# Supplementary Materials

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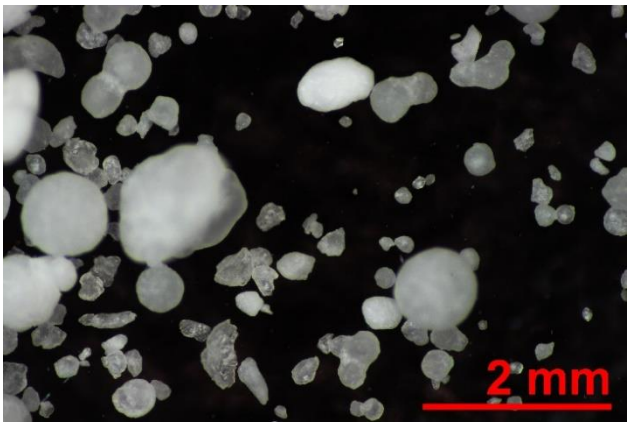
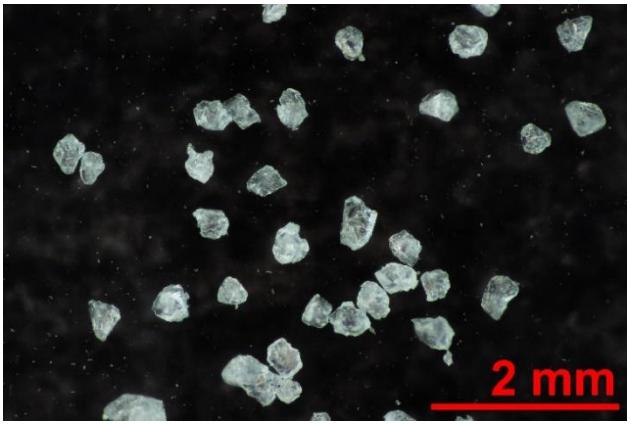
**PP/PE**




**CoPA**

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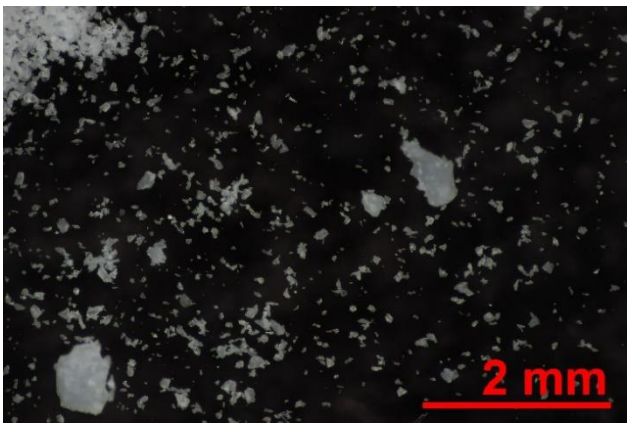


**PVC**

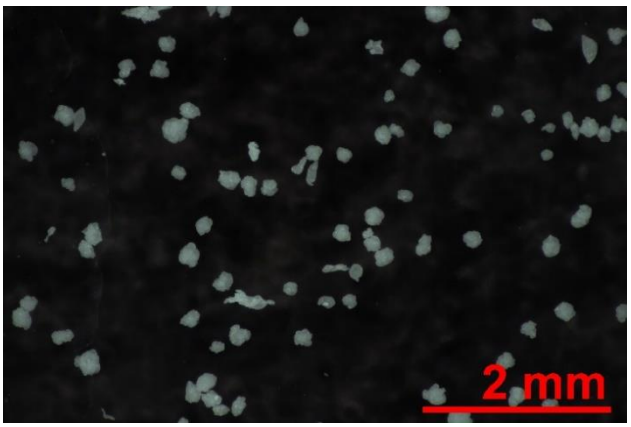


*Figure 1: Stereomicroscope images of raw microplastics used for the fixation experiments*

*Table 1: Water parameters of a 24 h composite sample taken at 2nd march 2020 at the effluent of the sewage treatment plant Landau i. d. Pfalz, Germany. The values were provided by the operators of the sewage treatment plant, Entsorgungs- und Wirtschaftsbetrieb Landau.*

| **Turbidity** | **Total suspended solids** | **Chemical oxygen demand** | **Ammonia** | **Total nitrogen** | **Nitrate** | **Total Phosphorous** |
|---|---|---|---|---|---|---|
| [TEF] | [ml/l] | [mg/l] | [mg/l] | [mg/l] | [mg/l] | [mg/l] |
| 0.0 | 0.00 | 14.90 | 0.50 | 5.69 | 4.98 | 0.15 |

