

Article

Micro-Raman spectroscopy investigation of crystalline phases in EAF slag

Alessandro Riboldi ¹, Laura Borgese ¹, Irene Vassalini ¹, Giovanna Cornacchia ², Marcello Gelfi ², Marco Virginio Boniardi ³, Andrea Casaroli ³ and Laura Eleonora Depero ^{1,*}

¹ Chemistry for Technologies Laboratory, INSTM and Department of Mechanical and Industrial Engineering, University of Brescia, Via Branze 38, 25123 Brescia, Italy; alessandro.riboldi@unibs.it; laura.borgese@unibs.it; irene.vassalini@unibs.it; laura.depero@unibs.it

² Metallurgy at Department of Mechanical and Industrial Engineering, University of Brescia, University of Brescia, Via Branze 38, 25123 Brescia, Italy; giovanna.cornacchia@unibs.it; marcello.gelfi@unibs.it

³ Department of Mechanical Engineering, Polytechnic University of Milan, Via La Masa 1, 20156 Milan, Italy; marco.boniardi@polimi.it; andrea.casaroli@polimi.it

* Correspondence: laura.depero@unibs.it

Received: 27 April 2020; Accepted: 11 June 2020; Published: date

Supplementary Materials

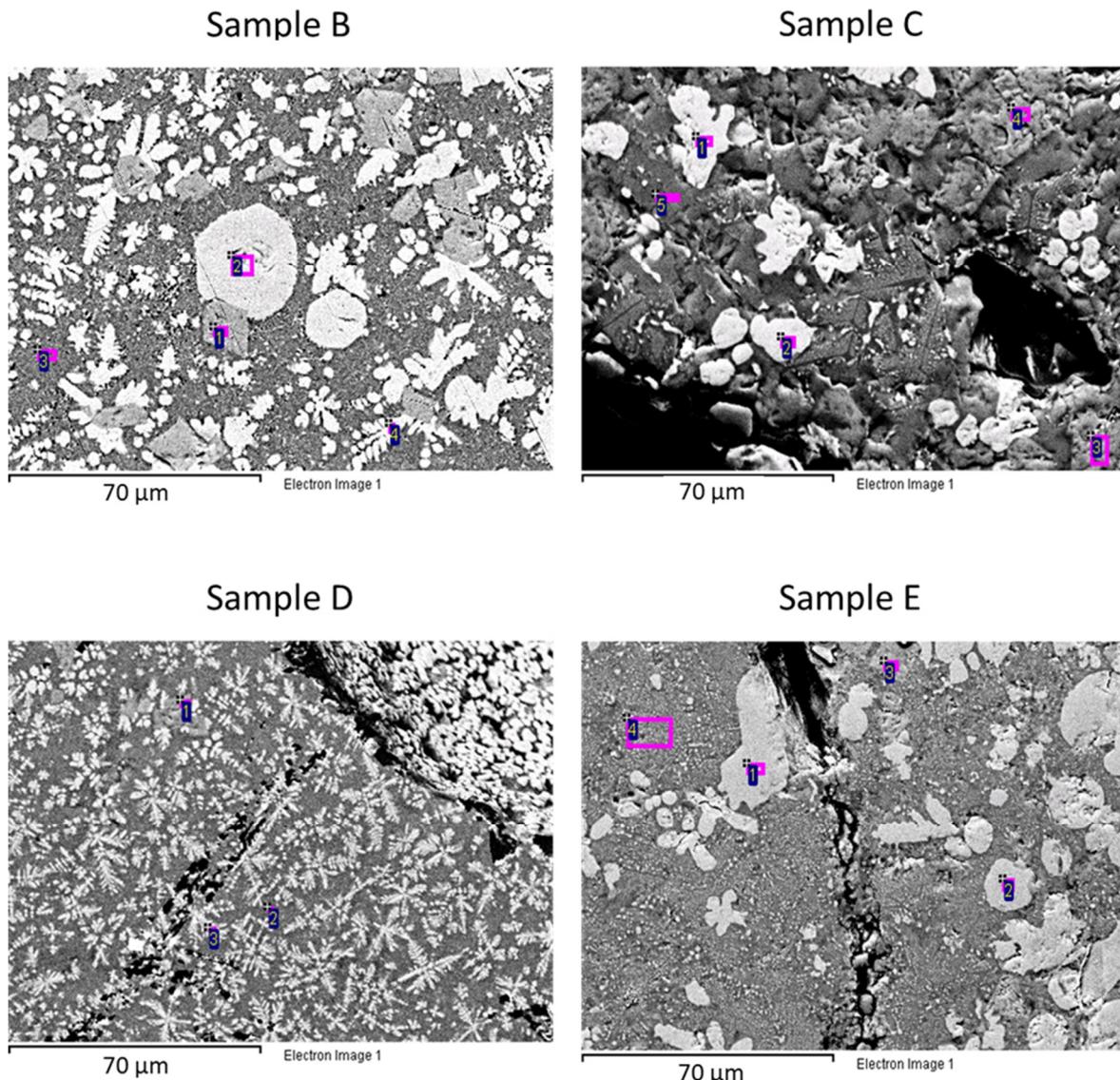


Figure 1. SEM micrographs of samples B, C, D and E. Numbered purple squares represent the position where EDXS measurements are collected.

