

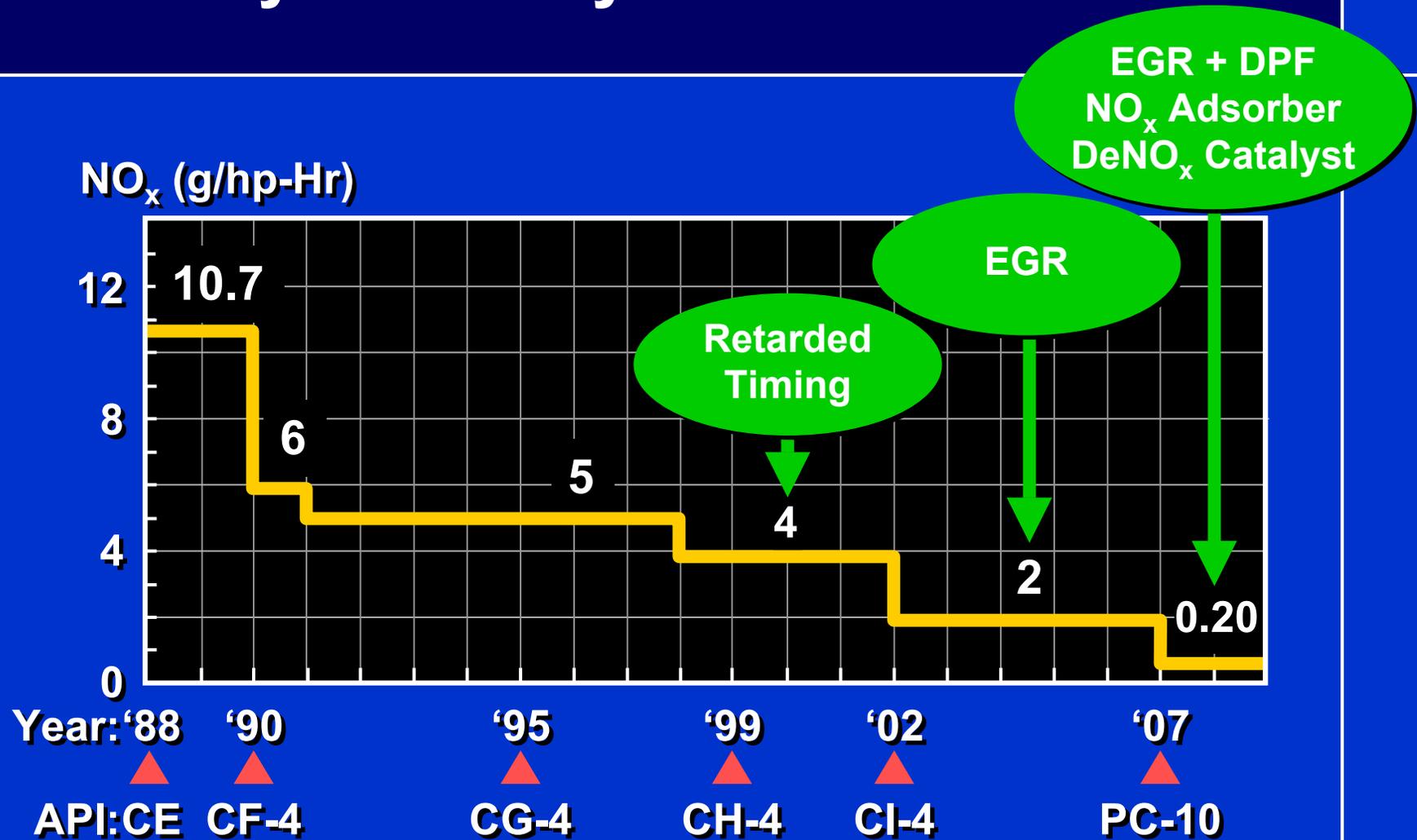
Jim McGeehan, Manager of Global Heavy-Duty Diesel Engine Oil Technology



