

Heavy Duty Engine Oil Classification Panel

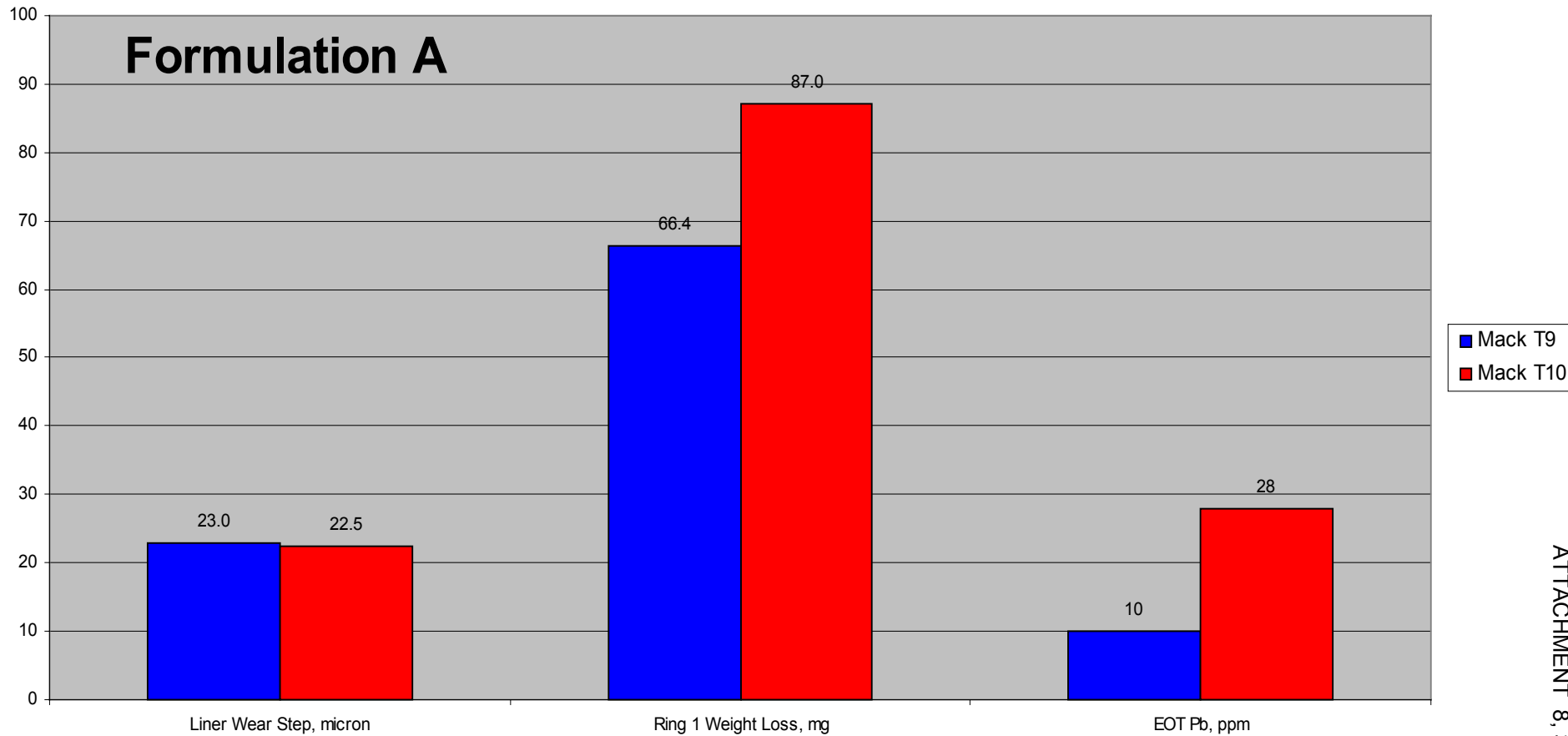
**Queen Elizabeth Hotel
Montreal
June 18, 2002**