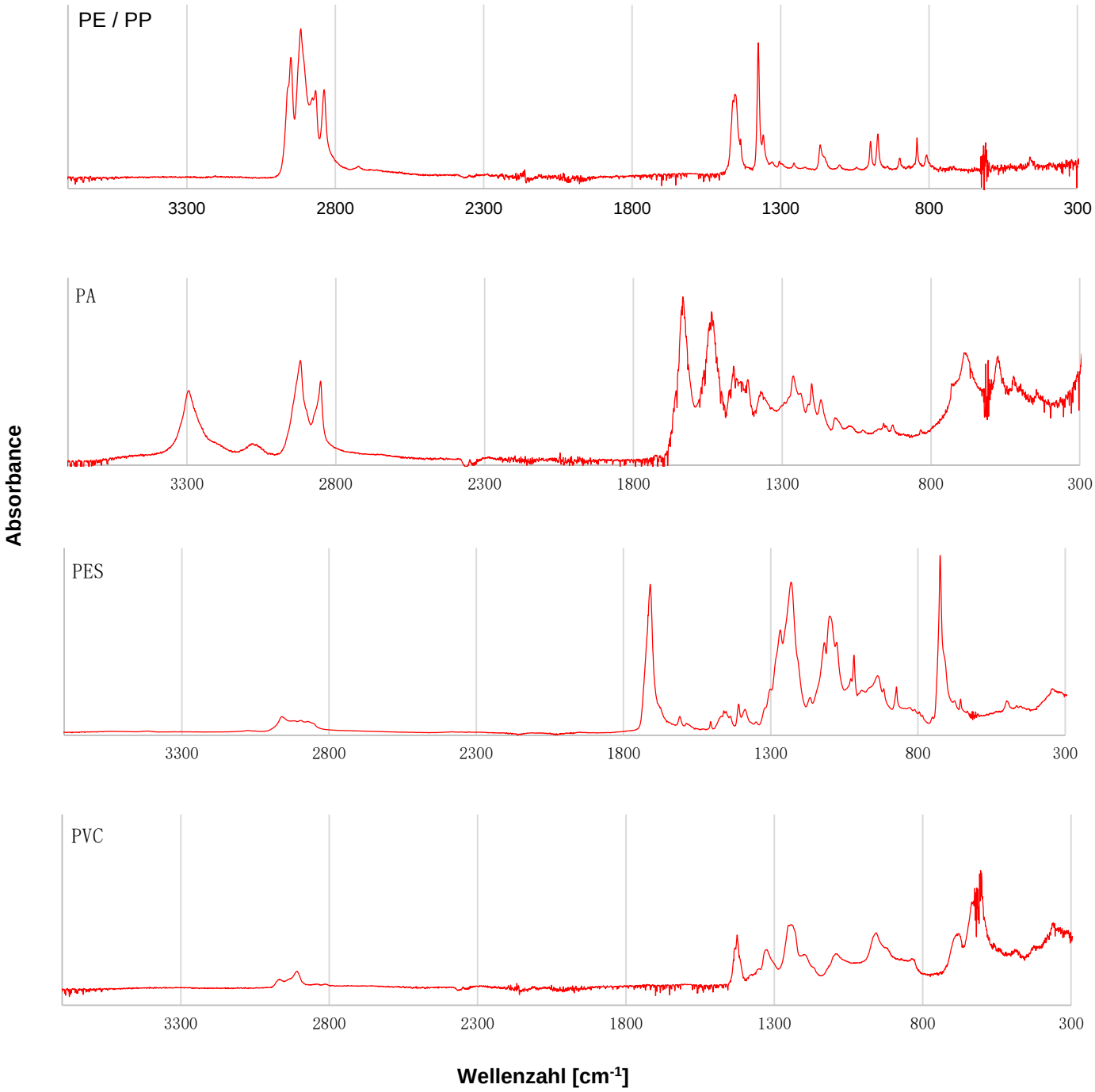


*Figure 2: FTIR-Spectra of the microplastics used in the fixation experiments.*

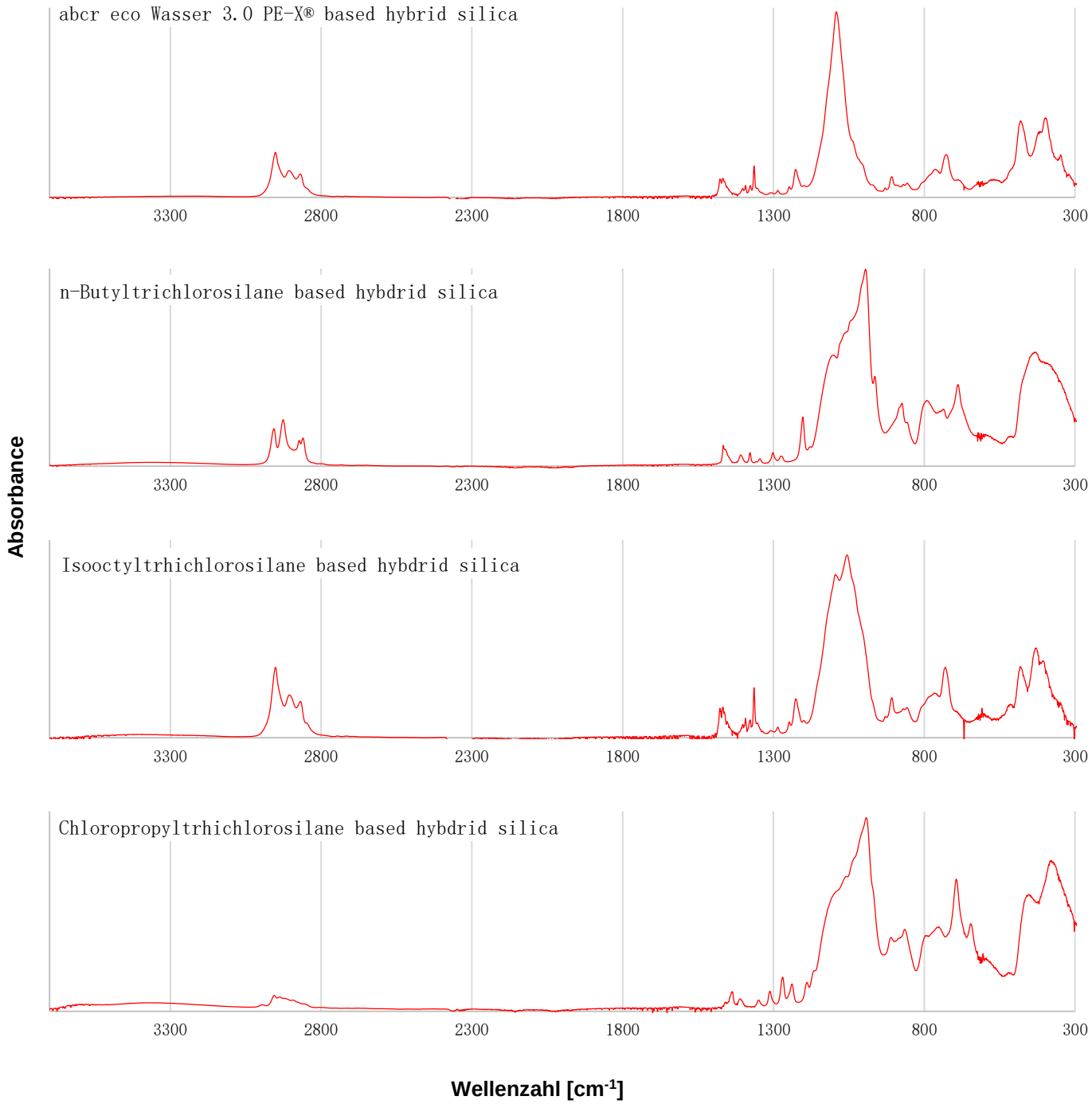


*Figure 3: FTIR-Spectra of the hybrid silica formed by adding the respective organosilane to water and stir for 20 minutes.*