ChevronTexaco

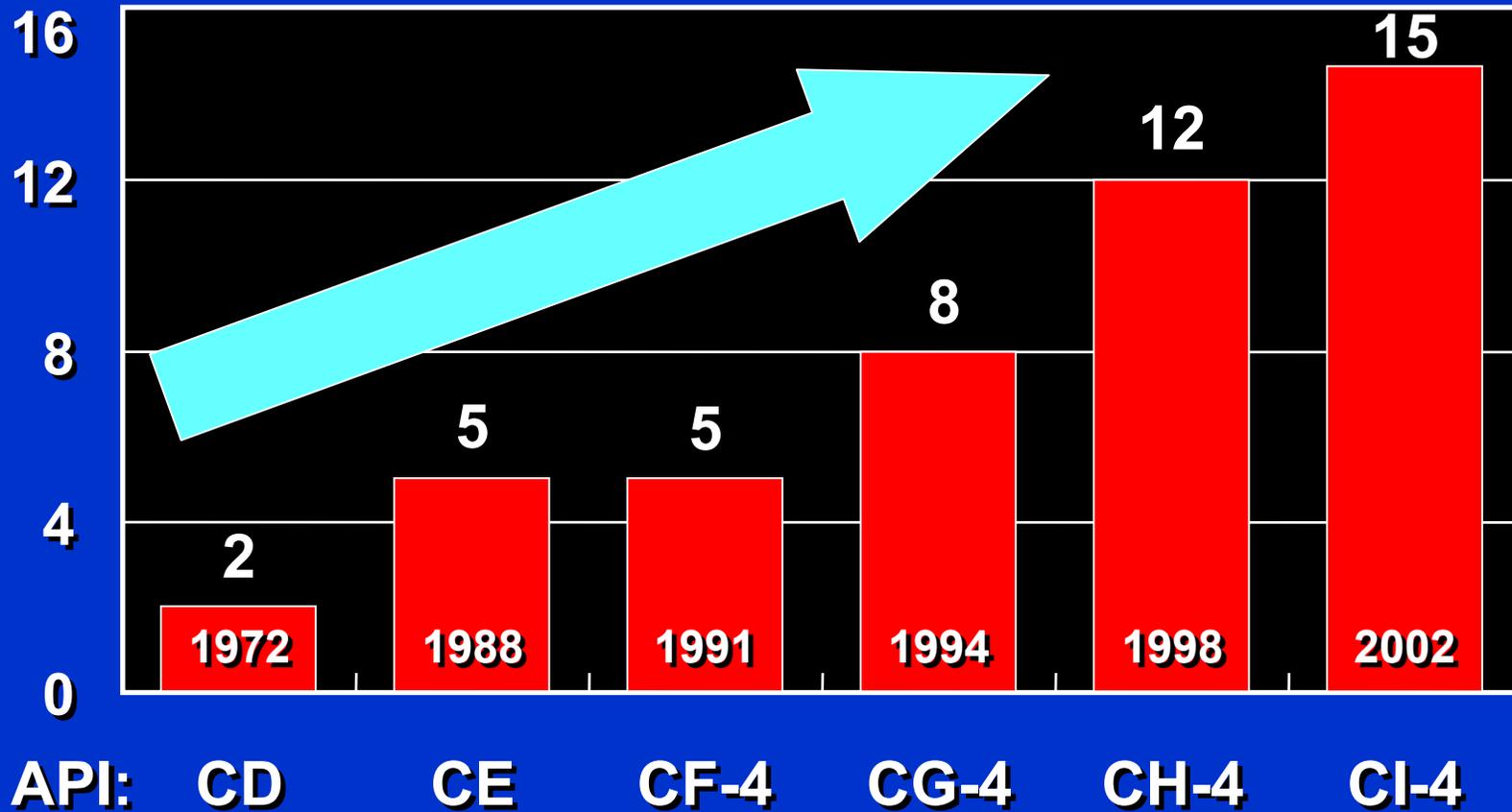


Oil Quality Driven by Clean Exhaust



Increasing Oil Quality

