



# HYDROPOL - WWS

## Compostability

Pilot-scale composting and sieve test for measurement of disintegration according to EN 13432

**Warm Water Ssoluble (33100 Series) Hydropol film biodegrades according to EN 13432 up to 20µ film gauge.**

According to the European norm EN 13432 *Requirements for packaging recoverable through composting and biodegradation* - less than 10% of the material may remain present in the > 2 mm fraction after 12 weeks of composting.

33100 Series Hydropol film was evaluated for disintegration in a pilot-scale aerobic composting test according to ISO 16929 (2013).

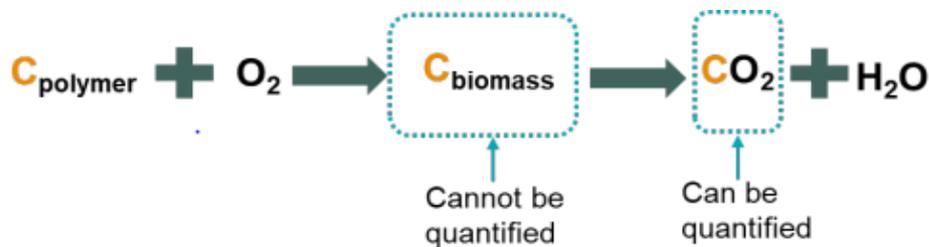
The test lasted 12 weeks and at the end of the composting test, the compost was sieved, and disintegration was evaluated.

### Compost Test Specifications

The test is considered valid only if:

- The maximum temperature during composting is above 60°C and remains below 75°C;
- The daily temperature remains above 60°C during at least 1 week and above 40°C during at least 4 weeks;
- The pH increases to above 7.0 during the test and does not fall below 5.0;
- After 12 weeks the blank compost has Rottegrad IV - V and a volatile fatty acids content of less than 500 mg/kg.

Compostable plastic will biodegrade in a compost site, microorganisms break it down into carbon dioxide, water, inorganic compounds and biomass at the same rate as other organic materials in the compost pile, leaving no toxic residue.



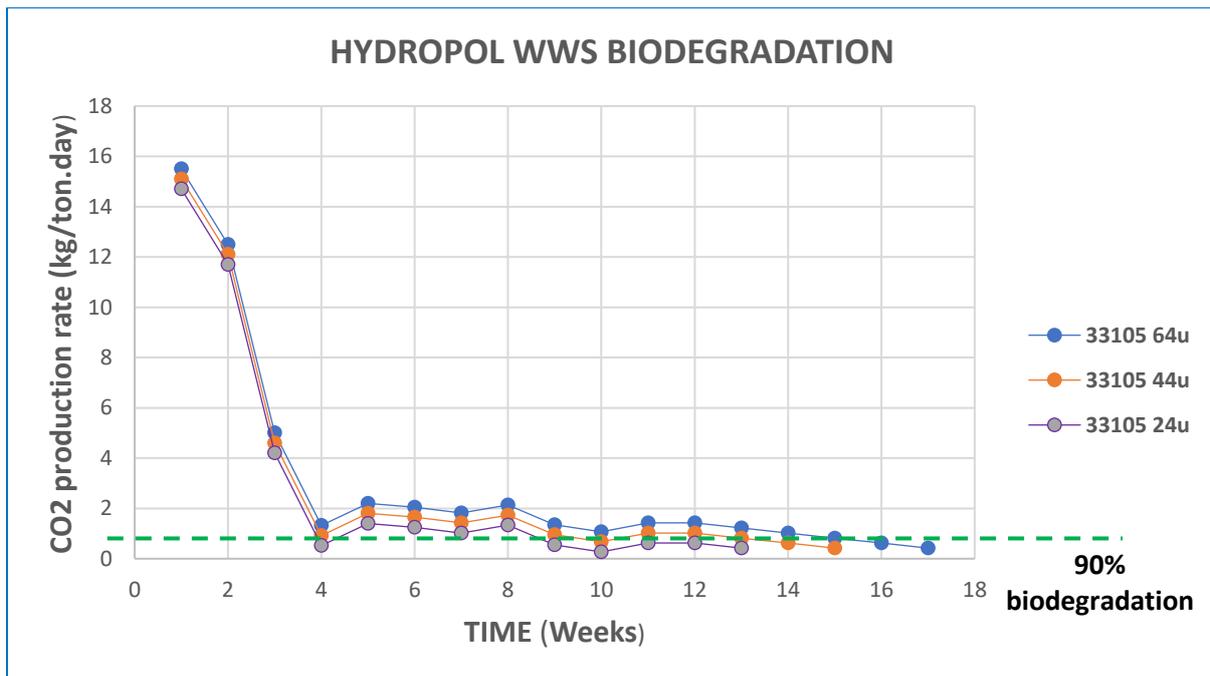
As you can see  $CO_2$  evolution is related to the biodegradation of the polymer, therefore by analysing the evolved  $CO_2$  throughout the test it is possible to extrapolate the biodegradation of the film at different gauges over time.

## Results

Hydropol WWS biodegrades in 12 weeks at 20 $\mu$ . It also biodegrades at 64 $\mu$  but takes 16.5 weeks to reach 90% biodegradation.

| Film gauge | Time to reach 90% degradation |
|------------|-------------------------------|
| 64 $\mu$   | 16.5 weeks                    |
| 44 $\mu$   | 14.5 weeks                    |
| 24 $\mu$   | 12.5 weeks                    |
| 14 $\mu$   | 10.5 weeks                    |

The graph below shows the extrapolated degradation of the polymer at different gauges over 17 weeks



More details about the test procedure are given in the technical report.



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