

Two Paths to PC-12:

Turning Specification Change into Portfolio Opportunity

With first licensing for API CL-4 and FB-4 scheduled for January 1, 2027, lubricant marketers are moving from PC-12 development toward commercialization.

The new categories raise performance expectations for heavy-duty engine oils, addressing requirements such as oxidation control, wear protection, soot-related viscosity control, aeration, scuffing and aftertreatment compatibility.

But for oil marketers, PC-12 represents more than a new performance specification. It also creates an opportunity to rethink how products can serve both the next generation of engines and the substantial installed base of existing equipment.

According to API 1509, API CL-4 oils are designed to meet or exceed the performance criteria of API CK-4, CJ-4, CI-4 and CH-4.¹ This backward serviceability creates an opportunity for marketers to develop CL-4 products with relevance beyond the newest engine platforms, subject to OEM recommendations.

For Asia Pacific markets, where earlier-generation heavy-duty vehicles remain an important part of the installed base, this can make the transition particularly significant. Rather than viewing CL-4 solely as a requirement for new engines, marketers can consider how it can help expand market coverage, simplify portfolio strategies and prepare for future demand.

Afton Chemical has developed two complementary additive solutions to help marketers pursue different opportunities within this transition: **HiTEC® 12332 Premium heavy duty diesel additive, focused on broad-market coverage and competitive formulation economics**, and **HiTEC® 12380 Top-tier heavy duty diesel additive, focused on premium performance, extended drains and lower total operating costs**. Both solutions are produced in Singapore, supporting Afton's ability to serve customers across Asia Pacific with locally manufactured PC-12 solutions.

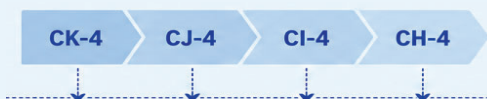
ONE NEW CATEGORY. A BROADER SERVICE OPPORTUNITY.

API CL-4 raises performance expectations for heavy-duty engine oils while creating broader relevance across engines and markets.



BUILT-IN BACKWARD SERVICEABILITY

Designed to meet or exceed the performance of prior API heavy-duty categories¹



ONE OIL. BROADER REACH.

Relevant for a wide range of existing engines, subject to OEM recommendations

SERVING BOTH



EXISTING ENGINES
Continue to protect the substantial installed base.



NEXT-GENERATION
Ready for tomorrow's engine platforms

A SIGNIFICANT OPPORTUNITY IN ASIA PACIFIC

Earlier generation of heavy-duty vehicles remain a vital part of the installed base, making the CL-4 transition a stronger opportunity to expand coverage and future proof your portfolio.



Expand
Market
Coverage



Simplify
Portfolio
Strategy



Prepare
for Future
Demand

PC-12 creates an opportunity beyond new engines

For lubricant marketers, this broader serviceability can change the way the PC-12 transition is approached. Instead of adding a product solely for the next generation of engines, CL-4 can provide a pathway to address new and existing applications through a strategically positioned product portfolio.

The question then becomes: Which opportunity best fits the marketer's portfolio?

HiTEC® 12332 Premium heavy-duty diesel additive: Broad-market PC-12 performance

For high-volume lubricant portfolios, the priority may be to maximize market coverage while maintaining competitive formulation economics. HiTEC® 12332 is designed around this need, covering the core viscosity grades used in the segment — SAE 10W-30, 10W-40 and 15W-40 — which together represent approximately 95% of the key market viscosity-grade and OEM requirements targeted by the solution.

The solution also covers key OEM requirements across Daimler, Volvo, Cummins, MTU, Detroit Diesel, Deutz and more, providing a broad platform for mainstream heavy-duty applications.

The combination of broad viscosity-grade and OEM coverage gives marketers formulation flexibility while supporting competitive economics for high-volume applications. Produced in Singapore, HiTEC® 12332 also gives Afton customers across Asia Pacific access to a regionally manufactured solution as they prepare for the CL-4 transition.

HiTEC® 12332 Premium Heavy-duty Diesel Additive BROAD-MARKET PC-12 PERFORMANCE

A versatile additive solution designed to deliver broad coverage, formulation flexibility and competitive economics.