CH-4 Performance

Based on CI-4 Tests

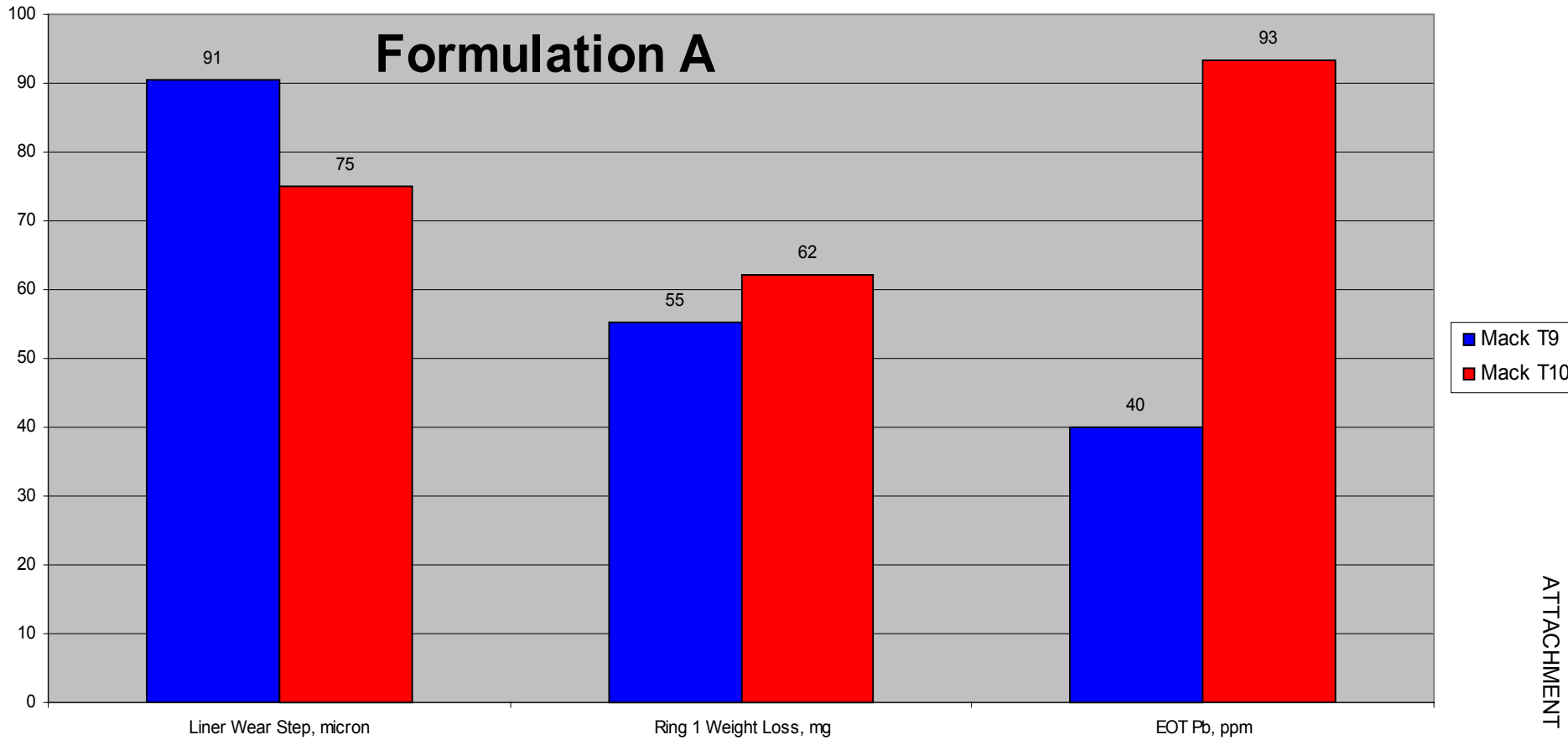
EGR Backward Compatibility

Mack T9 / T10 Comparison



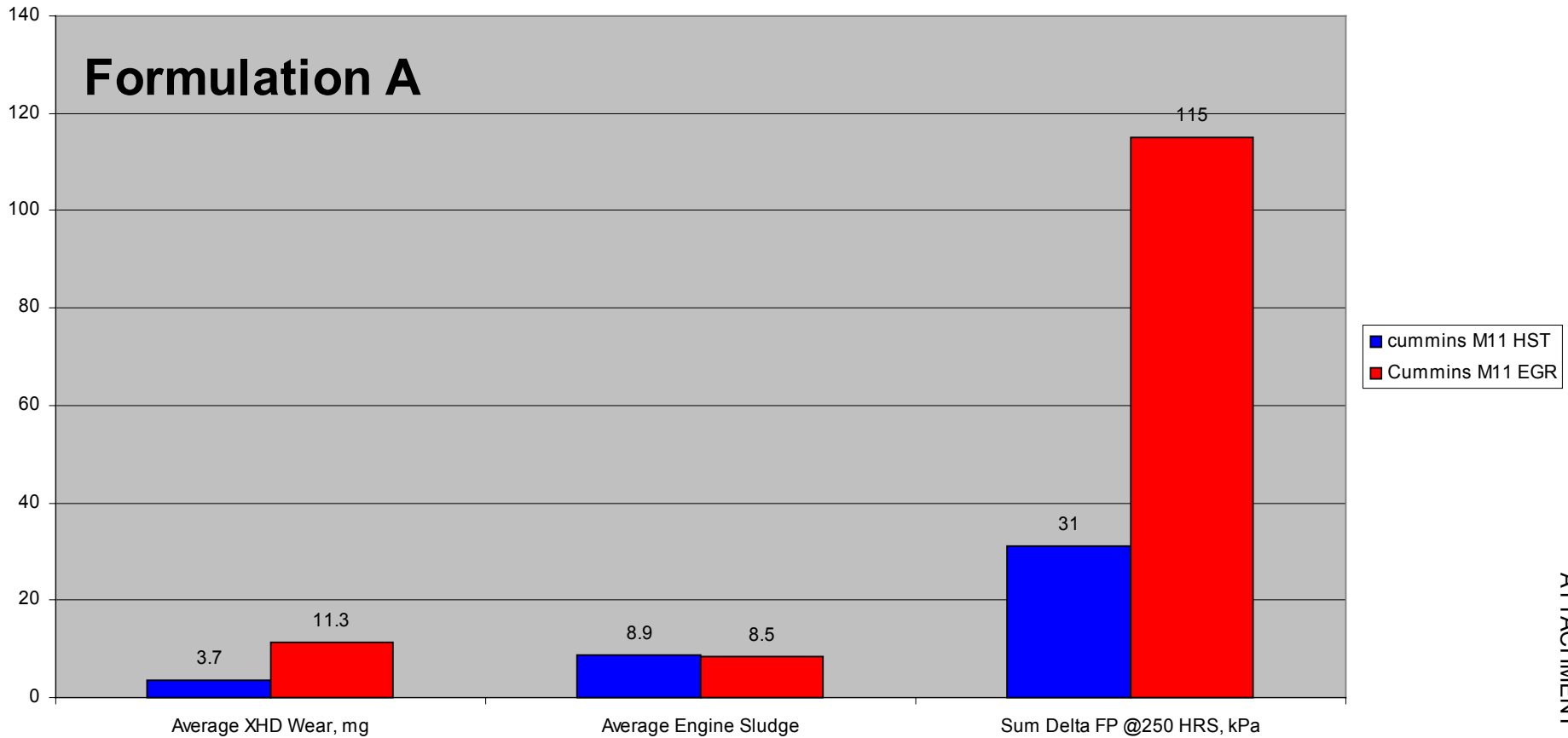
EGR Backward Compatibility

