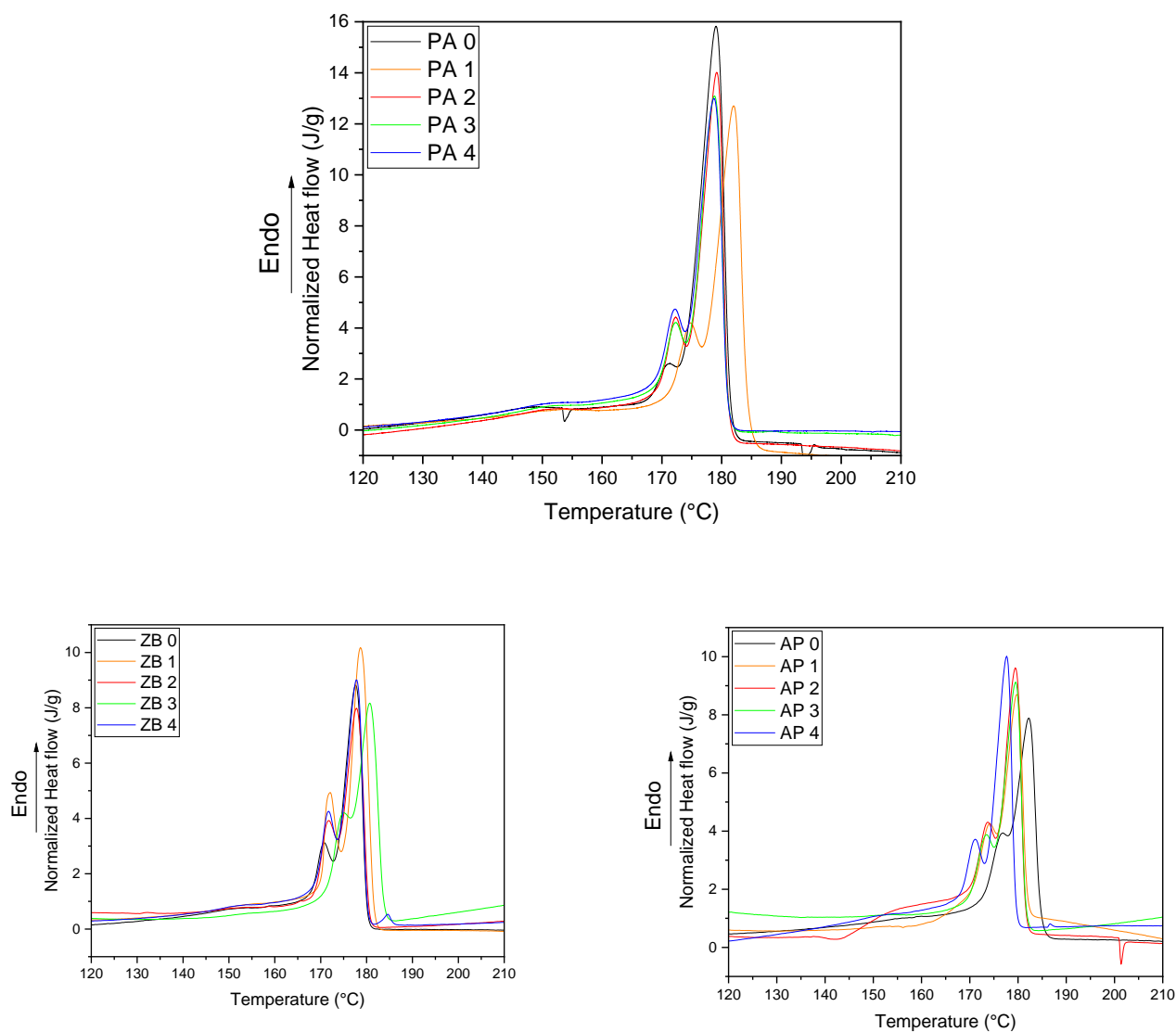


# Towards the Reuse of Fire Retarded Polyamide 12 for Laser Sintering



**Figure S1.** DSC of specimens (second heating) for PA 12 (top), AP (bottom left) and ZB (bottom right).

**Table S1.** DSC data of second heating (LS specimens).

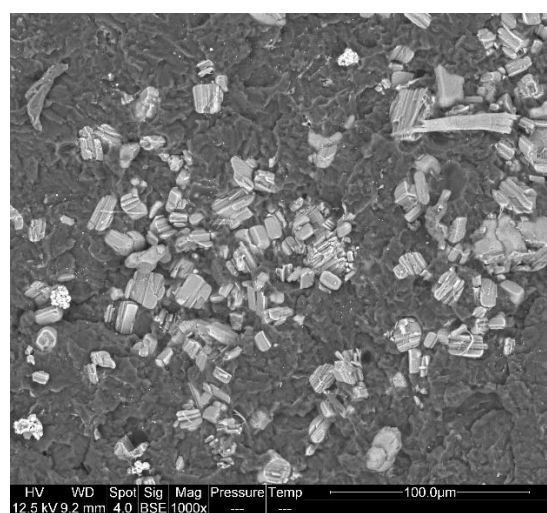
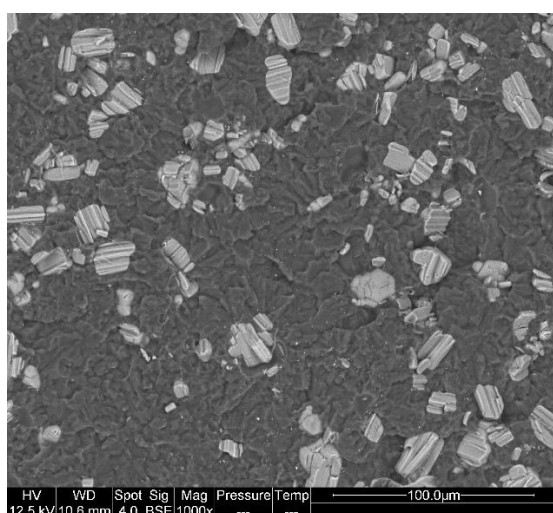
Sample	T <sub>im</sub> (°C)	T <sub>peak</sub> (°C)	T <sub>endm</sub> (°C)	Melting Enthalpy (J/g)	Crystallinity (%)
PA 0	174,7	179,8	182,1	37,59	17,97
PA 1	175,1	180,1	182,8	35,61	17,02
PA 2	174,8	179,9	182,5	35,14	16,80
PA 3	175,1	180,1	182,9	36,29	17,35
PA 4	176,2	181,7	183,5	35,47	16,96
ZB 0	175,5	180,4	182,6	35,67	17,05
ZB 1	175,7	181,4	183,4	34,71	16,59

<b>ZB 2</b>	175,3	180,9	183,8	34,87	16,67
<b>ZB 3</b>	174,8	180,9	183,3	33,62	16,07
<b>ZB 4</b>	175,4	181,2	183,9	34,14	16,32
<b>AP 0</b>	175,9	180,8	183,3	36,74	17,56
<b>AP 1</b>	176,4	181,4	183,9	37,91	18,12
<b>AP 2</b>	176,6	181,2	183,9	35,49	16,96
<b>AP 3</b>	176,5	181,2	183,6	37,84	18,09
<b>AP 4</b>	176,4	181,2	183,5	37,39	17,87

