

Emergent Specifications for Passenger Car Engine Oils

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ILSAC Chair

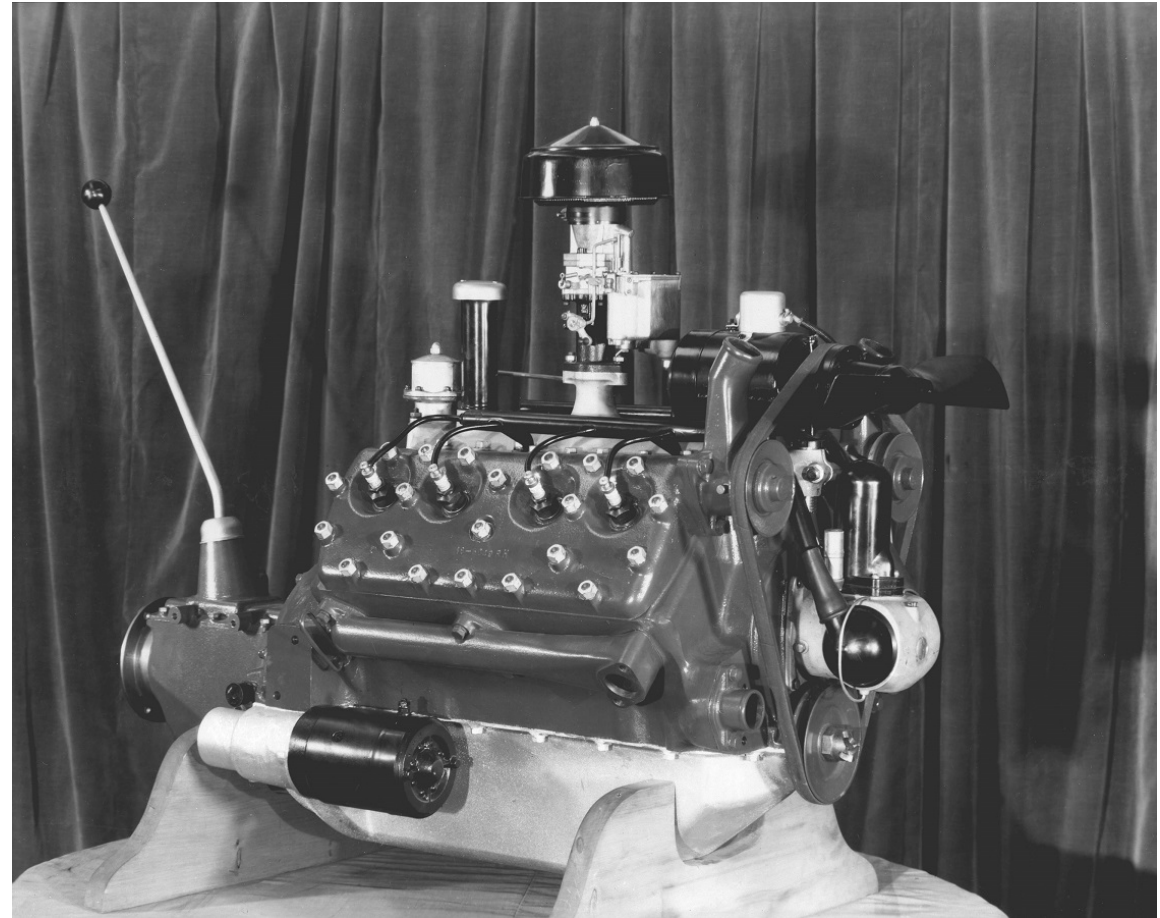
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Emergent Specifications for Passenger Car Engine Oils

Update to ILSAC GF-6 requires:

- Improvement to Sequence IIH.
- New Sequence V & VI engine platforms.
- Resolution of Sequence VIII.
- Review of Sequence IX & X.
- Seal Test changes.
- New/modified Bench Tests.
 - NOACK Volatility (ASTM D5800)
 - Oil gelation/filterability (ASTM D6795)
 - Sulphated Ash (ASTM D129 (was D874))
- General:
 - Maintain Backwards compatibility.
 - Low Vis Oils-(0W-12/0W-8)
 - Protect for EPA/CARB requirements.
 - Ethanol fuel impact on tests.
 - High Temperature Wear Test.
 - Turbo Coking considered.