Number of Tests to Qualify Products

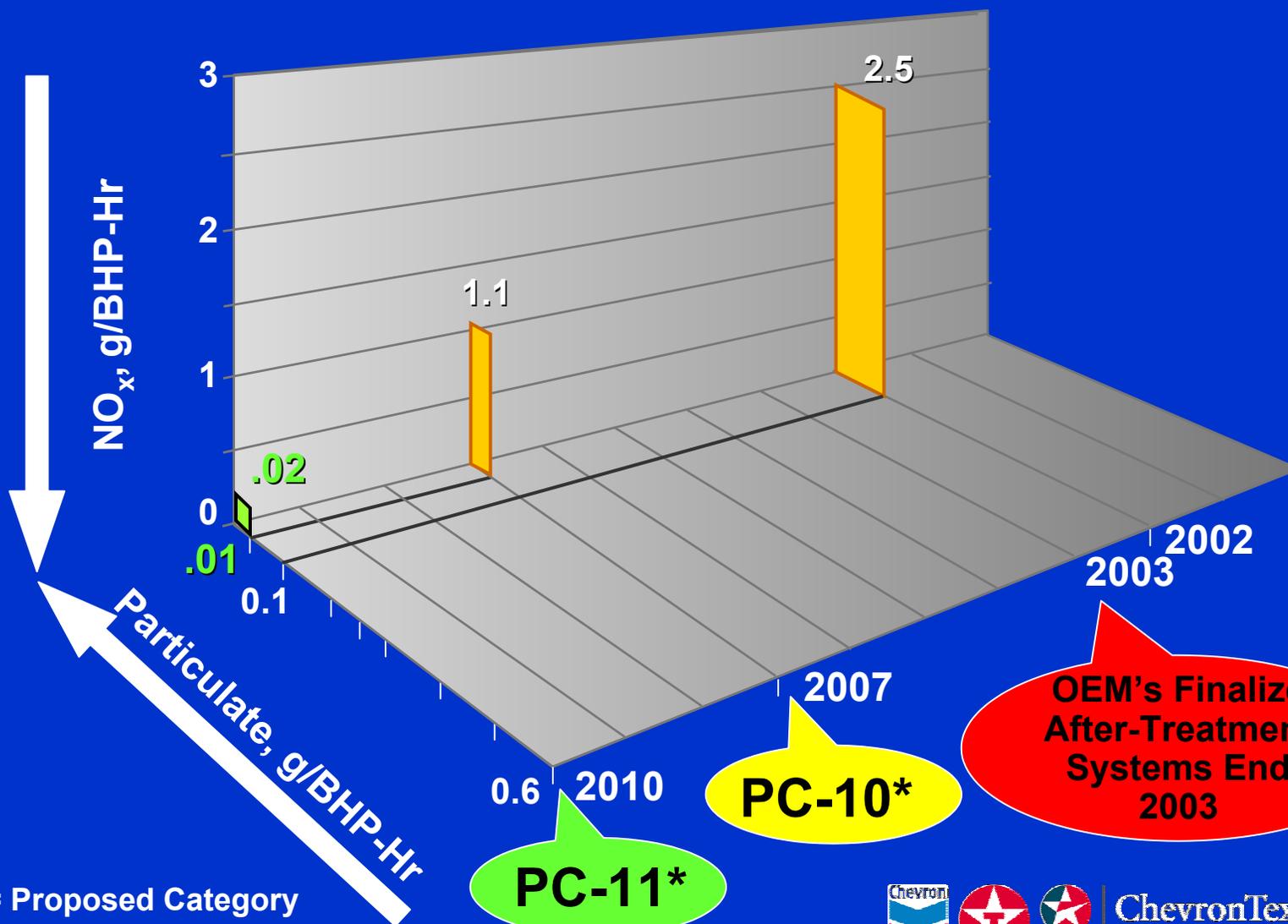


“Just-in-Time” Delivery

Maximize Engine