

# UPDATE CZH-1/2

## Pilot-scale composting for qualitative evaluation of disintegration

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Dear Mrs. Alice Wen, Dear Mr. Tommy Nie,

Please find herewith a new update of the qualitative disintegration test CZH-1/2 with results up to 8 weeks. In this test the disintegration of PLA films SAMPLE 1 and 2 is qualitatively evaluated during 12 weeks of composting, simulating industrial composting conditions. The films were put in slide frames, mixed with biowaste and composted in a 200 l composting bin.

Figure 1 shows the temperature evolution during the disintegration test. The temperature remained well above 40°C during 8 consecutive weeks. Figure 2 shows the oxygen concentration in the exhaust air. The oxygen concentration remained always above 10%, except once after 8 days with a value of 7.4%. However, immediate action was undertaken and the oxygen concentration increased. As such, good aerobic conditions can be guaranteed during the test.

The mixture in the bin is regularly turned manually during which the disintegration of the test items is visually monitored. A visual presentation of the evolution of the disintegration of PLA films SAMPLE 1 and SAMPLE 2 in slide frames during the composting process is shown in Figure 3 and Figure 4, respectively. The disintegration of both films proceeded very well. After 6 weeks of composting tiny pieces of test material were observed at the borders of the slide frames. Two weeks later all test material in the slide frames was completely disappeared.

The test normally lasts still 4 weeks. Because complete disintegration was obtained, the test was stopped.