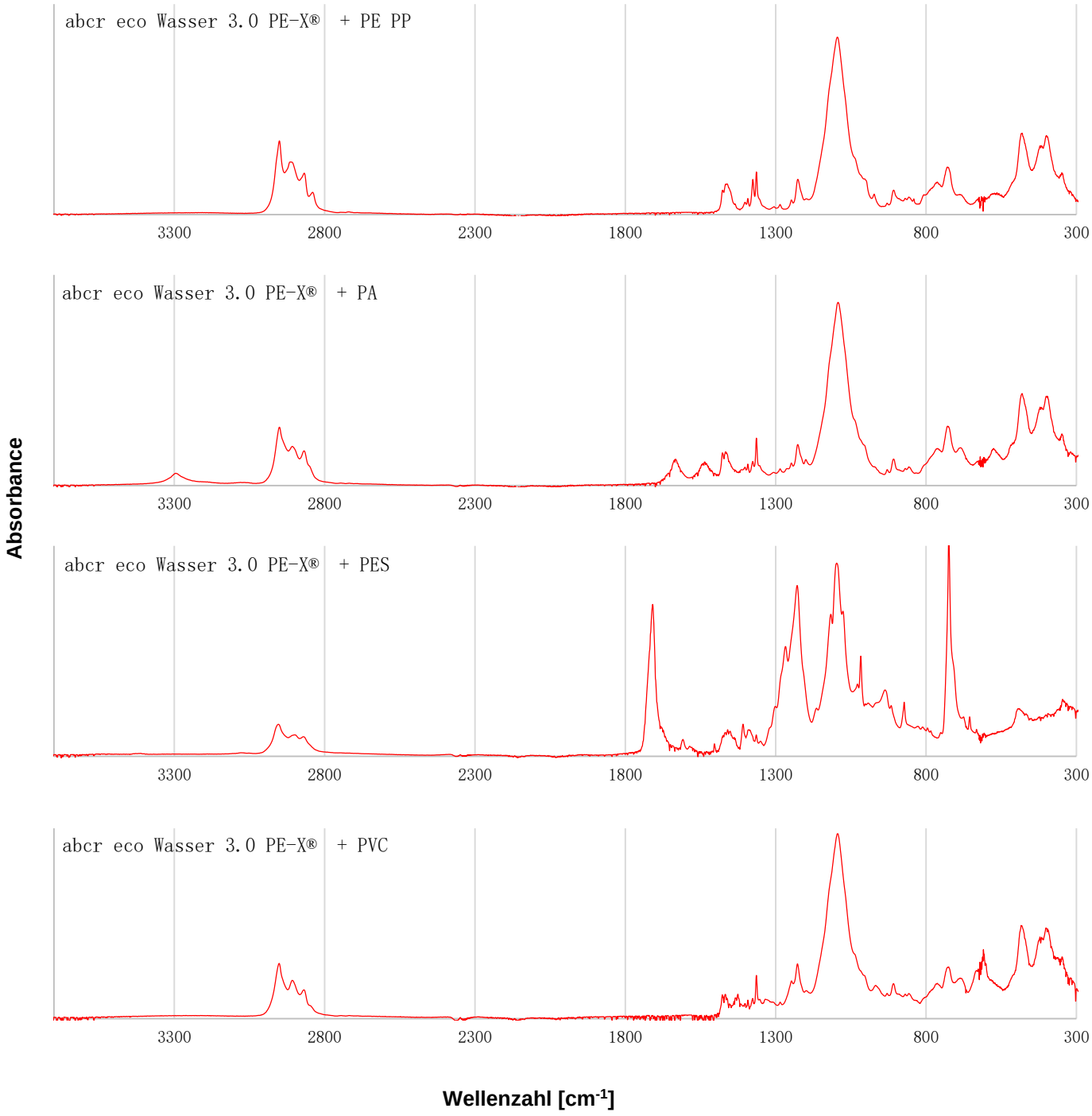


*Figure 4: FTIR-Spectra of the agglomerates formed during the fixation process using PE-X and different polymers.*

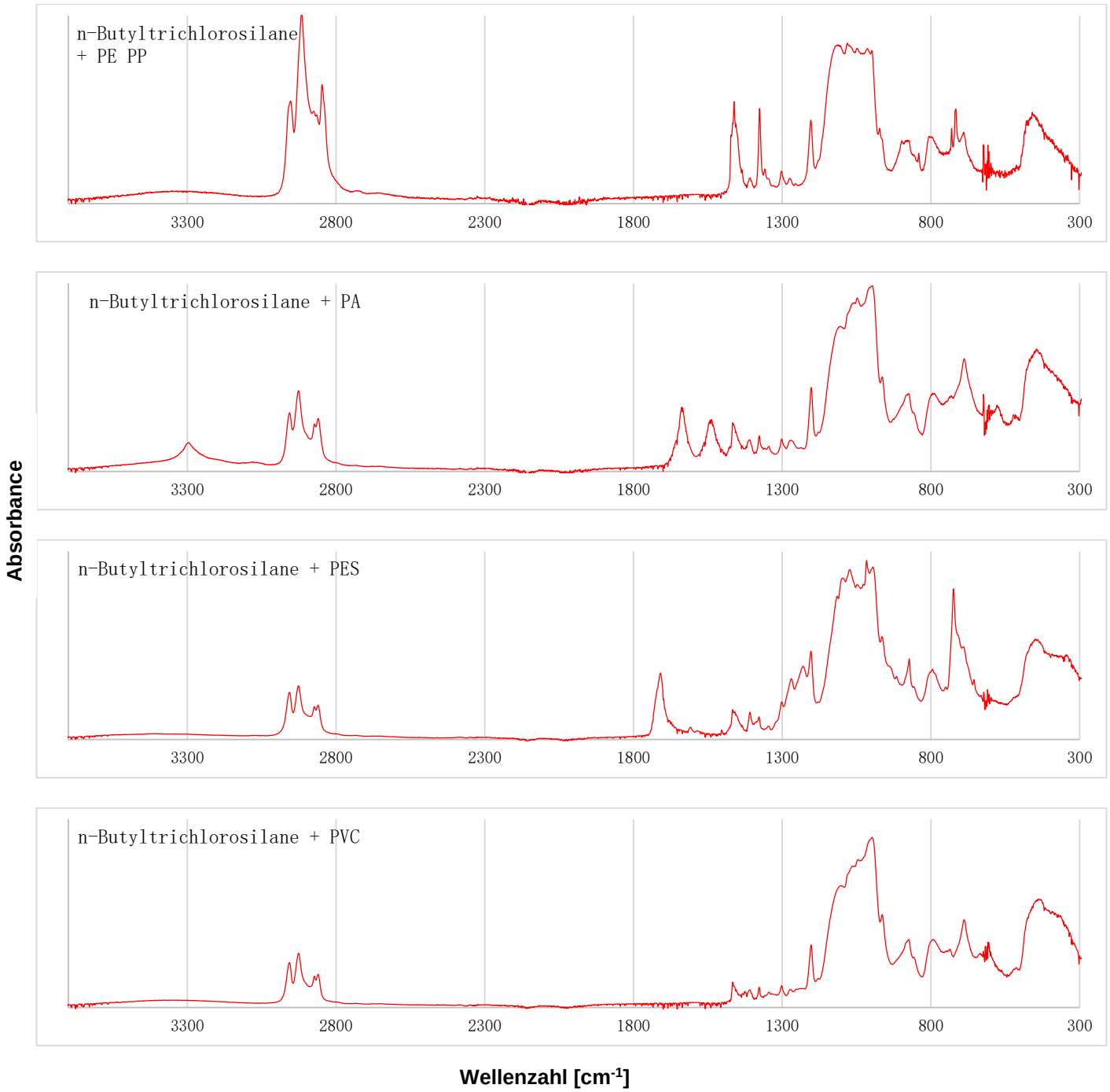


*Figure 5: FTIR-Spectra of the agglomerates formed during the fixation process using n-butyltrichlorosilane and different polymers.*