Reliability and Durability
API CH-4/CI-4 Engine Oils

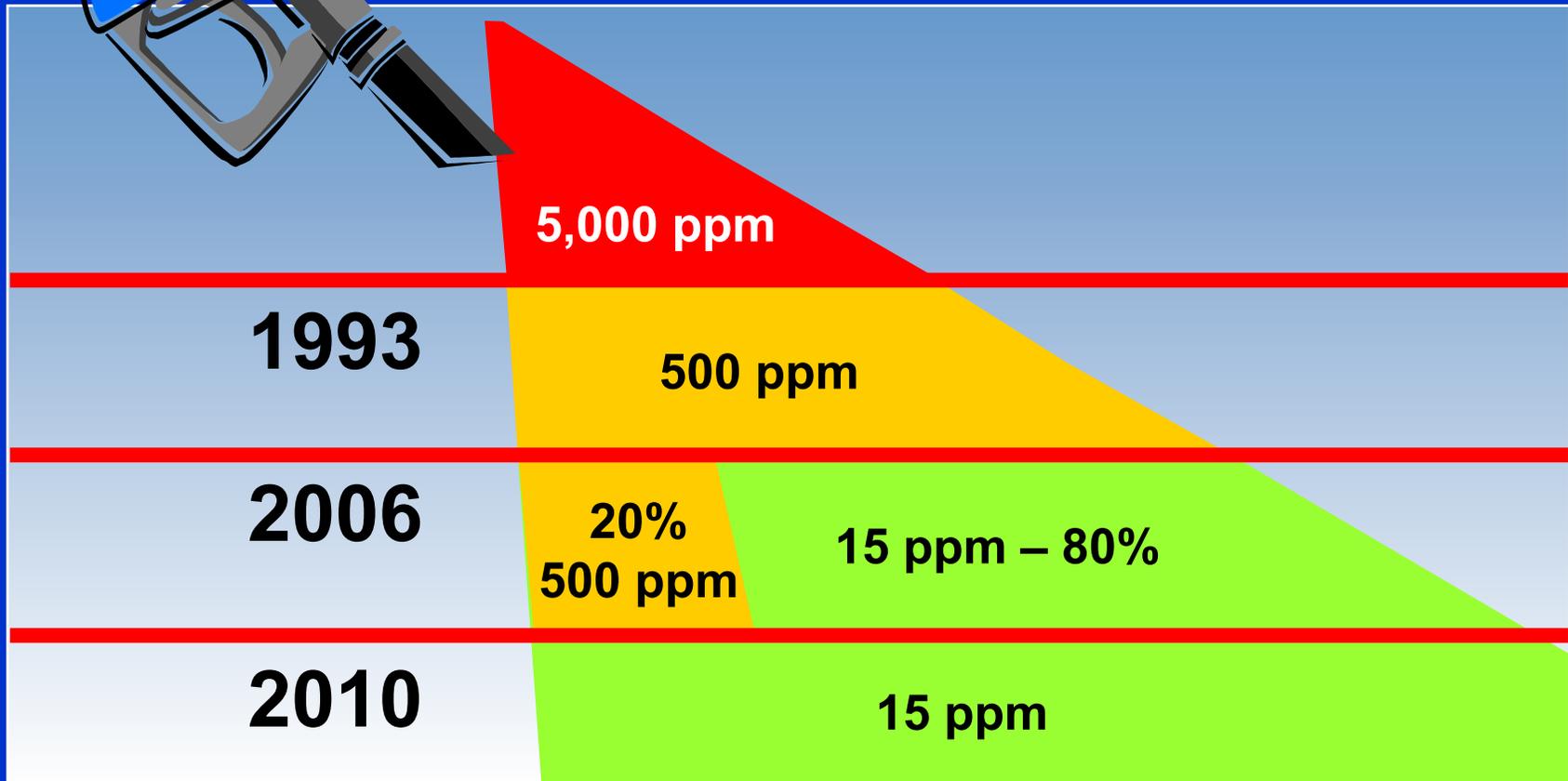


2007-2010 Emission "Phase-In"



