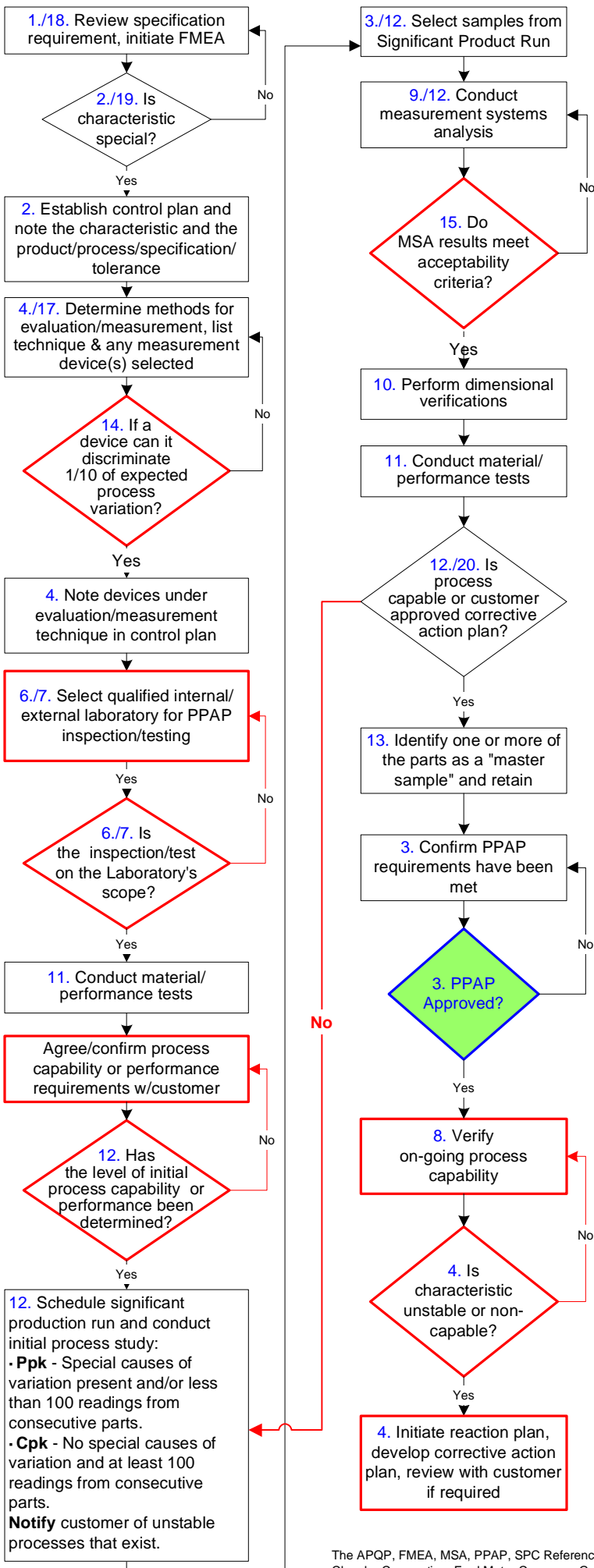


ISO/TS 16949:2009 Links to "Core Tools"

Note

Numbers in boxes are not in sequential logic, they are linked to the "Requirements" listed below: Requirements (not all inclusive)

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ISO/TS 16949:2009

1. - 7.3.1.1 The organization shall develop and review FMEAs, including actions to reduce potential risks
2. - 7.3.2.3 The organization shall identify special characteristics and include all of them in the control plan.
3. - 7.3.6.3 The organization shall conform with a product approval procedure recognized by the customer.
4. - 7.5.1.1 The organization shall:
 - develop control plans
 - list controls used for process control
 - include methods for monitoring of control exercised over special characteristics
 - initiate the specified reaction plan when the process becomes unstable or incapable
5. - 7.6.1 Statistical studies shall be conducted for each type of measuring and test equipment system referenced in the control plan. Methods and acceptance criteria shall conform to those in customer reference manuals or be otherwise approved by the customer.
6. - 7.6.3.1 The organization's internal laboratory shall have a laboratory scope that includes its capability to perform the required inspection, test or calibration services and it shall be included in the QMS documentation.
7. - 7.6.3.2 External/commercial/independent laboratory facilities shall have a defined laboratory scope that includes its capability to perform the required inspection, test or calibration services and either provide evidence that it is acceptable to the customer or that it is accredited to ISO/IEC 17025 or national equivalent.
8. - 8.2.3.1 The organization shall maintain process capability [capability is determined using data from control charts] or performance as specified by the customer part approval process requirements.
- **PPAP** Fourth Edition**
9. - 2.2.8 The organization shall have applicable Measurement System Analysis studies ...
10. 2.2.9 The organization shall provide evidence that dimensional verifications ... indicate compliance with specified requirements.
11. 2.2.10 The organization shall maintain records of material or performance test results.
12. - 2.2.11.1 The level of initial process capability or performance shall be determined to be acceptable prior to submission for all special characteristics and measurement system analysis shall be performed to understand how measurement error is affecting the measurements.
13. - 2.2.15 The organization shall retain a master sample for the same period as the production part approval records ...
- **MSA** Third Edition**
14. - Pg 74 The instrument should have a discrimination that allows one-tenth of the expected process variation of the characteristic to be read directly.
15. - Pg 77 Over 30% error - considered not acceptable.
- **APQP** Second Edition**
16. - Pg 34 The specified monitoring and measuring devices and methods should be used to check control plan identified characteristics to engineering specification and be subjected to measurement system evaluation during or prior to the production trial run.
17. - Pg 53 Evaluation measurement technique. This could include gages, fixtures, tools and/or test equipment required to measure the part/process/manufacturing equipment.
- **FMEA** Fourth Edition**
- Pg 2 FMEA is an analytical methodology used to ensure that potential problems have been considered and addressed throughout the product and process development process (APQP).
19. - Pg 91 Where a special characteristic is identified with a severity of 9 or 10 in the PFMEA, the design responsible engineer should be notified since this may affect the engineering documentation.
- 20. **SPC** Second Edition**
- Pg 20 To be acceptable, the process shall be in a state of statistical control and the capability (common cause variation) shall be less than the tolerance.