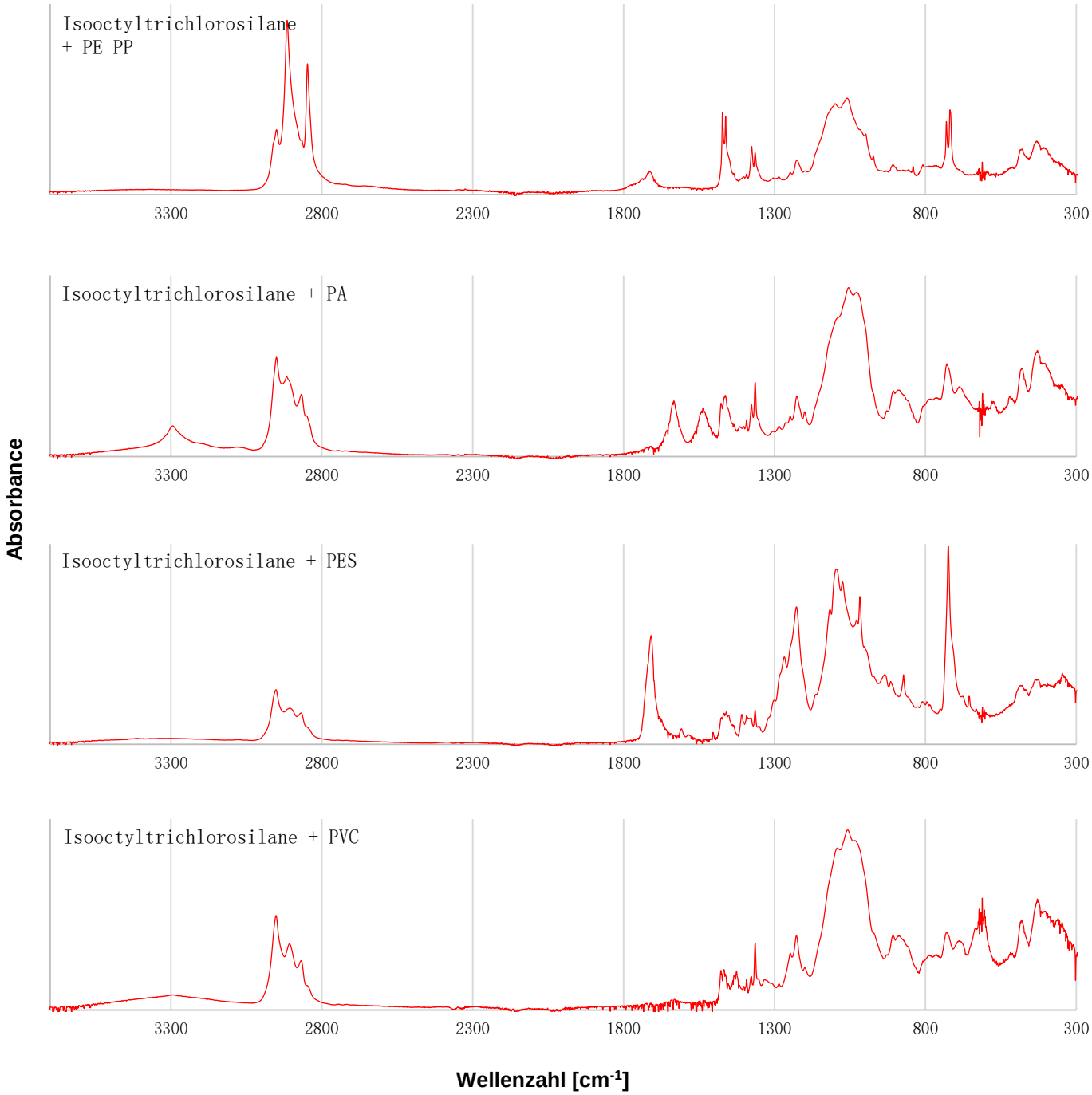


*Figure 6: FTIR-Spectra of the agglomerates formed during the fixation process using isooctyltrichlorosilane and different polymers.*