Emergent Specifications for Passenger Car Engine Oils-IIIH

Improvement to Sequence IIIH:

- Improve AWPD merit by 10%.
 - 4.2 → 4.6
- MRV
 - 60,000 → <40,000cSt



Emergent Specifications for Passenger Car Engine Oils-V & VI

New Sequence V & VI engine platforms:

- Both engine platforms will require replacement.
- Seq V requires:
 - Updated procedure to better simulate current engine sludge issues.
 - Improvements to sludge test evaluation.
- Seq VI requires:
 - Additional FE savings
 - Reduced deviation.



Emergent Specifications for Passenger Car Engine Oils-VIII

Resolution of Sequence VIII:

- Evaluate or remove from Next Category.
- Backwards compatibility required.



Emergent Specifications for Passenger Car Engine Oils-IX & X

Review of Sequence IX & X:

- Engine life review.
- Seq IX (LSPI):
 - R&R IX or
 - Keep IX & Aged Oil LSPI.
- Seq X (Chain Wear):
 - No Change, evaluate for life



Emergent Specifications for Passenger Car Engine Oils-Seal Compatibility

Seal Test changes:

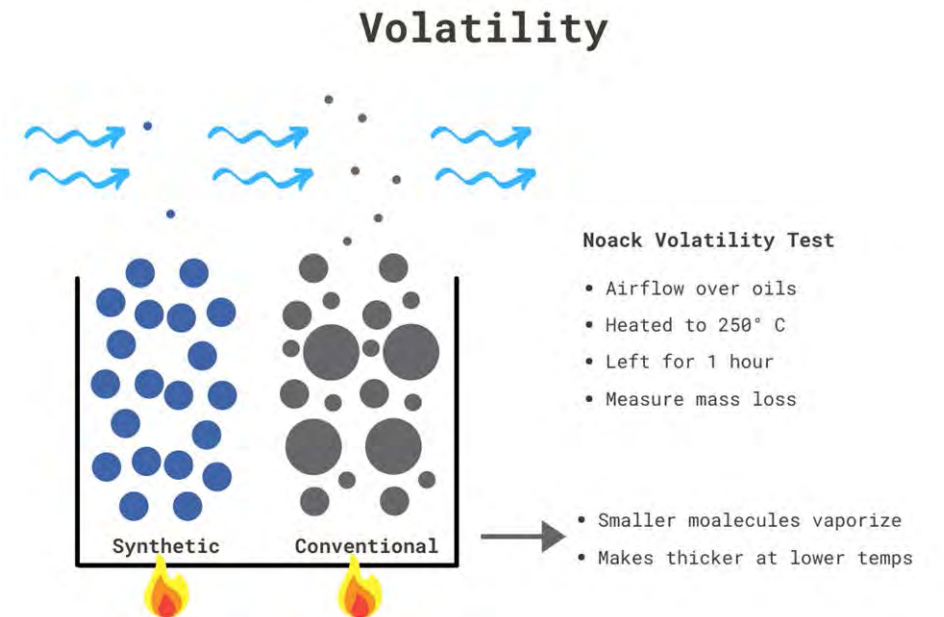
- Keep and/or replace D7216.
 - Use SAE J2979 CSR test.
 - OEMs have used to reduce warranty
- Add new seals
 - HNBR, ACM-2, AEM-2, AEM-3 & FKM-3



Emergent Specifications for Passenger Car Engine Oils-NOACK Volatility

Modify NOACK Bench Tests:

- SAE Papers 2022-01-0524 & 2022-01-0525
 - 250C to 150C for improved engine to bench correlation.



Emergent Specifications for Passenger Car Engine Oils-D6795 Gelation/Filterability

Modified D6795 Bench Tests:

- SAE paper 881588-Carbonic Acid bubbling.
- Simulates engine oil gelation filter plugging.
 - Bubble CO₂.
 - Increased storage time.



Emergent Specifications for Passenger Car Engine Oils-D129, Low Vis, Other

Add D129 Sulphated Ash Bench Test:

- D129 (was D874)
 - 0.9% max sulphated ash requirement.

General:

- Backwards compatibility.
- Low Vis Oils
- Protect for EPA/CARB requirements.
- Ethanol Fuel use in tests.
- High temp wear.
- Turbo Coking was considered.



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Update to ILSAC GF-6 request:

- Request to AOAP chair will go out soon.
- Tentative Implementation Timing request for 2nd qtr 2028.
- Test review and funding availability.
- Further evaluation of other potential items.

Emergent Specifications for Passenger Car Engine Oils-Q&A

Any Questions?