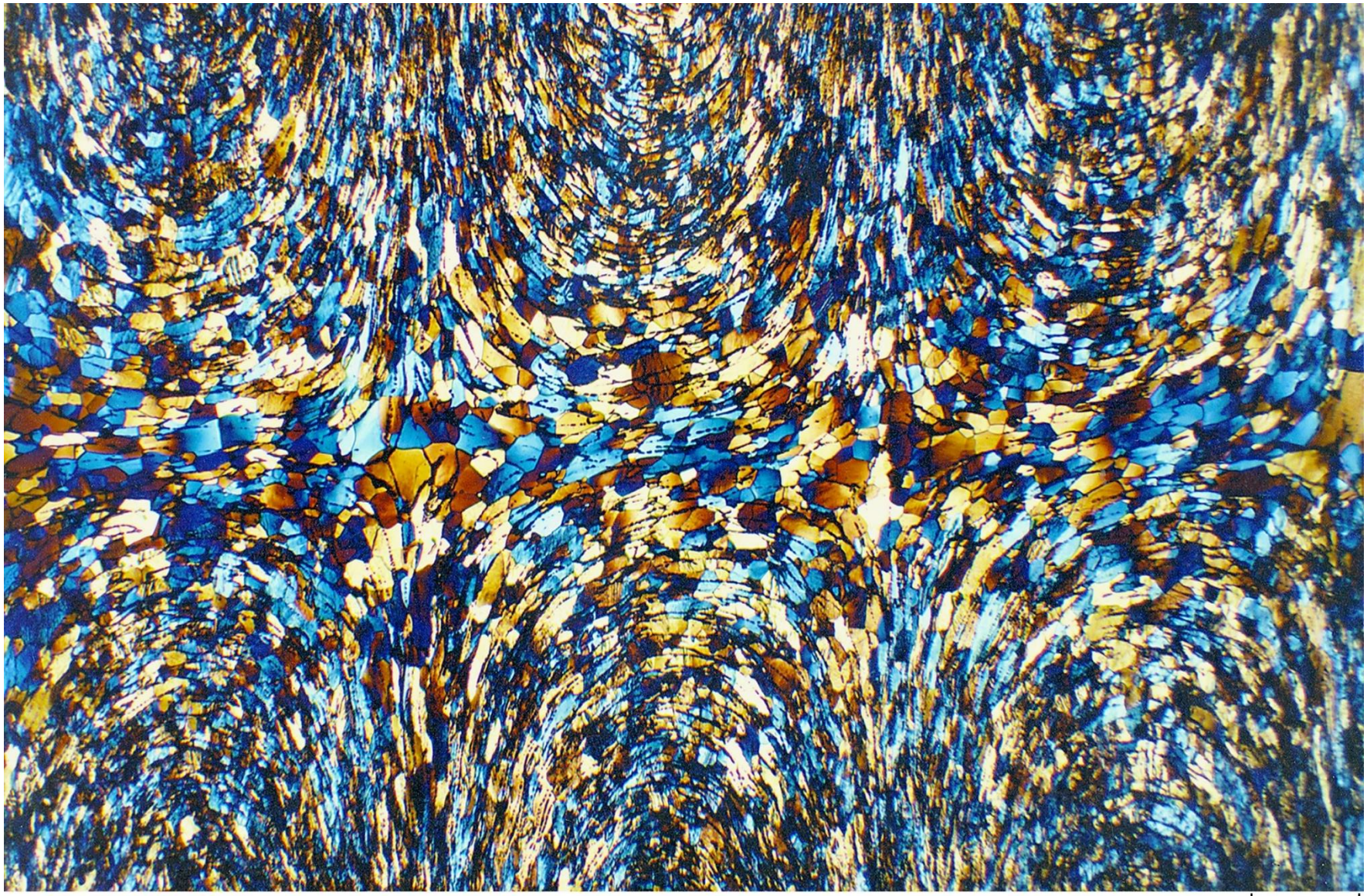

500 µm

Image Identity Phot_02

Material

Cast aluminium bronze alloy

Preparation Procedure

Preparation Stage	Surface and Abrasive		Machine Base speed	Time of Stage
Primary Grinding	P240g Silicon Carbide		150rpm	1 min 30 secs
Secondary Grinding	Planocloth H	9µm Diamond WB	250rpm	4 mins
Tertiary Grinding	Durasilk	3µm Diamond WB	250rpm	3 mins
Polishing	Chemicloth	0.04µm Opus	100rpm	2 mins

Additional procdures & techniques

Etched in acid Ferric Chloride.

Microscopical Techniques

Reflected light, Polarised Light

Photographic technique.

Imaged using Fuji Velvia slide film and scanned with Polaroid Sprintscan 4000. The technique was chosen as I was using it for illustration of the technique for transfer of material into a digital database for training purposes. Slight alterations of brightness and contrast, plus a little unsharp mask using Adobe Photoshop

Description of Final Image

The image shows a transverse section of a cast aluminium bronze alloy. The resultant image shows the intragranular structure of the material and how the material has solidified. The colours are due to the birefringence of this etched surface. This creates both a useful record of the materials history and a pleasing image.

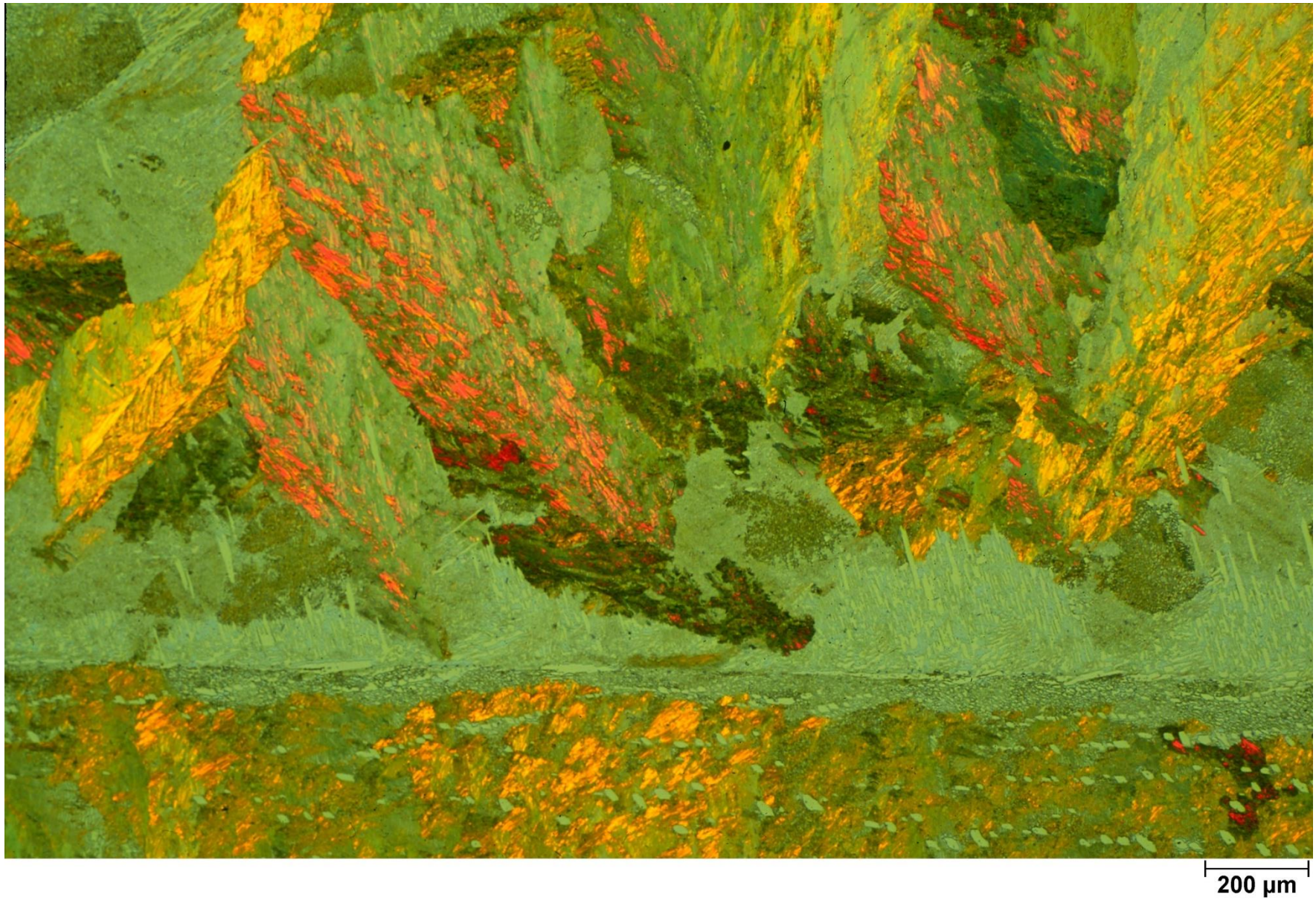

200 µm

Image Identity Phot_03

Material

Cast complex aluminium alloy

Preparation Procedure

Preparation Stage	Surface and Abrasive		Machine Base speed	Time of Stage
Primary Grinding	P240g Silicon Carbide		150rpm	1 min
Secondary Grinding	Planocloth H	9µm Diamond WB	250rpm	4 mins
Tertiary Grinding	Durasilk	3µm Diamond WB	250rpm	3 mins
Polishing	Chemicloth	0.04µm Opus	100rpm	2 mins

Additional procdures & techniques

None required, imaged in as polished condition

Microscopical Techniques

Reflected light, Darkground Illumination

Photographic technique.

Imaged with a Colourview III 2/3rds" RGB-CCD camera. Resolution 2576 x 1932. Pixel size 3.4µm. Captured using Olympus AnalySIS 5 software. Slight alterations of brightness and contrast, plus a little unsharp mask using Adobe Photoshop

Description of Final Image

The image illustrates the structure of the as cast aluminium alloy. The resultant image shows both the course skeletal phase and also the finer phase's present of the material and also how the material has solidified. The colours are due to the way in which the matrix appears black as reflected out of the optica l axis whilst the phases reflect the light into the optical axis. This creates both a detailed record of the phases present and a pleasing image.

