Non-Vascular Ceramic Sherds Coming from Two Italian Etruscan Settlements: Peculiarities and Interpretation of Their Possible Use

Margherita Cantelli, Dafne Cimino, Alberta Facchi, Raymond J. Phaneuf and Elisabetta Zendri

Supplementary Materials

S1 Archaeological information

This section presents supplementary information about the archaeological sites and findings considered in this study. Figure S1.1 displays the territorial map of the Po Delta at the time of the Etruscan settlements of San Basilio di Ariano nel Polesine, Adria and Spina.

Figure S1. The ancient Po Delta with the Etruscan settlements of S. Basilio, Adria and Spina (Credits: Dr Sandra Bedetti).

Table S1 and S2 list additional information about the considered archaeological fragments from the sites of San Basilio and Adria respectively. Since they are stored in the warehouse of the National Archaeological Museum of Adria, the location refers to boxes and bags containing each fragment. For practical use, it was decided to label all the fragments with a coloured tag with the purpose of making them more easily identifiable. The strata description is also reported for each bag.

Table S1. Samples tag and strata description, SB83 site.

Tag	Box	Bag	n°	Strata description	Total number
O WR	62	6	1-2		
O WR	62	7	3-11		
O WR	62	2	12-14		14
GR	79	4	1-5		
GR	79	3	6-16	2nd week probe - east - concentration of potsherds below the *concotti alti* at the level of the *concotti bassi* (construction material)	
GR	79	8	17-21	1st stratum. At the level of *concotti alti* (construction material)	21
W	107	4	1-46	2nd week probe - western sector - western enlargement in the anthropic level (1st and 2nd strata)	46
P	107	6	1-19	2nd week probe - western sector - western enlargement from the stratum affected by the plow to the underneath anthropic level below the sand (2nd stratum)	19
V	107	1	1-4	2nd week probe - western sector - western enlargement between the anthropic level and the sterile sand (3rd stratum)	
V	107	3	5-6		6
P	108	2	101-4		4
P	108	4	105		1
P	108	6	106		1
BL	109		1-18	Western sector towards the southern wall - grey clay stratum	18
BR	109		1		
BR	109		2-8		8
R	110		1-10	West - below the *battuti bassi* until the wood	10
Y	110		1-58	*Concotto superiore* pieces belonged to the further prolongation towards west	
Y	110		101-102	*Concotto superiore* pieces belonged to the further prolongation towards west	60
OR	142		1-40	2nd week probe - western sector - western enlargement - stratum between sand and the anthropic level (2nd stratum)	40
					248

Table S2. Samples tag and US description, AER16 site.

Tag	Box	n°	US	US description	Total number
R	11	301-303	US 3264 A		
R	11	304	US 3268/4128	3268 - flood deposit. Covers 4072, 4065. Covered by 4020	
R	11	305	US 3264 B		5
W	12	301	US 4063	Flood deposit, clay-loam level. Covers 4095. Covered by 4072, 4065	
W	12	302-304	US 4003 B		
W	12	305-307	US 4108	Contest with pottery near US 4107 into the N/S ditch	
W	12	308-311	US 4096	Gray-green clay-loam level in room 1-2, structure A	
W	12	312-313	US 4024	Infill of clasts into the ditch 4025-	
W	12	314	US 4064	1st anthropic level pertaining to room 1 e 2 of structure A. This level is laterally linked to some *lamine di pulizia* concerning the fireplace (4038 B e 4034 B). Covers 4122. Covered by 4095/4063	
W	12	315	US 4096	Gray-green clay-loam level in room 1-2, structure A	
W	12	316-321	US 4063 cer	Flood deposit, clay-loam level. Covers 4095. Covered by 4072, 4065	
W	12	322-338	US 4098	High infill of the N/S ditch, subsequent to the abandonment of the area and to the partial deterioration of structures A-B. Composed of wooden debris coming from the decomposition of that structures. Covers 4150. Covered by 4095	38
Y	13	301	US 4037 A		
Y	13	302-304	US 4034	Walking surface above fireplace, in phase with 4038 A/B; new eastern section	
Y	13	305-321	US 4095 FITT+CER	Flood deposit in area, at the base of 4063, composed of coarse sand. Covers 4044. Covered by 4063	
Y	13	322-333	US 4140-4141		33
P	14	301-302	US 4086/4063	Flood clastic deposit infilling the northern ditch	
P	14	303	US 3268 C	3268 flood deposit. Covers 4072, 4065. Covered by 4020.	
P	14	304-319	US 4065	Clay tiles platform placed horizontally forming a flat surface; S/E sector. Covers 4063. Covered by 3268C	
P	14	320-322	US 4095	Flood deposit in area, at the base of 4063, composed of coarse sand. Covers 4044. Covered by 4063	
P	14	3 A/B	US 4201	Flood soil above the low beams located below plinths of room 3	24
OR	15	301	US 4149	First infill of drain ditch US4097	
OR	15	302	US edificio 3 / saggio 3		
OR	15	303-305	US 4082		
OR	16	306	US 3264 B		
OR	16	307-309	US 4084		
OR	16	310	US 4003 A		
OR	16	311	US 4003		
OR	16	312	US 4068	Infill of ditch (US 4069-) with bricks remains and lumps. Covers US 4070. Covered by 3268C	
OR	16	313-314	US 4095	Flood deposit in area, at the base of 4063, composed of coarse sand. Covers 4044. Covered by 4063	
OR	16	315-324	US 4003 A		
OR	16	325	US 4149	First infill of the ditch 4097-	25
BL	17	301-309	AER 15 US 3264 C / 3270		

