REPORT

econetta

MasterFinish MPT 349

Ready Biodegradability in an Aerobic Aqueous Medium
CO_2 Evolution Test – OECD Guideline 301 B

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1 GENERAL INFORMATION

Sponsor	Peter Gäberlein, Master Builders Solutions Schweiz AG, Schachen, CH-5113 Holderbank
Order and Test Item Receipt Dates	July 31, 2026, and July 31, 2026
Test Facility	Econetta AG, Ifangstrasse 11, CH-8952 Schlieren
Test Period	September 10, 2026 – October 8, 2026
Test Guideline	The applied test method follows the OECD Guidelines for the Testing of Chemicals, Test No. 301: *Ready Biodegradability*, Method 301 B: *CO_2 Evolution Test* (adopted July 1992) (Econetta internal SOP: SOP-1029).
Report No.	A26-00730

2 TEST ITEM

Name	MasterFinish MPT 349
Sponsor's Reference / Batch No.	n.a.
Appearance	yellowish liquid
Purity	Mixture/formulation considered as 100% pure
Econetta Internal Sample No.	M2607-02418

3 TEST CONDITIONS

Treatments and No. of Replicates	Blank control (medium + inoculum): 2 Procedure control (medium + inoculum + reference item): 2 Test suspension (medium + inoculum + test item): 2
Test Units	2.3 L glass bottles containing 2.0 L of test mixture were connected to gas-absorption bottles filled with 140 mL of 0.13 M potassium hydroxide (KOH). The CO_2 generated by mineralization of the test item was trapped in the KOH solution through continuous aeration with CO_2-free air.
Inoculum	Activated sludge from the aeration tank of the ARA Werdhölzli (CH-8048 Zürich), a municipal biological wastewater treatment plant. Sampling date and time: September 3, 2026; 08:45 Uhr The sludge was not adapted to the test item but was aerated for 7 days prior to testing.

	The dry matter content was determined by drying a defined volume of sludge overnight in pre-weighed beakers at 105 °C to constant weight. Concentration in the final test mixture: 30 mg/L dry matter.
Test Medium	Mineral salts medium according to OECD guideline 301 B.
Incubation	The test was performed over a period of 28 days at 22 ± 2 °C. Test vessels were continuously stirred and aerated, and kept in the dark.
Reference Value of the Test Item	Total Organic Carbon (TOC): 78.0%, determined by an external laboratory according to DIN EN 15936:2012-11, and used for calculating the nominal test concentration.
Reference Item and Reference Value	Sodium benzoate ($C_7H_5NaO_2$), TOC: 58.3% (based on molecular formula).
Test Concentrations	In each test vessel, the applied TOC content of the test and/or reference item was approximately 20 mg TOC/L (exact values are provided in Table 1). This corresponds to nominal concentrations of 25.6 mg/L for the test item and 34.4 mg/L for the reference item.
Item Application	The test item was applied using the glass fiber filter method: an aliquot of a stock solution (test item dissolved in cyclohexane) was pipetted onto glass fiber filters. The filters were then dried and introduced into the test vessels. The reference item was applied by direct addition. Blank and procedure controls were supplemented with glass fiber filters treated with pure cyclohexane. The pH of the test suspensions at test start ranged from 7.2 to 7.6.
Measurements	Several times per week, the CO_2 trapped in the KOH solutions was measured as Inorganic Carbon (IC) using a TOC-L CSH TOC analyzer (Shimadzu Schweiz GmbH, Hofackerstrasse 40B, CH-4132 Muttenz, Switzerland). At the end of the test, the residual CO_2 in the reaction mixture was determined similarly. This may explain why the final cumulative value does not necessarily follow the expected course of the degradation curve.
Calculations	The percentage degradation $D_i(t)$ in test unit *i* at time *t*, expressed as the percentage of TOC converted to IC, was calculated according to the following equation: $$D_i(t) = \frac{IC_i(t) - IC_B(t)}{TOC_i(0)} \times 100$$ where: ▪ $D_i(t)$ = percentage degradation in test unit *i* at time *t* ▪ $IC_i(t)$ = IC in test unit *i* at time *t* (mg/L) ▪ $IC_B(t)$ = IC in the blank control at time *t* (mg/L) ▪ $TOC_i(0)$ = initially applied TOC in test unit *i* (mg/L)

4 TEST RESULT

Based on CO_2 evolution and compared to the TOC applied, the following results were obtained (Table 1, Figure 1):

Procedure control (sodium benzoate):
- Biodegradation after 14 days: 72%. This confirms the suitability of the inoculum and test conditions.