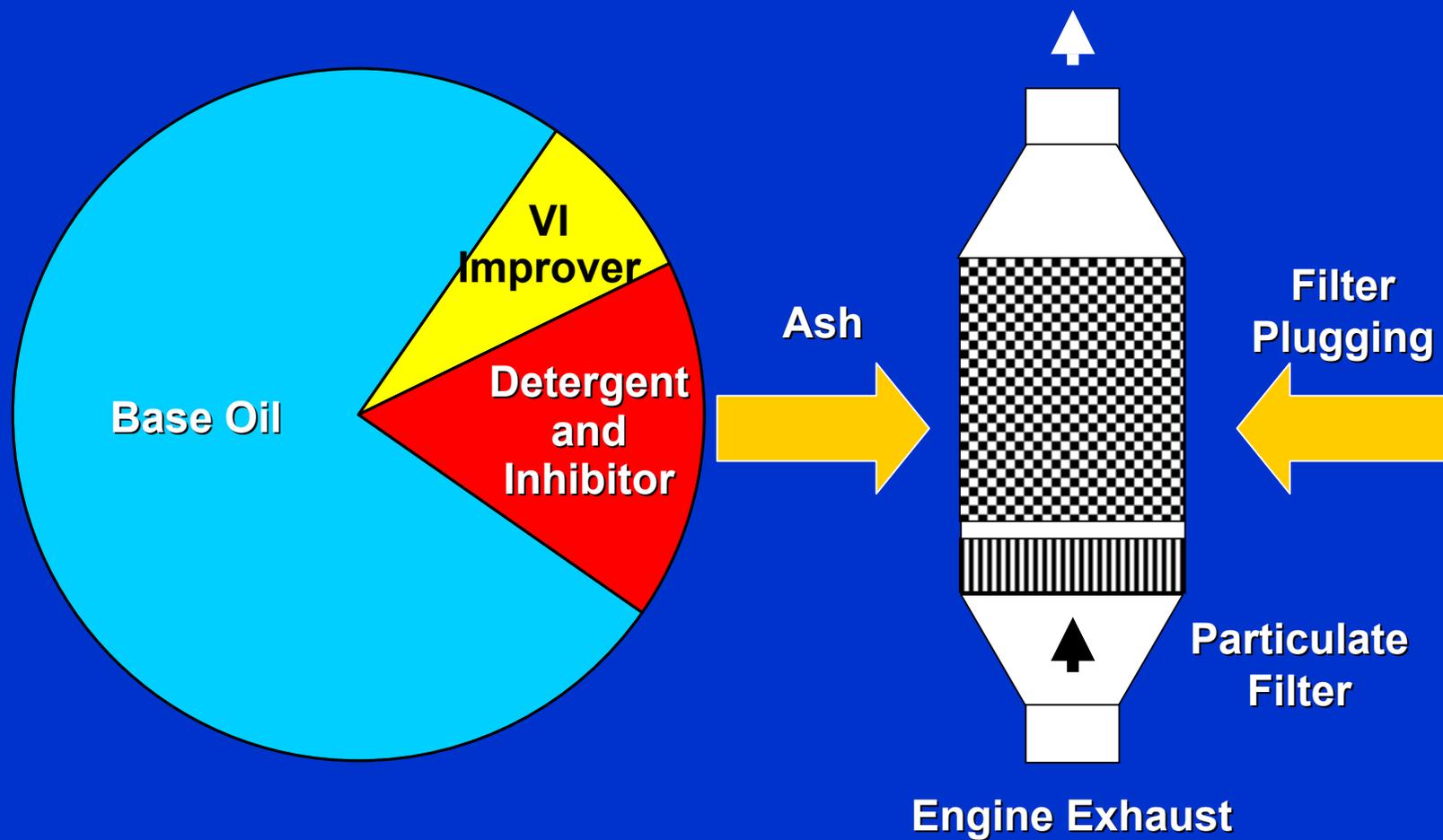
*PC = Proposed Category

Reducing Diesel Fuel Sulfur

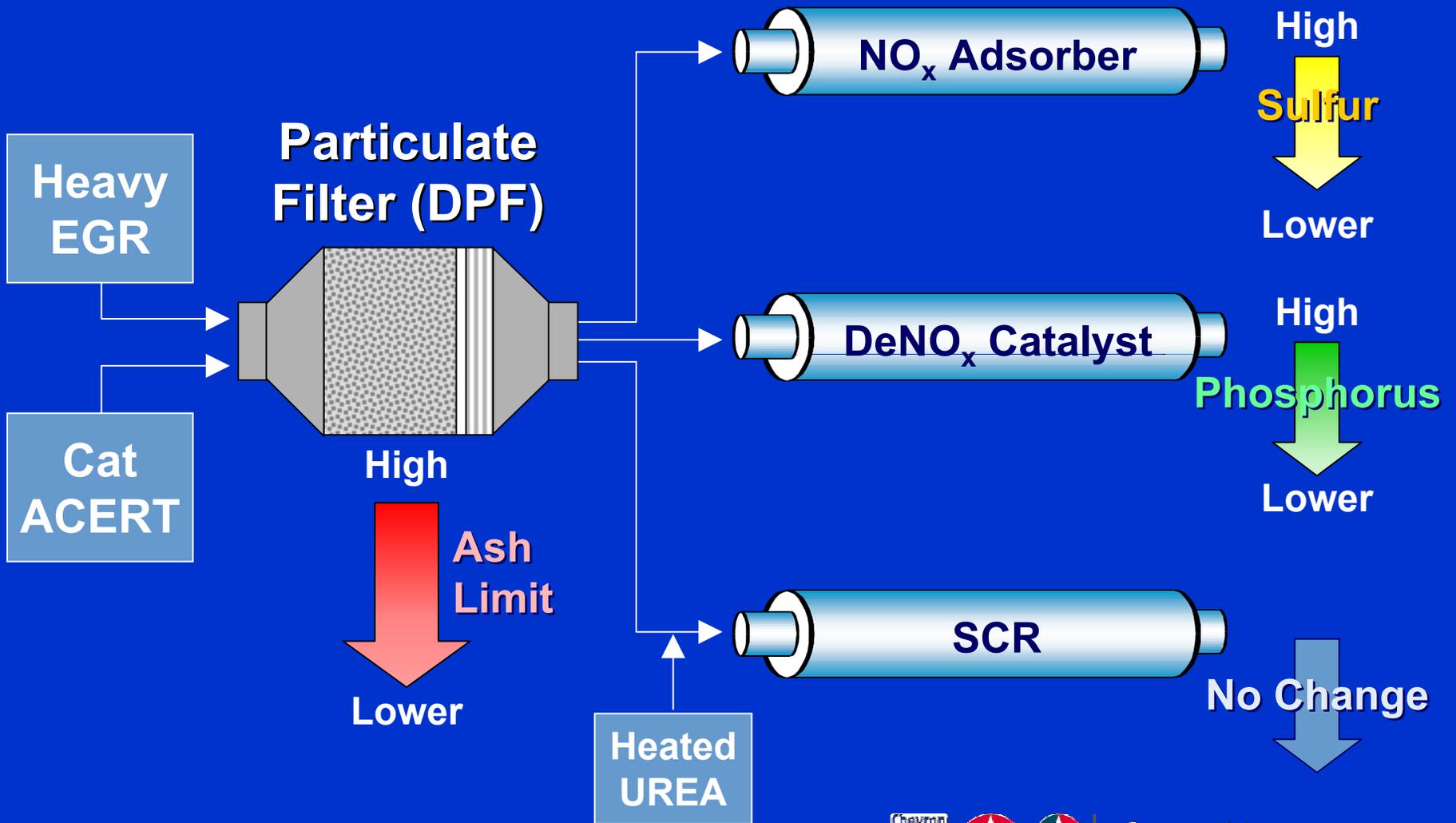


