
**Lubricants — Determination of
tribological quantities for oils and
greases — Tribological test in the
translatory oscillation apparatus**

*Lubrifiants — Détermination de quantités tribologiques d'huiles et de
graisses — Essais tribologiques dans l'appareil translation-oscillation*





COPYRIGHT PROTECTED DOCUMENT

© ISO 2016, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Principle	2
5 Reagents	3
6 Apparatus	4
7 Test pieces	5
7.1 General	5
7.2 Test ball	6
7.3 Disk	6
8 Preparation of apparatus	6
8.1 Installing the specimen holders and test specimen in the test chamber	6
8.2 Test conditions	7
9 Test procedure	7
9.1 General	7
9.2 Friction and wear	8
9.3 Extreme pressure test	8
9.4 Calibration and inspection	8
9.5 Determining the tribological quantities	8
9.5.1 General	8
9.5.2 Wear scar diameter of ball	8
9.5.3 Wear volume of ball	8
9.5.4 Wear volume of disk	8
9.5.5 Optional	8
10 Expression of results	9
10.1 General	9
10.2 Friction and wear testing	9
10.3 Extreme pressure testing	9
11 Precision	9
11.1 General	9
11.2 Repeatability, r	9
11.3 Reproducibility, R	9
12 Test report	10
Annex A (informative) Translations of terms	11
Annex B (informative) Compilation of test results for filing	12
Bibliography	13

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

The committee responsible for this document is ISO/TC 28, *Petroleum and related products from synthetic or biological origin*.

Introduction

Liquid lubricants (oils) and consistent lubricants (greases) reduce friction and wear and/or prevent adhesive wear (scuffing, galling). In order to establish the tribological profile of a lubricant adequate tribometric, test methods are required. The test method described in this document can be regarded as an evaluation tool for the determination of the lubricant-related contribution to friction, wear, load carrying capacity and extreme pressure behaviour.

This test method is dedicated to a translatory oscillation apparatus which is fully computer controlled.

This test method harmonizes the following national test methods using the ball-on-disk contact geometry:

- a) DIN 51834-2^[1] (oil, coefficient of friction and wear);
- b) ASTM D6425^[2] (oil, coefficient of friction and wear);
 ASTM D7421^[4] (oil, pass load/O.K. load);
 ASTM D5706^[6] (grease, pass load/O.K. load);
 ASTM D5707^[8] (grease, coefficient of friction and wear);
- c) SH/T 0721^[9] (grease, coefficient of friction and wear);
 SH/T 0784^[7] (grease, pass load/O.K. load);
 NB SH/T 0847^[3] (oil, coefficient of friction and wear);
 NB/SH/T 0882^[5] (oil, pass load/O.K. load).

The harmonization is also related to the use of only one type of cleaning solvent.

Users of this test method should determine whether the results obtained from this method correlate with field performance or other applications.

It is the responsibility of the operator to ensure that all local legislative and statutory requirements are met.

