

SEM - Tescan Mira3

Date: 2019-09-13

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

Created by: James Bird

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Goal : Explore whether freezing of dropcast suspension during drying process has impeded chance of imaging particles to acquire a size distribution

Procedure :

- Samples (see Experiment SEM stub preparation for PSD II) loaded into SEM chamber and vacuum acquired
- 10 kV accelerating voltage set for electron beam
- WD between either 3 or 15 mm (analytical working distance (AWD) is 15 mm)
- Everhart-Thornley secondary electron (SE) detector, in-beam SE detector and in-beam low-energy back-scatter electron (LE-BSE) detector employed

Results :

Sample	Filename prefix
Sediment from 01/07/2019 synthesis (concentration unknown)	03-07-Ti3AlC2
'High quality' MXene product from 28/08/2019 synthesis (concentration unknown)	30-08-Ti3C2

Freeze-cast structures visible, and confirmed to be combination of MAX phase and MXene with EDX analysis. Although interesting, and worthwhile imaging for training purposes, the sample preparation impeded imaging for particle-size distribution acquisition.

.tif files are micrographs, .hdr files are complementary data files for each micrograph, .dat are EDX data files, .docx is a report generated in Aztec and .oip is an Aztec project file.

Attached files

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03-07-Ti3AlC2-SE-only-tif.hdr

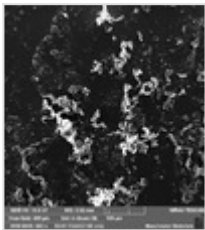
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03-07-Ti3AlC2-002-tif.hdr

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03-07-Ti3AlC2-SE-only.tif

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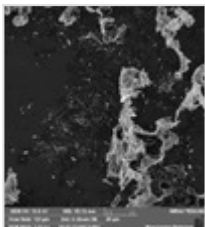


03-07-Ti3AlC2-003-BSE.tif.hdr

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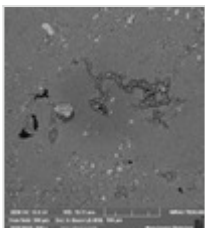


03-07-Ti3AlC2-004-BSE-and-SE.tif.hdr

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03-07-Ti3AlC2-003-BSE.tif

sha256: 7bb80c0abeae97d61ba5f898280f863ddd8e96cdf54f7aeae806c840a3caeee5



03-07-Ti3AlC2-005-SE-only-tif.hdr

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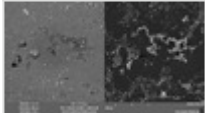
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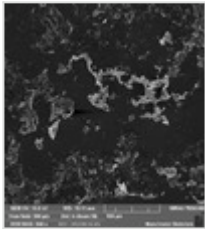
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03-07-Ti3AlC2-005-SE-only.tif

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03-07-Ti3AlC2.tif.hdr

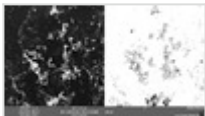
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30-08-Ti3C2.tif.hdr

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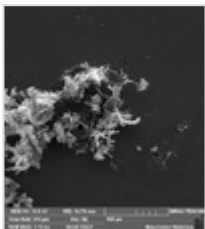
03-07-Ti3AlC2.tif

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30-08-Ti3C2.tif

sha256: 0545e0608d12e66673f156e00baf92fc0792a5c5bf3711bcfbc224028520987



Thumbs.db

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sha256: 9120ea9312e4c8679efdeebdf5d8f090e43878402c97b97e732a91393e82fbcd

Ti3AlC2.oip

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Ti3AlC2_Site-1_2019-09-13_11-56-31.docx

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Unique eLabID: 20221007-92d0749d7ac872b5e27abbbecdd35933bb15391e

Link: <https://frankel-elab.manchester.ac.uk/experiments.php?mode=view&id=13>