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Hydraulic fluid power — Background, impact and use of ISO 11171:2020 on particle count and filter test data

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Foreword

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This document was prepared by Technical Committee ISO/TC 131, *Fluid power systems*, Subcommittee SC 6, *Contamination control*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

The 2020 revision of ISO 11171 was initiated due to depletion of supplies of the National Institute of Standards and Technology (NIST) Standard Reference Material® (SRM) 2806b, which is required for primary calibration of liquid automatic particle counters (APC) using ISO 11171:2016. The 2016 edition of ISO 11171 also provides an option for reporting particle size in units of either µm(c) or µm(b), which has resulted in confusion among users of particle count data. µm(b) sizes are about 10 % larger than the corresponding µm(c) sizes. Thus, µm(b) concentrations can be as much as 8 times (3 ISO Codes) lower, and µm(b) filter Beta Ratios can be an order of magnitude lower than the same numerical value reported in µm(c). This is problematic when attempting to conform with fluid cleanliness and filter performance specifications.

ISO 11171:2020 addresses these issues by specifying the historically consistent, traceable µm(c) as the sole acceptable means of reporting particle size. Unlike the 2016 edition, ISO 11171:2020 is not dependent upon a specific batch of SRM 2806, as NIST henceforth certifies the material as a consensus standard to minimize the potential for shifts in particle size with future batches. Additional refinements to ISO 11171 facilitate calibration at smaller and larger particle sizes.