

# Magnetization and Optical Bandgap of Cu-Mn Vanadate-Oxide Mixed Phase Nanostructures

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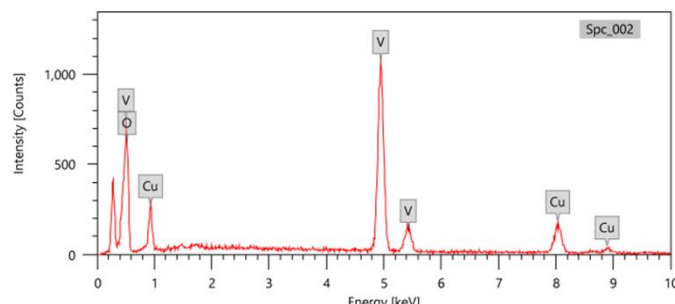
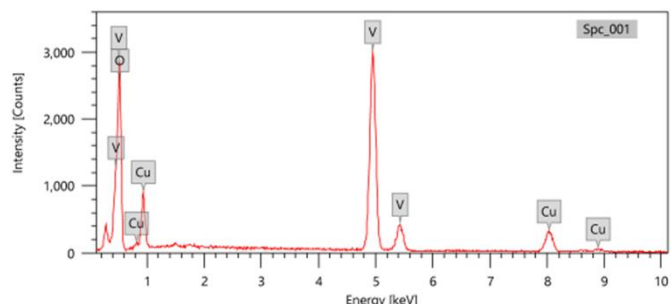
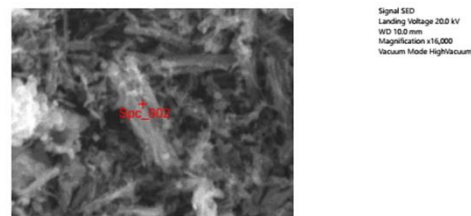
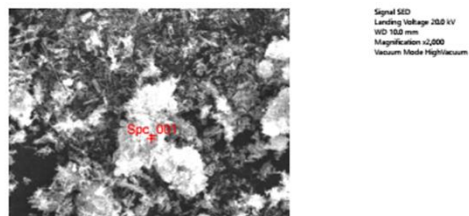
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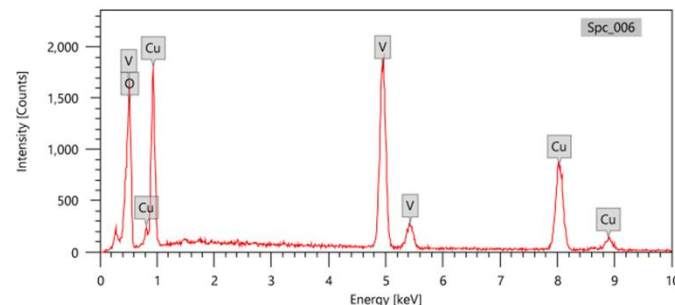
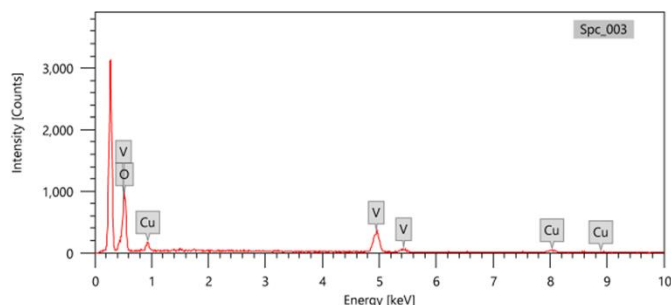
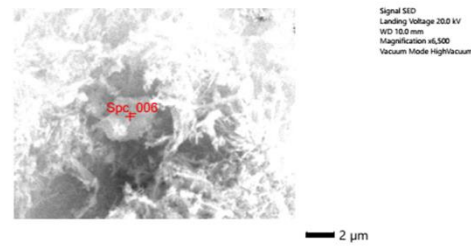
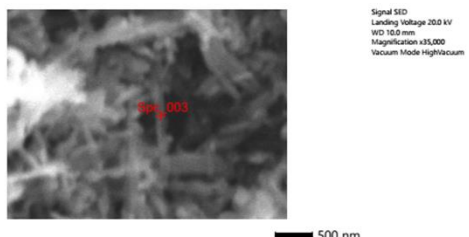
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Items	Value	Display name	Standard data	Quantification method	Result Type
measurement conditions		Spc_001	Standardless	ZAF	Metal
Acceleration voltage	20.00 kV				
Probe current	-				
Magnification	x 2000				
Process time	T4				
Measurement detector	First				
Live time	30.00 seconds				
Real time	32.64 seconds				
Dead time	8.00 %				
Count rate	4312.00 CPS				
		Element	Line	Mass%	Atom%
		O	K	48.53±0.51	75.90±0.80
		V	K	39.44±0.27	19.37±0.13
		Cu	K	12.03±0.24	4.74±0.09
		Total		100.00	100.00
		Spc_001 Fitting ratio 0.0409			