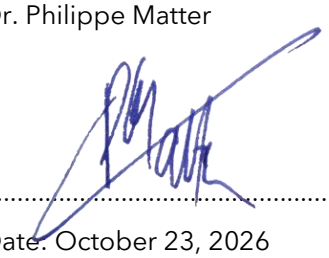
Test item (MasterFinish MPT 349):
- Significant biodegradation (≥10%) was observed after a lag-phase of approximately 1 day.
- Biodegradation after 28 days: 75%.

All validity criteria were fulfilled (see Table 2).

5 SIGNATURE

The applied test method is accredited according to ISO/IEC 17025. Raw data and a copy of the final report are stored in the archives of Econetta AG, Schlieren, for 5 years.

Project Leader Ecotoxicology Dr. Philippe Matter



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Date: October 23, 2026

Specifications regarding the accuracy and precision of the applied measurement methods are available upon request. All reported results refer exclusively to the test item as received by the laboratory. The laboratory cannot verify the condition or representativeness of the sample prior to its receipt.

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6 ANNEX: TABLES AND FIGURES

Table 1 Inorganic carbon produced by the test and control units, and corresponding degradation data

Time [days]	Blank control	Procedure control		Test Suspension (Replicates 1 / 2)		Mean	Toxicity control		Water control	Abiotic sterile control	
	CO_2 prod. [mg IC/L]	CO_2 prod. [mg IC/L]	Deg. [%]	CO_2 produced [mg IC/l]	Degradation [%]	Deg. [%]	CO_2 prod. [mg IC/L]	Deg. [%]	CO_2 prod. [mg IC/L]	CO_2 prod. [mg IC/L]	Deg. [%]
0	0.0	0.0	0	0.0 / 0.0	0.0 / 0.0	**0**	n.d.	-	n.d.	n.d.	-
1	0.6	2.1	7	0.6 / 0.8	0.0 / 0.6	**0**	n.d.	-	n.d.	n.d.	-
4	1.9	13.8	59	10.3 / 11.0	41.8 / 45.4	**44**	n.d.	-	n.d.	n.d.	-
7	2.9	17.5	73	16.0 / 14.7	65.4 / 59.0	**62**	n.d.	-	n.d.	n.d.	-
11	3.9	19.4	77	19.1 / 17.7	75.7 / 69.1	**72**	n.d.	-	n.d.	n.d.	-
14	4.4	18.8	**72**	18.0 / 18.6	68.1 / 70.9	**69**	n.d.	**-**	n.d.	n.d.	-
18	5.0	19.9	75	18.9 / 19.9	69.7 / 74.6	**72**	n.d.	-	n.d.	n.d.	-
21	6.3	22.8	82	21.8 / 22.1	77.2 / 78.9	**78**	n.d.	-	n.d.	n.d.	-
25	6.4	21.3	74	20.4 / 20.5	69.8 / 70.3	**70**	n.d.	-	n.d.	n.d.	-
27	6.9	21.6	73	21.0 / 22.0	70.6 / 75.7	**73**	n.d.	-	n.d.	n.d.	-
28	**7.4**	22.1	73	22.2 / 22.6	74.2 / 76.1	**75**	n.d.	-	n.d.	n.d.	-

CO_2 prod. [mg IC/L] : mg/l of inorganic carbon produced per liter of medium.

Deg. [%]: Biodegradation in % of the TOC; the total TOC concentrations taken into account for calculations are 20.0 and 20.0 mg/L for replicates 1 and 2 of the test suspension, resp., and 20.0 mg/L for the procedure control.

Table 2 Validity criteria

Validity criterion	Required	Achieved
IC produced in the blank control after 28 days (mg/L)	≤19.1[1]	7.4
IC content of the test suspension at test start (% of TC)	<5	1.7
Difference of extremes of replicate values after 28 days (%)	<20	1.9
Degradation of the reference item after 14 days (%)	≥60	72
Degradation of the mixture in the toxicity control after 14 days (%)	≥25	n.d.

