

---

---

**Road vehicles — Dimethyl Ether  
(DME) fuel system components —  
Part 2:  
Performance and general test methods**

*Véhicules routiers — Composants des systèmes de combustible  
Diméthyle Ether (DME) —*

*Partie 2: Performances et méthodes d'essai générales*



This document is a preview generated by EMS



**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2019

All rights reserved. Unless otherwise specified, or required in the context of its implementation, 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  
CP 401 • Ch. de Blandonnet 8  
CH-1214 Vernier, Geneva  
Phone: +41 22 749 01 11  
Fax: +41 22 749 09 47  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

Published in Switzerland

# Contents

	Page
Foreword.....	iv
Introduction.....	v
<b>1 Scope.....</b>	<b>1</b>
<b>2 Normative references.....</b>	<b>1</b>
<b>3 Terms and definitions.....</b>	<b>1</b>
<b>4 General.....</b>	<b>2</b>
<b>5 Hydrostatic strength.....</b>	<b>2</b>
5.1 General.....	2
<b>6 Leakage.....</b>	<b>3</b>
6.1 General.....	3
6.2 External leakage.....	3
6.3 Internal leakage.....	3
6.4 Test conditions.....	3
<b>7 Excess torque resistance.....</b>	<b>4</b>
<b>8 Bending moment.....</b>	<b>4</b>
<b>9 Continued operation.....</b>	<b>5</b>
9.1 General.....	5
9.2 Test methods.....	5
9.2.1 Test procedure.....	5
9.2.2 Room temperature cycling.....	6
9.2.3 High-temperature cycling.....	6
9.2.4 Low-temperature cycling.....	6
<b>10 Corrosion resistance.....</b>	<b>6</b>
<b>11 Oxygen ageing.....</b>	<b>7</b>
<b>12 Ozone ageing.....</b>	<b>7</b>
<b>13 Electrical overvoltages.....</b>	<b>7</b>
<b>14 Non-metallic material immersion.....</b>	<b>7</b>
<b>15 Vibration resistance.....</b>	<b>8</b>
<b>16 Brass material compatibility.....</b>	<b>9</b>
<b>17 Insulation resistance.....</b>	<b>9</b>
<b>18 Resistance to dry heat.....</b>	<b>9</b>
<b>19 Creep.....</b>	<b>10</b>
<b>20 Temperature cycle test.....</b>	<b>10</b>
<b>21 Compatibility with heat exchange fluids of non-metallic parts.....</b>	<b>10</b>
<b>22 Automotive fluid exposure.....</b>	<b>10</b>
22.1 General.....	10
22.2 Test method.....	10
22.3 Fluids.....	10
22.4 Pass criteria.....	11
<b>Bibliography.....</b>	<b>12</b>

## 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](http://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](http://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 of the voluntary nature of standards, 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 [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 41, *Specific aspects for gaseous fuels*.

A list of all parts in the ISO 20766 series can be found on the ISO website.

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](http://www.iso.org/members.html).

## Introduction

For the purposes of this document, all fuel system components in contact with Dimethyl Ether have been considered suitable for Dimethyl Ether as defined in ISO 16861. However, it is recognized that miscellaneous components not specifically covered herein can be examined to meet the criteria of this document and can be tested in accordance with the appropriate functional tests.

All references to pressure in this document are considered to be gauge pressures unless otherwise specified.

This document is based on a service pressure for Dimethyl Ether used as fuel of 1 500 kPa (15 bar) settled at 20 °C. Other service pressures can be accommodated by adjusting the pressure by the appropriate factor (ratio).



# Road vehicles — Dimethyl Ether (DME) fuel system components —

## Part 2: Performance and general test methods

### 1 Scope

This document specifies performance and general test methods for Dimethyl Ether (DME) fuel system components intended for use on the types of motor vehicles defined in ISO 3833.

This document is applicable to vehicles (mono-fuel, bi-fuel or dual-fuel applications) using Dimethyl Ether in accordance with ISO 16861 and ASTM D7901. It is not applicable to the following:

- a) fuel containers;
- b) stationary gas engines;
- c) container-mounting hardware;
- d) electronic fuel management;
- e) refuelling receptacles.

### 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 188, *Rubber, vulcanized or thermoplastic — Accelerated ageing and heat resistance tests*

ISO 1431-1, *Rubber, vulcanized or thermoplastic — Resistance to ozone cracking — Part 1: Static and dynamic strain testing*

ISO 1817, *Rubber, vulcanized or thermoplastic — Determination of the effect of liquids*

ISO 9227, *Corrosion tests in artificial atmospheres — Salt spray tests*

ISO 22760-1:2019, *Road vehicles — Dimethyl Ether (DME) fuel system components — Part 1: General requirements and definitions*

ASTM D4814, *Standard Specification for Automotive Spark-Ignition Engine Fuel*

IEC 68-2-52, *Kb: Salt Spray Fog Test*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 22760-1 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>