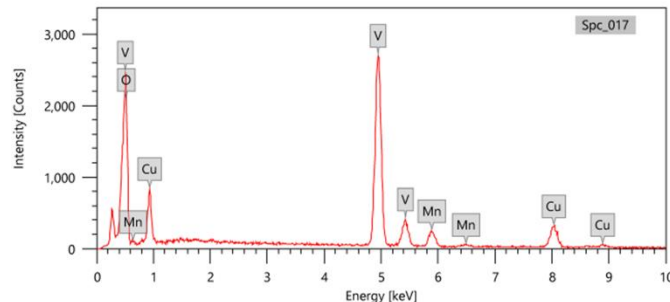
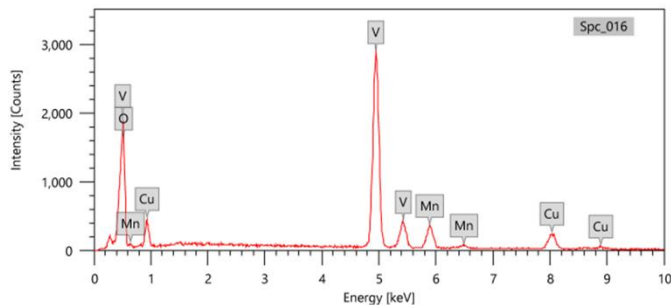
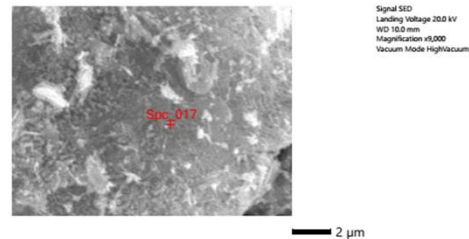
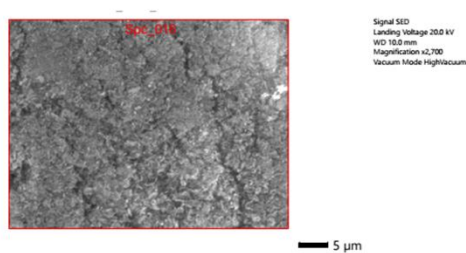
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measurement conditions		Spc_002	Standardless	ZAF	Metal
Acceleration voltage	20.00 kV				
Probe current	-				
Magnification	x 16000				
Process time	T4				
Measurement detector	First				
Live time	30.00 seconds				
Real time	31.45 seconds				
Dead time	5.00 %				
Count rate	1668.00 CPS				
		Element	Line	Mass%	Atom%
		O	K	36.13±0.85	65.73±1.55
		V	K	44.24±0.52	25.28±0.30
		Cu	K	19.62±0.55	8.99±0.25
		Total		100.00	100.00
		Spc_002 Fitting ratio 0.1334			