BL	17	310-331	US 4106	Discharge of fragmented tiles on the western side of the E/W ditch	
BL	17	332-337	US 4098	High infill of the N/S ditch, subsequent to the abandonment of the area and to the partial deterioration of structures A-B. Composed of wooden debris coming from the decomposition of that structures. Covers 4150. Covered by 4095	
BL	17	338-345	US 4020	Anthropic stratum with carbonaceous lenses and overcooked clasts. Frequentation/growth level with beams and wooden fingerprints	
BL	17	346-351	US 4020		
BL	17	352-353	US 4003		
BL	17	354-376	US 4106	Discharge of fragmented tiles on the western side of the E/W ditch	76
					201

S2 Morphological characterization

This unit presents the photographic documentation of a representative sample for each different group.

Table S3. SB83 groups subdivision.

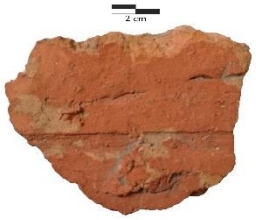
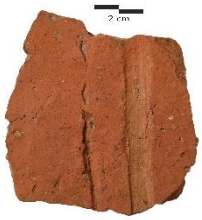
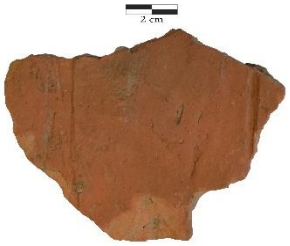
SB83			
Group A	Group C1	Group C2	Group G
41W	2P	20Y	102Y
			

Table S4. AER16 groups subdivision.

AER16		
Group 1	Group 2	Group 3
302Y	303BL	313OR
		
Group 4	Group 5	Group 6
328W	303Y	361BL
		

S3 FTIR analyses

This chapter reports additional spectra concerning FITR analysis of samples from group 6. Figure S2 displays the spectrum of sample 323W, revealing the presence of gypsum in the superficial part of the fragment; Figure S3 shows the transmission mode FTIR spectrum of sample 367BL denoting distinctive vibrational signs of sulphate group also in the bulk

