

Anaerobic Gas-Generating Sachet — Microbiological Performance Test Summary (1-Page)

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Report No.	TEST-AG-S-20260820
Test Item	VELOY 2.5L Anaerobic Gas-Generating Sachet
Reference Product	MGC AnaeroPack-Anaero 2.5L (Mitsubishi Gas Chemical)
Test Date	Aug 15–18, 2026
Test Lab	Internal Microbiology Lab, Nanjing Veloy
Sample Storage	Sealed, 2–8 °C, within 24-month shelf-life
Test Objective	Compare gas atmosphere performance and strict anaerobe growth performance between VELOY and MGC reference product.

1. Test Setup

Vessel	Identical 2.5 L polycarbonate anaerobic jar
Incubation	37 °C, 48 h
Strains (ATCC standard strict anaerobes)	1. <i>Bacteroides fragilis</i> ATCC 25285 2. <i>Clostridium perfringens</i> ATCC 13124 3. <i>Fusobacterium nucleatum</i> ATCC 25586
Medium	5% sheep blood agar; BBE agar
Replicates	n = 3 per strain, for both test and reference group
Assessment	Jar gas composition; oxygen-indicator status; CFU recovery; colony morphology & growth score (0–4 scale)

Acceptance criteria: Residual O₂ < 0.5%; good anaerobe recovery; no growth inhibition.

2. Gas-Phase Performance Comparison

MGC official specification: O₂ drops to near-zero within 2 h; CO₂ generates 15–21% for AnaeroPack-Anaero (bacterial anaerobic version).

Time after jar sealed	VELOY Group	MGC Reference Group
0.5 h	O ₂ 0.39%, CO ₂ 15.00%	O ₂ 0.36%, CO ₂ 7.30%
1 h	O ₂ 0.10%, CO ₂ 19.00%	O ₂ 0.21%, CO ₂ 8.40%
2 h	O ₂ 0.03%, CO ₂ 22.55%	O ₂ 0.14%, CO ₂ 8.80%

Finding: VELOY achieves strict anaerobic condition (O₂ < 0.5%) within 30 min and reaches very low residual oxygen. Its CO₂ peak is slightly higher than MGC's typical upper limit of 21% for this bacterial-grade anaerobic sachet. High-CO₂ atmosphere may impact certain fastidious anaerobic strains; end-user laboratory evaluation is strongly recommended.

3. Microbiological Growth Summary (37 °C / 48 h)

Strain	VELOY (Avg. n = 3)	MGC Reference (Avg. n = 3)
<i>Bacteroides fragilis</i> ATCC 25285	Recovery: 2.7×10 ⁶ CFU/plate Growth score: 3.3 Morphology: typical	Recovery: 2.8×10 ⁶ CFU/plate Growth score: 3.4 Morphology: typical

<i>Clostridium perfringens</i> ATCC 13124	Recovery: 3.1×10^6 CFU/plate Growth score: 3.7 Morphology: typical double-zone hemolysis	Recovery: 3.0×10^6 CFU/plate Growth score: 3.6 Morphology: typical double-zone hemolysis
<i>Fusobacterium nucleatum</i> ATCC 25586	Recovery: 1.9×10^6 CFU/plate Growth score: 3.0 Morphology: typical small flat colonies	Recovery: 2.0×10^6 CFU/plate Growth score: 3.1 Morphology: typical small flat colonies

Finding: Oxygen indicators fully colourless in both jars. For these three tested ATCC strains, comparable CFU recovery, colony morphology and growth level. No inhibition observed under this test condition.

4. Shelf-Life Note

Under recommended storage (sealed 2–8 °C), performance remains compliant throughout the 24-month shelf-life based on accelerated ageing test.

5. Limitation

Elevated CO₂ (max 22.55%) does **not inhibit** growth of tested *Bacteroides fragilis*, *Clostridium perfringens* and *Fusobacterium nucleatum*. Literature indicates *Bacteroides fragilis* requires CO₂ for carbon-fixing metabolism; higher CO₂ up to 20–25% will only shift fermentation product profiles without suppressing colony recovery.

Nevertheless, fastidious species commonly isolated from genital and oral specimens — such as *Gardnerella vaginalis*, *Atopobium vaginae* and some *Prevotella* spp. — may exhibit reduced colony size or lower recovery rate under high-CO₂ atmosphere. End-user validation using local target clinical isolates is highly recommended prior to routine use.

Note: MGC AnaeroPack-Anaero (bacterial anaerobic grade) also generates high CO₂ (15–21%), which is inherent to this chemistry principle for jar-type anaerobic sachets. The low-CO₂ (~5%) MGC variant (D-07 / A-07) is designed for cell culture, not for routine clinical anaerobic bacteriology.

6. Overall Conclusion

1. VELOY 2.5L anaerobic sachet rapidly achieves ultra-low residual oxygen within 30 min. Its peak CO₂ is marginally higher than the MGC AnaeroPack-Anaero bacterial-grade specification range.

2. For the three tested ATCC strict-anaerobe strains, microbial recovery and growth performance are comparable with MGC. The product is suitable for clinical and QC laboratory anaerobic incubation after local lab evaluation.

Disclaimer: This is an in-house laboratory test result. Actual performance depends on jar sealing, operation, temperature and sample matrix. End-user independent laboratory validation is recommended before commercial use.

Tested by	_____	Date	20-Aug-2026
Reviewed by	_____	Date	20-Aug-2026