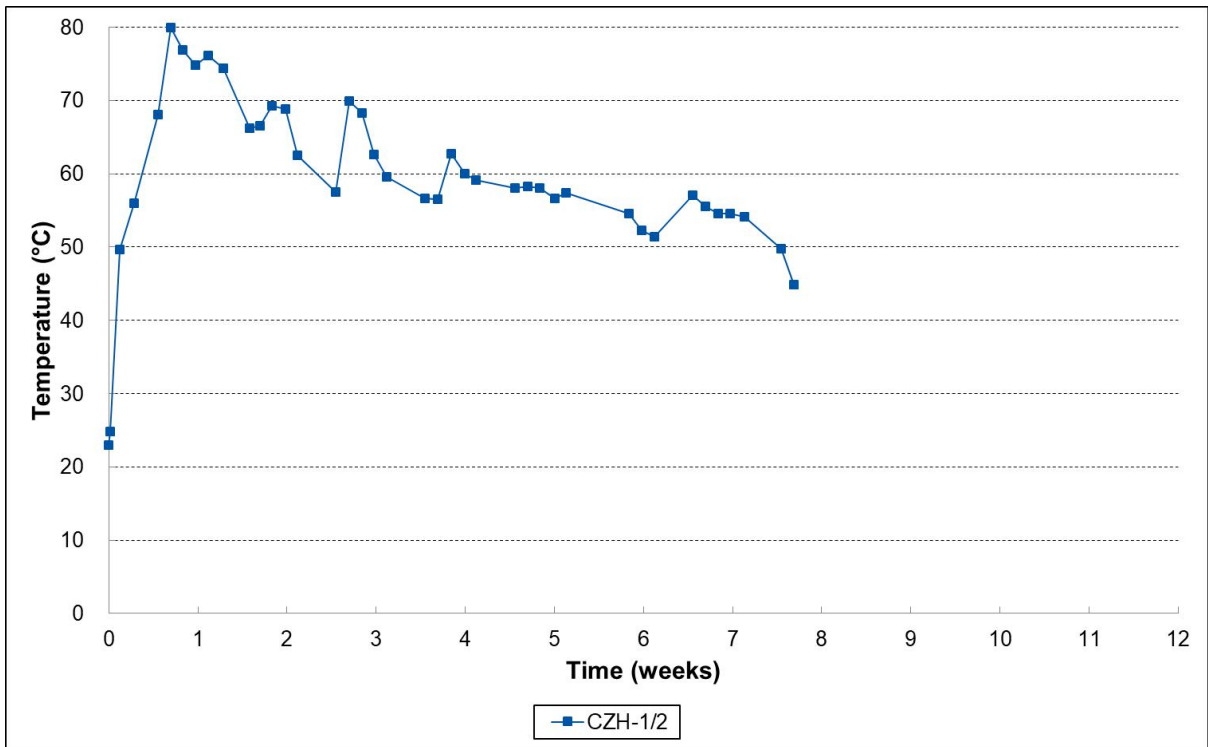


Figure 1. Temperature evolution during the disintegration test

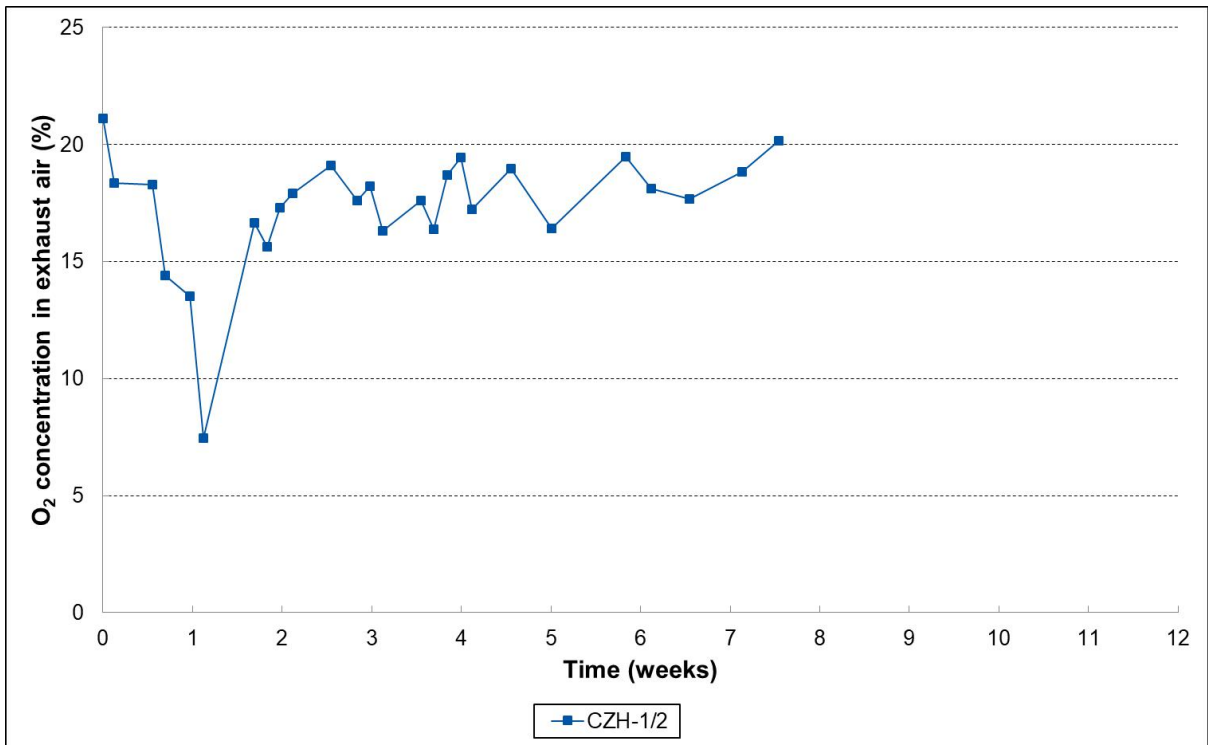


Figure 2. Oxygen concentration in exhaust air