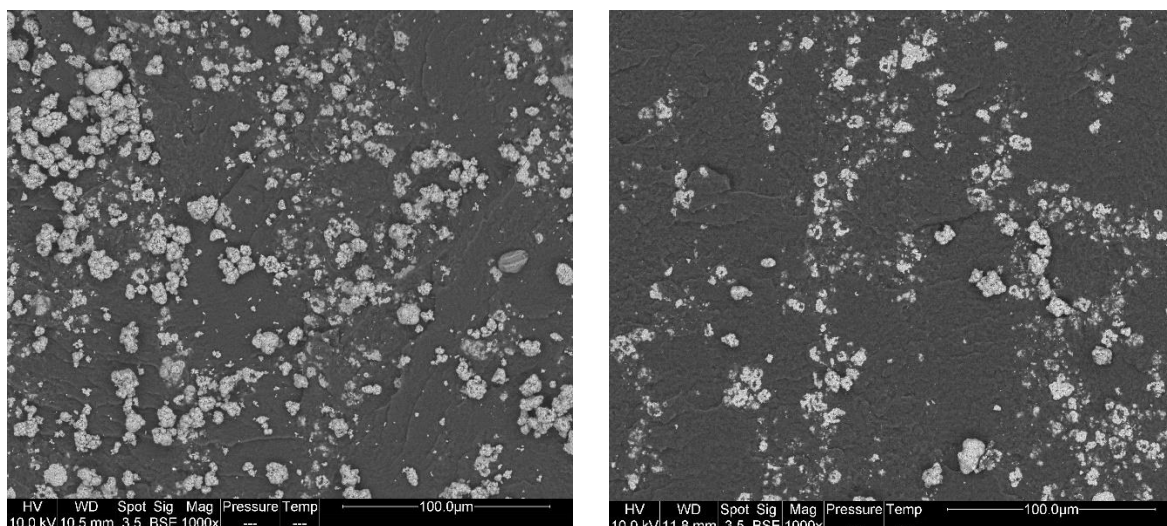
## Helium pycnometer : porosity

**Table S2.** Porosity results in PA12, AP30 and ZB30 over cycle of reuse.

Sample	Part density (g/cm <sup>3</sup> )	Powder density (g/cm <sup>3</sup> )	Porosity (%)
<b>AP30 0</b>	1,18	1,23	4,1
<b>AP30 1</b>	1,19	1,23	4,0
<b>AP30 2</b>	1,19	1,24	4,0
<b>AP30 3</b>	1,2	1,24	3,2
<b>AP30 4</b>	1,2	1,24	3,2
<b>ZB30 0</b>	1,27	1,31	3,1
<b>ZB30 1</b>	1,27	1,3	2,3
<b>ZB30 2</b>	1,27	1,29	1,6
<b>ZB30 3</b>	1,27	1,3	2,3
<b>ZB30 4</b>	1,27	1,3	2,3
<b>PA 0</b>	1,01	1,07	5,6
<b>PA 1</b>	1,01	1,06	4,7
<b>PA 2</b>	1,01	1,06	4,7
<b>PA 3</b>	1,01	1,06	4,7
<b>PA 4</b>	1	1,06	5,7

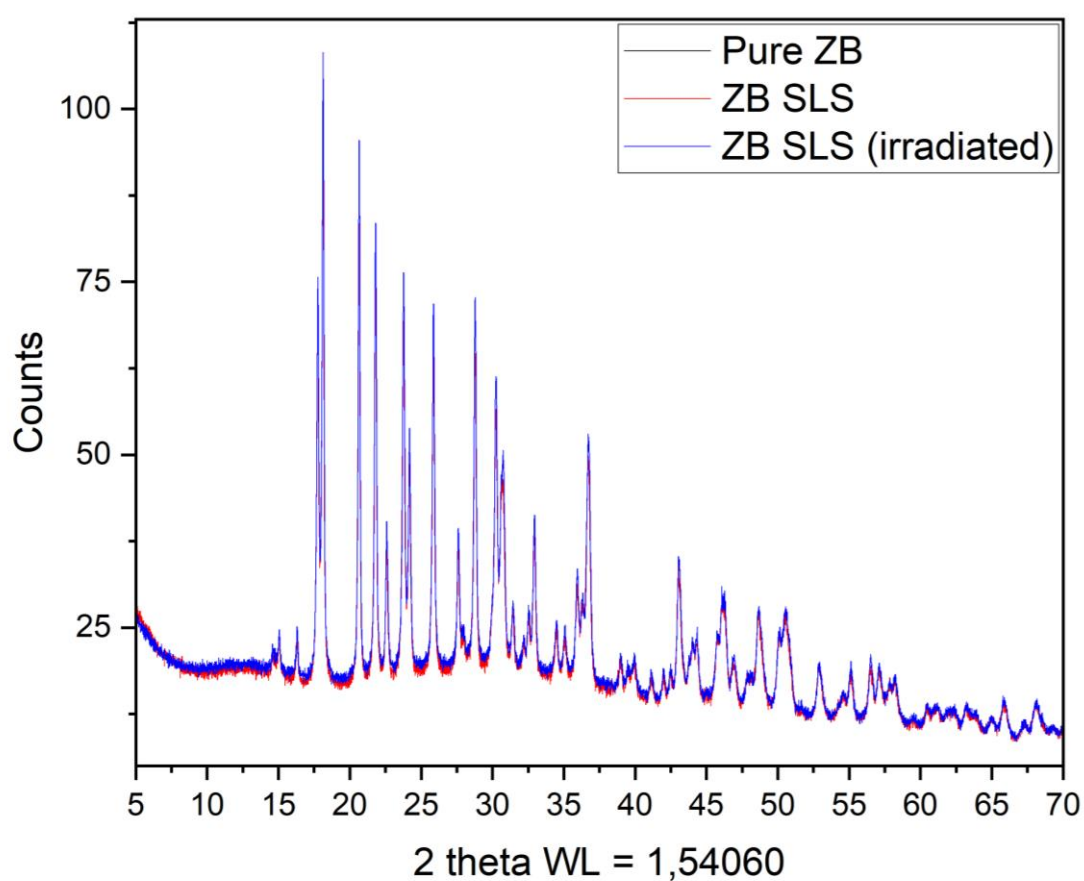


**Figure S2.** AP30 particle's aggregation with formation of a network. AP30-0 is represented in left side and AP30-4 in right.



**Figure S3.** SEM images of ZB 0 (left) and ZB 4 (right).

**XRD of powders : Influence of CO<sub>2</sub> laser and cycle of reuse.**



**Figure S4.** Diffractograms of 1) Pure zinc borate 2) Zinc borate that was inside build chamber without any irradiation by CO<sub>2</sub> laser 3) Zinc borate that was inside build chamber and underwent CO<sub>2</sub> laser irradiation.