Mack T9 / T10 Results as Percentage of Limits



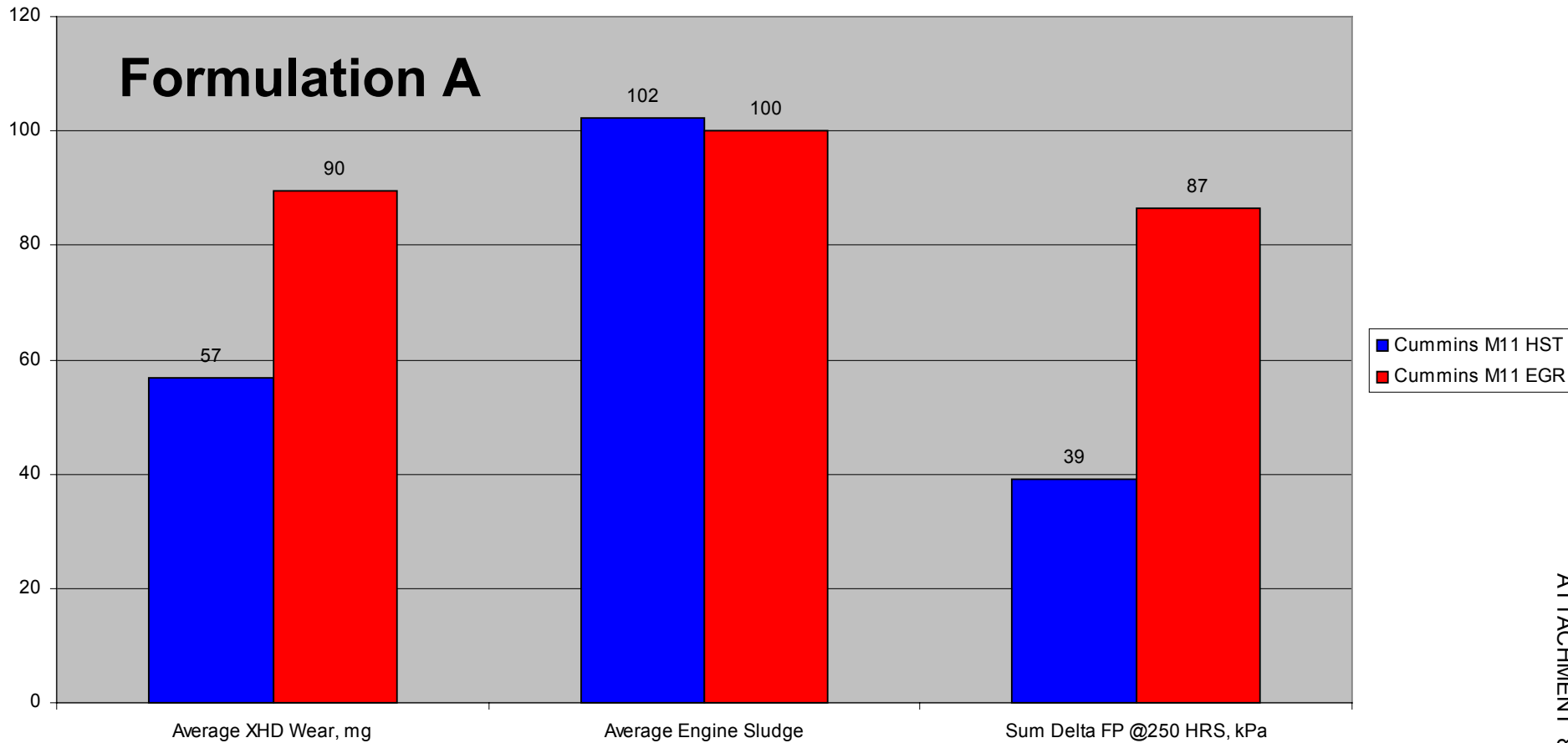
EGR Backward Compatibility

Cummins M11 / M11 EGR Comparison



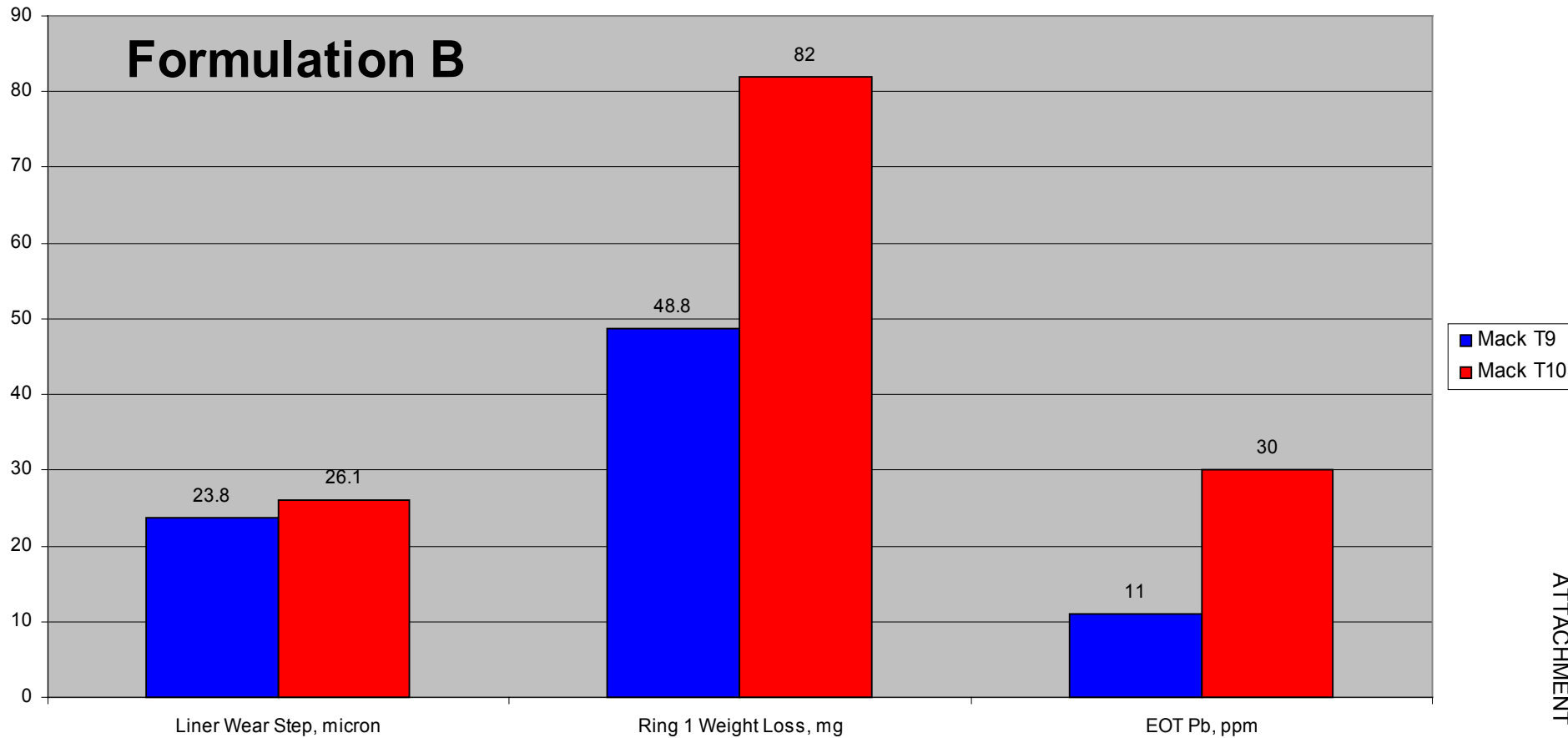