Table S1. SEM micrographs of samples B, C, D and E. Numbered purple squares represent the position where EDXS measurements are collected.

Sample	Position	Atomic %									Phases identification
		O	Mg	Al	Si	Ca	Ti	Cr	Mn	Fe	
B	1	43.3	12.2	11.2	-	0.4	-	23.0	2.2	7.7	Magnesiochromite
	2	38.5	21.3	0.7	-	0.5	-	4.2	4.1	30.8	Magnesioferrite
	3	47.6	0.7	12.0	11.1	21.7	0.5	-	0.6	5.8	Gehlenite
	4	39.9	9.5	3.3	1.1	3.7	-	0.8	5.0	36.7	Wustite
	1	40.3	12.5	-	-	0.3	-	0.4	11.9	34.7	Wuestite
C	2	41.2	12.9	-	-	0.5	-	-	12.4	32.9	Wuestite
	3	48.7	10.5	10.9	-	0.6	-	21.5	3.1	4.6	Magnesiochromite
	4	50.5	10.4	12.5	-	0.3	-	19.0	3.0	4.3	Magnesiochromite
	5	50.8	2.2	4.5	14.7	23.5	0.5	-	1.1	2.8	Gehlenite
D	1	49.1	9.2	16.0	-	1.0	-	14.5	2.3	7.9	Magnesiochromite
	2	51.6	2.4	8.8	14.6	17.7	-	-	0.7	4.3	Gehlenite
	3	47.3	5.2	5.0	7.0	8.6	0.4	0.6	3.8	22.1	Wuestite
E	1	45.5	20.0	3.2	-	-	-	2.4	3.9	25.0	Wuestite
	2	46.7	20.7	1.9	-	-	-	1.8	3.7	25.2	Wuestite
	3	52.3	12.8	10.8	-	0.5	-	17.2	1.4	5.0	Magnesiochromite
	4	55.4	2.0	8.4	11.5	15.9	-	-	0.5	6.2	Gehlenite