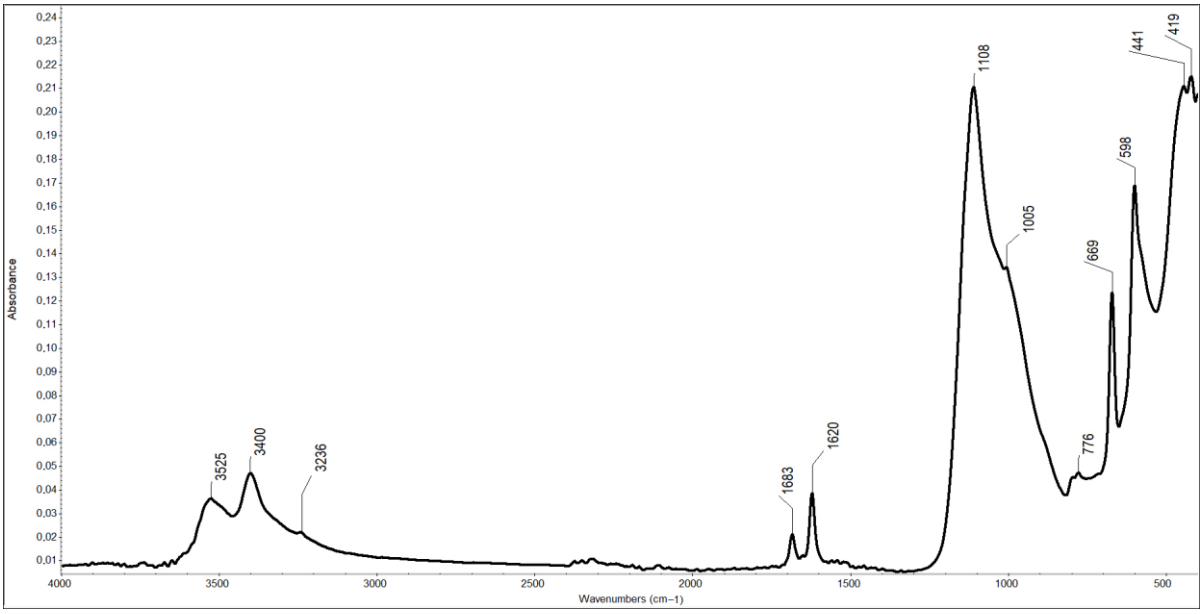


Figure S2. FTIR-ATR spectrum of 323W_6 sample; side A.

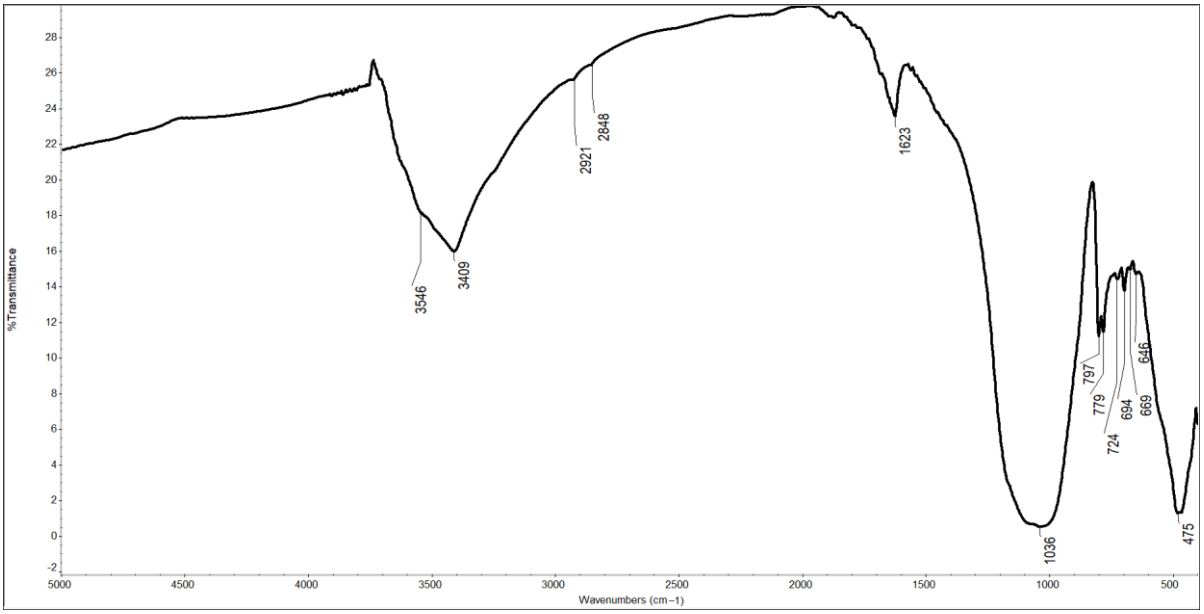


Figure S3. FTIR spectrum of 367BL_6 sample; bulk.

S4 Water absorption test

While in the text is reported the average of the results of the absorption test carried out on ceramic sherds, here the absorption curves of all the samples are presented, divided in the three observed trends.