EGR Backward Compatibility

Cummins M11 / M11 EGR Results as Percentage of Limits



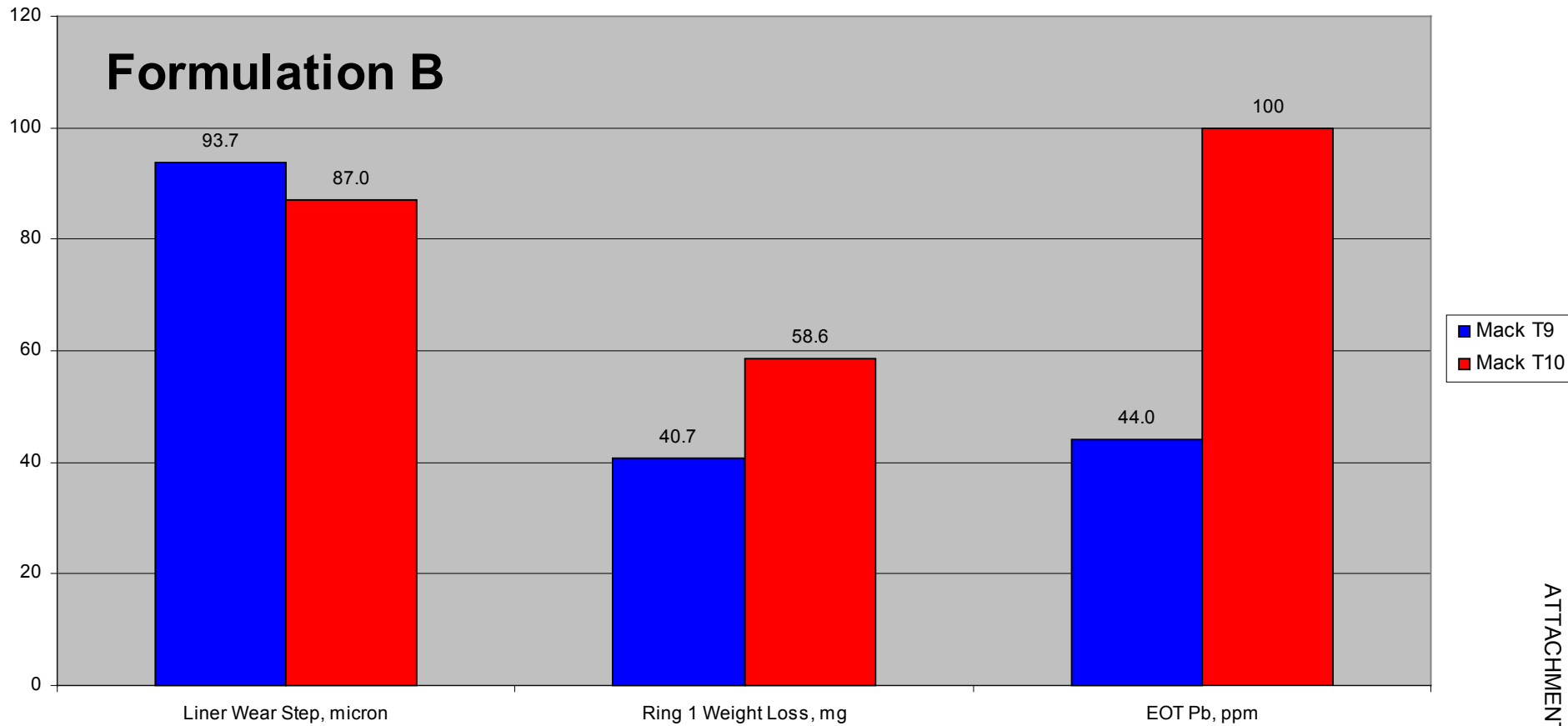
EGR Backward Compatibility

Mack T9 / T10 Comparison



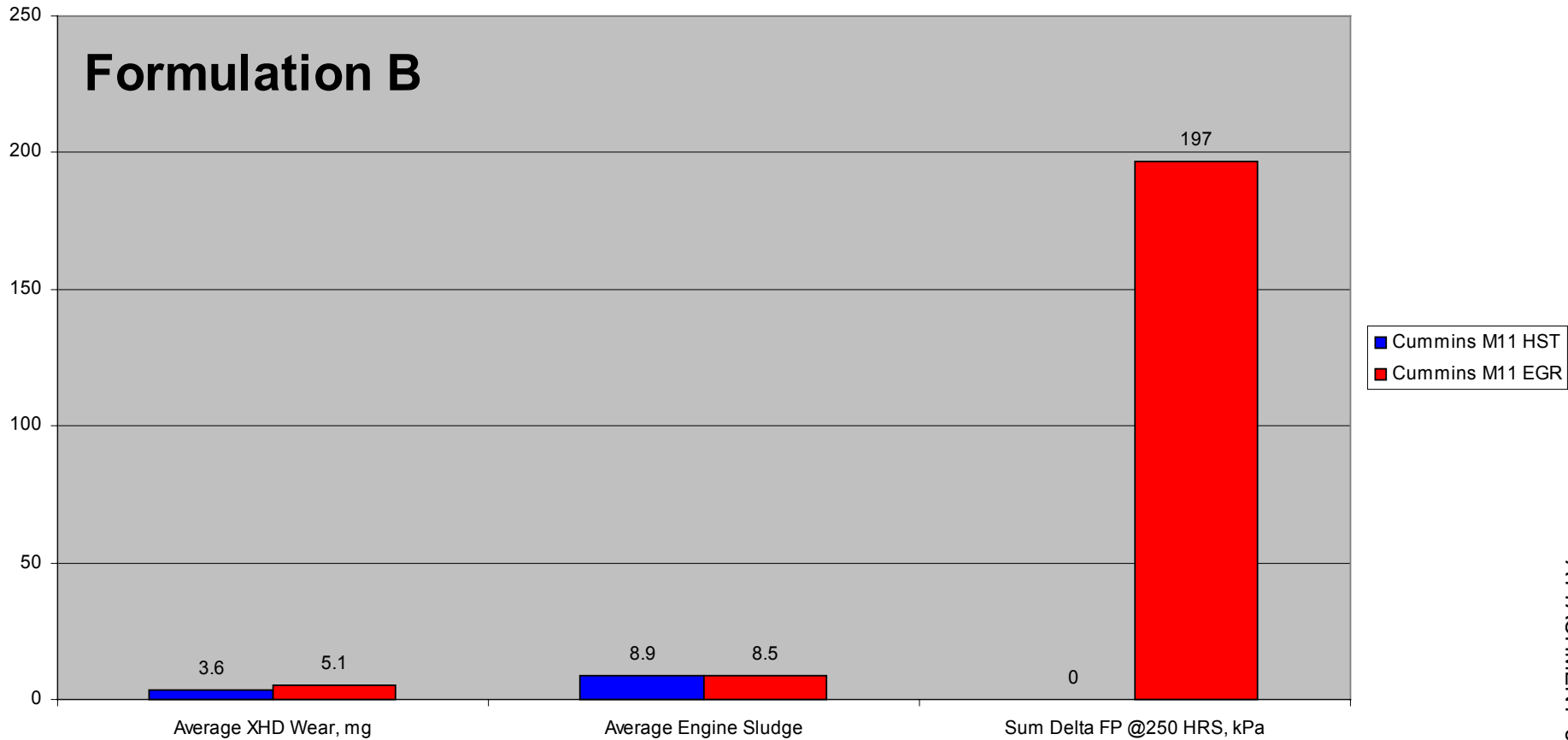