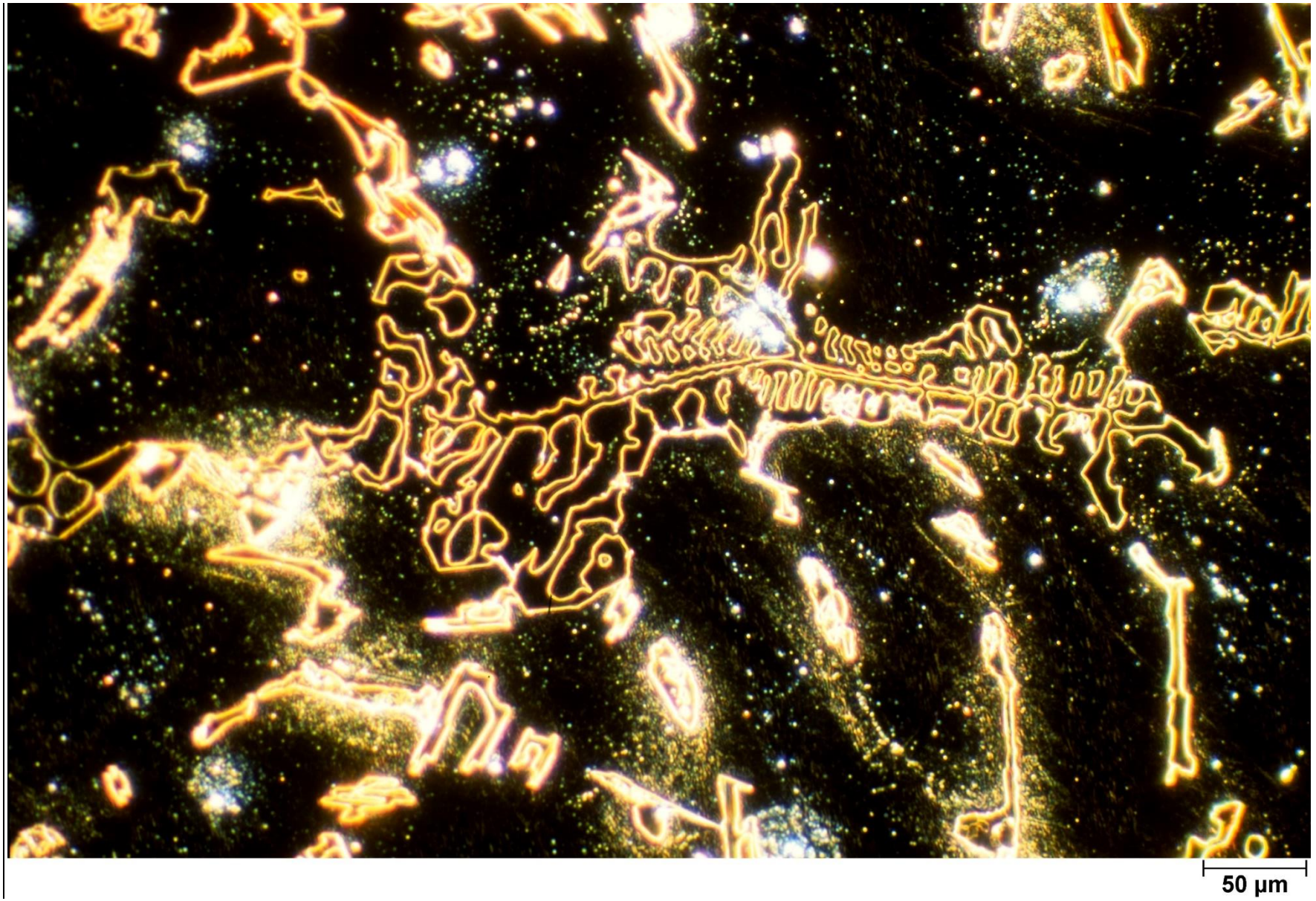

50 µm

Image Identity Phot_04

Material

Wrought aluminium bronze alloy

Preparation Procedure

Preparation Stage	Surface and Abrasive		Machine	Time of Base speed Stage
Primary Grinding	P240g Silicon Carbide		150rpm	1 min 30 secs
Secondary Grinding	Planocloth H	9µm Diamond WB	250rpm	4 mins
Tertiary Grinding	Durasilk	3µm Diamond WB	250rpm	3 mins
Polishing	Chemicloth	0.04µm Opus	100rpm	2 mins

Additional procdures & techniques

None, in as polished condition.

Microscopical Techniques

Reflected light, Polarised Light

Photographic technique.

Imaged with a Colourview III 2/3rds" RGB-CCD camera. Resolution 2576 x 1932. Pixel size 3.4µm. Captured using Olympus AnalySIS 5 software. Slight alterations of brightness and contrast, plus a little unsharp mask using Adobe Photoshop

Description of Final Image

The image shows a transverse section of a wrought aluminium bronze alloy. The resultant image shows the needle like nature of the material and how the materials structure has developed through working. The colours are due to the birefringence of this unetched surface. This creates both a useful record of the materials history and an interesting busy image.

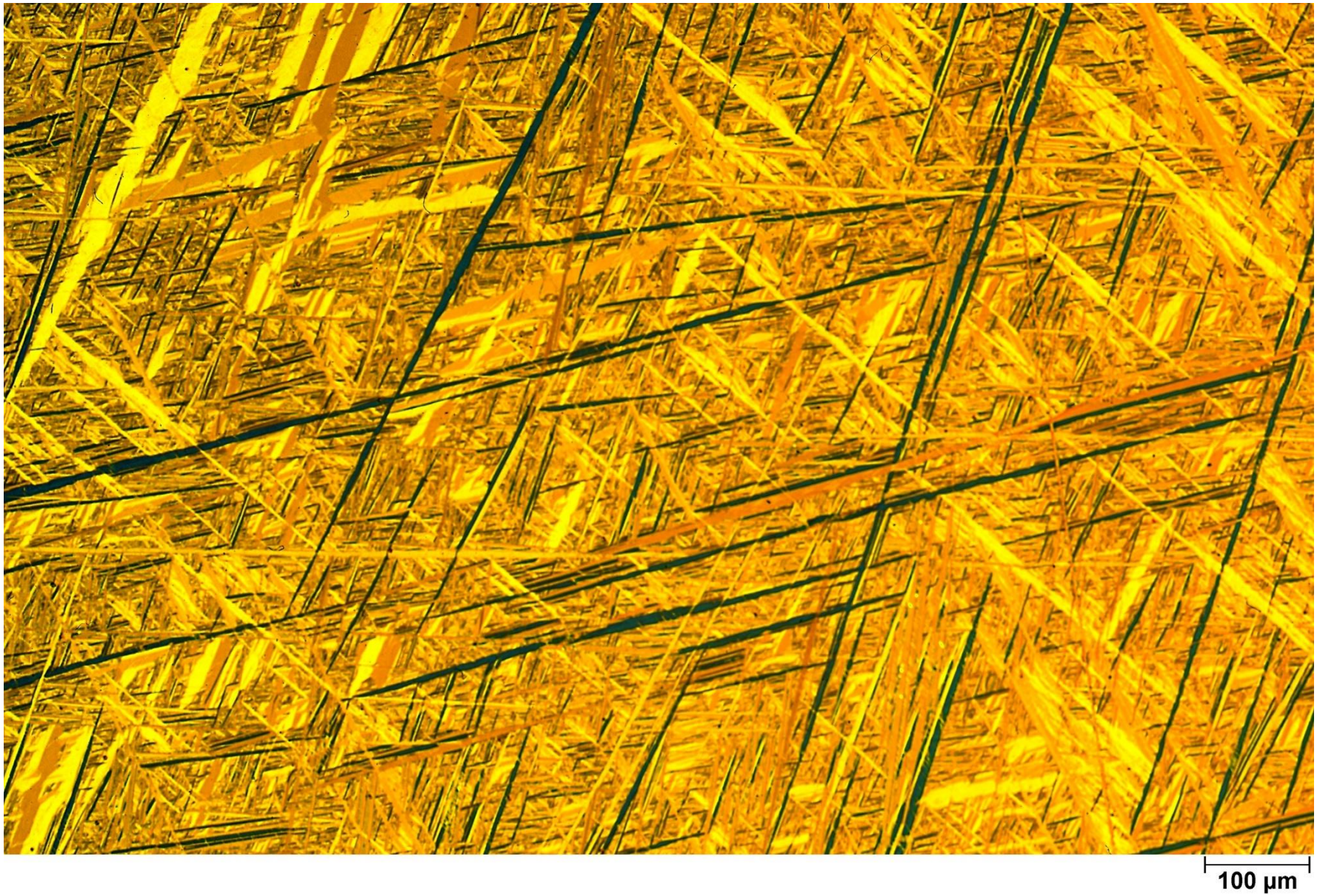

100 µm

Image Identity Phot_05

Material

Plastic section of Ultem tap washer.

Preparation Procedure

Preparation Stage	Surface and Abrasive	Machine Base speed	Time of Stage
Primary Grinding	P400g Silicon Carbide	150rpm	1 min
Secondary Grinding	P800g Silicon Carbide	150rpm	1 min
Tertiary Grinding	P1200g Silicon Carbide	150rpm	1 min
Quaternary Grinding	Planocloth & 0.3µm Alumina	100rpm	2 min
Polishing	Not required		

Additional procdures & techniques

Stuck on a glass slide with Epoxide resin, and the other side prepared in the same manner until it was 60 um thick. Cover slip applied with immersion oil.

Microscopical Techniques

Transmitted light, Polarised Light

Photographic technique.

Imaged with a Colourview III 2/3rds" RGB-CCD camera. Resolution 2576 x 1932. Pixel size 3.4µm. Captured using Olympus AnalySIS 5 software. Slight alterations of brightness and contrast, plus a little unsharp mask using Adobe Photoshop

Description of Final Image

The image shows a section through a plastic component. The resultant image shows the strain history of the plastic caused by its processing. What are also visible are the remains of small glass fibres that should not have been in the plastic, but were remnants of a previous batch. The colours are due to the birefringence of the plastic and how it has been shaped in the manufacturing process this creates both a useful record of the production process and a striking image.