Items	Value	Display name	Standard data	Quantification method	Result Type
measurement conditions		Spc_003	Standardless	ZAF	Metal
Acceleration voltage	20.00 kV				
Probe current	-				
Magnification	x 35000				
Process time	T4				
Measurement detector	First				
Live time	30.00 seconds				
Real time	31.11 seconds				
Dead time	4.00 %				
Count rate	1678.00 CPS				
		Element	Line	Mass%	Atom%
		O	K	70.31±1.05	88.76±1.32
		V	K	22.96±0.48	9.10±0.19
		Cu	K	6.73±0.42	2.14±0.13
		Total		100.00	100.00
		Spc_003 Fitting ratio 0.6949			

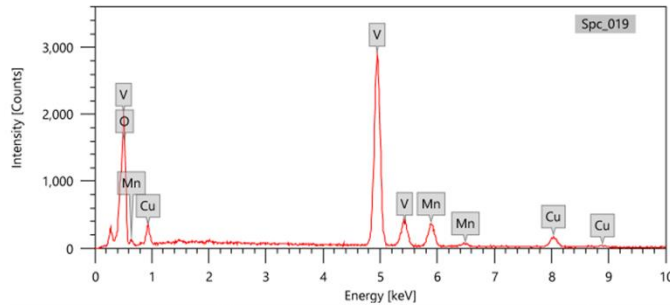
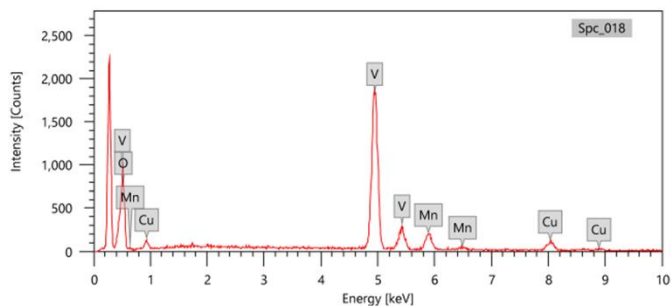
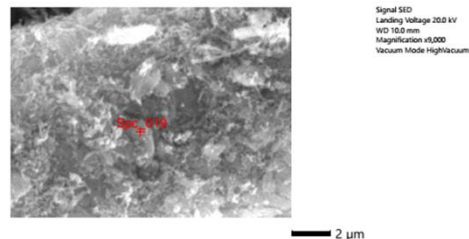
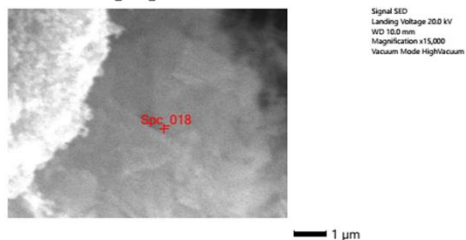
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measurement conditions		Spc_006	Standardless	ZAF	Metal
Acceleration voltage	20.00 kV				
Probe current	-				
Magnification	x 6500				
Process time	T4				
Measurement detector	First				
Live time	30.00 seconds				
Real time	32.62 seconds				
Dead time	8.00 %				
Count rate	4062.00 CPS				
		Element	Line	Mass%	Atom%
		O	K	26.97±0.39	57.02±0.82
		V	K	31.08±0.27	20.64±0.18
		Cu	K	41.95±0.49	22.34±0.26
		Total		100.00	100.00
		Spc_006 Fitting ratio 0.0345			

Figure S1. Replicas of EDX scans for cCV at 4 different spots.