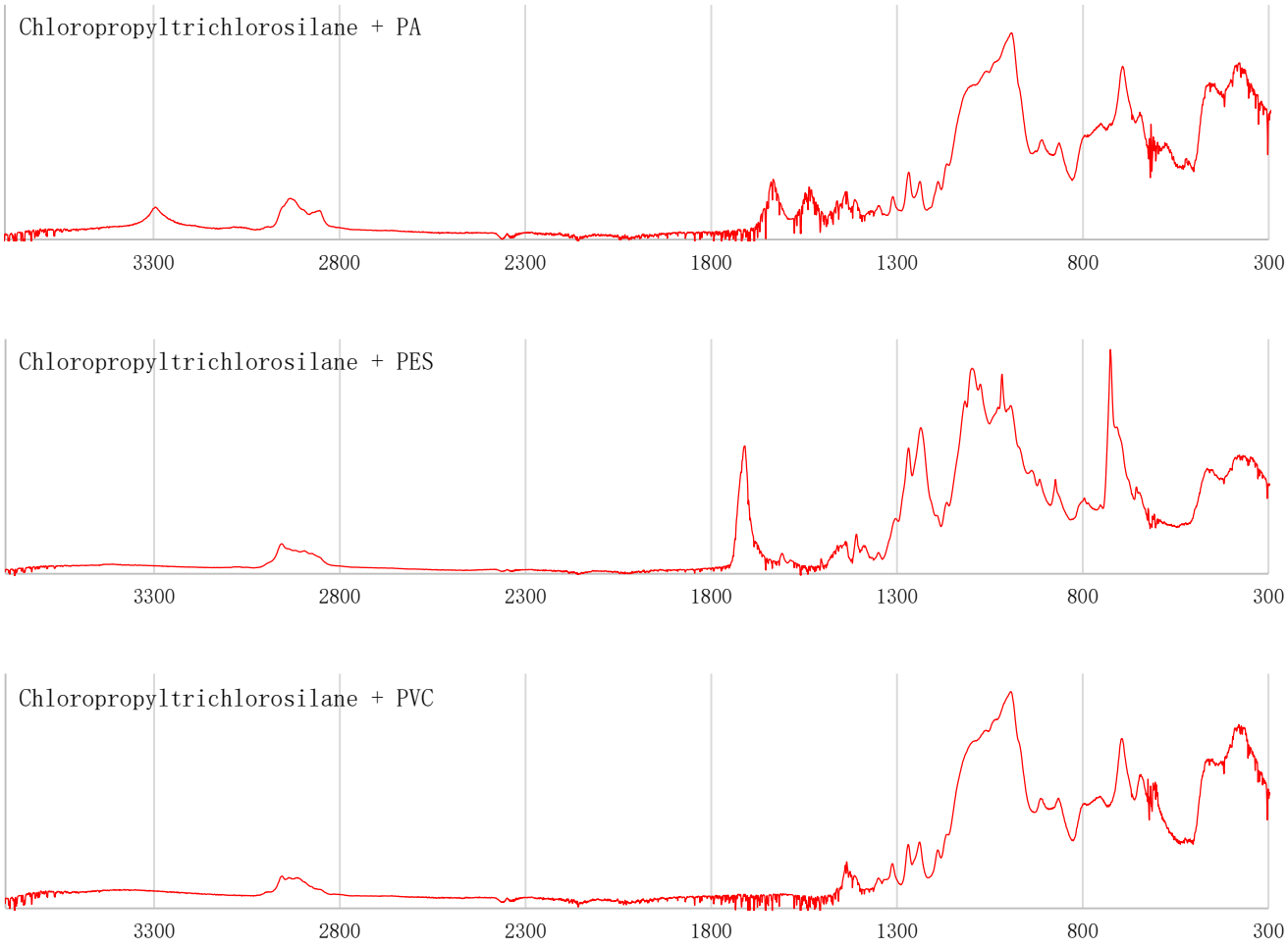


*Figure 7: FTIR-Spectra of the agglomerates formed during the fixation process using (3-Chloropropyl)trichlorosilane and different polymers. Note: Using (3-Chloropropyl)trichlorosilane and PE / PP no agglomerates were formed during the fixation experiments.*

