



AEROSPACE INFORMATION REPORT

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Management of Change Considerations for Aero Gas Turbine Engine Lubricants Under AS5780

RATIONALE

Qualification of a turbine oil formulation to AS5780 is now recognized as an integral part of most aviation equipment manufacturer's oil approval processes. The E34 Committee identified the need to develop this document based on frequent questions as to what constitutes a major change in AS5780 products which are governed by the process defined in PRI document PD2104.

1. SCOPE

The intent is to provide a reference which explains the types of possible changes to AS5780 products and provide appropriate context to the QPG. All product change requests to the QPG will be evaluated on their merits recognizing the content of this AIR is guidance only.

2. APPLICABLE DOCUMENTS

The following publications form a part of this document to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order. In the event of conflict between the text of this document and references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

AS5780 Specification for Aero and Aero-Derived Gas Turbine Engine Lubricants

2.2 PRI Publications

Available from Performance Review Institute, 161 Thorn Hill Road, Warrendale, PA 15086-7527, Tel: 724-772-1616, www.pri-network.org.

PD2001 Program Document, Manufacturer Request for Product Approval and Qualification Process

PD2104 Aerospace Quality Assurance, Product Standards, Qualification Procedure, Gas Turbine Oils

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3. BACKGROUND

3.1 Oils Changed per AS5780 Section 10

Oils changed per AS5780 Section 10 are subject to full or partial requalification at the discretion of the QPG. The procedures governing this process are defined in PRI document PD2104 Appendix A.

The following guidance can be found in PD 2104:

- 3.1.1 PD2001 indicates that product changes that could potentially affect form, fit, or function require the manufacturer to notify its QPG and supply associated justification and test results.
- 3.1.2 PD2104 Appendix A states that product major changes are treated as new products. New products require a new product name.

3.2 Major Versus Minor Changes

In practice, the definition of major versus minor changes have an impact on qualification to the AS5780 specification, as well as the approval to the various aviation equipment types that have controlled oil approval lists.

- 3.2.1 Minor changes approved by the QPG do not invalidate the existing operating limitations that the equipment is certificated to since a product name change is not required. Consequently, the equipment does not require re-certification to use the oil. These types of changes will proceed through the requalification process as outlined in Appendix A of PD2104. This would normally entail generating a reduced dataset from the AS5780 test requirements selected by the QPG.
- 3.2.2 Major changes approved by the QPG will be accompanied by a product name change for the changed formulation. This means prior equipment approvals under the original formulation do not read across to the new product formulation. The new formulation will proceed through the product qualification process as though it is a new oil and will likely undergo new equipment type approval programs.

3.3 Definition

For guidance, a measurable change between an original formulation and a new proposed changed formulation is when the comparative data is outside the reproducibility of the test as reported in the ASTM or other standard specification method, or greater than three standard deviations of the test results for a given specification test, whichever is smaller.

4. POSSIBLE MANAGEMENT OF CHANGE PROGRAMS

The following are descriptions of potential changes to qualified formulations referenced in AS5780 Section 10. Also provided is guidance as to whether a given type of change will likely be considered a major change or a minor change, recognizing that every proposed change can have its own nuance that needs to be weighed by the QPG. Oil companies are encouraged to engage the QPG early to discuss product changes and their anticipated minor/major classification.

4.1 Changes in Oil Formulation

For description purposes, these are formulation changes that deal with quantitative changes to the formulation: ratios of the various components in the formulation. Components are either base-stocks or additives constituents of the formulation.

- 4.1.1 Changes that add new components, remove old components, or change the ratio of existing components outside of qualified ranges and manufacturing tolerances listed in AS5780 – likely a major change.

4.2 Changes in the Composition of the Base-Stocks

For description purposes, these are formulation changes that deal with changes to the formulation relative to the basestock(s): changes outside the resulting molecular formula/methylene hydrogen content of the qualified polyol ester basestock based on the acid assay qualified ranges of the current product.