

SEM - FEI Quanta 200

Date: 2019-09-30

Tags: Training 01/07/2019Synth SEM 28/08/2019Synth

Created by: James Bird

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Goal : Practice on new microscope by imaging drop-cast acid-flocculated suspension and dropcast, frozen and dried product suspension

Procedure :

- Samples (see Experiment SEM stub preparation for PSD II & III) loaded into SEM chamber and vacuum acquired
- 8,10 or 15 kV accelerating voltage set for electron beam
- WD in range 10-10.3 mm
- Everhart-Thornley secondary electron (SE) detector and back-scatter electron (BSE) solid state detector (SSD) employed

Results :

| Sample | Filename prefix |
|--|-----------------|
| 'High quality' MXene product from 01/07/2019 synthesis - lower concentration sample | Stub8 |
| 'High quality' MXene product from 01/07/2019 synthesis - higher concentration sample | Stub7 |
| Acidic MXene product from 28/08/2019 synthesis - higher concentration sample | Stub1 |
| Acidic MXene product from 28/08/2019 synthesis - lower concentration sample | Stub2 |

Again struggled to get good imaging conditions, including contrast and brightness optimisation. Large freeze-cast/acid-flocculated structures present. Use of back-scatter detector showed limited contrast between sample and substrate. MXene vs MAX phase distinction unclear for particles appearing to be thin (only edges visible while centre gives same contrast as substrate), not aided by out-of-service EDX.

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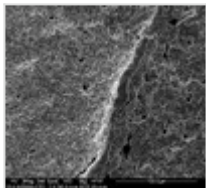
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Attached files

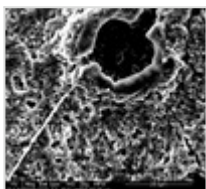
Stub1_001.tif

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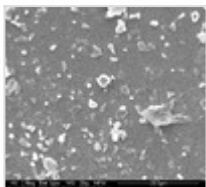
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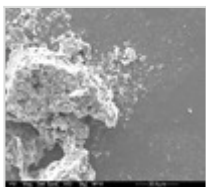
Stub2.tif

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Stub7.tif

sha256: 4e672f1ac39291fcbe7490900ac9c225689d7810fc7335b49d1acf68175197b6



Stub7_BSD.tif

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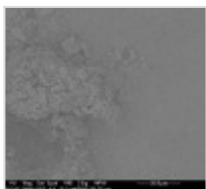
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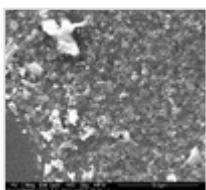
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Stub8.tif

sha256: 93bc23e7ee100d42ded3cfea6fd867f4de94c6f480f7c1130c2af7e3f70561f2



Unique eLabID: 20221011-c83ad666e8426676aebfce10f55382da232b88ce

Link: <https://frankel-elab.manchester.ac.uk/experiments.php?mode=view&id=17>