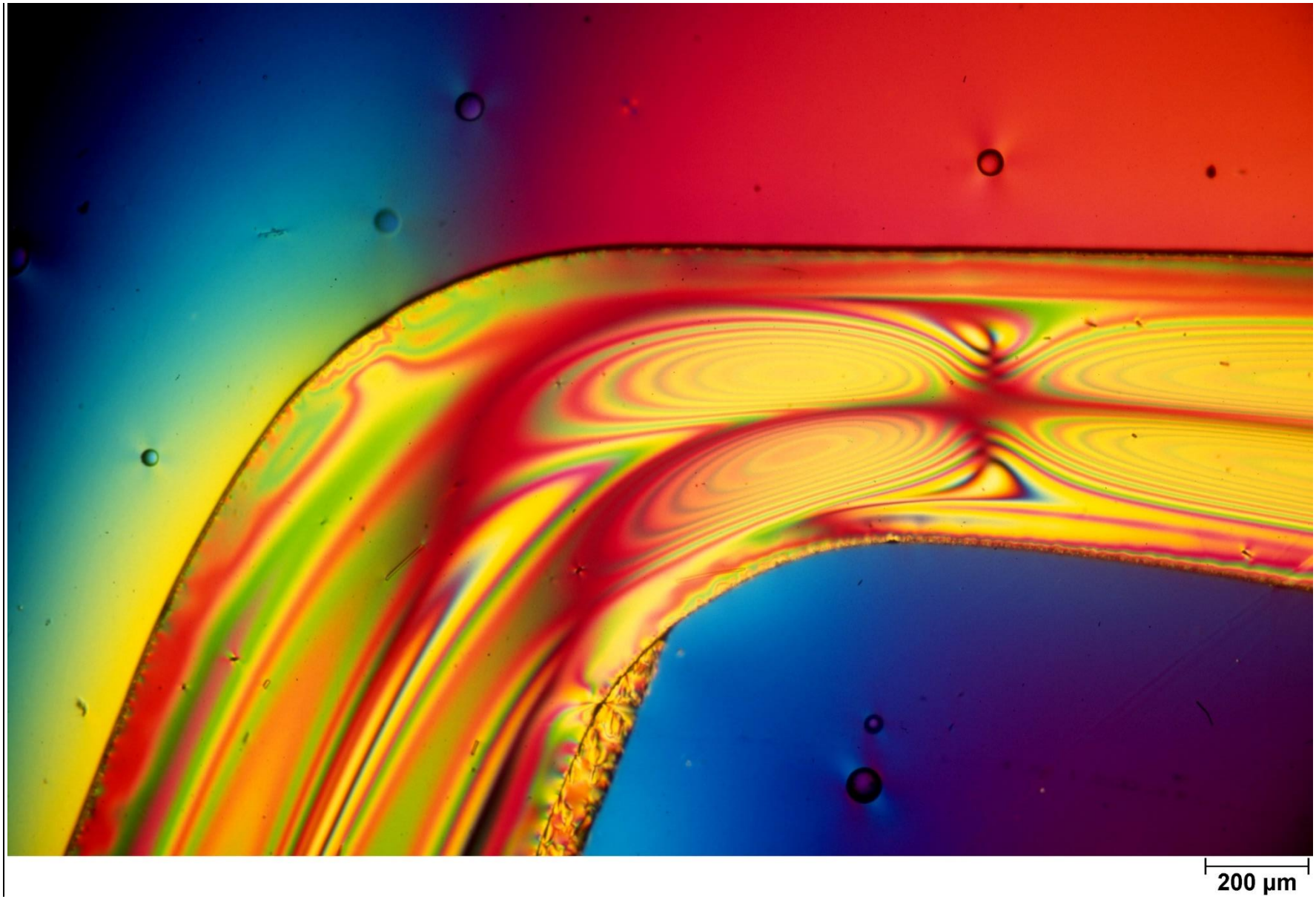

200 µm

Image Identity Phot_06

Material

Cast Brass alloy

Preparation Procedure

Preparation Stage	Surface and Abrasive		Machine	Time of Base speed Stage
Primary Grinding	P240g Silicon Carbide		150rpm	1 min 30 secs
Secondary Grinding	Planocloth H	9µm Diamond WB	250rpm	4 mins
Tertiary Grinding	Durasilk	3µm Diamond WB	250rpm	3 mins
Polishing	Chemicloth	0.04µm Opus	100rpm	2 mins

Additional procdures & techniques

None, in as polished condition.

Microscopical Techniques

Reflected light, Differential Interference Contrast according to Nomarski.

Photographic technique.

Imaged with a Colourview III 2/3rds" RGB-CCD camera. Resolution 2576 x 1932. Pixel size 3.4µm. Captured using Olympus AnalySIS 5 software. Slight alterations of brightness and contrast, plus a little unsharp mask using Adobe Photoshop

Description of Final Image

The image shows a section of a brass alloy. The resultant image shows the detailed phases of the material and how the materials structure has developed from casting and processing. The detail and colours are generated by the DIC technique. DIC creates a 3D effect that highlights sub micron topography of what appears to be a flat surface. The technique turns a simple structure to an interesting image.

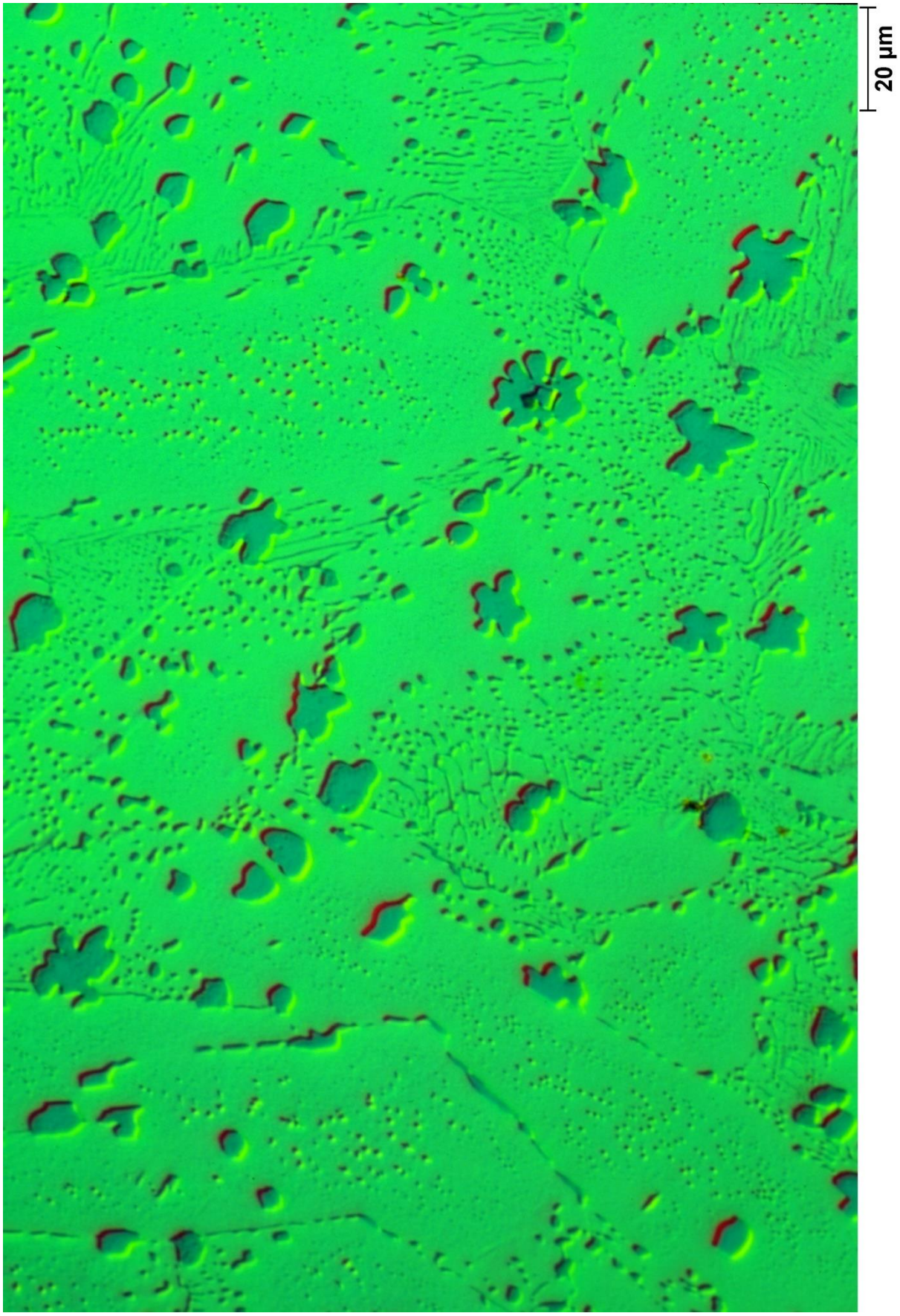

20 µm

Image Identity Phot_07

Material

Rolled aluminium sheet

Preparation Procedure

Preparation Stage	Surface and Abrasive		Machine	Time of Base speed Stage
Primary Grinding	P240g Silicon Carbide		150rpm	1 min
Secondary Grinding	Planocloth H	9µm Diamond WB	250rpm	4 mins
Tertiary Grinding	Durasilk	3µm Diamond WB	250rpm	3 mins
Polishing	Chemicloth	0.04µm Opus	100rpm	2 mins

Additional procdures & techniques

Anodised in 2% tetraflouroboric acid electrolytically at 20 volts for 2 minutes

Microscopical Techniques

Reflected light, Polarised Light

Photographic technique.

Imaged with a Colourview III 2/3rds" RGB-CCD camera. Resolution 2576 x 1932. Pixel size 3.4µm. Captured using Olympus AnalySIS 5 software. Slight alterations of brightness and contrast, plus a little unsharp mask using Adobe Photoshop

Description of Final Image

The image shows a longitudinal section of a sheet of aluminium alloy. The resultant image shows the details of the grain structure of the material and how the material has deformed during processing. This is evident in the elongation of the distorted grains. The colours are due to the birefringence of this anodised layer and the orientation of the grains at this surface. This creates both a detailed record of the materials structure and a pleasing image.

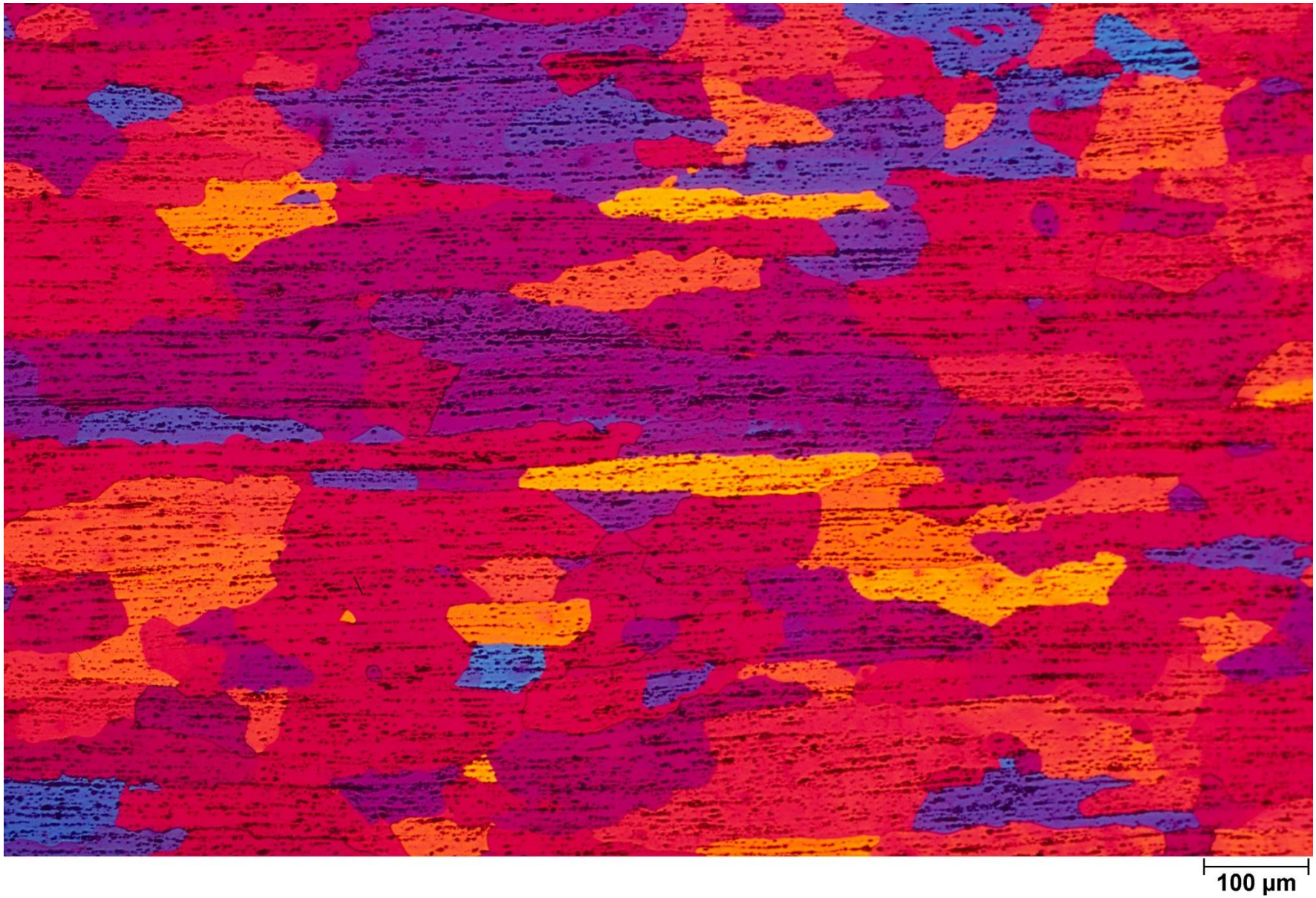

100 µm

Image Identity Phot_08

Material

Cast aluminium alloy

Preparation Procedure

Preparation Stage	Surface and Abrasive		Machine	Time of Base speed Stage
Primary Grinding	P240g Silicon Carbide		150rpm	1 min
Secondary Grinding	Planocloth H	9µm Diamond WB	250rpm	4 mins
Tertiary Grinding	Durasilk	3µm Diamond WB	250rpm	3 mins
Polishing	Multicloth	0.04µm Opus	100rpm	2 mins

Additional procdures & techniques

None required, imaged in as polished condition

Microscopical Techniques

Reflected light, Darkground Illumination

Photographic technique.

Imaged with a Colourview III 2/3rds" RGB-CCD camera. Resolution 2576 x 1932. Pixel size 3.4µm. Captured using Olympus AnalySIS 5 software. Slight alterations of brightness and contrast, plus a little unsharp mask using Adobe Photoshop

Description of Final Image

The image shows the structure of the cast aluminium alloy. The resultant image shows both the course angular phase and also the small bright individual phase's present. In addition small unknown elements appear orange. The colours are due to the way in which the matrix appears black as reflected out of the optical axis whilst the phases reflect the light into the optical axis. This creates both a detailed record of the phases present and a pleasing image.


50 µm

Image Identity Phot_09

Material

Cast aluminium bronze alloy

Preparation Procedure

Preparation Stage	Surface and Abrasive		Machine Base speed	Time of Stage
Primary Grinding	P240g Silicon Carbide		150rpm	1 min 30 secs
Secondary Grinding	Planocloth H	9µm Diamond WB	250rpm	4 mins
Tertiary Grinding	Durasilk	3µm Diamond WB	250rpm	3 mins
Polishing	Chemicloth	0.04µm Opus	100rpm	2 mins

Additional procdures & techniques

Etched in acid Ferric Chloride.

Microscopical Techniques

Reflected light, Polarised Light and lambda plate

Photographic technique.

Imaged using Fuji Velvia slide film and scanned with Polaroid Sprintscan 4000. The technique was chosen as I was after a wider field of view than could be obtained with the available CCD. Slight alterations of brightness and contrast, plus a little unsharp mask using Adobe Photoshop

Description of Final Image

The image shows a transverse section of a cast aluminium bronze alloy. The resultant image shows the intragranular structure of the material and how the material has solidified. The colours are due to the birefringence of this etched surface. The dark line is actually a grain boundary. What is particularly interesting is the random structure appears to show a giant in the hillside. Of course this is just imagination on our part, but it is one of those wonderful occasions where something magical jumps out at you from the microscope. A true ‘once in a lifetime’ shot.


200 µm

Image Identity Phot_10

Material

Tungsten Carbide

Preparation Procedure

Preparation Stage	Surface and Abrasive		Machine Base speed	Time of Stage
Primary Grinding	20um Fixed Diamond MB		250rpm	2 mins
Secondary Grinding	Abracloth	9µm Diamond WB	250rpm	4 mins
Tertiary Grinding	Planocloth	1µm Diamond WB	250rpm	7 mins
Polishing	Multicloth	0.04µm Opus	100rpm	2 mins

Additional procdures & techniques

None, imaged in the as polished condition.

Microscopical Techniques

Reflected light, Polarised Light

Photographic technique.

Imaged with a Colourview III 2/3rds" RGB-CCD camera. Resolution 2576 x 1932. Pixel size 3.4µm. Captured using Olympus AnalySIS 5 software. Slight alterations of brightness and contrast, plus a little unsharp mask using Adobe Photoshop

Description of Final Image

The image shows a high magnification shot of a section of Tungsten carbide. The resultant image shows the angular nature of the constituent particles allowing assessment for size and shape. There appear to be two types of particulate that can be determined by colour when viewed in polarised light, and if one requires so , one could check the correct proportions are there using this technique. The colours are due to the birefringence of this unetched surface.

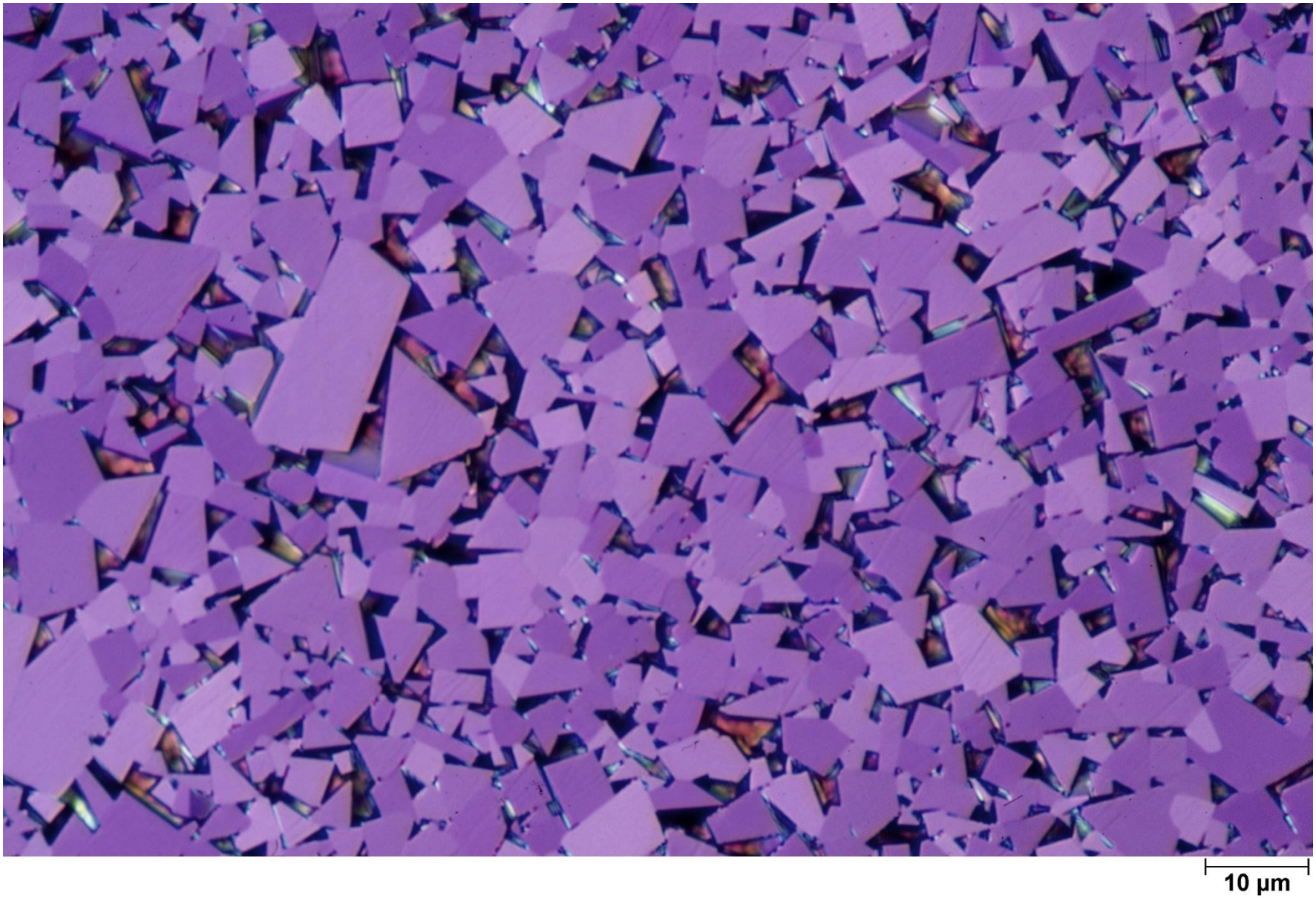

10 µm

Image Identity Phot_11

Material

Cast Aluminium

Preparation Procedure

Preparation Stage	Surface and Abrasive		Machine	Time of Base speed Stage
Primary Grinding	P240g Silicon Carbide		150rpm	1 min
Secondary Grinding	Planocloth H	9µm Diamond WB	250rpm	4 mins
Tertiary Grinding	Durasilk	3µm Diamond WB	250rpm	3 mins
Polishing	Multicloth	0.4µm Opus	100rpm	2 mins

Additional procdures & techniques

None, imaged as polished

Microscopical Techniques

Reflected light, Differential Interference Contrast according to Nomarski.

Photographic technique.

Imaged with a Colourview III 2/3rds" RGB-CCD camera. Resolution 2576 x 1932. Pixel size 3.4µm. Captured using Olympus AnalySIS 5 software. Slight alterations of brightness and contrast, plus a little unsharp mask using Adobe Photoshop

Description of Final Image

The image shows a longitudinal section of a sheet of aluminium alloy. The resultant image shows the details of the grain structure of the material and how the material has deformed during processing. This is evident in the elongation of the distorted grains. The colours are due to the birefringence of this anodised layer and the orientation of the grains at this surface. This creates both a detailed record of the materials structure and a pleasing image.

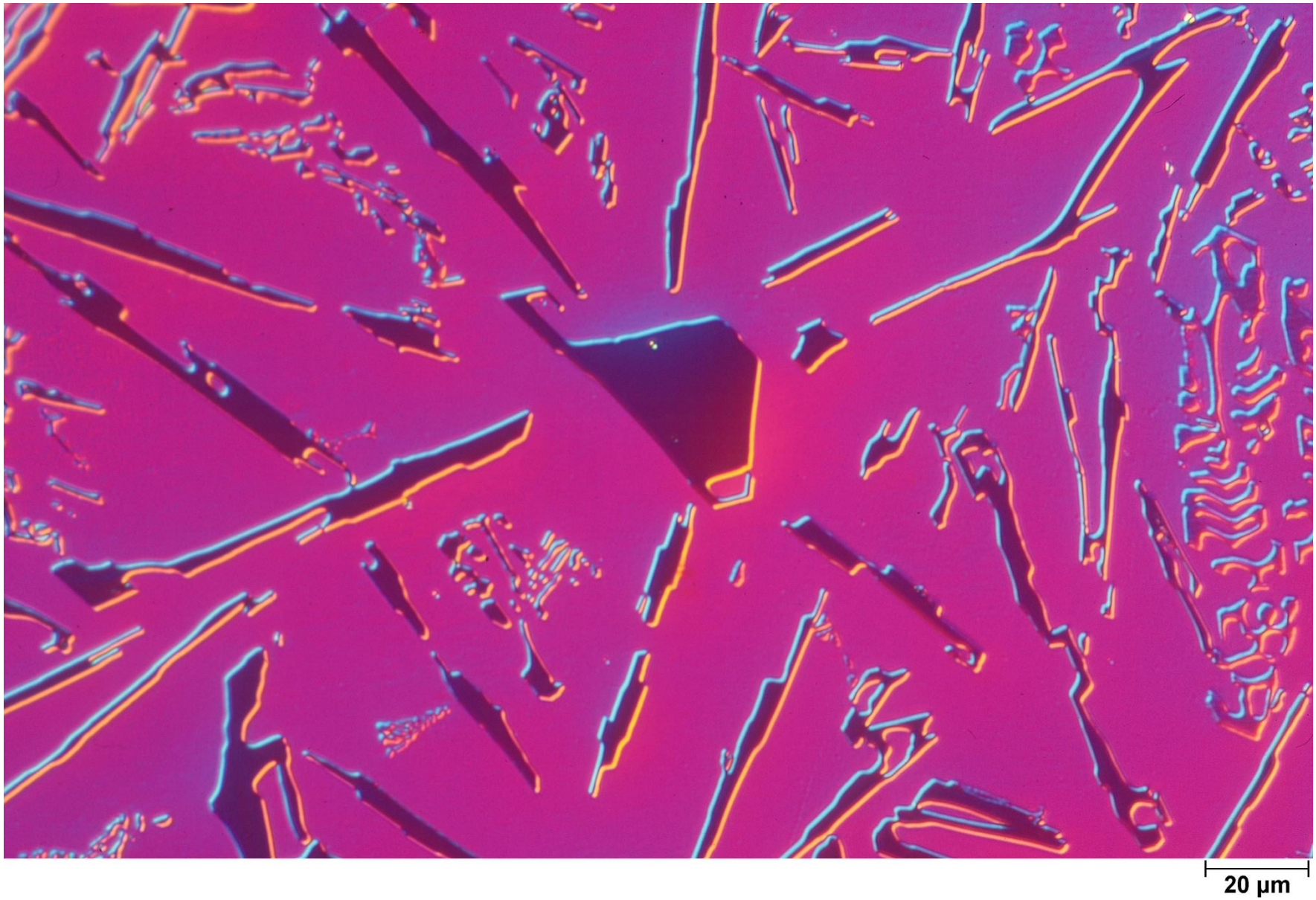

20 µm

Image Identity Phot_12

Material

Manganese Ore Nodule

Preparation Procedure

Preparation Stage	Surface and Abrasive		Machine	Time of Base speed Stage
Primary Grinding	P180g Silicon Carbide		150rpm	3 mins
Secondary Grinding	Planocloth H	15µm Diamond WB	250rpm	5 mins
Tertiary Grinding	Planocloth	6µm Diamond WB	250rpm	4 mins
Quaternary Grinding	Planoncloth	0.06µm Silco	100rpm	5 mins
Polishing	Multicloth	0.06µm Silco	100rpm	2 mins

Additional procdures & techniques

None, imaged in the as polished condition.

Microscopical Techniques

Reflected light, Polarised Light

Photographic technique.

Imaged with a Colourview III 2/3rds" RGB-CCD camera. Resolution 2576 x 1932. Pixel size 3.4µm. Captured using Olympus AnalySIS 5 software. Slight alterations of brightness and contrast, plus a little unsharp mask using Adobe Photoshop

Description of Final Image

The image shows a region of this variable structure which reminded me of a typical fishing fly. The colours are due natural variations in the material during its formation on the seabed. The glassy nature of material allows birefringence as the light is bent on entering the surface and reflecting back out of this unetched surface.


100 µm

Image Identity Phot_13

Material

Welded joint of dissimilar steels

Preparation Procedure

Preparation Stage	Surface and Abrasive		Machine Base speed	Time of Stage
Primary Grinding	P180g Silicon Carbide		150rpm	1 min 30 secs
Secondary Grinding	Abracloth	9µm Diamond WB	250rpm	4 mins
Tertiary Grinding	Planocloth	3µm Diamond WB	250rpm	3 mins
Polishing	Alphacloth	1 µm Diamond WB	100rpm	2 mins

Additional procdures & techniques

Etched in 2% Nital solution until details visible.

Microscopical Techniques

Reflected light, Polarised Light

Photographic technique.

Imaged using Fuji Velvia slide film and scanned with Polaroid Sprintscan 4000. The technique was chosen as I was using it for illustration of the technique for transfer of material into a digital database for training purposes.

Description of Final Image

The image shows a transverse section of a dissimilar alloy steel weld. The resultant image shows the grain structure of the two steels, the Heat Affected Zone, and the weld fillet as well as some unwelcome porosity. The dark spots are the porosity and are considered a defect. The colours are due to the birefringence of this etched surface. This image is of particular interest because it shows how even the most simple of materials can be shown in a quite aesthetic way without detriment to the scientific nature of the image


500 µm

Image Identity Phot_14

Material

Carbon – Carbon composite. Aircraft brake material.

Preparation Procedure

Preparation Stage	Surface and Abrasive		Machine Base speed	Time of Stage
Primary Grinding	P320g Silicon Carbide		150rpm	1 min 30 secs
Secondary Grinding	Planocloth	9µm Diamond WB	250rpm	3 mins
Tertiary Grinding	Planocloth	0.3µm Alumina	100rpm	3 mins
Polishing	Multicloth	0.04µm Opus	100rpm	2 mins

Additional procdures & techniques

None, imaged in as polished condition.

Microscopical Techniques

Reflected light, Polarised Light and Lambda wave plate.

Photographic technique.

Imaged with a Colourview III 2/3rds" RGB-CCD camera. Resolution 2576 x 1932. Pixel size 3.4µm. Captured using Olympus AnalySIS 5 software. Slight alterations of brightness and contrast, plus a little unsharp mask using Adobe Photoshop

Description of Final Image

The image shows a representative region shot of this interesting structure. It is possible to see the individual carbon strands which make up the structure as well as the apparent clumps used. The colours are due to the birefringent nature of carbon in its highly polished condition. The colour itself is added by the waveplate to enhance the image. The grey and creamy regions are porosity and could possibly be classed as defects. Carbon related materials are fascinating to image due to their birefringence often seen with a tradition Maltese cross look.

