

ENGINEERING PRACTICE STUDY

TITLE: MIL-DTL-83528 paragraphs: 1.2.1.1, Material type A-M, Table II.
Qualification inspection., and Table VII. Test fluids.

07 June 2022

STUDY PROJECT

FINAL REPORT

Study Conducted by DLA Land and Maritime

Project Number: 5999-2022-001

Prepared by:

Erika Baker

ATTACH 1

I. OBJECTIVES: This engineering practice study is being conducted to determine the acceptability of modifying the following paragraphs: 1.2.1.1, Material type. A-M to identify materials used in lieu of silicone to meet the associated testing requirements, Table II. Qualification inspection to determine if inspections can be omitted when material compositions are altered, and Table VII. Test fluids to determine appropriate listing of JP-8 jet fuel.

II. BACKGROUND: This Engineering Practice Study was recently conducted under Project Number 5945-2022-023. However, MIL-DTL-83528 supports FSC 5999 and as a result the Study was coordinated in ASSIST amongst the incorrect distribution list of Custodians and Review Activities. As a result, Project Number 5945-2022-023 was discontinued and 5999-2022-001 was assigned to allow a correct coordination. Despite this ASSIST error, due to an e-mail coordination the QPL manufactures received the Study and attended a virtual Industry Meeting on 23 February 2022. As a result of the Industry Meeting, the following items were discussed:(1) Provide an alternate composition of 1.2.1.1 Material type, without identifying the composition variant. As such, the customer would be unaware Material X has two different compositions., (2) Qualify modified composition to a reduced inspection list of TABLE II. Qualification inspection., (3) Update TABLE VII. Test fluids. to include grade JP-8 jet fuel due to the inability to readily procure grade JP-5 jet fuel..

At this time, paragraph 1.2.1.1 Material type. A-M requires use of silicone in all material options. However, manufacturers are reporting an inability to obtain silicone as a result of the global material supply chain shortage. As such, identification of an alternate and available material would support a nondisruptive QPL 83528 product offering.

Due to the expense of Qualification inspections, manufacturers are requesting a modification of Table II. Qualification inspection. to eliminate costly inspections when modifying material composition.

As a result of the limited access to grade JP-5 jet fuel, manufactures are requesting an option to use JP-8 jet fuel. The said modification would be reflected in TABLE VII. Test fluids., Group 1.

III. RESULTS: The document was reviewed, and a DoD position determined on each question.

1.2.1.1 Material type. A-M

1. Will alternate material(s) fulfill the following inspection requirements: Qualification, In-process, Group A, and Group B?
There is no presented data supporting alternative material will fulfill inspection requirements. As such, there is no evidence of an acceptable alternate material (s).
2. Are all QPL 83528 manufacturers met with the challenge of obtaining silicone material? Based on provided feedback, not all QPL 83528 manufacturers are met with the stated challenge.

3. Does test data exist to support a comparable material substitution?
Test data was not submitted to support a material substitution.
4. Should existing inspection requirements be modified to support capability of substitute material?
Alternative inspection requirements were not submitted for consideration. Therefore, modification cannot be accessed due to absence of data

TABLE II. Qualification inspection.

5. Which inspections can be eliminated when a material composition is altered? No feedback was provided to identify inspections to be eliminated.
6. What is the risk of qualifying an alternate material composition when truncating the list of required inspections? While no specific risk was identified, QPL manufacturers advised against eliminating existing inspections.

TABLE VII. Test fluids., Group 1.

7. Does grade ~~JP-5~~ JP-8 jet fuel fulfill the requirements of Group 1 Test fluids? While there was no data submitted to provide evidence of JP-8 jet fuel fulfilling the requirements of Group 1 Test fluids, several manufactures have provided confirmation of fuel usage. As such, the Table will be modified to include grade JP-8 jet fuel as an option.
8. Does grade JP-5 jet fuel qualify as a direct replacement for JP-8 jet fuel, or does it serve as an alternate and as such requires a separate listing in Group 1? Given the advisory of exposure to JP-8 may affect the nervous system, as well as changes in reaction time differ between JP-5 and JP-8 it is determine JP-5 and JP-8 are not interchangeable. As such, JP-8 will be identified as a separate option.

IV. CONCLUSIONS: It was determined DLA Land and Maritime could adopt the proposal to add grade JP-8 jet fuel as an alternate fluid; TABLE VII. Test fluids. Group 1.

V. RECOMMENDATIONS: Modify TABLE VII. Test fluids. Group 1. to include grade JP-8 jet fuel.