EGR Backward Compatibility

Mack T9 / T10 Results as Percentage of Limits



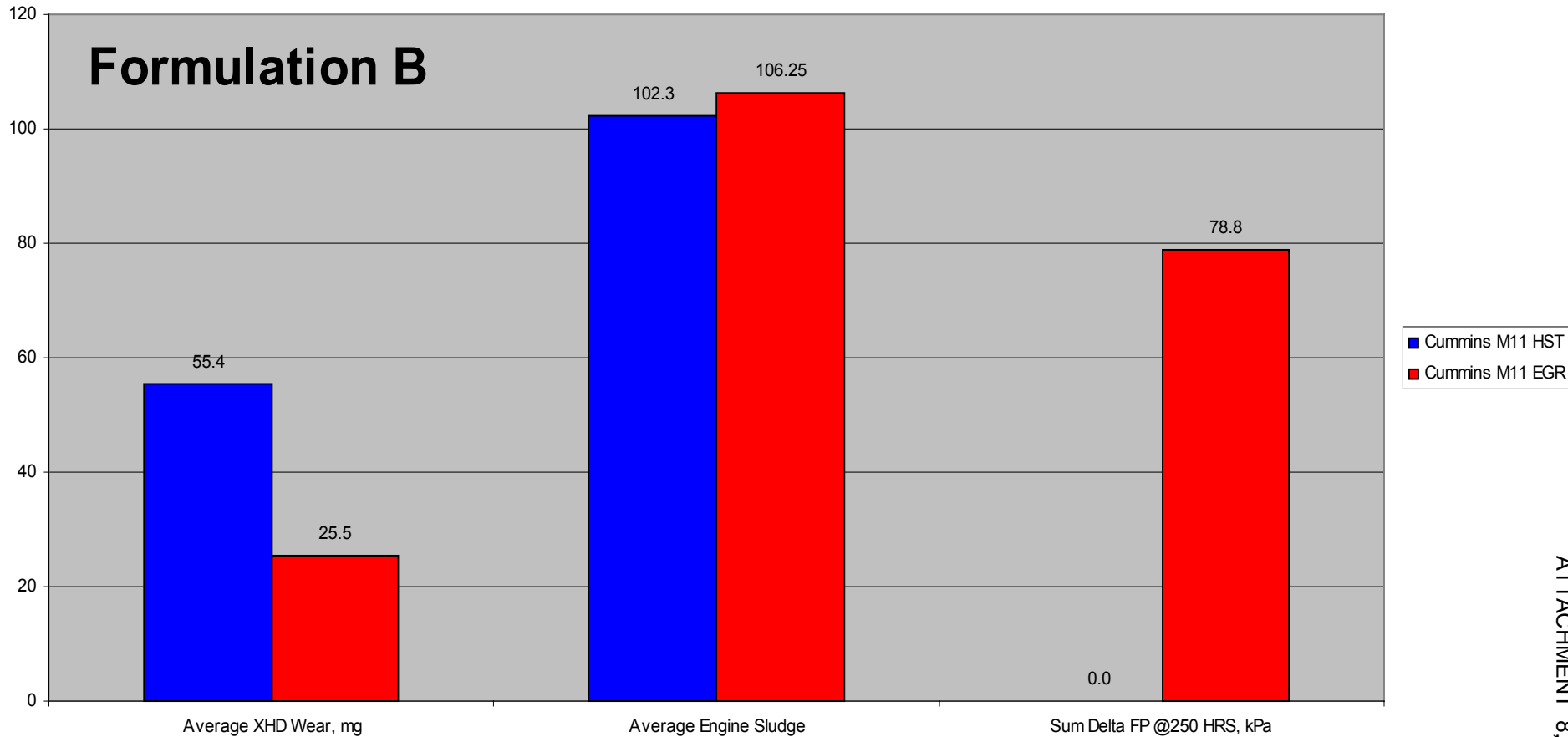
EGR Backward Compatibility

Cummins M11 HST / M11 EGR Comparison



