

ecomaru performance comparison test report (ABS, PC ABS, PC)

Issued on October 1., 2019



- Outline

- Purging performance comparison tests with mold injection machine using three typical resins (ABS, PC ABS and PC) were made.
- Purging compounds compared were ecomaru and other typical purging compounds available in the market.
- With all the tests ecomaru showed the best performance in all categories.

- Tests performed

- With ABS ecomaru (filled with glass wool (GW)) and a purging compound filled with glass fiber (GF)
- With PC ABS ecomaru (filled with glass wool (GW)) and a purging compound filled with glass fiber (GF).
- With PC ecomaru (filled with glass wool (GW)) and four different purging compounds (two filled with GF, one made for high temperature usage and one more)

ecomaru grade GWS (for temp. 200 to 320°C)

Styrene, Olefin purging compound comparison (using ABS)

• **Test conditions:**

- Objective: Purge ABS (red) and compare 1) ecomaru (filled with glass wool (GW)) and 2) a purging compound filled with glass fiber (GF).
- Test steps: ABS(red) → Purging compound → AS (transparent)
- Amount used: Visually check in automatic purging process
- Mold injection machine size: 80 ton
- Automatic purge conditions:

Injection speed: 100mm/sec

Max. injection pressure: 300MPa

Screw rotation (VT%): 280rpm(80%)

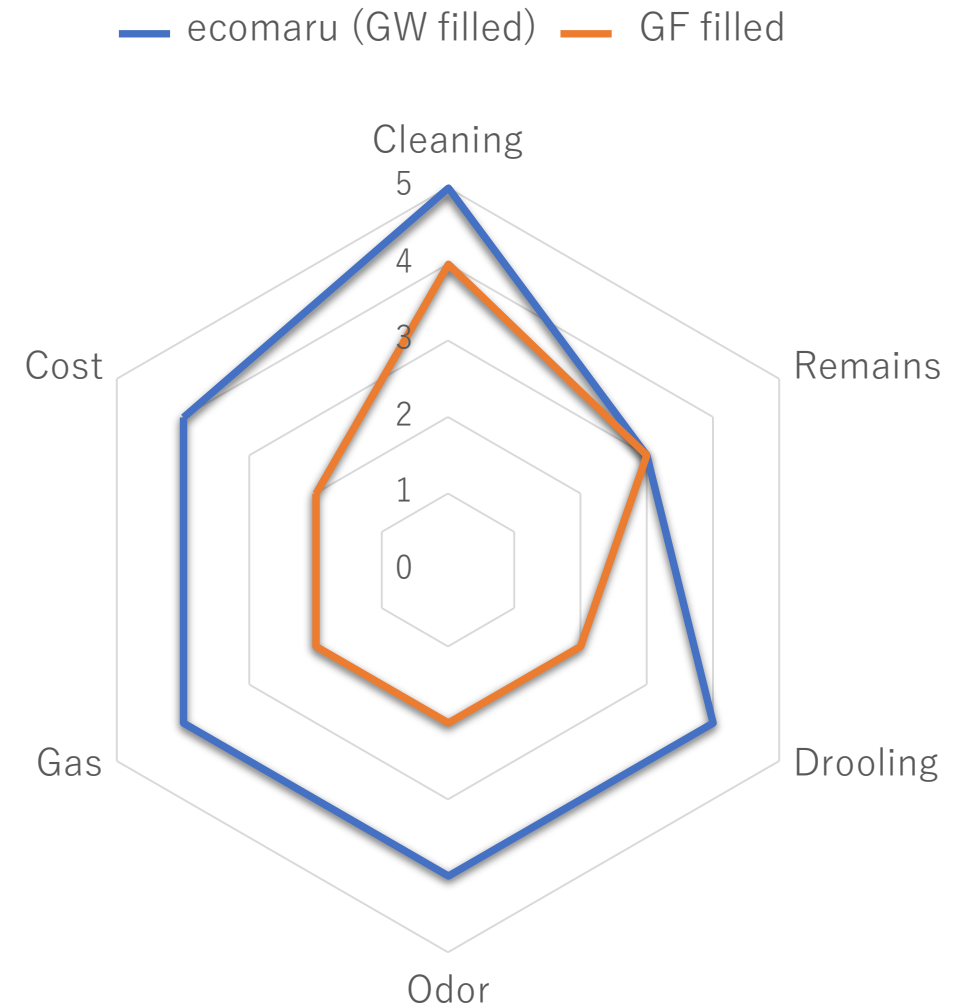
Cylinder temperature (°C):

Nozzle 1	Front	Middle	Back
240	235	235	235

• Result

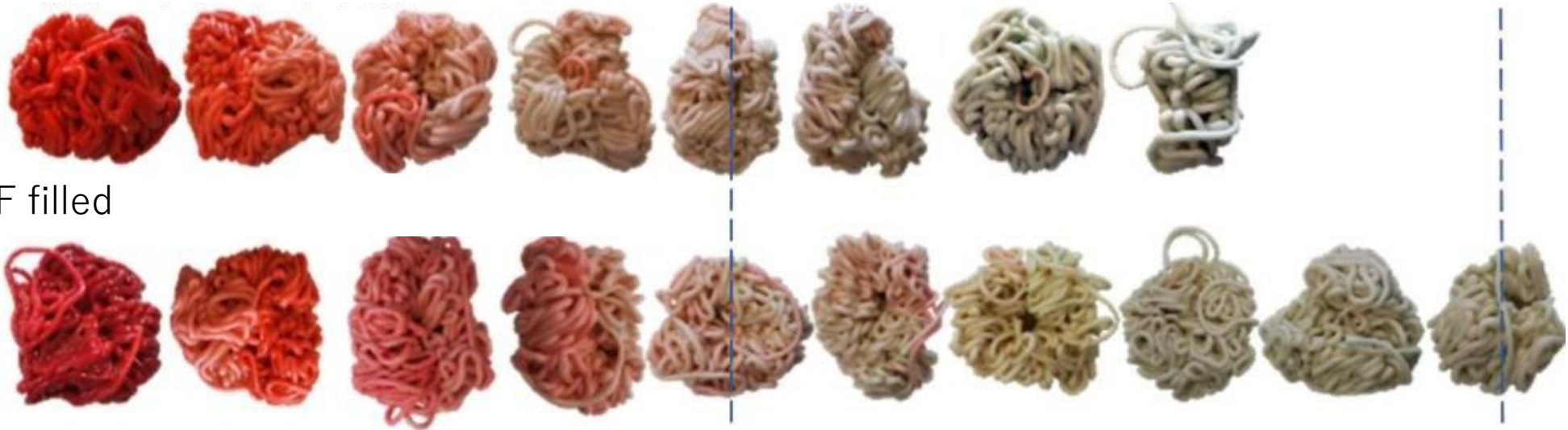
5 (Excellent) ↔ 1 (Bad)

	ecomaru GWS (GW filled)	GF filled
Cleaning power	5	4
Remains (glass)	3	3
Drooling	4	2
Odor	4	2
Gas amount	4	2
Cost	4	2



Using purging compound

ecomaru (GW filled) 5th shot 10th shot



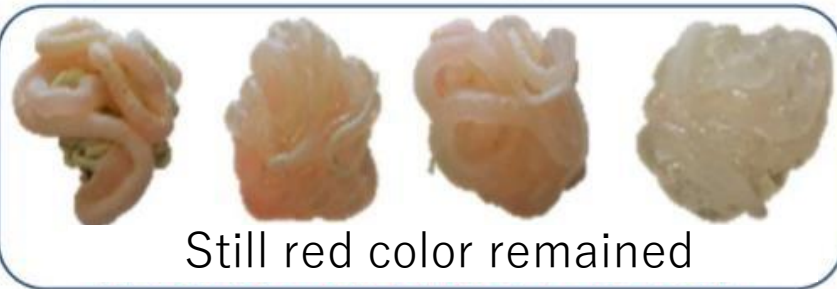
Using AS as a next resin material

With a machine
purged with
ecomaru



No red color remained

With a machine
purged with GF
filled



Still red color remained

ecomaru grade GPC (PC dedicated, for Temp. 240 to 330°C)
Polycarbonate purging compound comparison (using PC ABS)

• **Test conditions:**

- Objective: purge PC ABS (black) and compare 1) ecomaru (filled with glass wool (GW)) and 2) a purging compound filled with glass fiber (GF).
- Test steps: PC ABS (black) → Purging compound → AS (transparent)
- Amount used: Visually check in automatic purging process
- Mold injection machine size: 80 ton
- Automatic purge conditions:

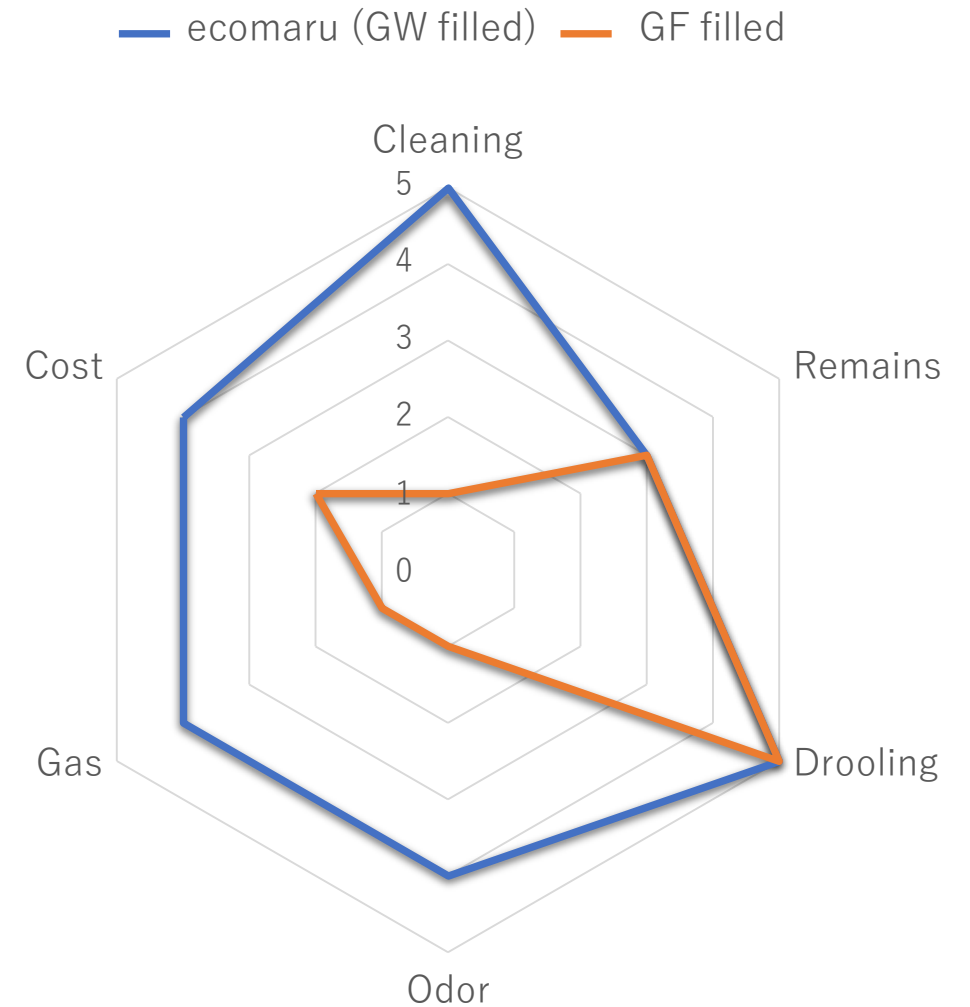
Injection speed: 100mm/sec
Max. injection pressure: 300MPa
Screw rotation (VT%): 280rpm(80%)
Cylinder temperature (°C):

Nozzle 1	Front	Middle	Back
225	220	220	220

- Result

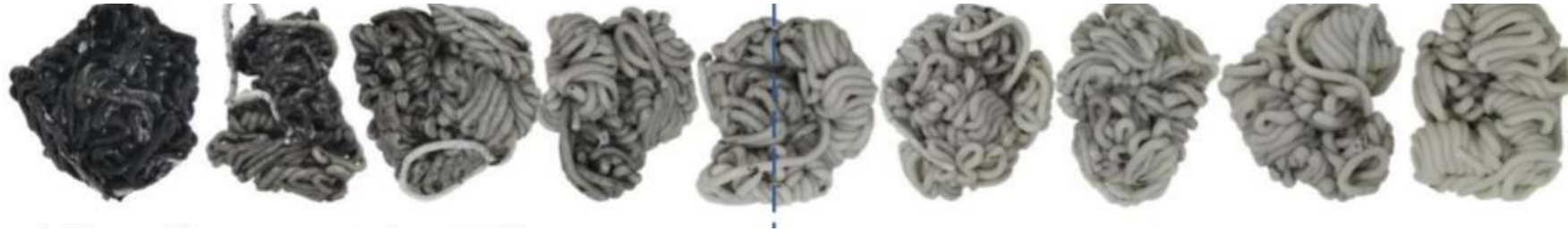
5 (Excellent) ↔ 1 (Bad)

	ecomaru GPC (GW filled)	GF filled
Cleaning power	5	1
Remains (glass)	3	3
Drooling	5	5
Odor	4	1
Gas amount	4	1
Cost	4	2



Using purging compound

ecomaru (GW filled) 5th shot 10th shot



GF filled



Using AS as a next resin material

With a machine
Purged with
ecomaru



No black color remained

With a machine
purged with GF
filled



Still black color remained

ecomaru grade GPC (PC dedicated, for Temp. 240 to 330°C) Polycarbonate purging compound comparison (using PC)

- **Test conditions:**

- Objective: purge PC (black) and compare ecomaru (filled with glass wool (GW)) and four others (two out of four were filled with GF)
- Test steps: PC (black) → Purging compound → AS (transparent) 5 shots
- Amount used: fixed at 400g
- Mold injection machine size: 80 ton
- Automatic purge conditions:

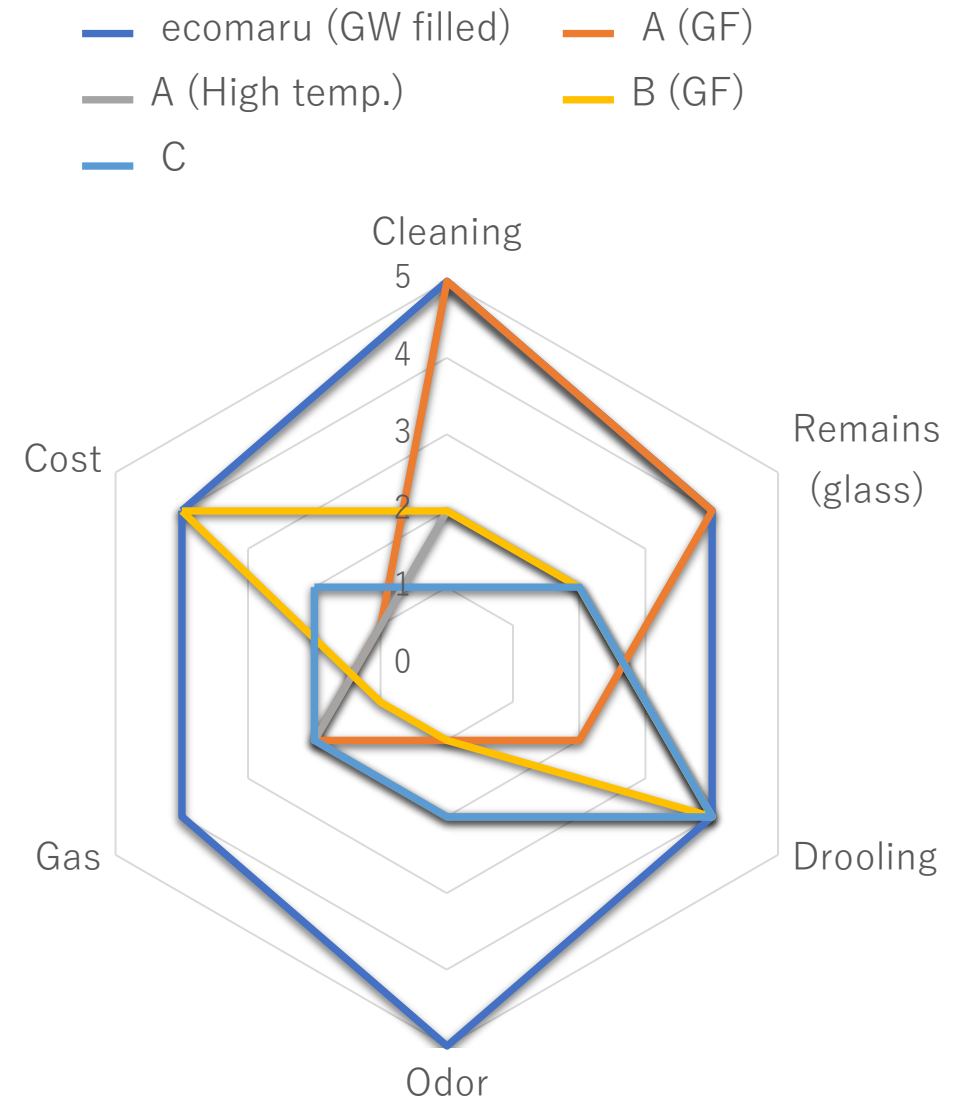
Injection speed: 100mm/sec
Max. injection pressure: 300MPa
Screw rotation (VT%): 280rpm(80%)
Cylinder temperature (°C):

Nozzle 1	Front	Middle	Back
300	300	290	290

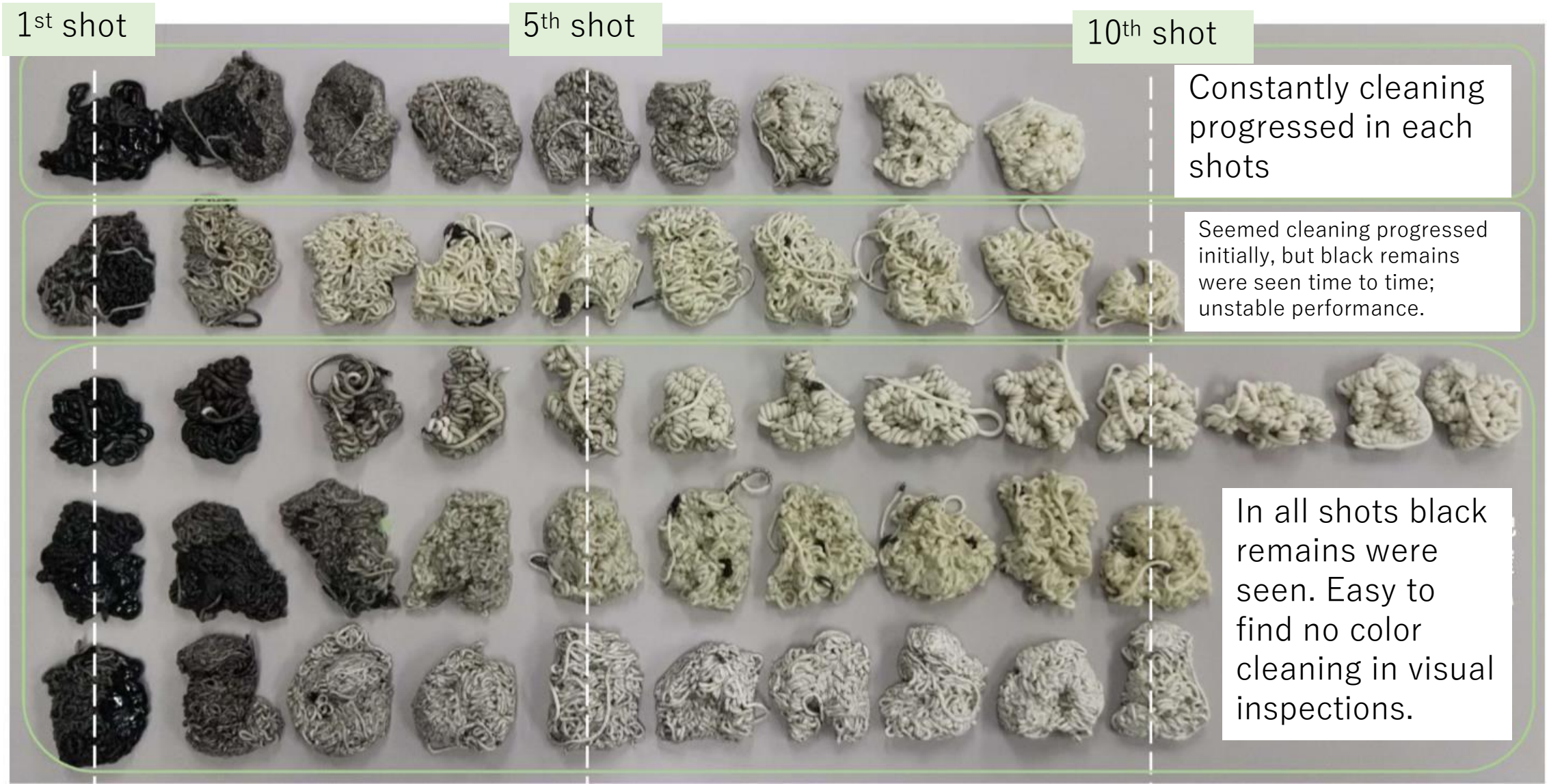
Result

	ecomaru GPC (GW filled)	A (GF filled)	A (High temp.)	B (GF filled)	C
Injection pressure (max)	37MPa	40MPa	120MPa	35MPa	37MPa
Cleaning power	n 5	5	2	2	1
Remains (glass)	m 4	4	2	2	2
Drooling	4	2	4	4	4
Odor	5	1	2	1	2
Gas amount	4	1	2	1	2
Cost	4	3	1	4	2

5 (Excellent) ← → 1 (Bad)



Using purging compounds



Using AS resin after purging with purging compounds

With a machine purged with:



A (High temp.)

B (GF)

C



Still black color remained