Items	Value	Display name	Standard data	Quantification method	Result Type
measurement conditions		Spc_016	Standardless	ZAF	Metal
Acceleration voltage	20.00 kV				
Probe current	-				
Magnification	x 2700				
Process time	T4				
Measurement detector	First				
Live time	30.00 seconds				
Real time	32.52 seconds				
Dead time	8.00 %				
Count rate	3969.00 CPS				
		Element	Line	Mass%	Atom%
		O	K	35.56±0.53	64.70±0.97
		V	K	45.94±0.32	26.25±0.19
		Mn	K	7.94±0.17	4.21±0.09
		Cu	K	10.56±0.25	4.84±0.11
		Total		100.00	100.00
		Spc_016			Fitting ratio 0.0326

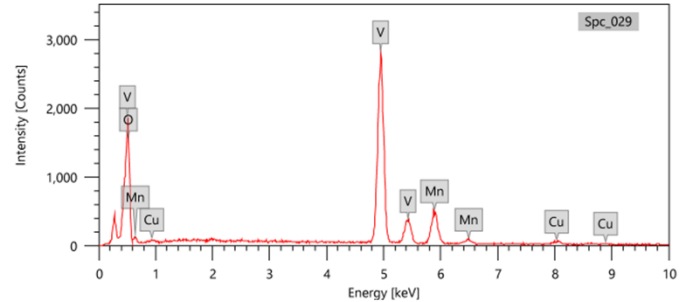
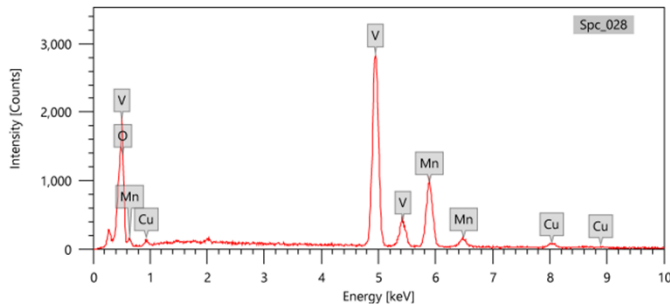
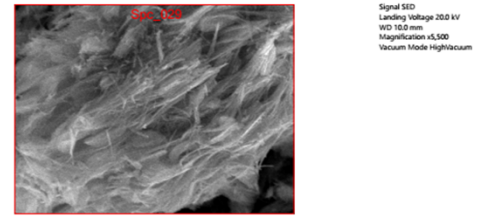
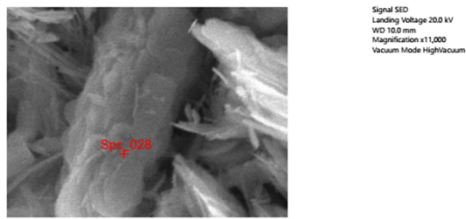
Items	Value	Display name	Standard data	Quantification method	Result Type
measurement conditions		Spc_017	Standardless	ZAF	Metal
Acceleration voltage	20.00 kV				
Probe current	-				
Magnification	x 9000				
Process time	T4				
Measurement detector	First				
Live time	30.00 seconds				
Real time	32.66 seconds				
Dead time	8.00 %				
Count rate	4349.00 CPS				
		Element	Line	Mass%	Atom%
		O	K	39.59±0.53	68.72±0.92
		V	K	41.95±0.30	22.87±0.17
		Mn	K	4.95±0.13	2.50±0.07
		Cu	K	13.51±0.28	5.90±0.12
		Total		100.00	100.00
		Spc_017			Fitting ratio 0.0561



Items	Value	Display name	Standard data	Quantification method	Result Type
measurement conditions		Spc_018	Standardless	ZAF	Metal
Acceleration voltage	20.00 kV				
Probe current	-				
Magnification	x 15000				
Process time	T4				
Measurement detector	First				
Live time	30.00 seconds				
Real time	31.87 seconds				
Dead time	6.00 %				
Count rate	2766.00 CPS				
		Element	Line	Mass%	Atom%
		O	K	36.64±0.69	65.53±1.23
		V	K	48.62±0.42	27.31±0.24
		Mn	K	7.33±0.20	3.82±0.11
		Cu	K	7.41±0.27	3.34±0.12
		Total		100.00	100.00
		Spc_018			Fitting ratio 0.3182