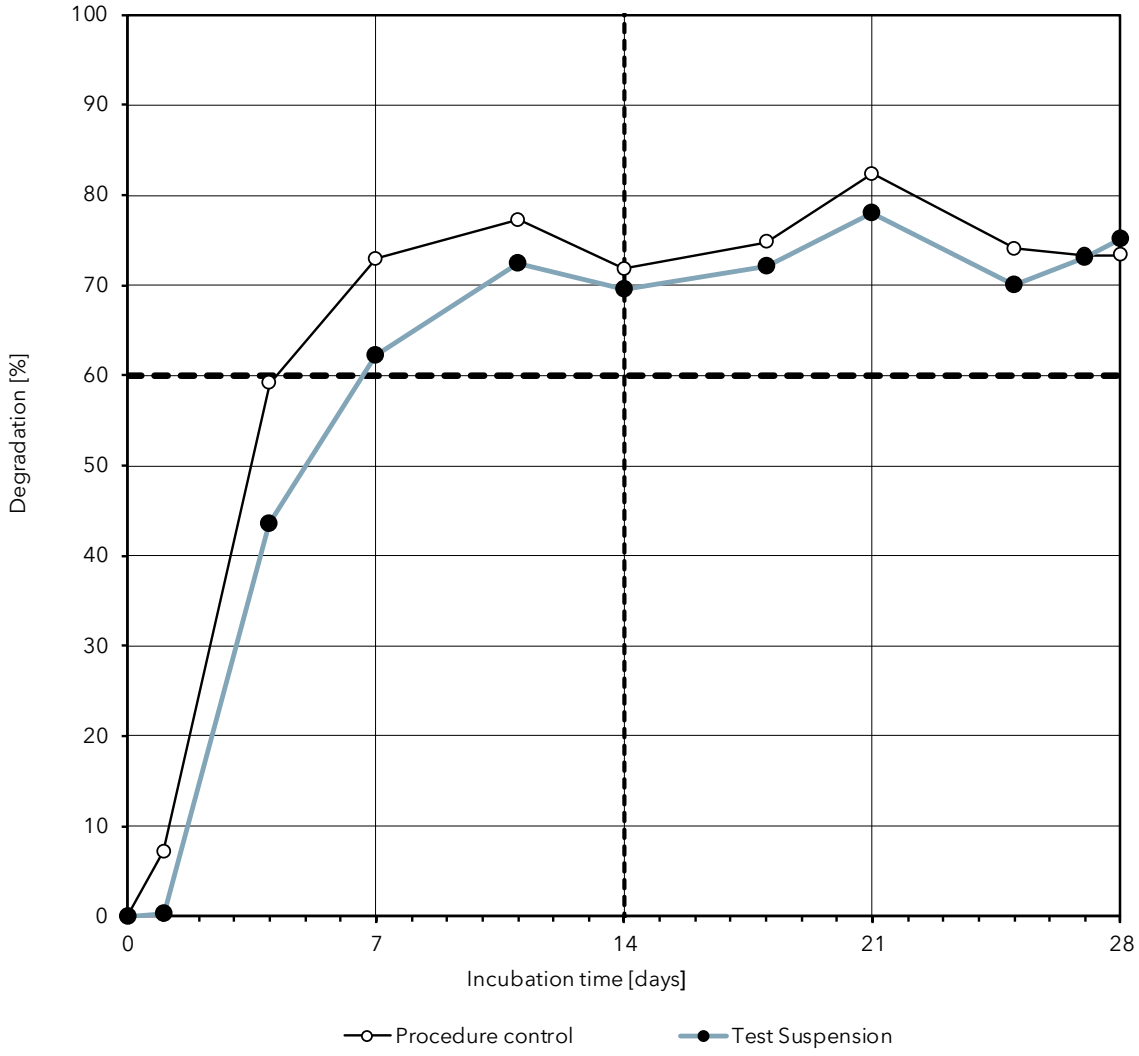
n.d.: not determined

[1] OECD 301 B sets a CO_2 limit of 70 mg/L for the inoculum blank; this was converted to 19.1 mg/L IC for consistency with other parameters.

Table 3 pH values at the end of the test

Test Vessel	Value
Blank control	7.4 / 7.4
Procedure control	7.5 / 7.5
Test suspension	7.3 / 7.3

Figure 1 Degradation curve for *MasterFinish MPT 349* and the procedure control



The dotted lines indicate the minimum pass level of 60% degradation required for the procedure control by day 14.

Note: the observed higher degradation at day 21 is likely due to an experimental artifact (the blank control value was higher than expected) which does not have any influence on the outcome of the test: the test item's biodegradation is well above 60% and similar to the reference item sodium benzoate.