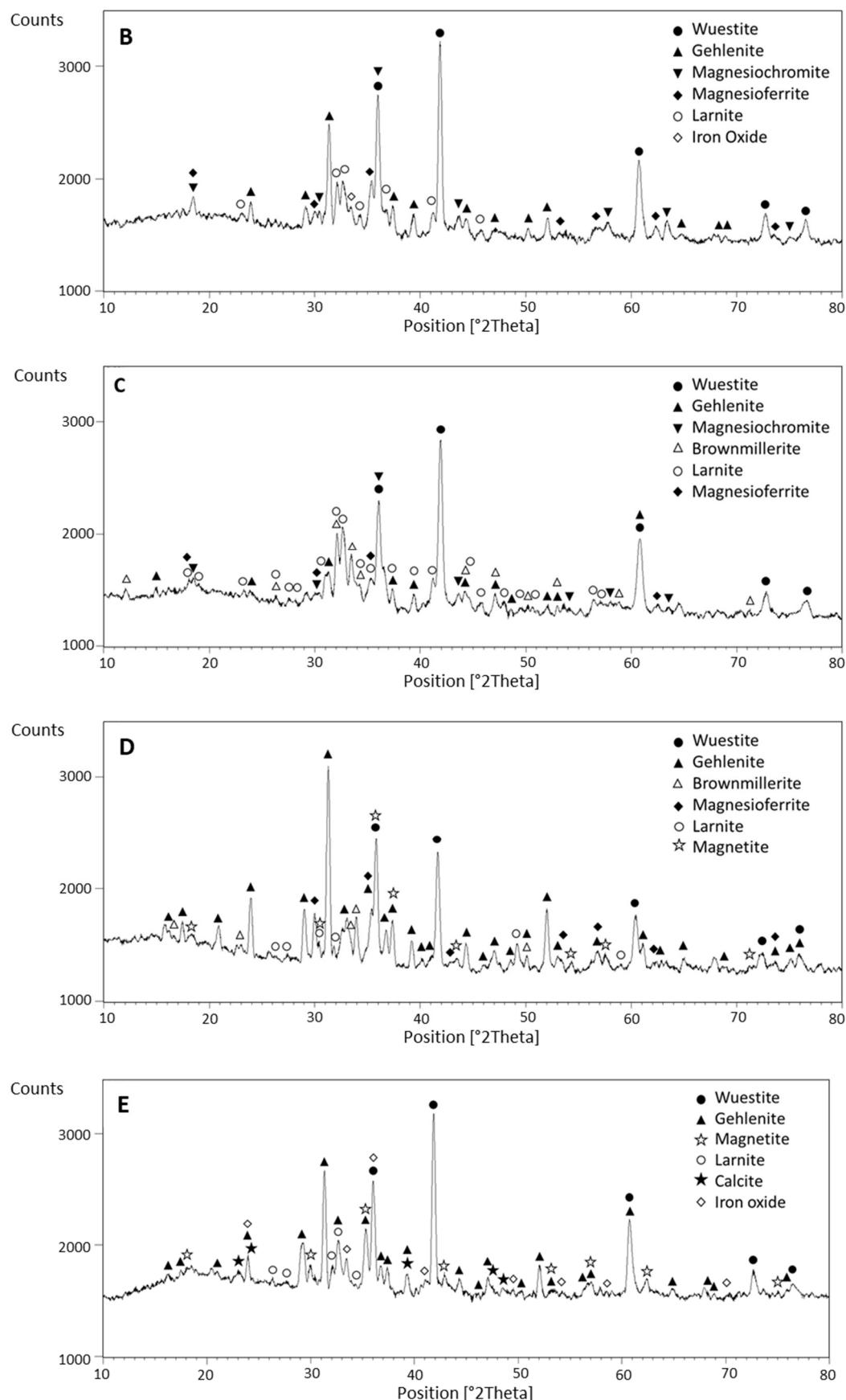


Figure S2. XRD patterns of samples B, C, D and E with the corresponding phase identification.

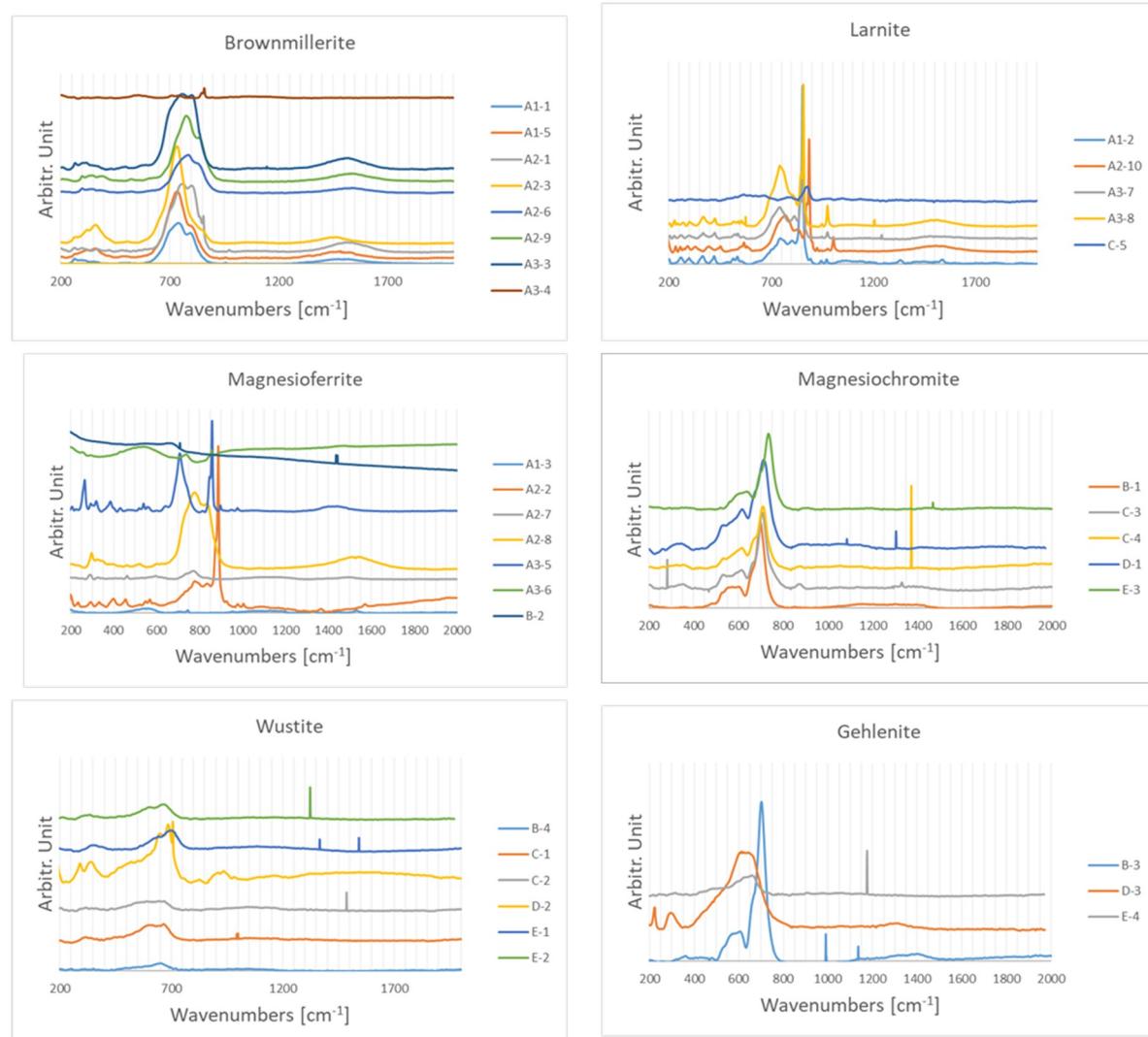


Figure S3. Raman spectra of sample A, B, C, D and E. Time measurement 50s.



© 2020 by the authors. Submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).