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Ash Plugging With Particulate Filters

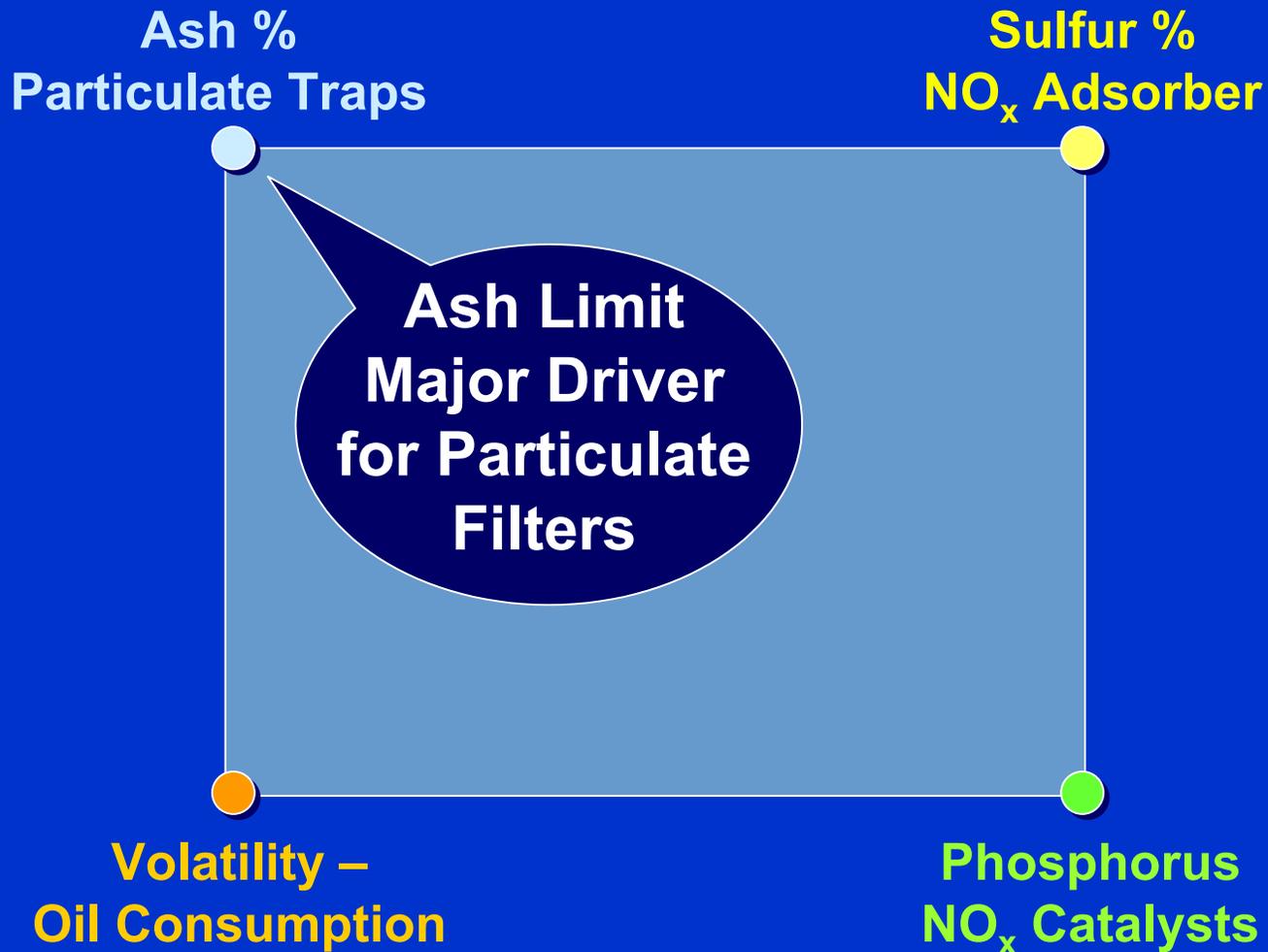


After-Treatment Life?