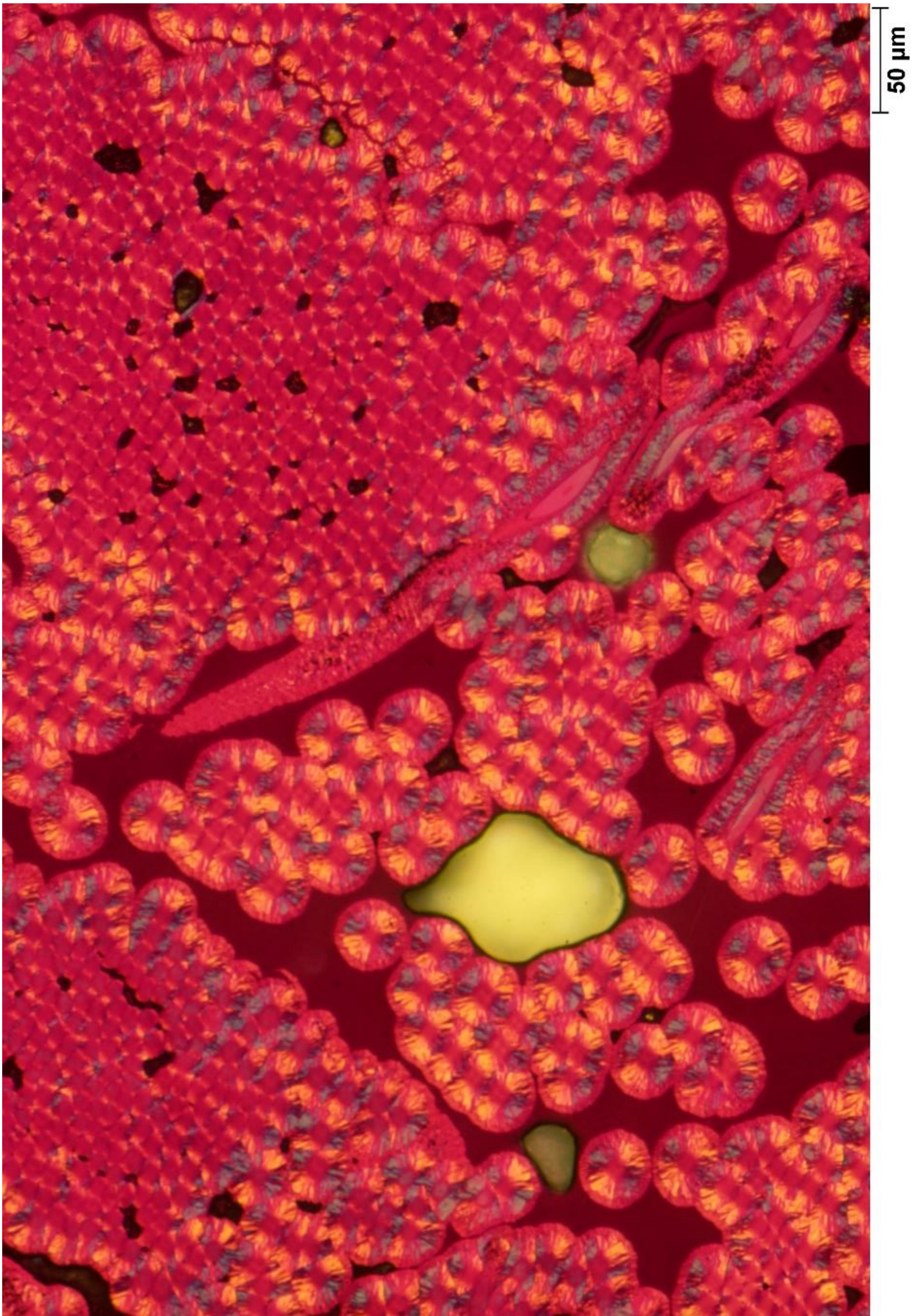

50 µm

Image Identity Phot_15

Material

Cast homogenised aluminium alloy

Preparation Procedure

Preparation Stage	Surface and Abrasive		Machine Base speed	Time of Stage
Primary Grinding	P240g Silicon Carbide		150rpm	1 min
Secondary Grinding	Planocloth H	9µm Diamond WB	250rpm	4 mins
Tertiary Grinding	Durasilk	3µm Diamond WB	250rpm	3 mins
Polishing	Multicloth	0.04µm Opus	100rpm	2 mins

Additional procdures & techniques

None required, imaged in as polished condition

Microscopical Techniques

Reflected light, Darkground Illumination

Photographic technique.

Imaged with a Colourview III 2/3rds" RGB-CCD camera. Resolution 2576 x 1932. Pixel size 3.4µm. Captured using Olympus AnalySIS 5 software. Slight alterations of brightness and contrast, plus a little unsharp mask using Adobe Photoshop

Description of Final Image

The image shows the structure of the as cast aluminium alloy. The resultant image shows both the coarse angular phases and also the finer phase's white brought out by the homogenisation process The colours are due to the way in which the matrix appears black as reflected out of the optical axis whilst the phases reflect the light into the optical axis. This creates both a detailed record of the phases present and a pleasing image.


50 µm

Image Identity Phot_16

Material

Commercially pure copper bar polished and compressed to create distortion

Preparation Procedure

Preparation Stage	Surface and Abrasive		Machine Base speed	Time of Stage
Primary Grinding	P240g Silicon Carbide		150rpm	1 min 30 secs
Secondary Grinding	Planocloth H	9µm Diamond WB	250rpm	4 mins
Tertiary Grinding	Durasilk	3µm Diamond WB	250rpm	3 mins
Polishing	Multicloth	0.04µm Opus	100rpm	2 mins

Additional procdures & techniques

Apart from finish polishing using a vibratory polisher, none, imaged as polished

Microscopical Techniques

Reflected light, Differential Interference Contrast according to Nomarski.

Photographic technique.

Imaged using Fuji Velvia slide film and scanned with Polaroid Sprintscan 4000. Technique chosen as I was using it for illustration of the technique for transfer of material into an digital database for training purposes. Slight alterations of brightness and contrast, plus a little unsharp mask using Adobe Photoshop

Description of Final Image

This image was created to show how metals deform. A section of pure copper bar 40mm in diameter was polished to a very high quality finish and then compressed in a vice. The resultant specimen was heavily damaged at the edge, but the centre was only beginning to distort. Ductile metals deform by slip plane movement and what can be seen in this image is the start of deformation along these planes. When viewed in 'normal' Brightfield Illumination the region appears flat, but by using the technique of DIC it is possible to see these sub micrometer changes in surface topography and thus the onset of the deformation process. I was particularly pleased the way this came out as it illustrates important metallurgical processes as well as being an interesting aesthetic image in its own right.

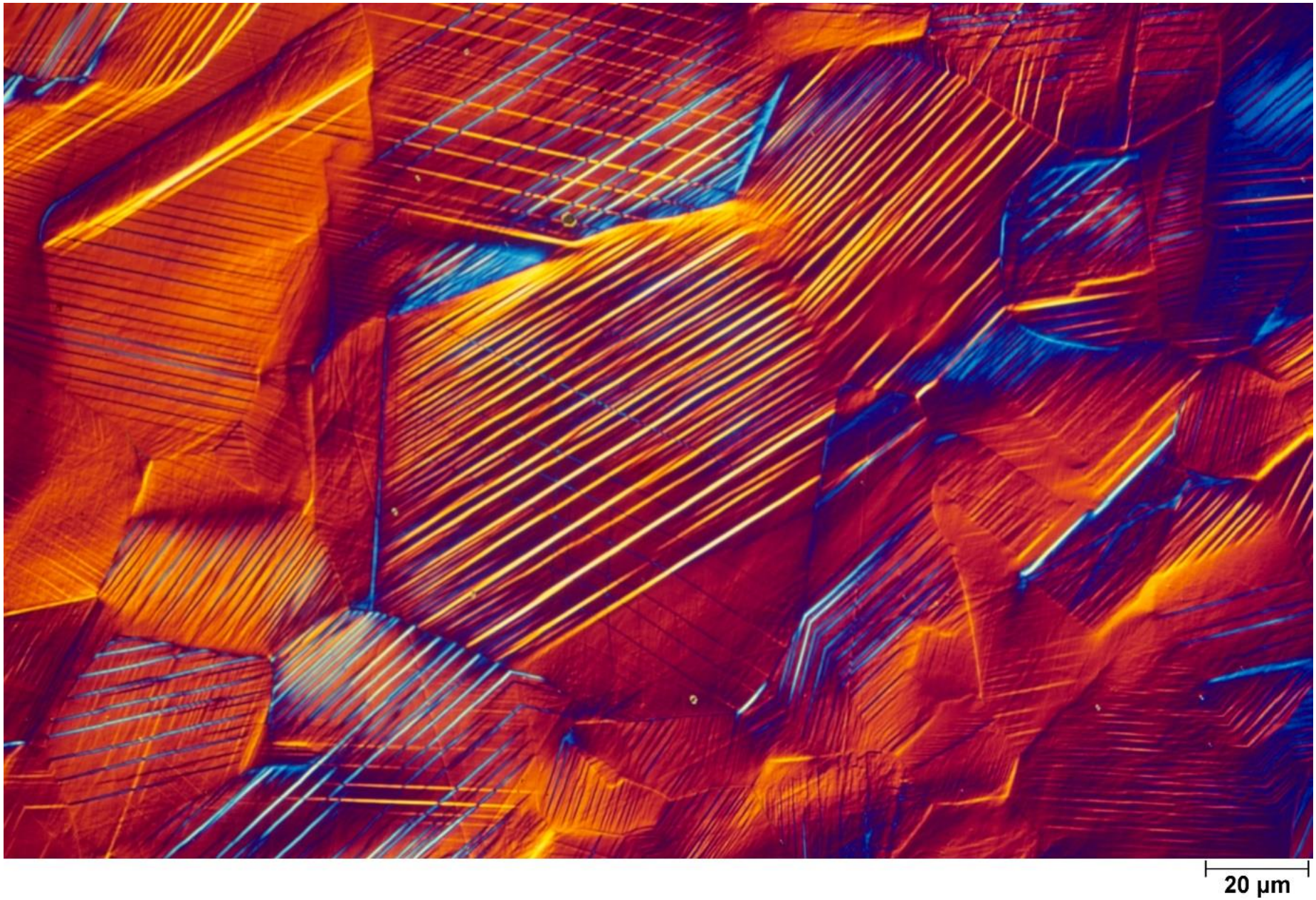

20 µm

Image Identity Phot_17

Material

Medieval glass.

Preparation Procedure

Preparation Stage	Surface and Abrasive		Machine	Time of Base speed Stage
Primary Grinding	P240g Silicon Carbide		150rpm	2 mins
Secondary Grinding	Planocloth H	9µm Diamond WB	250rpm	6 mins
Tertiary Grinding	Planocloth	1µm Diamond WB	250rpm	6 mins
Polishing	Chemicloth	0.04µm Opus	100rpm	2 mins

Additional procdures & techniques

None, imaged in the as polished condition.