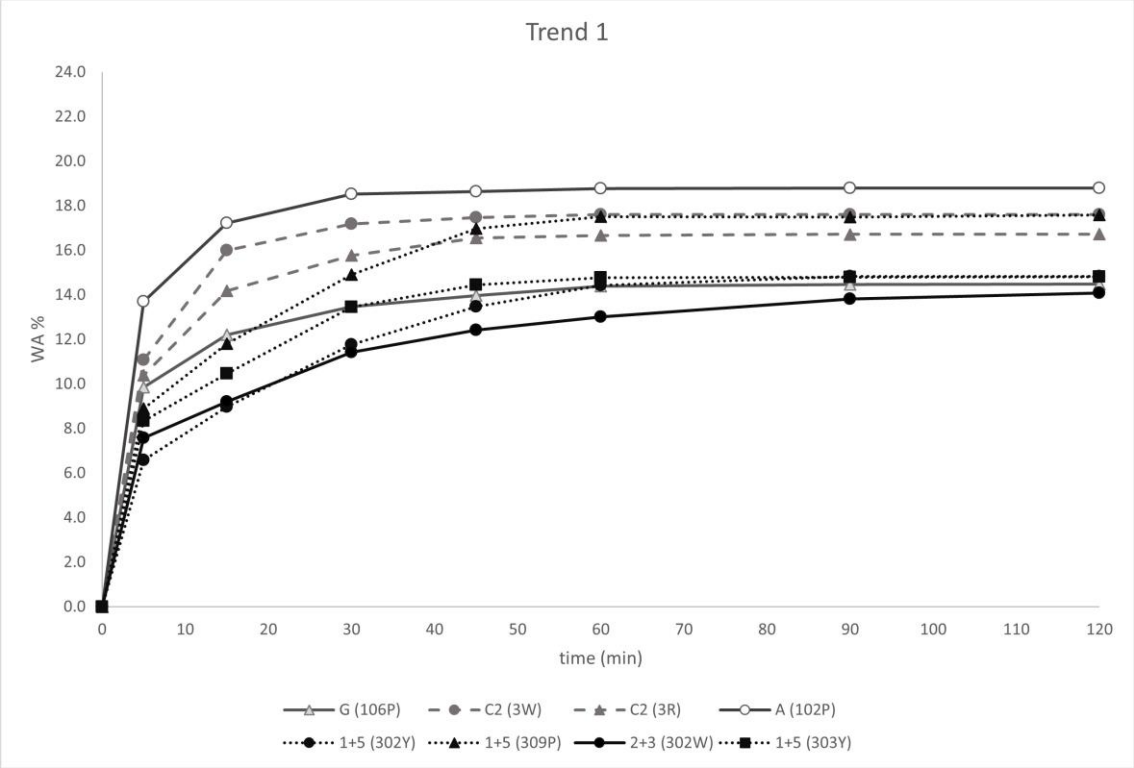


Figure S4 Water absorption curves: Trend 1.