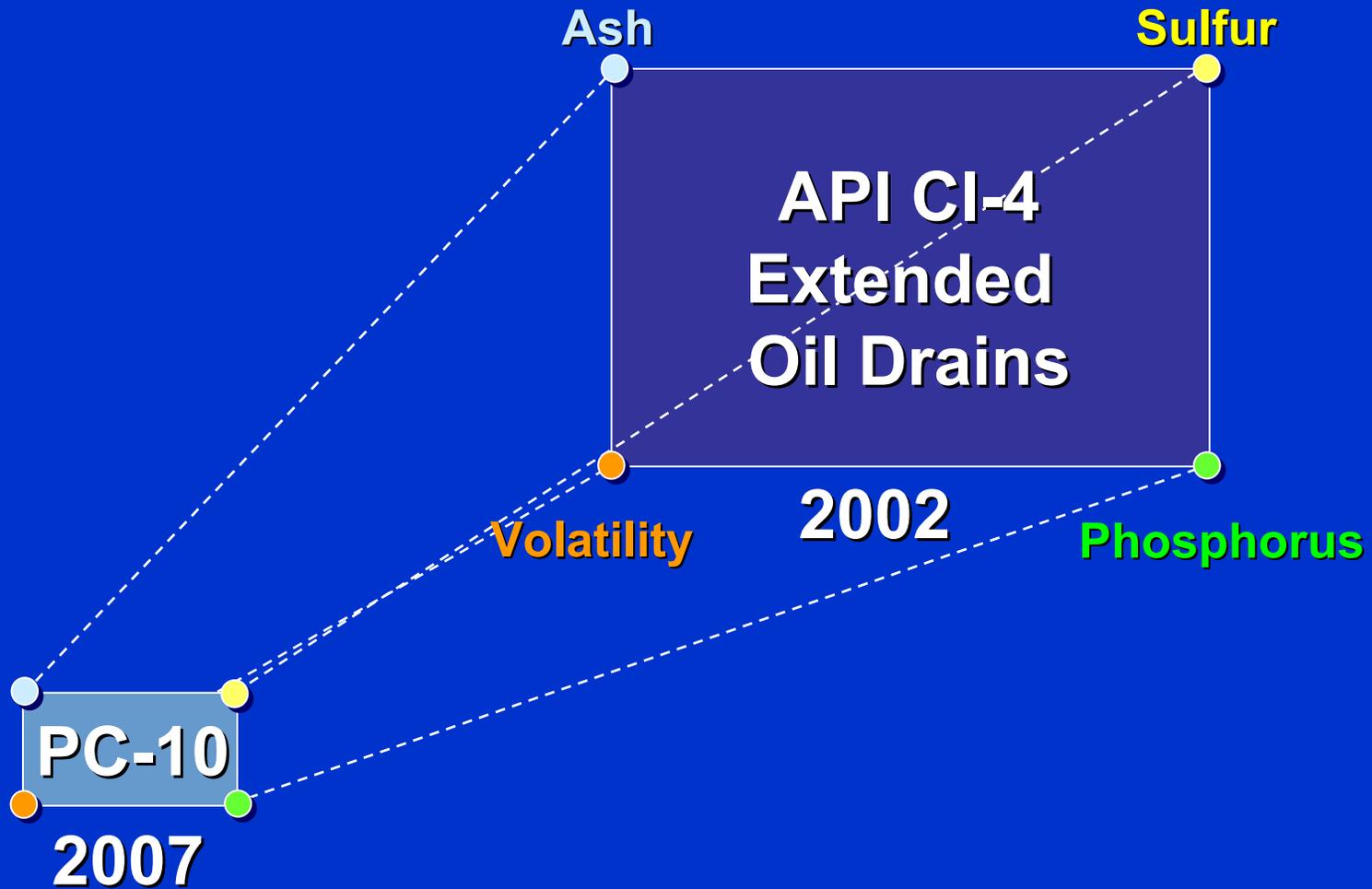


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Chemical Limits for 2007 Lubricants