Microscopical Techniques

Reflected light, Polarised Light

Photographic technique.

Imaged with a Colourview III 2/3rds" RGB-CCD camera. Resolution 2576 x 1932. Pixel size 3.4µm. Captured using Olympus AnalySIS 5 software. Slight alterations of brightness and contrast, plus a little unsharp mask using Adobe Photoshop

Description of Final Image

The image shows a portion of this remarkable piece of simple glass. The glassy nature of material allows birefringence as the light is bent on entering the surface and reflecting back out of this as polished surface. The flowing lines of fluidity captured during solidification around an inclusion create an image that reminds me of the embryonic universe being created. The colours are real and created by the way in which the light enters and leaves the subject. The way in which the ball appears to sit in a womb like structure enhances this vision in my humble opinion. To me it is a very special image as well as being scientifically valid.

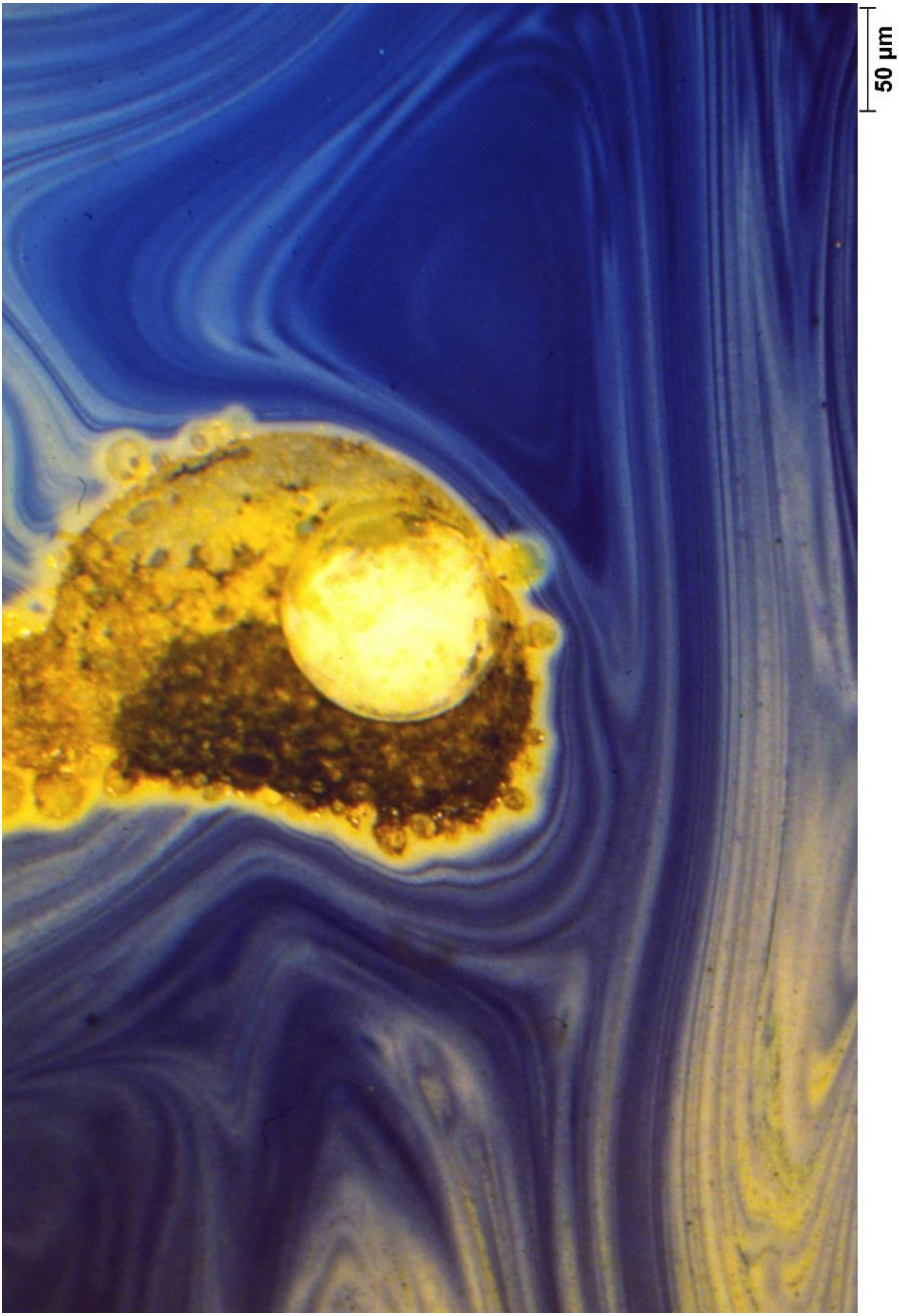

50 µm

Image Identity Phot_18

Material

Glassy Railway Slag

Preparation Procedure

Preparation Stage	Surface and Abrasive		Machine Base speed	Time of Stage
Primary Grinding	P240g Silicon Carbide		150rpm	2 mins
Secondary Grinding	Abracloth	9µm Diamond WB	250rpm	4 mins
Tertiary Grinding	Planocloth	1µm Diamond WB	250rpm	7 mins
Polishing	Multicloth	0.04µm Opus	100rpm	2 mins

Additional procdures & techniques

None, imaged in the as polished condition.

Microscopical Techniques

Reflected light, Polarised Light

Photographic technique.

Imaged with a Colourview III 2/3rds" RGB-CCD camera. Resolution 2576 x 1932. Pixel size 3.4µm. Captured using Olympus AnalySIS 5 software. Slight alterations of brightness and contrast, plus a little unsharp mask using Adobe Photoshop

Description of Final Image

The image shows an area of this piece of simple glassy slag. This was a small portion of material collected from a railway bank unused since the mid sixties. The glassy nature of material allows birefringence as the light is bent on entering the surface and reflecting back out of this as polished surface. The piece seemed light, but intriguing from the outside so a section was taken to see what wonders could be inside. It appears that the solidification process captured the dendritic nature of solidification. The fir tree appearance both gives this information to the viewer as well as producing an aesthetically pleasing image appearing in the form of Christmas trees. Again another beautiful structure revealed through the optical microscope using the appropriate techniques.

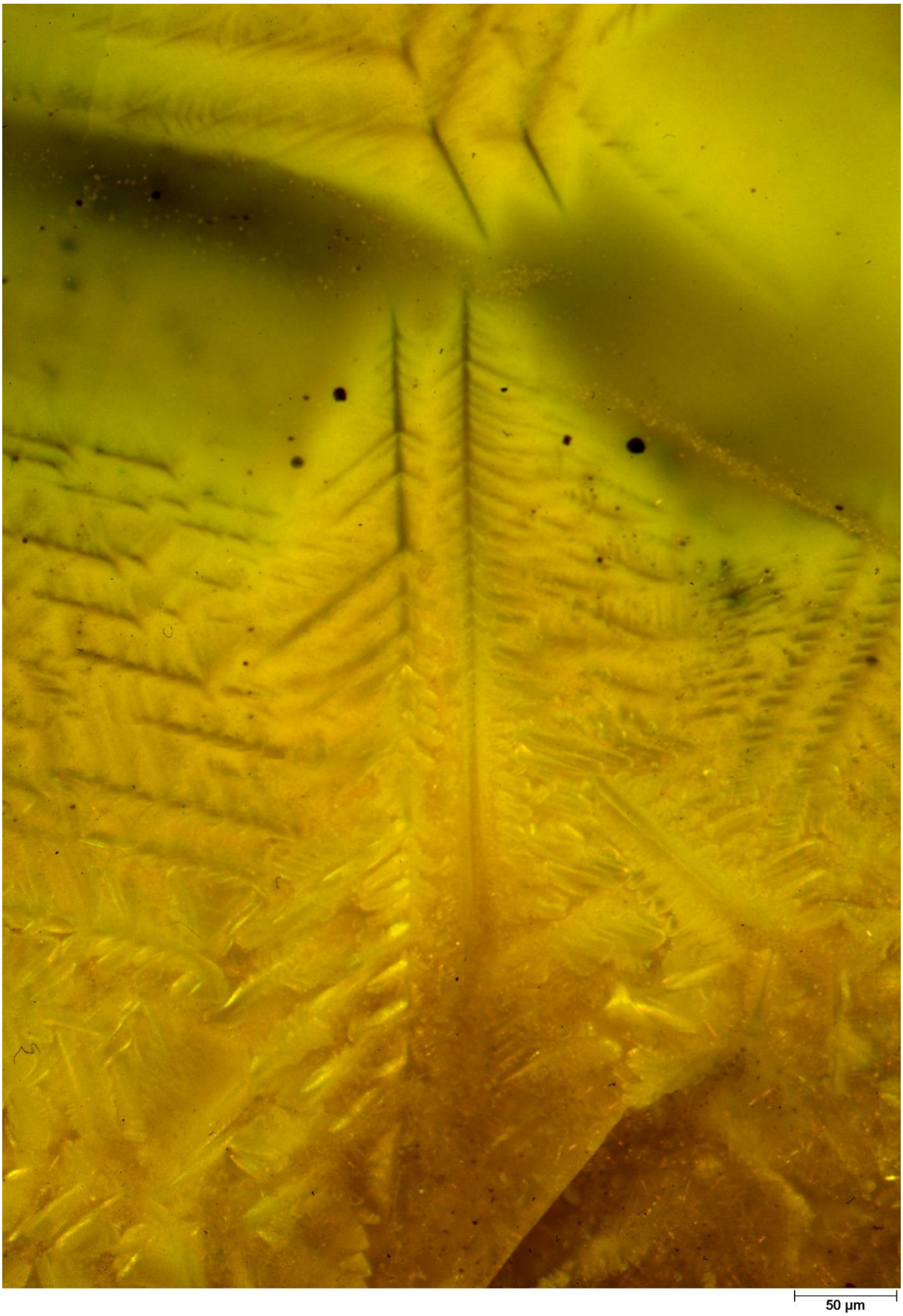

50 µm

Image Identity Phot_19

Material

Petrographic specimen – mount interface

Preparation Procedure

Preparation Stage	Surface and Abrasive		Machine Base speed	Time of Stage
Primary Grinding	P180g Silicon Carbide		150rpm	3 mins
Secondary Grinding	Abracloth H	9µm Diamond WB	250rpm	4 mins
Tertiary Grinding	Planocloth	3µm Diamond WB	250rpm	3 mins
Quaternary Grinding	Planocloth	0.06µm Silco	100rpm	7 mins
Polishing	Chemicloth	0.04µm Opus	100rpm	2 mins

Additional procdures & techniques

None, imaged in the as polished condition.