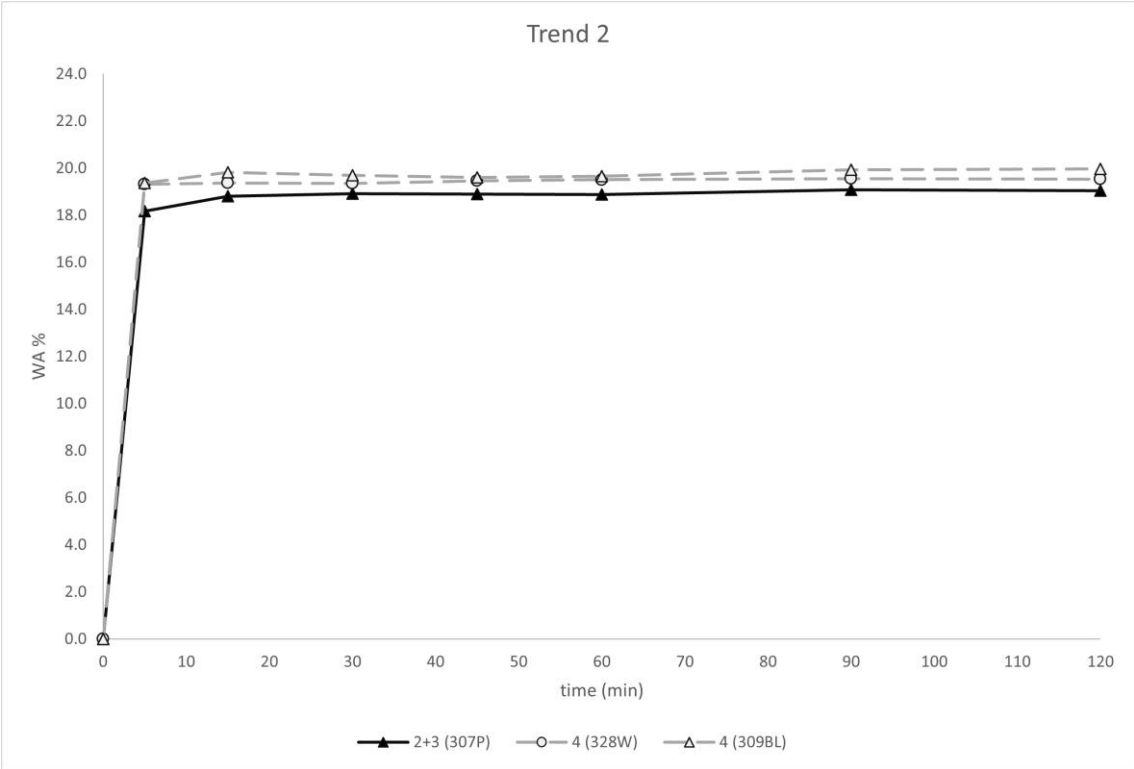


Figure S5 Water absorption curves: Trend 2.

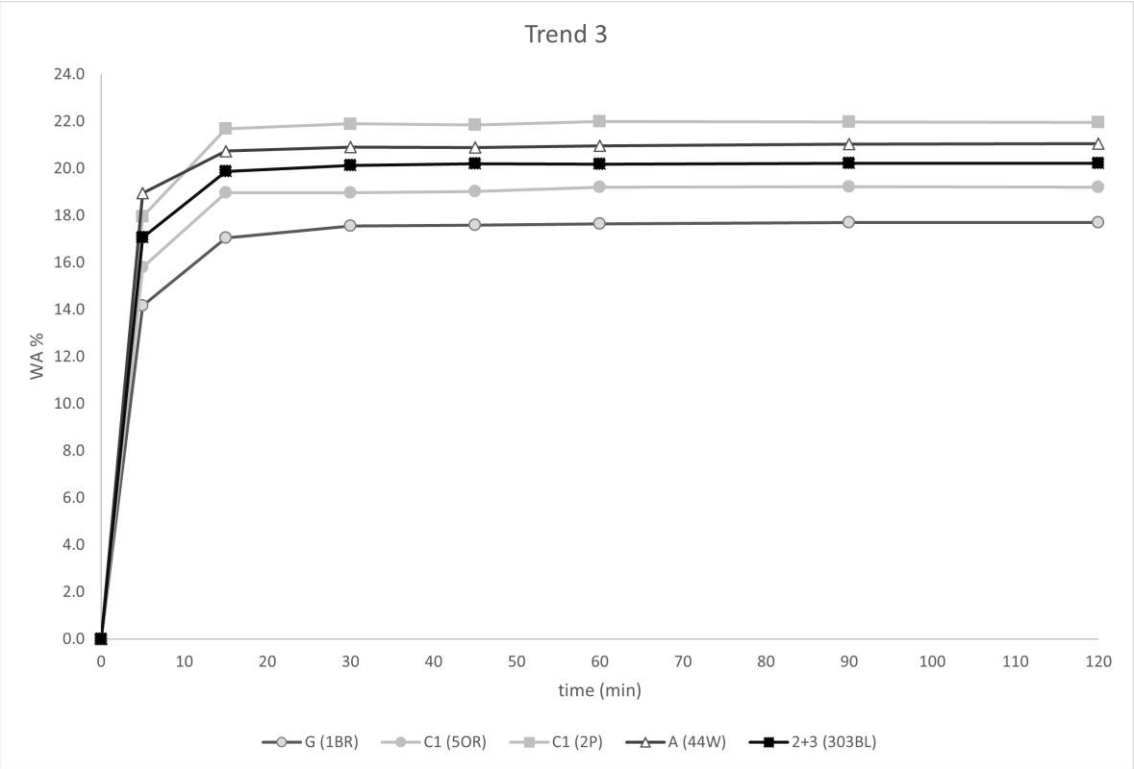


Figure S6. Water absorption curves; Trend3.

S5 TG-DSC analyses

Additional information about thermal analyses are reported here, along with specifications of temperature ranges taken into consideration and three supplementary thermograms.