## EVOLUTION OF THE DISINTEGRATION OF PLA FILMS SAMPLE 1

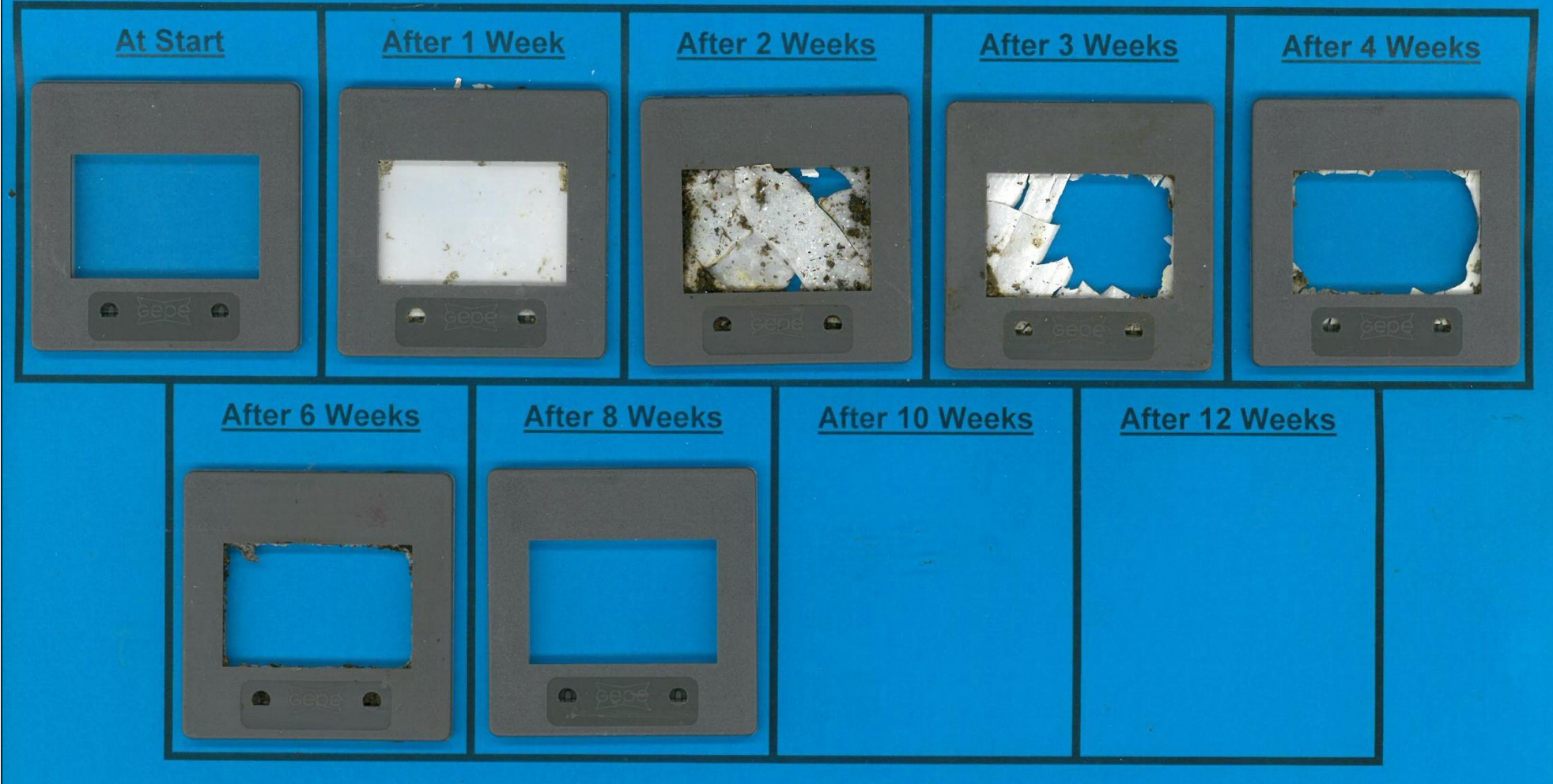


Figure 3. Visual presentation of the evolution of the disintegration of PLA films SAMPLE 1 in slide frames during the composting process