Microscopical Techniques

Reflected light, Polarised Light

Photographic technique.

Imaged with a Colourview III 2/3rds" RGB-CCD camera. Resolution 2576 x 1932. Pixel size 3.4µm. Captured using Olympus AnalySIS 5 software. Slight alterations of brightness and contrast, plus a little unsharp mask using Adobe Photoshop

Description of Final Image

This image illustrates the interface of a petrographic sample in a clear epoxide mount. Whilst most images are intended to capture scientific knowledge and data, this image is different. This image focuses on the mount – specimen interface for aesthetic purposes only. This section was prepared to examine its structure, but the edge of the sample and the ability to image into the mount revealed what appeared like a mountain range. Caught by such a view I couldn't resist the photo opportunity even though this was for aesthetic purposes, and I make no apologies for that. Quality preparation has ensured that the mount is correctly prepared and has allowed a view into the mount to reveal an interesting mountain range like detail. One for aesthetics, rather than science.

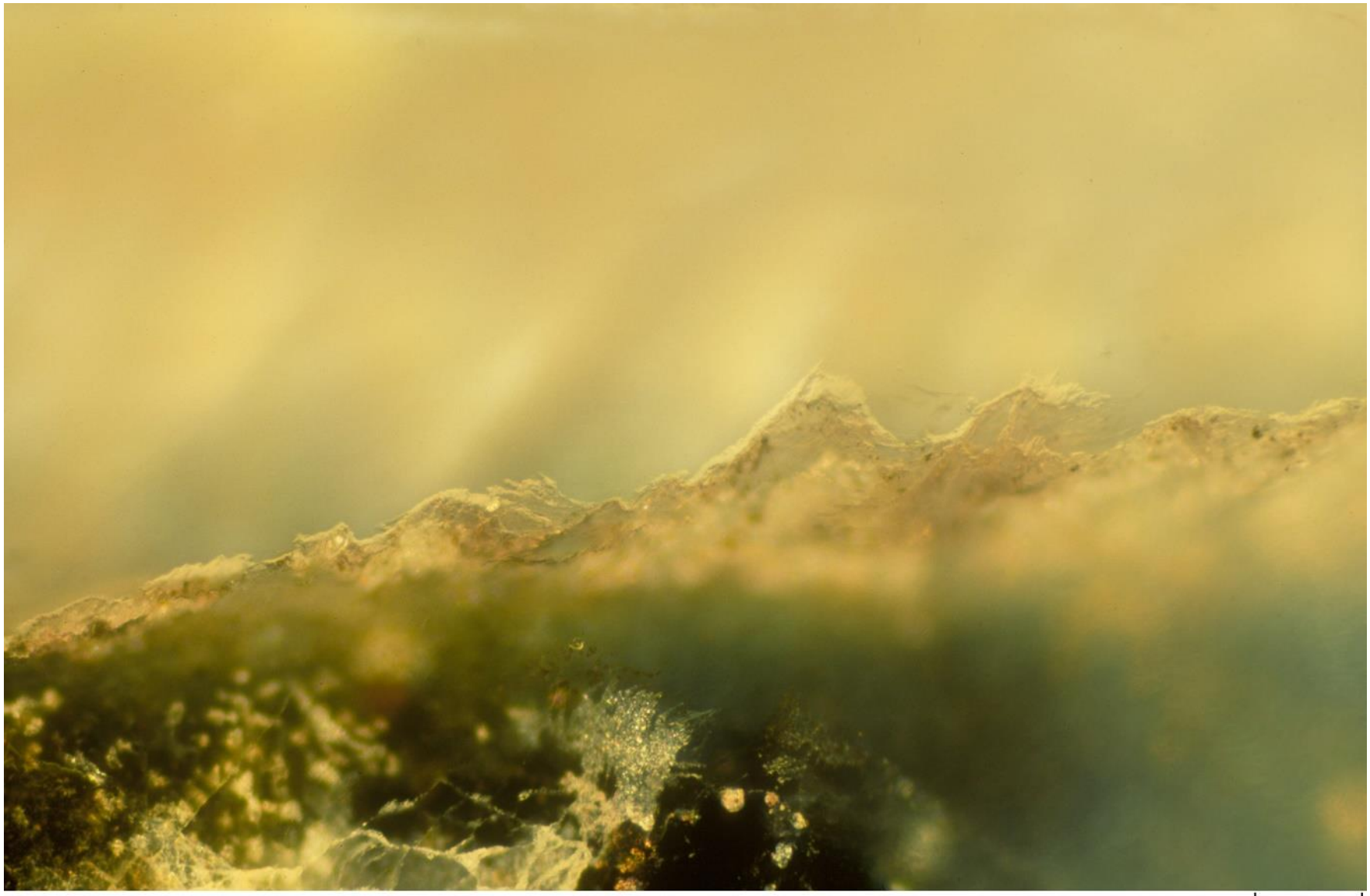

20 µm

Image Identity Phot_20

Material

Cast aluminium bronze alloy

Preparation Procedure

Preparation Stage	Surface and Abrasive		Machine Base speed	Time of Stage
Primary Grinding	P240g Silicon Carbide		150rpm	1 min 30 secs
Secondary Grinding	Planocloth H	9µm Diamond WB	250rpm	4 mins
Tertiary Grinding	Durasilk	3µm Diamond WB	250rpm	3 mins
Polishing	Chemicloth	0.4µm Opus	100rpm	2 mins

Additional procdures & techniques

Etched in acid Ferric Chloride.

Microscopical Techniques

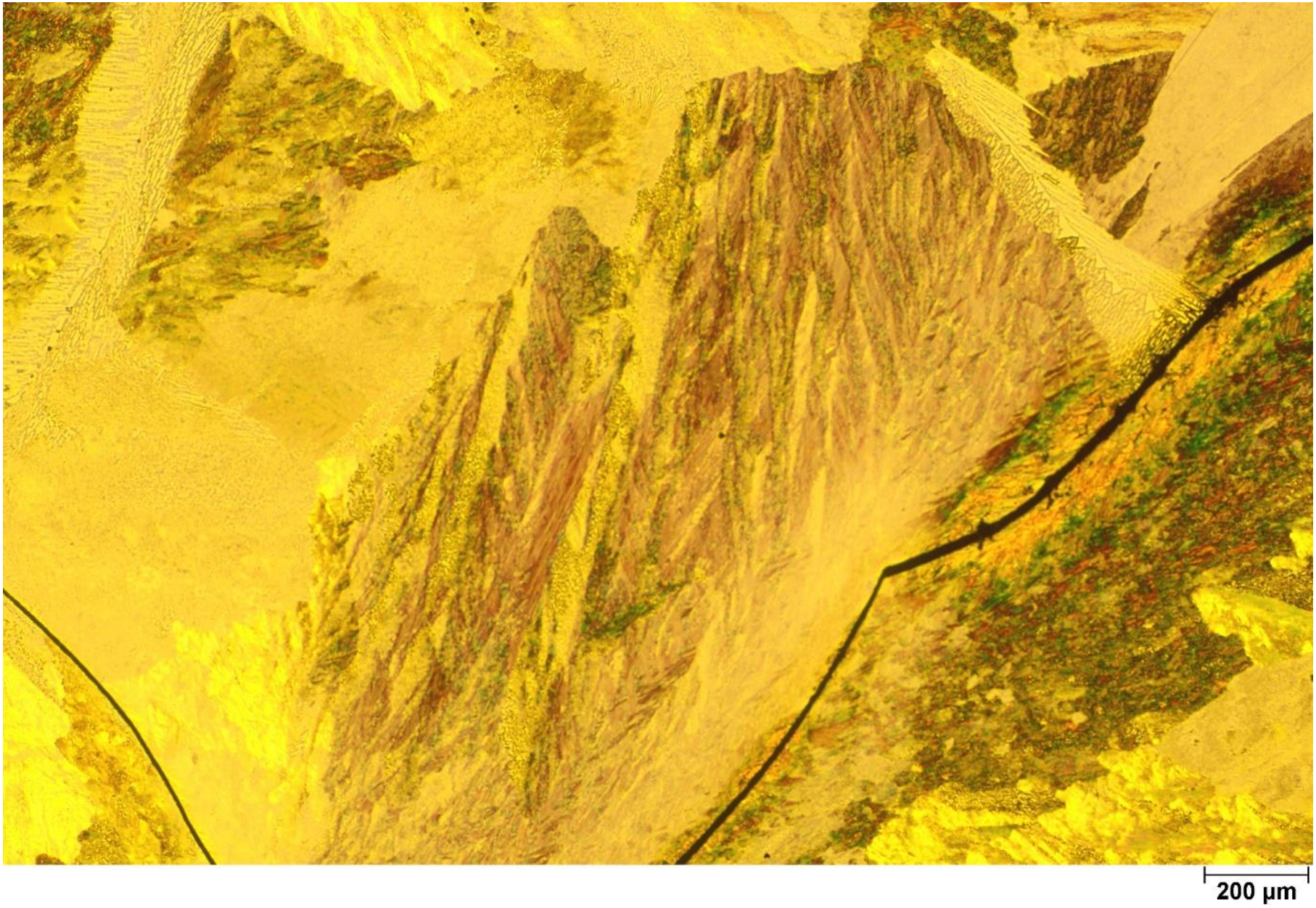
Reflected light, Polarised Light.

Photographic technique.

Imaged using Fuji Velvia slide film and scanned with Polaroid Sprintscan 4000. The technique was chosen as I was after a wider field of view than could be obtained with the available CCD. Slight alterations of brightness and contrast, plus a little unsharp mask using Adobe Photoshop

Description of Final Image

Another image of a section of a cast aluminium bronze alloy. The resultant image again shows the intragranular structure of the material and how the material has solidified. The colours are again due to the birefringence of this etched surface. The dark lines are actually grain boundaries. What was impressive is the way in which the grain boundaries frame an apparent mountain range. A landscape not too dissimilar from some very dated sci fi films of strange plateaus hosting dinosaurs etc. Whist being technically sound this image is also particularly pleasing aesthetically.


200 µm