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Lubricants — Determination of the coefficient of friction of synchronizer lubricated by manual transmission fluids (MTF) — High-frequency, linear-oscillation (SRV) test machine

National foreword

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ISO 20120

**Lubricants — Determination
of the coefficient of friction of
synchronizer lubricated by manual
transmission fluids (MTF) — High-
frequency, linear-oscillation (SRV)
test machine**

*Lubrifiants — Détermination du coefficient de frottement
d'un synchroniseur lubrifié par des fluides de transmission
manuelle (MTF) — Machine d'essai à oscillation linéaire à haute
fréquence (SRV)*

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Introduction

In recent years, the rapid development of the automobile industry and the increase in engine power have greatly enlarged the test matrices in the market demand for manual transmission oil. All manual transmission fluids must pass the corresponding synchronizer bench tests (e.g. test methods ASTM D5579 and CEC L-66-99) before receiving a homologation. Such bench tests have long durations with associated high costs. A tribometric test method helps to shorten the development time, save costs and can efficiently handle large and greatly enlarged the test matrices (see [Figure A.2](#)). The present tribometric test method has been found to be complementary to bench tests in order to filter candidate materials and formulations of mechanical transmission fluids, thus screening useful from useless combinations prior to final component and vehicle tests.

The test method described in this document can be regarded as an evaluation tool. This test method is dedicated to a translatory oscillation apparatus, which is fully computer controlled. This test method aims to quickly determine the lubricating ability of fully-formulated gear lubricants used as mechanical transmission fluids to display a specified frictional behaviour against materials used in synchronizers of mechanical gears in automotive vehicles. The precision is high. This test method is a material and application-oriented approach based on inputs from field experiences for characterizing the frictional behaviour using random, discrete and constant parameter combinations. Users of this test method should determine whether results correlate with field performance or other applications prior to commercialization. Some content within this document has been reprinted with permission from ASTM D8227-20, copyright ASTM International. A copy of the complete standard may be obtained from www.astm.org.