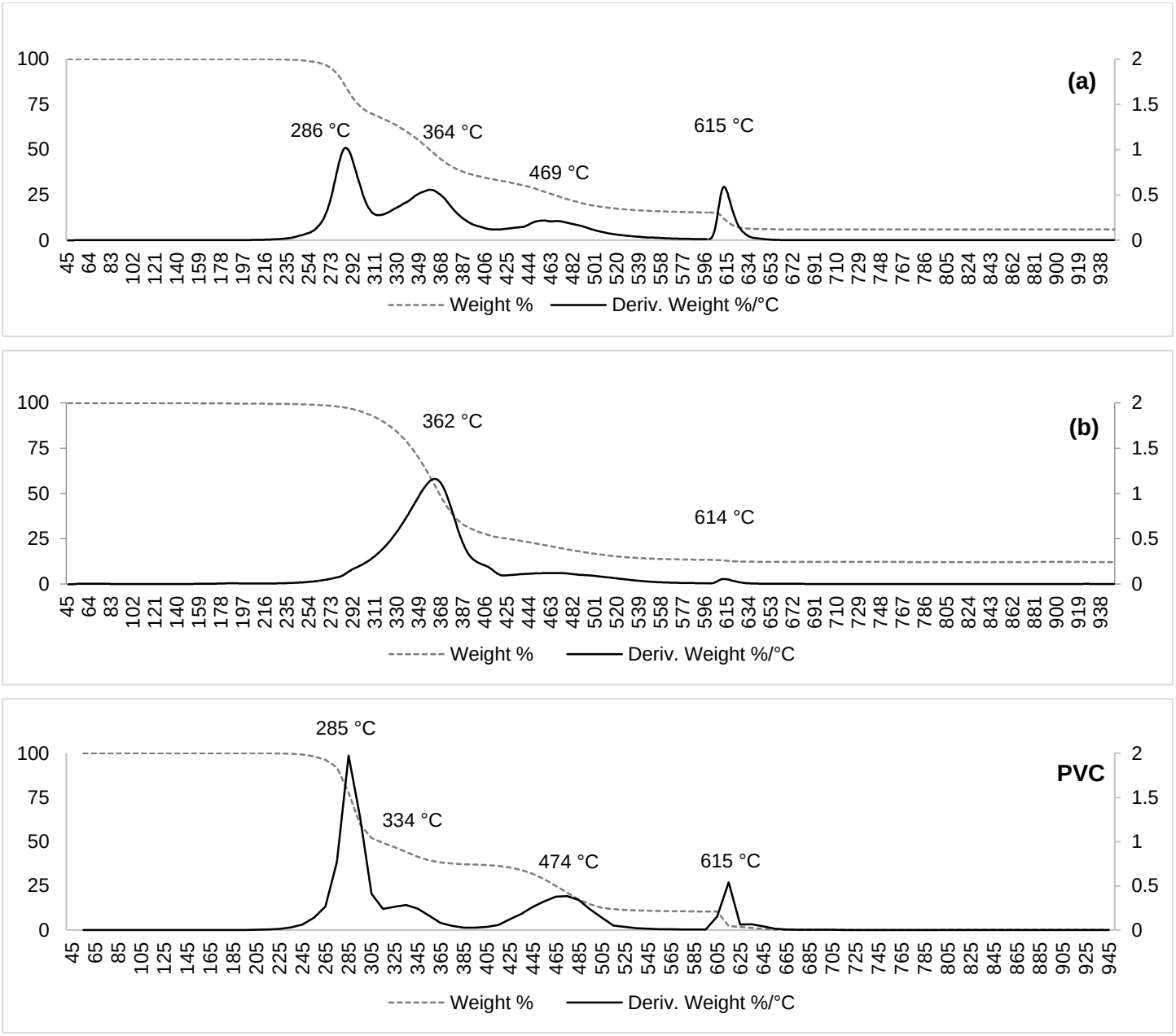


*Figure 8: TGA curves of (a) agglomerate formed in removal process 100 mg of PVC from 1l demin. water using 100 µl PE-X; (b) hybrid silica formed by adding 100 µl PE-X in 1l demin. water and of the different polymer types used in experiments. Grey dashed line = weight in %; black line = derived weight in % / ℃.*