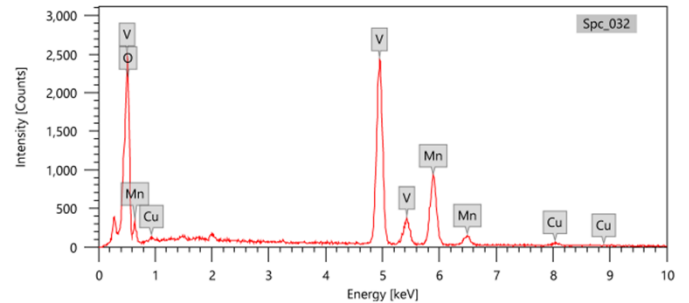
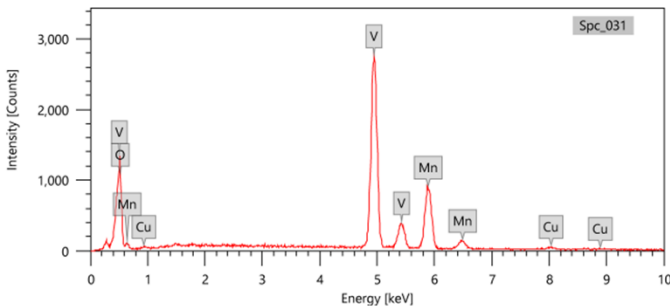
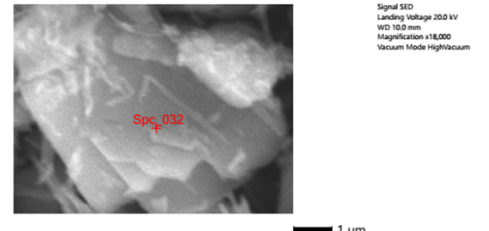
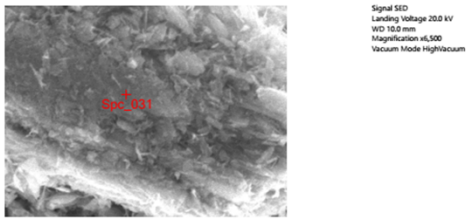
Items	Value	Display name	Standard data	Quantification method	Result Type
measurement conditions		Spc_019	Standardless	ZAF	Metal
Acceleration voltage	20.00 kV				
Probe current	-				
Magnification	x 9000				
Process time	T4				
Measurement detector	First				
Live time	30.00 seconds				
Real time	32.50 seconds				
Dead time	8.00 %				
Count rate	3858.00 CPS				
		Element	Line	Mass%	Atom%
		O	K	37.72±0.56	66.60±0.99
		V	K	46.75±0.33	25.92±0.18
		Mn	K	8.26±0.17	4.25±0.09
		Cu	K	7.27±0.21	3.23±0.09
		Total		100.00	100.00
		Spc_019			Fitting ratio 0.0381

Figure S2. Replicas of EDX scans for cMCV4 at 4 different spots.



Items	Value	Display name	Standard data	Quantification method	Result Type
measurement conditions		Spc_028	Standardless	ZAF	Metal
Acceleration voltage	20.00 kV				
Probe current	-				
Magnification	x 11000				
Process time	T4				
Measurement detector	First				
Live time	30.00 seconds				
Real time	32.68 seconds				
Dead time	8.00 %				
Count rate	4204.00 CPS				
					Fitting ratio 0.0417