Samples considered were: 2P_C1 (side A), 303Y_1+5 (side A), 309P_1+5 (bulk) and 106P_G (bulk) as representative of the majority of the pieces; 367BL_6 (side A and bulk), in order to observe the thermal behaviour of gypsum in the surface and in the bulk; 41W_A (bulk) since it presented a layered section.

In order to compare samples data, TG results are presented considering some temperature ranges, each one correlated to specific chemical reactions as follows (Cuomo di Caprio, 2007; Leach *et al.*, 2008):

- 100-200°C: loss of absorbed water (endothermic peak);

- 200-400°C: combustion of organic material (exothermic peak);

- 400-600°C: loss of chemically combined hydroxyl water by clay minerals (endothermic peak);

- >600°C: decomposition of calcite (endothermic peak);

- about 900°C: formation of high temperature phases from clay minerals (exothermic peak).

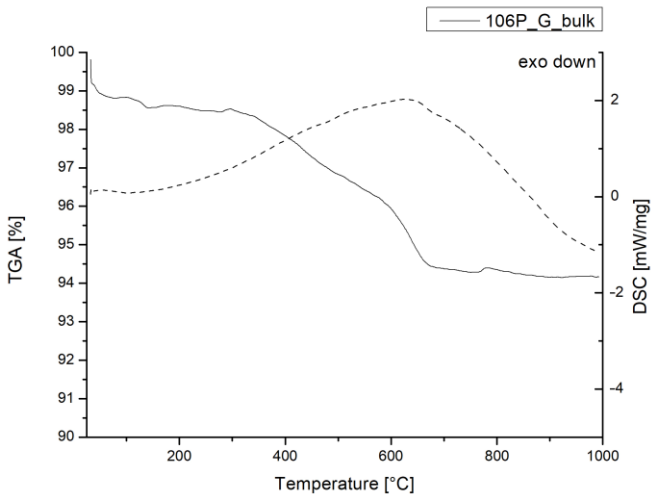


Figure S7. TG-DSC thermogram of sample 106P_G_bulk (DSC curve dotted).

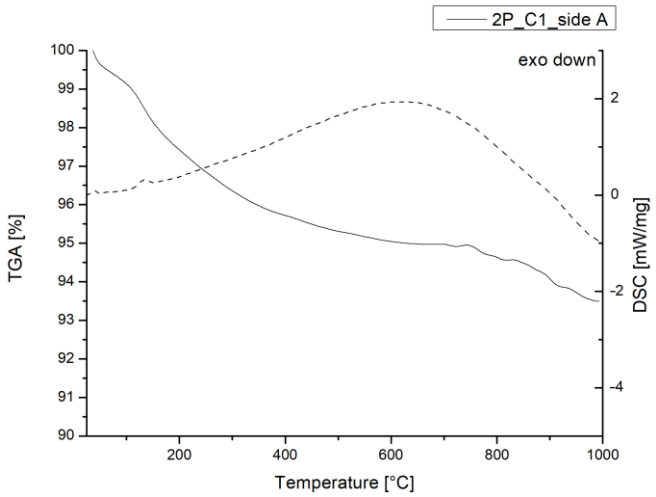


Figure S8. TG-DSC thermogram of sample 2P_C1_side A (DSC curve dotted).

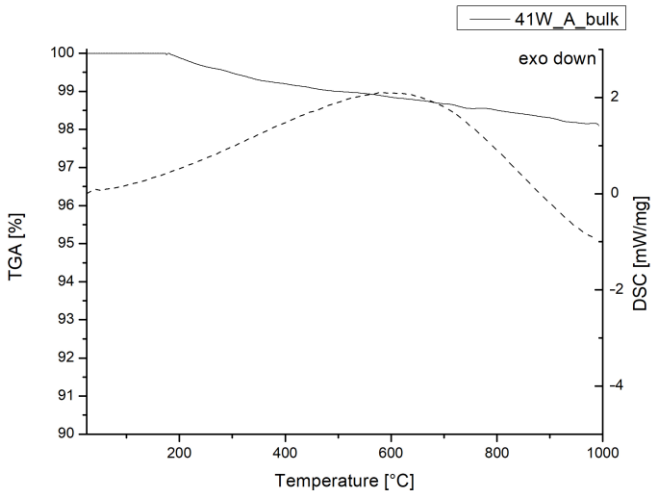


Figure S9. TG-DSC thermogram of sample 41W_A_bulk (DSC curve dotted).