April 30, 2020

Subject: **Current Data Requirements for Bearing and Shear Properties**

While the MMPDS Coordination Committee is working to improve analysis methods for shear and bearing properties, they have agreed to revise data requirements and analysis methods for these properties. Chapter 9 requirements are not being revised, as these are temporary measures until an agreement is made on a new procedure and data requirements. This notification is a result of Item 19-28, approved at the 34th MMPDS Coordination Committee Meeting.

This notification has three parts:

* Treatment of bearing and shear properties data packages submitted after September 24, 2019.
* Treatment of bearing and shear properties data packages submitted before September 24, 2019.
* Treatment of bearing and shear properties already in the Handbook.

1. Treatment of bearing and shear properties data packages submitted after September 24, 2019: Data will be analyzed using currently approved direct analysis methods. The data requirements are summarized in Table 1.

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| Table 1 Interim Bearing and Shear Data Submission Requirements |
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**S-Basis:** At least 30 test points must be submitted from at least three heats and multiple lots. S-Basis values will be calculated using currently approved direct analysis methods, normal/censored-normal analysis. Published values will be designated as S-Basis according to current guidelines. This increases the data-generation requirement from 20 data points to 30 for bearing and shear properties by 50%.

**A-Basis & B-Basis:** At least 100 test points must be submitted from at least 10 heats and 10 lots, T99 and T90 values will be computed per current guidelines for direct analysis. For data covering a wide range of thicknesses, regression analysis requirements also apply. If a parametric representation of the data is not possible, additional data will be necessary to use a nonparametric approach for a T99 computation. A-Basis and B-Basis values will be proposed consistent with current guidelines. This increases the data generation requirement for bearing and shear properties from 20 points to 100 and three heats to 10 heats.

Material suppliers are strongly encouraged to work with interested airframe customers to determine the need for A-Basis bearing and shear properties in their applications.

2. Treatment of data packages submitted to Battelle before September 24, 2019: Submitting organizations generated their data in good faith according to the currently published guidelines. Data packages will be analyzed according to the guidelines in MMPDS-13 using the indirect method as long as the data meet the minimum requirements in Table 9.2.4. If enough data are submitted, direct analysis results will be compared. Data will also be analyzed as described above for comparison. Battelle will recommend design values based on their best engineering judgment.

3. Treatment of properties already in the Handbook: All numbers published in the Handbook met the requirements and guidelines existing at the time of their review. Proposed values were judged acceptable by the MMPDS/MIL-HDBK-5 Coordinating Committee. When new or improved methods were added tables are not actively reviewed to measure the consequences of the change. For these properties, the industry has not identified significantly higher than expected failure rates. Therefore, bearing and shear properties in all tables published in MMPDS-13 will remain in future versions of MMPDS. No proactive review will be initiated to identify properties calculated using the traditional derived property method. Nearly 1000 design values are published for secondary properties. A proactive review would consume 1-2 hours per value, 0.5 to 1.0 FTE from Battelle’s MMPDS support staff.

When discovered during the course of a legacy alloy review, Section 9.4.2.4 Derived Properties in the contemporary edition of MMPDS will be the approved guideline for evaluating current Handbook entries. Item 19-25 includes a proposal to update this section. If an organization has concerns about any value published in the Handbook, they are asked to bring those concerns to Battelle’s attention to determine an appropriate corrective action.

Please let us know if you have any questions.

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