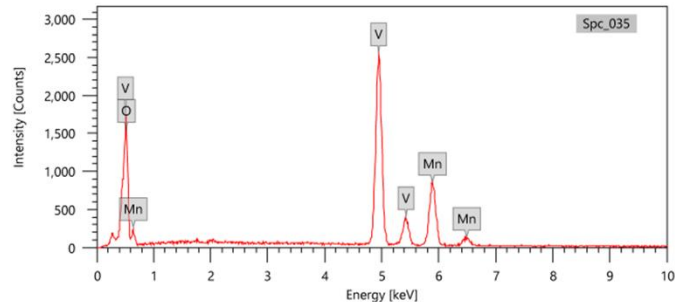
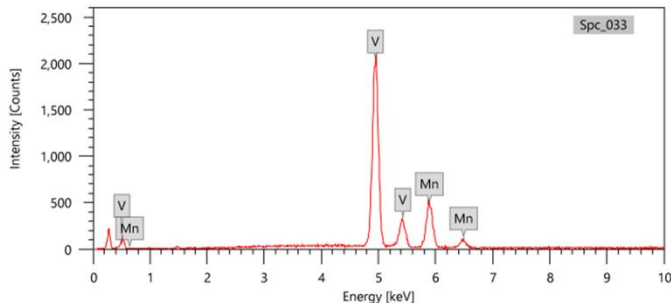
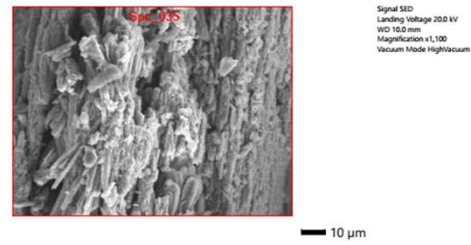
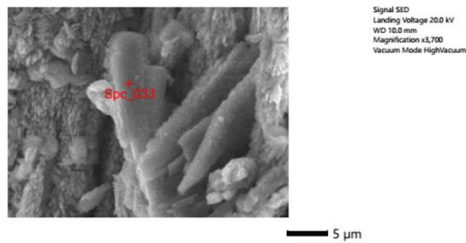
Items	Value	Display name	Standard data	Quantification method	Result Type
measurement conditions		Spc_029	Standardless	ZAF	Metal
Acceleration voltage	20.00 kV				
Probe current	-				
Magnification	x 5500				
Process time	T4				
Measurement detector	First				
Live time	30.00 seconds				
Real time	32.37 seconds				
Dead time	7.00 %				
Count rate	3585.00 CPS				
					Fitting ratio 0.0534



Items	Value	Display name	Standard data	Quantification method	Result Type
measurement conditions		Spc_031	Standardless	ZAF	Metal
Acceleration voltage	20.00 kV				
Probe current	-				
Magnification	x 6500				
Process time	T4				
Measurement detector	First				
Live time	30.00 seconds				
Real time	32.44 seconds				
Dead time	7.00 %				
Count rate	3637.00 CPS				
					Fitting ratio 0.0303

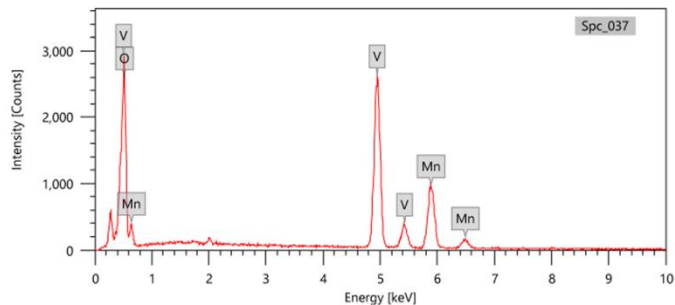
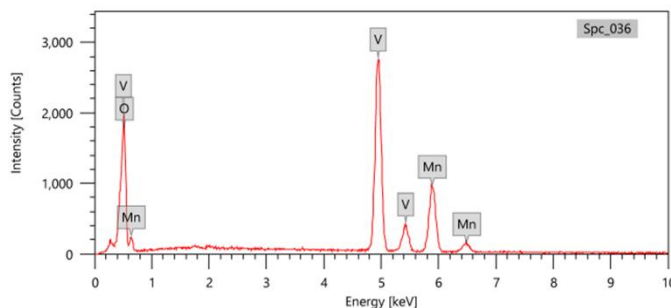
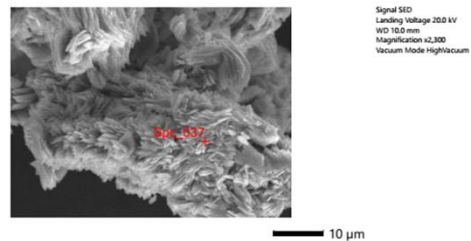
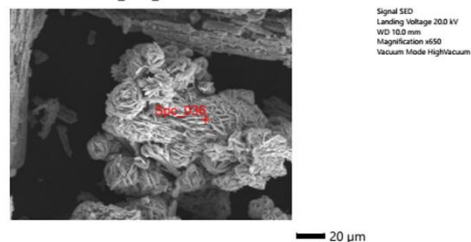
Items	Value	Display name	Standard data	Quantification method	Result Type
measurement conditions		Spc_032	Standardless	ZAF	Metal
Acceleration voltage	20.00 kV				
Probe current	-				
Magnification	x 18000				
Process time	T4				
Measurement detector	First				
Live time	30.00 seconds				
Real time	32.57 seconds				
Dead time	8.00 %				
Count rate	4155.00 CPS				
					Fitting ratio 0.0433