## EVOLUTION OF THE DISINTEGRATION OF PLA FILMS SAMPLE 2

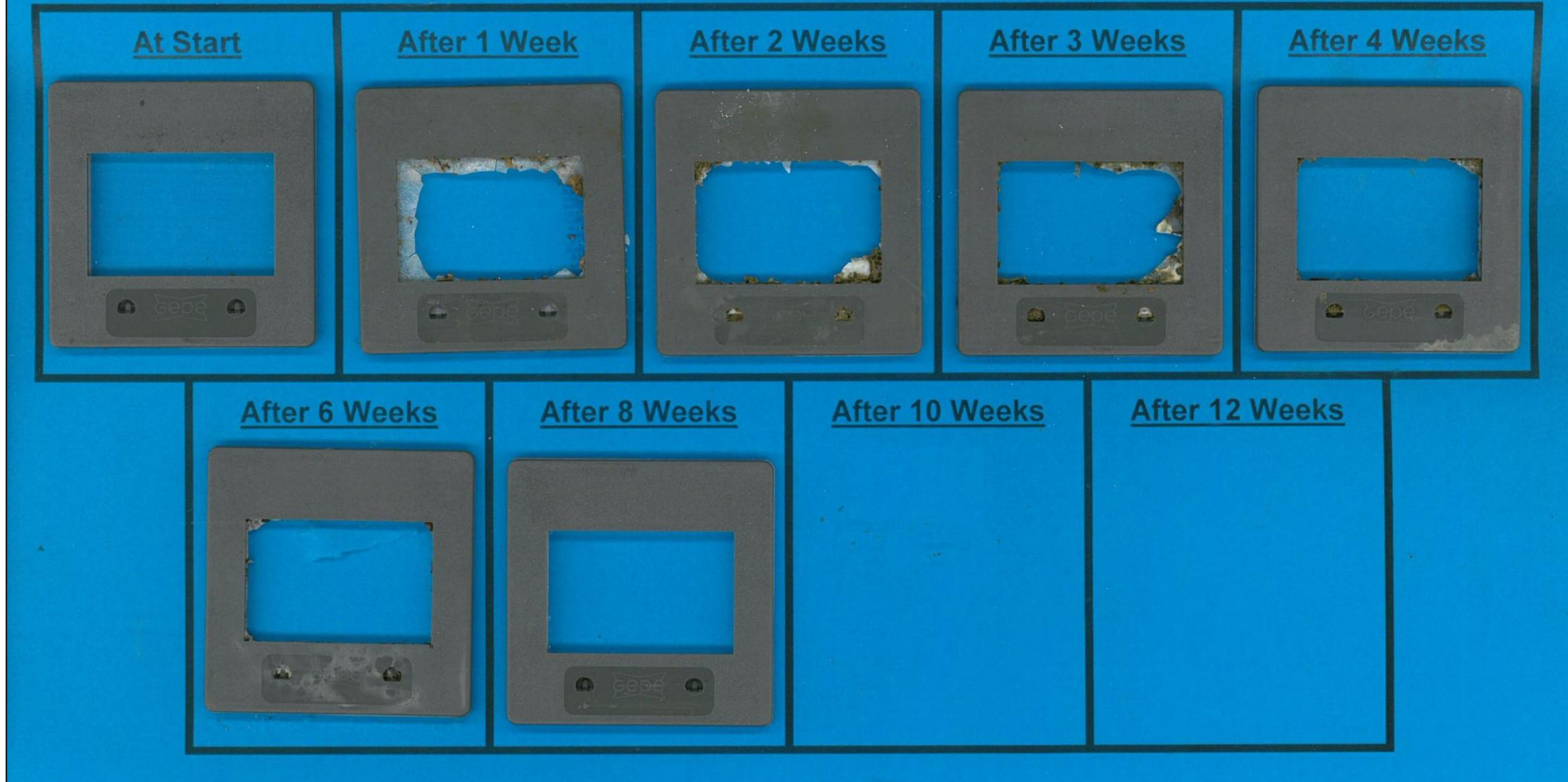


Figure 4. Visual presentation of the evolution of the disintegration of PLA films SAMPLE 2 in slide frames during the composting process