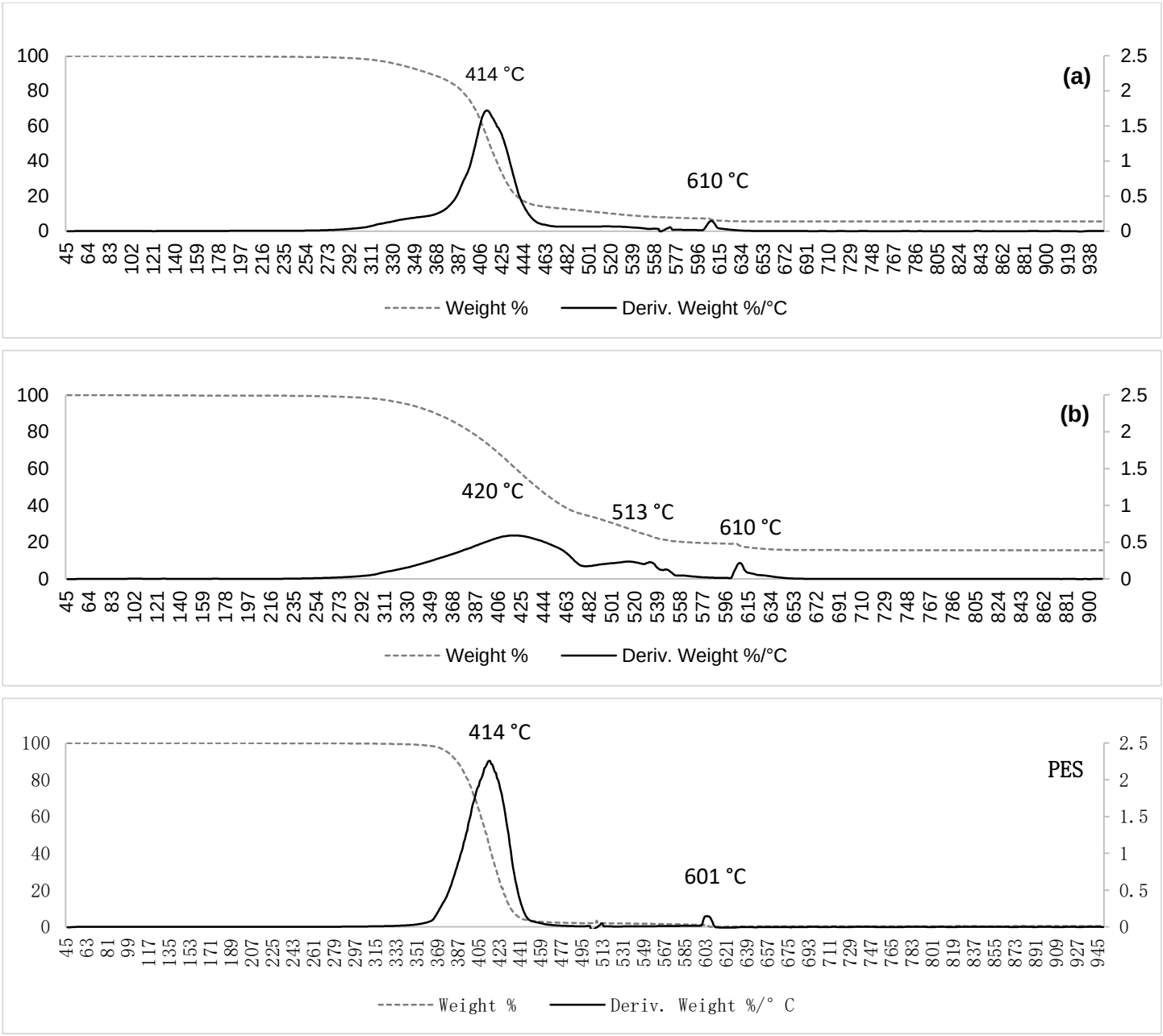


*Figure 9: TGA curves of (a) agglomerate formed in removal process 100 mg of PES from 1l demin. water using 100 µl Isooctyltrichlorosilane; (b) hybrid silica formed by adding 100 µl Isooctyltrichlorosilane in 1l demin. water and of PES.. Grey dashed line = weight in %; black line = derived weight in % / ℃.*