~95% TARGETED MARKET COVERAGE
Covers the core viscosity grades and key OEM requirements across major markets



FORMULATION FLEXIBILITY
Compatible with multiple base oils and a wide range of applications



COMPETITIVE ECONOMICS
Designed for high-volume portfolios to help optimize formulation economics

Importantly, the opportunity extends beyond new CL-4 applications. A competitively formulated finished oil based on HiTEC® 12332 can provide a pathway to target the emerging CL-4 market while continuing to address engines currently operating on earlier API service categories, subject to OEM recommendations. For marketers in markets with a large installed base of existing heavy-duty vehicles, this can provide an opportunity to expand CL-4 coverage while supporting a more streamlined portfolio strategy.

HiTEC® 12380 Top-tier heavy-duty diesel additive: Premium performance with extended-drain capability.

For premium lubricant portfolios, the opportunity is different. Here, differentiation can come from longer oil life, extended drain intervals, fuel efficiency and the potential to reduce total operating costs. HiTEC® 12380 is engineered to combine PC-12 performance with ACEA E8 long-drain capability, giving marketers a pathway to develop premium heavy-duty lubricant propositions around extended service intervals and fleet value.

Its long-drain capability has been demonstrated in a Detroit Diesel field trial covering more than 500,000 miles, including multiple 90,000-mile oil drain intervals.

HiTEC® 12380 Top-tier Heavy-duty Diesel Additive PREMIUM PERFORMANCE. EXTENDED-DRAIN VALUE.

Engineered to combine PC-12 performance with ACEA E8 long-drain capability to help deliver long oil life, greater uptime and lower total operating costs



PC-12 + ACEA E8
Premium performance with long drain capability



> 500,000 MILES
Detroit diesel field trial proving real-world reliability



90,000 MILE DRAIN INTERVALS
50% above the 60,000 mile comparison standard

The 90,000-mile intervals represent a 50% increase over the 60,000-mile standard used as the comparison point for the trial. Beyond extended drain performance, HiTEC® 12380 provides enhanced oxidation and wear control to support longer oil life and sustained engine protection. It also supports fuel-efficient, lower-viscosity formulations and robust protection under severe operating conditions.

For lubricant marketers, these capabilities can support premium product positioning around oil life, uptime, fuel efficiency and total operating cost, moving beyond specification compliance toward measurable fleet value. Produced in Singapore, HiTEC® 12380 also provides customers across Asia Pacific with access to this advanced PC-12 technology from a regional manufacturing base.

Two paths to PC-12. One opportunity to strengthen your portfolio.

PC-12 does not require every lubricant marketer to pursue the same strategy.

For portfolios where market reach, formulation flexibility and competitive economics are the priority, HiTEC® 12332 provides a broad-market pathway across core viscosity grades and key OEM requirements, while leveraging the broader service opportunity created by CL-4.

For portfolios where premium differentiation, extended drains and lower operating costs are the priority, HiTEC® 12380 provides a pathway combining PC-12 performance with ACEA E8 long-drain capability and field-demonstrated extended drain performance.

Which PC-12 pathways fits your portfolio?

	HiTEC® 12332	HiTEC® 12380
Portfolio priority	Broad market coverage	Premium differentiation
Core opportunity	Existing + emerging market	Extended drain + fleet value
Market proposition	~95% targeted coverage	PC-12 + ACEA E8
Key evidence	3 viscosity grades / Multiple OEMs / Broad-market applications	>500,000-mile field trial, 90,000-mile intervals demonstrated
Commercial value	Formulation flexibility and economics	Potential lower total operating costs

As the industry moves toward the January 1, 2027 licensing date, PC-12 readiness is becoming more than a question of meeting a new specification. It is an opportunity for lubricant marketers to decide how the transition can strengthen their portfolios and create greater value for customers.

With HiTEC® 12332 and HiTEC® 12380, Afton offers two complementary pathways to PC-12, helping marketers pursue the strategy that best fits their market, portfolio and customer needs.

Talk to Afton about developing the right PC-12 strategy for your portfolio.

This article focuses on the Asia Pacific market, with discussion framed around regional market conditions, customer needs and portfolio opportunities.

^{^1} Engine Oil Licensing and Certification System, API 1509, Twenty-Fourth Edition, July 2026.

