泛华化学 INTER-CHINA CHEMICAL

TITANIUM DIOXIDE FOR PLASTICS | TECHNICAL REPORT

R-F9156
High-Loading PE Masterbatch
MFR & FPV Performance Report

Melt flow rate · Filter pressure value · 70% TiO_2 concentrate

PE masterbatch application visualization (AI-generated; not a test photograph)

70% TiO_2 SYSTEM	MFR	FPV
PE masterbatch	Melt flow rate	Filter pressure value

Application test data: 2019–2020

Version 1 | 2021

00 R-F9156 TECHNICAL REPORT

Performance Summary and Test Conditions

Historical 70% TiO_2 masterbatch comparisons, interpreted only within matched campaigns

R-F9156 was evaluated in several PE masterbatch comparisons using a 70% TiO_2 formulation. The historical data cover melt flow rate (MFR) and filter pressure value (FPV). Results are useful for grade screening, but must be interpreted within the original campaign and original FPV unit.

Property	R-F9156	Test group
MFR	29 g/10 min	2019 A/B/C campaigns
MFR	25.5 g/10 min	2020 D campaign
FPV	0.287 bar	2019 A/C related reports
FPV	0.157 bar/g	2019 B campaign
FPV	0.202 bar/g	2020 D campaign

Reported formulation and test basis

Item	Condition	Note
Masterbatch formula	TiO_2 70% / PE 25% / PE wax 5%	Original MFR / FPV test formula
MFR condition	ISO 1133; 190°C; 2.160 kg	As reported
FPV dilution	LDPE 885.7 g + masterbatch 114.3 g	Final TiO_2 content 80 g
Filtration	EN 13900-5:2005; 10 μm screen	A/B/C original reports; D reported as bar/g

The original reports use two FPV units: bar and bar/g. These units are preserved and are not merged or converted in this public report.

Comparison samples and evidence scope

Third-party grades are anonymized as Benchmark A–D. DR-2588 is an ICC grade. Campaigns A/B/C are 2019 tests and campaign D is a 2020 pairwise comparison. Historical results do not constitute current-lot guarantees.

High-Loading PE Masterbatch: Melt Flow Rate

All campaigns use 70% TiO_2, 25% PE and 5% PE wax. Original MFR conditions: ISO 1133, 190°C, 2.160 kg.

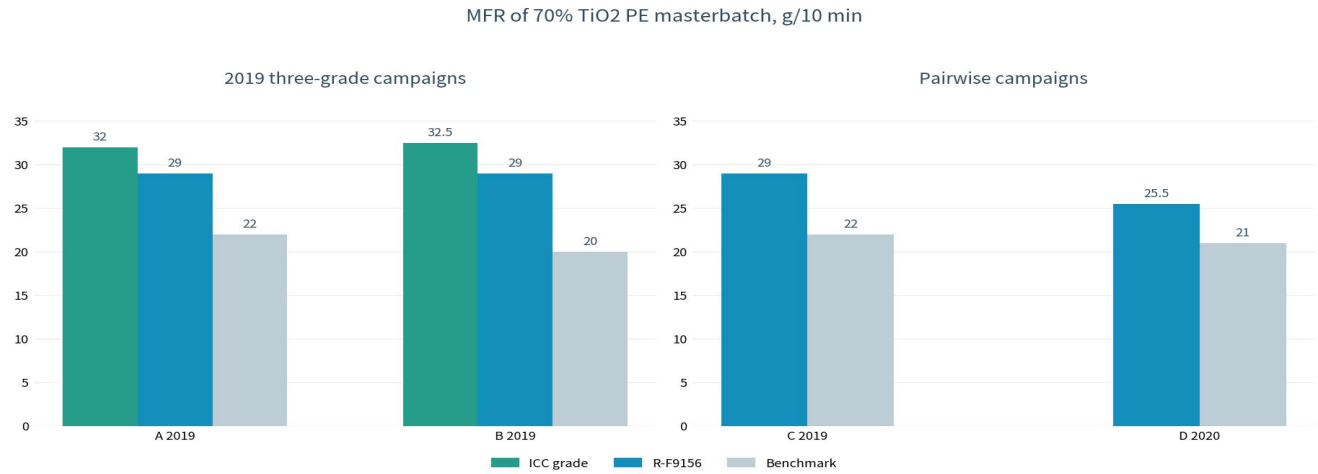

Figure 1. MFR results by original campaign. The left panel shows two three-grade campaigns; the right panel shows two pairwise comparisons.

Campaign	Sample	Identity	MFR	Unit
A 2019	DR-2588	ICC grade	32	g/10 min
A 2019	R-F9156	R-F9156	29	g/10 min
A 2019	Benchmark A	Benchmark	22	g/10 min
B 2019	DR-2588	ICC grade	32.5	g/10 min
B 2019	R-F9156	R-F9156	29	g/10 min
B 2019	Benchmark B	Benchmark	20	g/10 min
C 2019	R-F9156	R-F9156	29	g/10 min
C 2019	Benchmark C	Benchmark	22	g/10 min
D 2020	R-F9156	R-F9156	25.5	g/10 min
D 2020	Benchmark D	Benchmark	21	g/10 min

R-F9156 reports MFR 29 g/10 min in the 2019 campaigns A, B and C, and 25.5 g/10 min in the 2020 pairwise test. A higher MFR indicates easier flow under the stated condition, but does not by itself establish better dispersion or cleaner extrusion.

High-Loading PE Masterbatch: FPV

FPV results are separated by their original unit: bar for campaigns A and C, and bar/g for campaigns B and D.

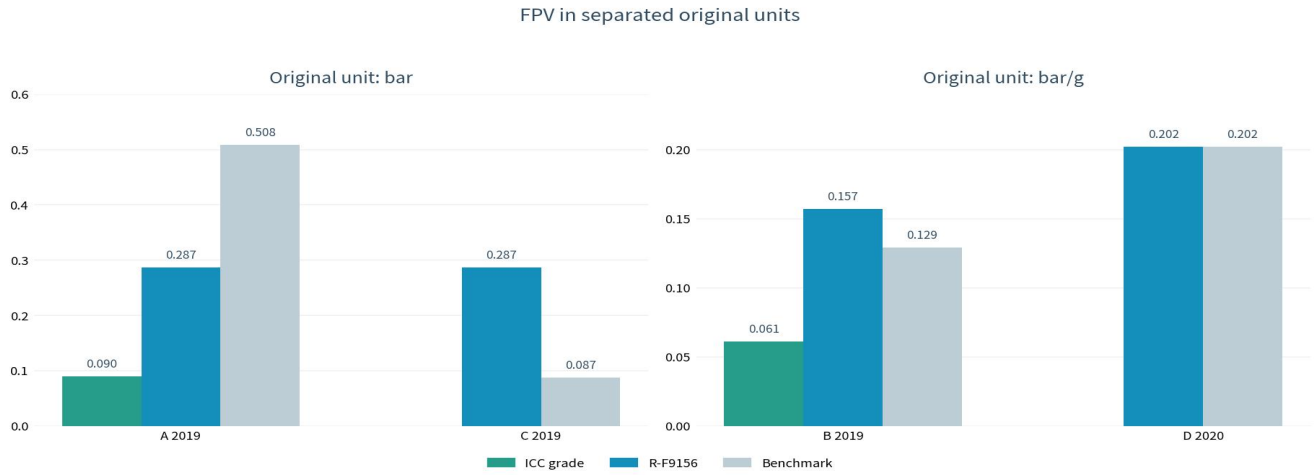

Figure 2. FPV shown only within its original unit system. Lower FPV is generally preferable under a matched filter test.

Campaign · sample	FPV	Unit
A 2019 · DR-2588	0.090	bar
A 2019 · R-F9156	0.287	bar
A 2019 · Benchmark A	0.508	bar
C 2019 · R-F9156	0.287	bar
C 2019 · Benchmark C	0.087	bar
B 2019 · DR-2588	0.061	bar/g
B 2019 · R-F9156	0.157	bar/g
B 2019 · Benchmark B	0.129	bar/g
D 2020 · R-F9156	0.202	bar/g
D 2020 · Benchmark D	0.202	bar/g

In campaign A, R-F9156 has a lower MFR than DR-2588 and a higher FPV than DR-2588. In campaign C, R-F9156 has a higher MFR than Benchmark C but also a higher FPV. In the 2020 D comparison, R-F9156 and Benchmark D report the same FPV (0.202 bar/g) while R-F9156 has the higher MFR.

Recommended Customer Qualification Workflow

Use the historical laboratory data as a screening tool, then confirm the grade in the actual resin and extrusion condition.

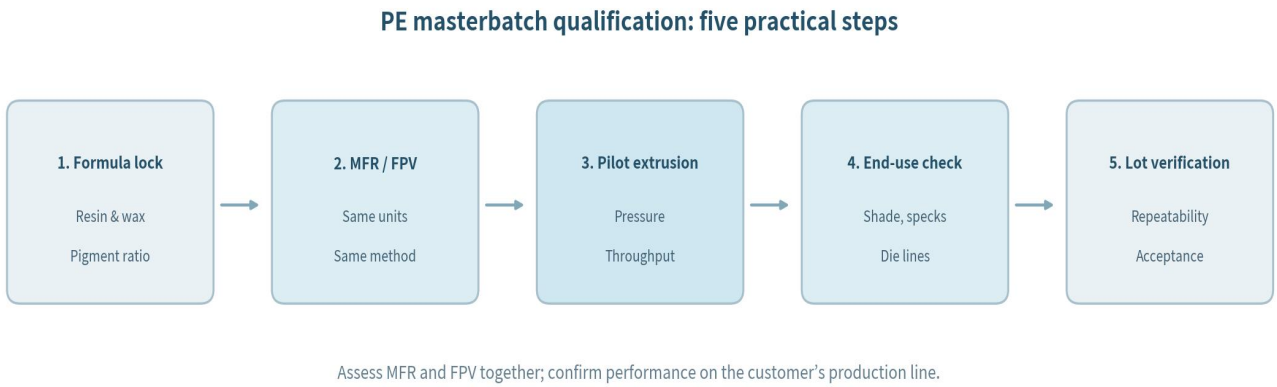

Figure 3. Recommended workflow for PE masterbatch qualification and purchase screening.

Stage	Objective	Action	Focus	Output
1 Formula lock	Set baseline	Fix resin / wax / ratio	Control variables	Comparable samples
2 Screening	Quick screen	Measure MFR, FPV, colour	Outliers / units	Candidate grades
3 Pilot extrusion	Check process	Standard screen / throughput	Pressure / torque / rate	Process readout
4 End article	Use-like test	Film / profile / moulded part	Shade / specks / die lines	End-use result
5 Repeatability	Risk control	>= 2 lots when practical	Lot variation	Purchase decision

MFR and FPV should be checked together with colour, coarse particles, filter pressure rise, torque, throughput, and finished-article defects. Thin-film quality or profile surface quality cannot be inferred from MFR alone.

Application Conclusions and Evaluation

Evaluate processing indicators together with end-use performance before final grade selection

Key findings

Selection criterion	Evidence-based interpretation
MFR	R-F9156 reports 29 g/10 min in several 2019 tests and 25.5 in the 2020 comparison.
FPV	Compare only within the same original unit; higher MFR does not guarantee lower FPV.
Qualification	Validate MFR, FPV and extrusion stability in the actual customer condition.

How to interpret the historical data

R-F9156 shows documented processability in 70% PE masterbatch and maintains competitive MFR in several historical campaigns. However, higher MFR does not always coincide with lower FPV. The data therefore support screening and formulation discussion rather than a blanket superiority claim.

Recommended next step with customers

Use the customer's production resin, wax, screen pack and throughput as the control condition. Compare MFR, FPV, colour, extrusion pressure behaviour and finished-article appearance in parallel. For films and profiles, include dispersion, gels, specks, die lines and lot-to-lot repeatability in the final qualification.

Technical note: Historical application results are reference data only. Actual performance depends on formulation, moisture, processing history and production method. Request the current TDS and a suitable sample before making a purchase decision.

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Get the current TDS, discuss your PE masterbatch formulation and request an R-F9156 sample: View R-F9156 product page