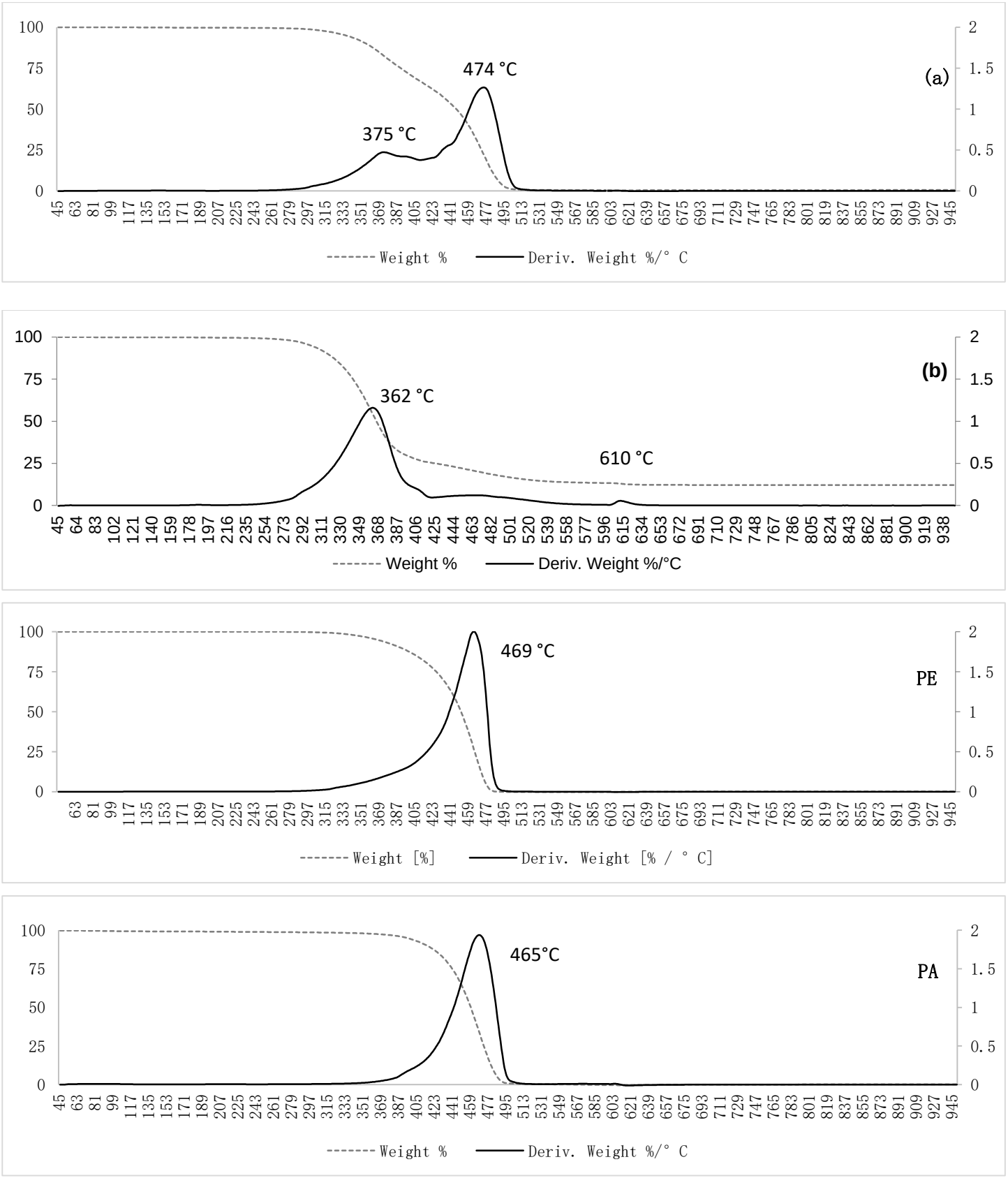


*Figure 10: TGA curves of (a) agglomerate formed in removal process 100 mg of PE / PA (1:1) from 1l demin. water using 100 µl PE-X; (b) hybrid silica formed by adding 100 µl PE-X in 1l demin. water and of the polymer types used in experiments. Grey dashed line = weight in %; black line = derived weight in % / ℃.*