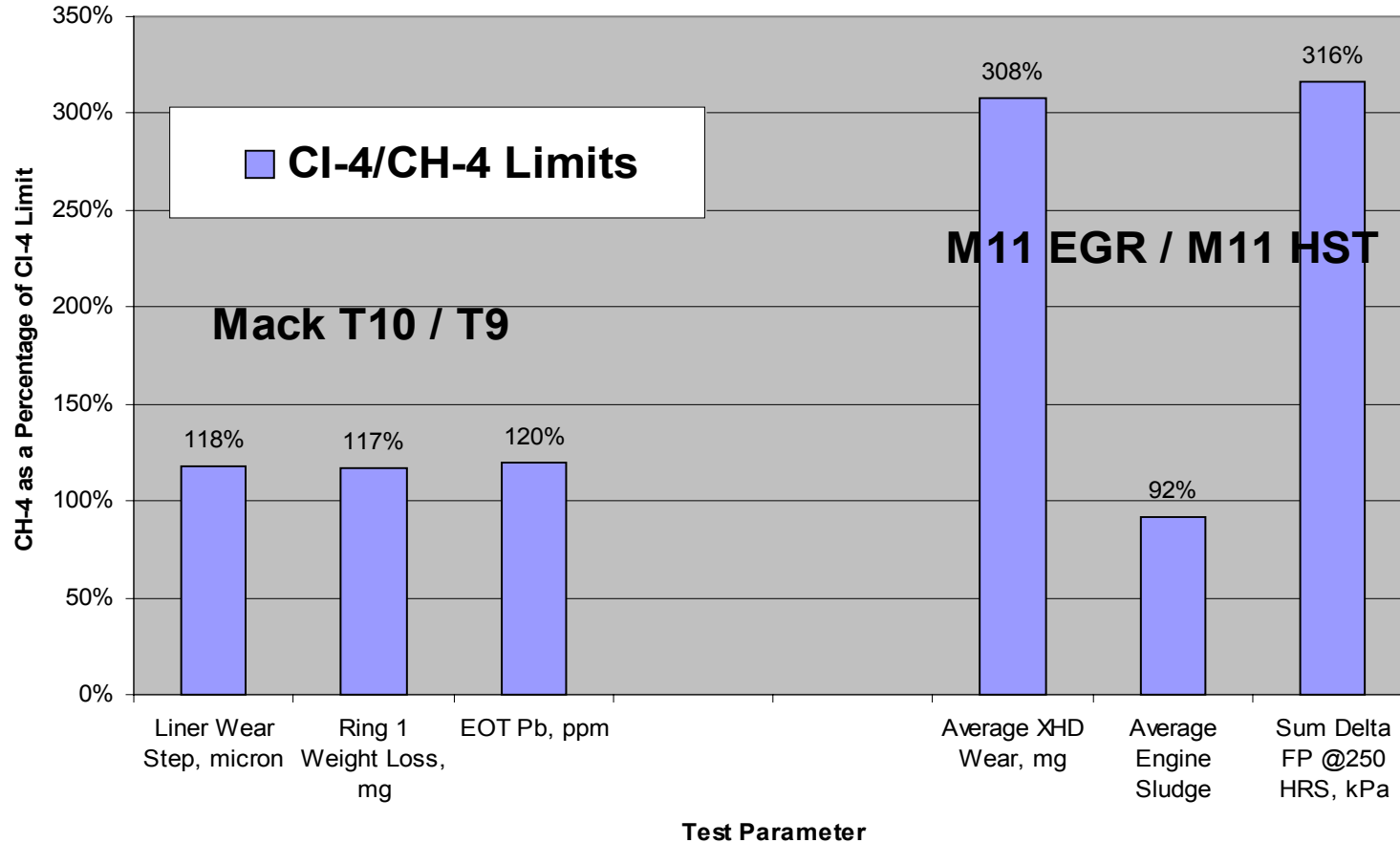
EGR Backward Compatibility

Cummins M11 / M11EGR Results as Percentage of Limits



EGR Backward Compatibility

CH-4 as a Percentage of CI-4 Limit



EGR Backward Compatibility

- Performance observed in the new EGR tests is more severe than their non-EGR predecessors
- Lubrizol offers the following for consideration
 - “The Mack T-10 and Cummins M11-EGR tests may be used to qualify oils for API CH-4 using relaxed limits that recognize the increased severity of CI-4 tests compared to the T-9 and M11 HST tests used to define CH-4.

CH-4 Limits proposal follows: