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SUPPLEMENTARY MATERIAL
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Water Vapor Uptake and Microwave Heating of Magnetite / Aluminum Fumarate Composites

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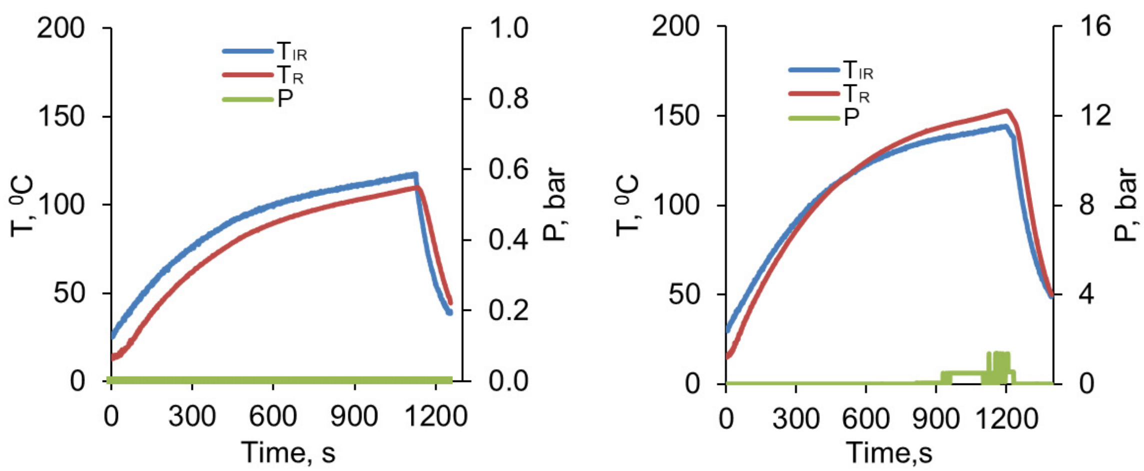
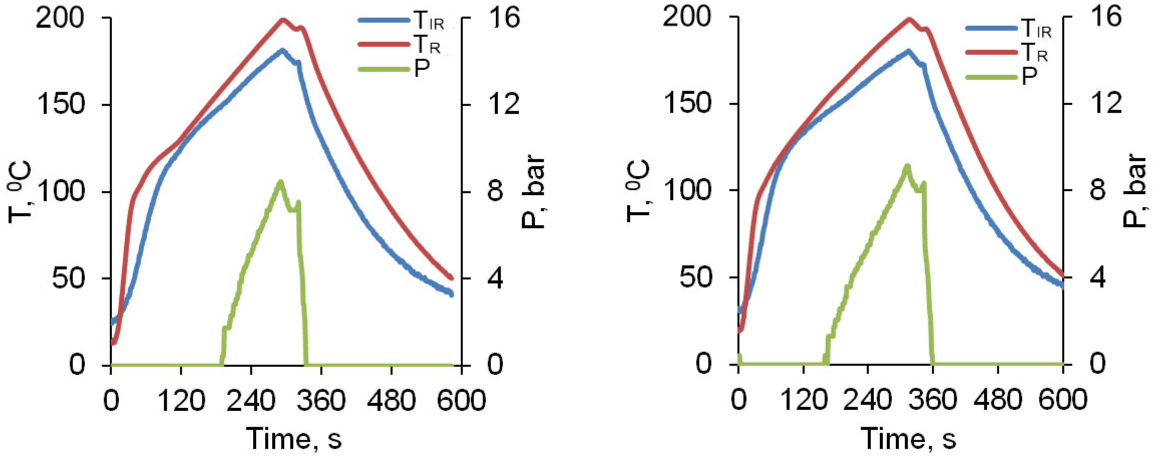


a

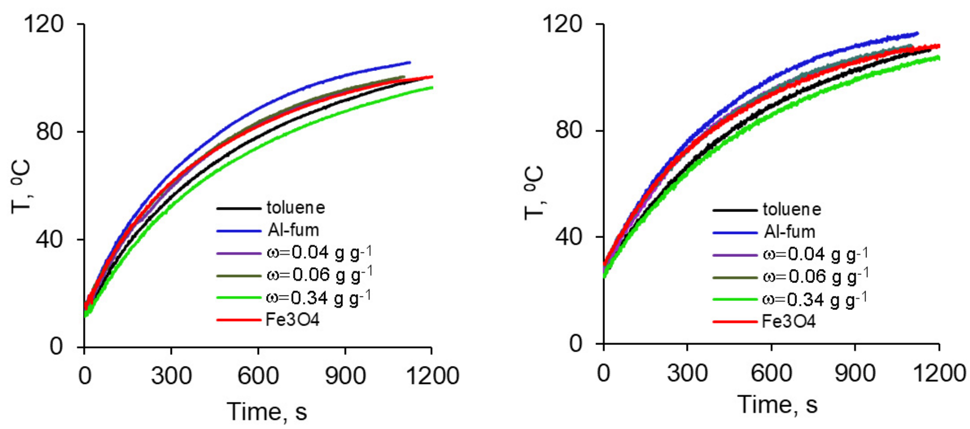
b

Fig. S1 contd.....

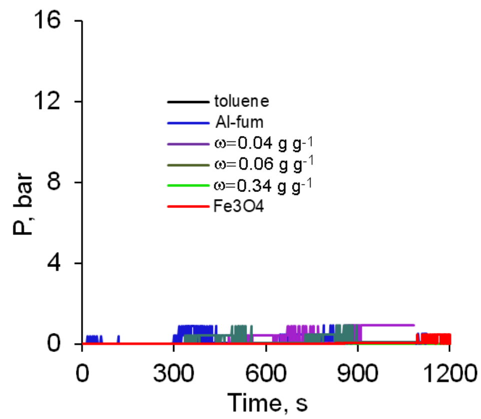


c d

Fig. (S1). Microwave heating (ascending section) and cooling (descending section) curves (T_{IR} – temperature of the vial wall (IR detector), T_R – temperature of internal content (Ruby detector), P - pressure) of an empty vial filled with air (**a**), dry Al-fum powder (**b**), Al-fum (**c**) and a Fe_3O_4/Al-fum composite (**d**, ω= 0.06 g g^{-1}) after overnight water saturation at RH 90%, 23±1 ^{0}C. A MonoWave 300 Anton Paar instrument operating at 2.45 GHz, 30 W.



a b



c

Fig. (S2). Microwave heating curves: **a**) temperature of internal content (Ruby detector), **b**) temperature of the vial wall (IR detector), **c**) P – pressure upon heating 8.5 mg mL^{-1}suspensions of dry powder of Al-fum, Fe_3O_4, and the composites with different ω in toluene. A MonoWave 300 Anton Paar instrument, 2.45 GHz, 30 W.

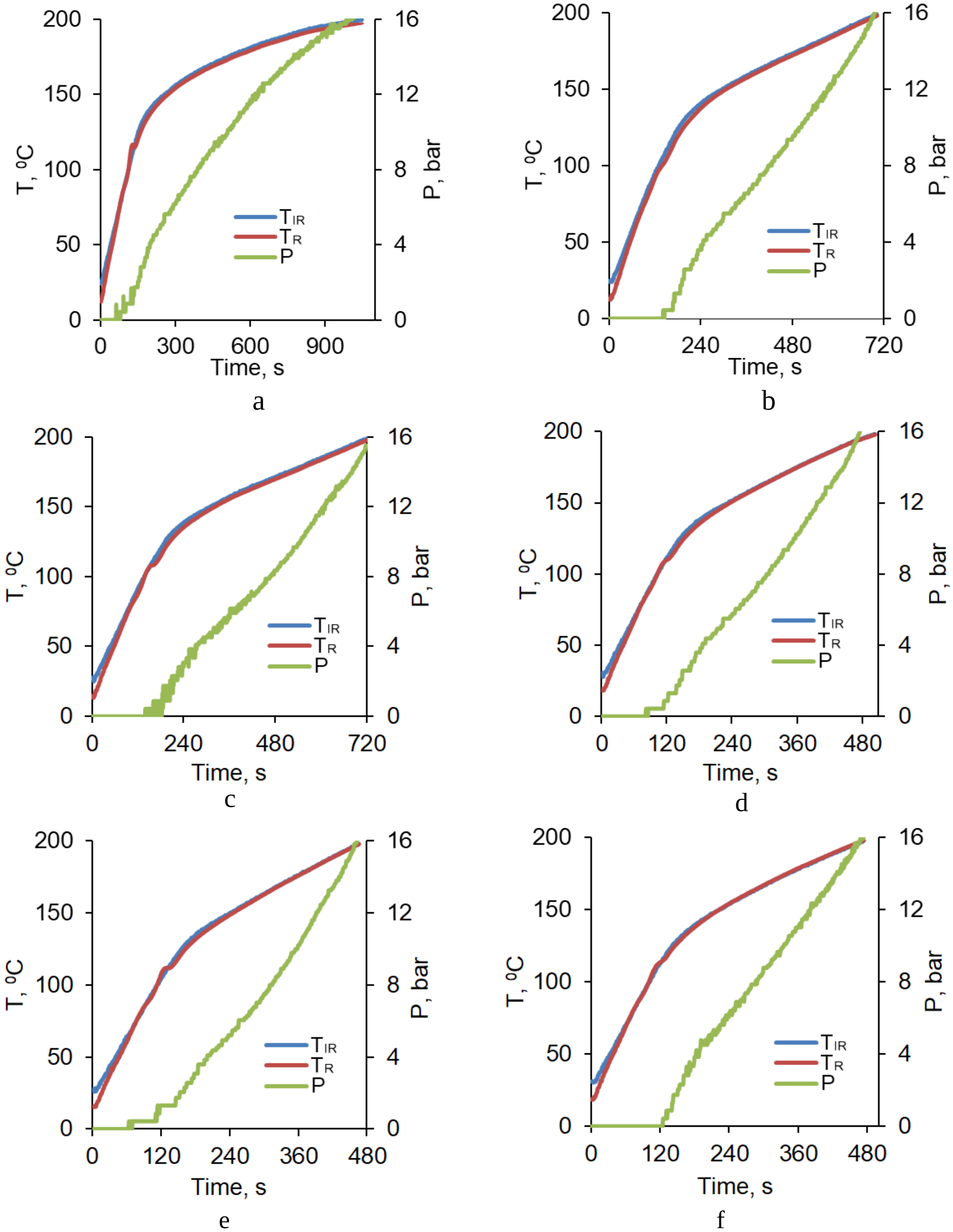


Fig. (S3). Microwave heating curves (T_{IR} – temperature of the vial wall (IR detector), T_R – temperature of internal content of the vial (Ruby detector), P – pressure) of a vial filled with water (**a**), aqueous suspensions of Al-fum (**b**), Fe_3O_4/Al-fum composites (c-e, ω, g g^{-1}: 0.01 (**c**); 0.04 (**d**); 0.06 (**e**)), and Fe_3O_4 (**f**). A MonoWave 300 Anton Paar instrument, 2.45 GHz, 30 W.

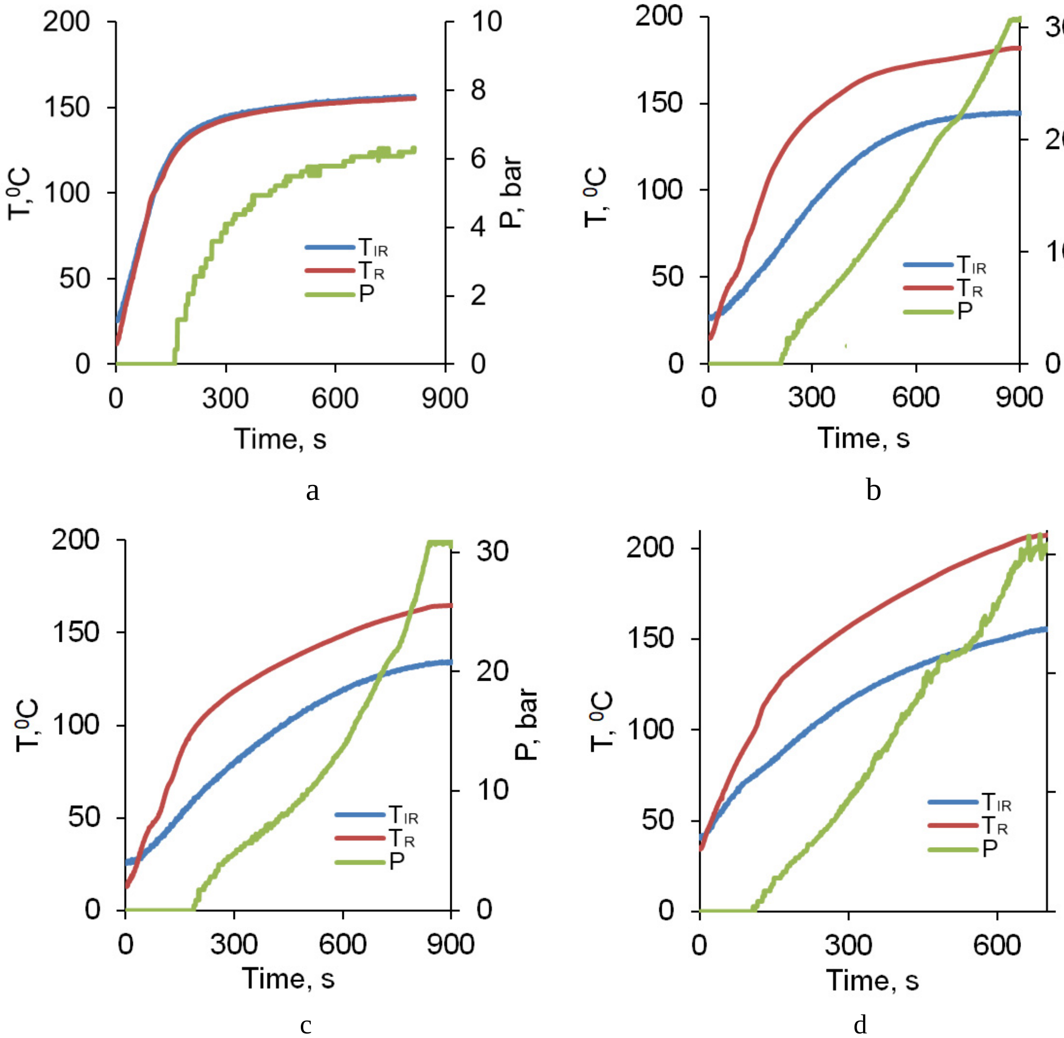


Fig. (S4). Microwave heating curves (T_{IR} – temperature of the vial wall (IR detector), T_R – temperature of internal content of the vial (Ruby detector), P – pressure) of a vial filled with water (**a**), 0.25 g/mL aqueous suspensions of Al-fum (**b**), Fe_3O_4/Al-fum composite ω=0.04 g g^{-1} (**c**), and Fe_3O_4 (**d**). A MonoWave 300 Anton Paar instrument, 2.45 GHz, 30 W.