Figure S3. Replicas of EDX scans for cMCV6 at 4 different spots.



Items	Value	Display name	Standard data	Quantification method	Result Type
measurement conditions		Spc_033	Standardless	ZAF	Metal
Acceleration voltage	20.00 kV				
Probe current	-				
Magnification	x 3700				
Process time	T4				
Measurement detector	First				
Live time	30.00 seconds				
Real time	31.79 seconds				
Dead time	6.00 %				
Count rate	1961.00 CPS				
					Fitting ratio 0.0755
		<b>Element</b>	<b>Line</b>	<b>Mass%</b>	<b>Atom%</b>
		V	K	71.95±0.60	73.45±0.61
		Mn	K	28.05±0.47	26.55±0.44
		Total		100.00	100.00

Items	Value	Display name	Standard data	Quantification method	Result Type
measurement conditions		Spc_035	Standardless	ZAF	Metal
Acceleration voltage	20.00 kV				
Probe current	-				
Magnification	x 1100				
Process time	T4				
Measurement detector	First				
Live time	30.00 seconds				
Real time	32.42 seconds				
Dead time	7.00 %				
Count rate	3555.00 CPS				
					Fitting ratio 0.0321
		<b>Element</b>	<b>Line</b>	<b>Mass%</b>	<b>Atom%</b>
		O	K	36.96±0.52	65.68±0.92
		V	K	41.59±0.31	23.22±0.18
		Mn	K	21.45±0.28	11.10±0.14
		Total		100.00	100.00



Items	Value	Display name	Standard data	Quantification method	Result Type
measurement conditions		Spc_036	Standardless	ZAF	Metal
Acceleration voltage	20.00 kV				
Probe current	-				
Magnification	x 650				
Process time	T4				
Measurement detector	First				
Live time	30.00 seconds				
Real time	32.61 seconds				
Dead time	8.00 %				
Count rate	4012.00 CPS				
					Fitting ratio 0.0280
		<b>Element</b>	<b>Line</b>	<b>Mass%</b>	<b>Atom%</b>
		O	K	36.64±0.49	65.38±0.87
		V	K	41.43±0.30	23.22±0.17
		Mn	K	21.93±0.26	11.40±0.14
		Total		100.00	100.00

Items	Value	Display name	Standard data	Quantification method	Result Type
measurement conditions		Spc_037	Standardless	ZAF	Metal
Acceleration voltage	20.00 kV				
Probe current	-				
Magnification	x 2300				
Process time	T4				
Measurement detector	First				
Live time	30.00 seconds				
Real time	32.69 seconds				
Dead time	8.00 %				
Count rate	4429.00 CPS				
					Fitting ratio 0.0566
		<b>Element</b>	<b>Line</b>	<b>Mass%</b>	<b>Atom%</b>
		O	K	43.87±0.48	71.88±0.79
		V	K	35.68±0.27	18.36±0.14
		Mn	K	20.45±0.24	9.76±0.12
		Total		100.00	100.00

Figure S4. Replicas of EDX scans for cMV at 4 different spots.