

## 8. Sequence IX LTMS Requirements

The following are the specific Sequence IX calibration test requirements.

### A. Reference Oils and Critical Performance Criteria

The critical performance criteria is Average Number of Preignitions (AVPIE). Additionally, an upper limit is set on Maximum Pre-ignition events. The reference oils required for test stand and test laboratory referencing are reference oils accepted by the ASTM Sequence IX Surveillance Panel. The means and standard deviations for the current reference oils for each critical performance criterion are presented below.

Average Number of Preignitions (AVPIE)  
Unit of Measure: Square Root (AVPIE+0.5)

Reference Oil	Mean	Standard Deviation
221	3.3819	0.3775
222	4.2644	0.2694
224	2.0445	0.3775

Maximum Number of Preignitions (MAXPIE)  
Unit of Measure: Square Root (MAXPIE+0.5)

Reference Oil	Targets
All Oils	N/A

### B. Acceptance Criteria

#### 1. New Test Stand/Engines

- A minimum of two (2) operationally valid calibration tests, with no Level 0  $e_i$  or Level 2  $Z_i$  alarms after the second operationally valid test must be conducted in a new stand-engine on any approved reference oils. If the above criteria cannot be met then a minimum of three (3) operationally valid calibration tests, with no Level 3  $e_i$  or level 2  $Z_i$  alarms after the third operationally valid test must be conducted in a new stand-engine on any approved reference oils.
- Following the necessary tests, check the status of the control charts and follow the prescribed actions.

#### 2. Existing Test Stand/Engine

- The stand/engine must have previously been accepted into the system by meeting the LTMS requirements