Paradigm Shift in Engine Oil Technology

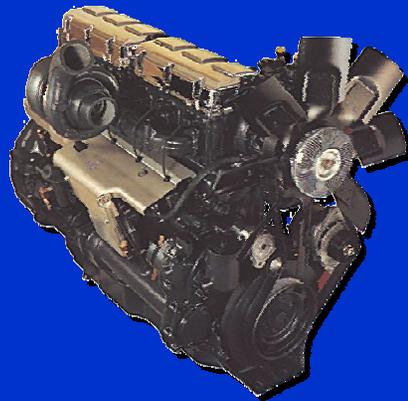


Reduces Oil Drains

Engine Durability Tests for PC-10



Caterpillar C-13
Oil Consumption
Blow-By and
Piston Deposits



**Mack T-12
(Volvo D-12)**
Power Cylinder
Wear and
Oxidation



Cummins ISB
Slider Valve Train
Wear and After-
Treatment



Cummins ISM
Power Cylinder, Valve
Train Wear, Filter Life
and Sludge Control

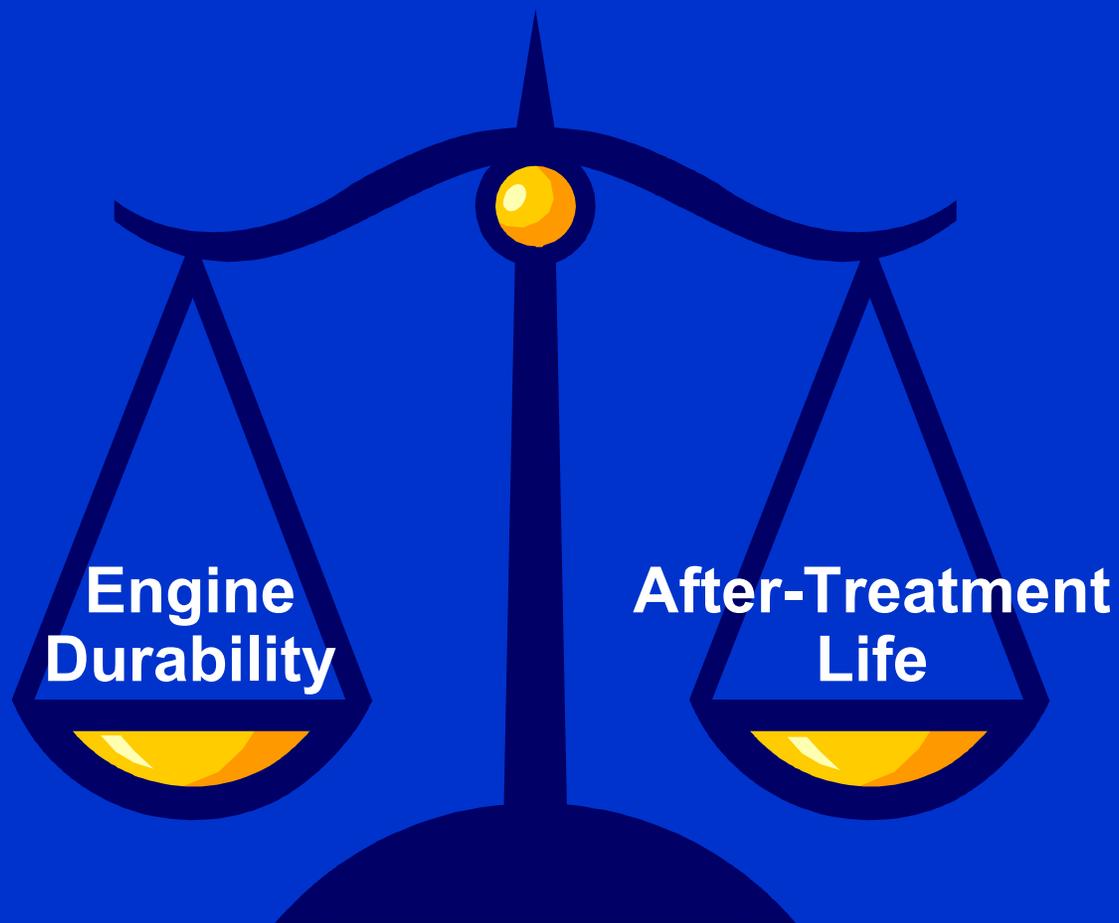
15 ppm Fuel Sulfur

500 ppm Fuel Sulfur



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PC-10 Challenge: Balancing Service Life



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PC-10 Will Be Delivered On Time for 2007

Cleaner Diesel Engines



Jim McGeehan
Chairman of ASTM Heavy-Duty Engine Oil
Classification Panel, Implementing PC-10 for 2007

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