



## ISO/TC 28 Petroleum products and lubricants

**Secretary:** Paula Watkins, American Petroleum Institute, 1220 L Street NW, Washington, DC 20005, USA  
Tel: +1 202 682 8197 Fax: +1 202 962 4714 E-Mail: [watkinsp@api.org](mailto:watkinsp@api.org)

**ISO/TC 28 N 2148**

**2002-01-28**

**To:** P-members  
O-members  
L-members

**Copy to:** T. Berryman, ISO 20623 PL  
A. Williams, ISO/CS

**Results of voting on ISO/CD 20623** *Petroleum and related products —  
Determination of the lubrication properties of fluids — Four ball method  
(European conditions)*[circulated as 28 N 2110]

Voting on ISO/CD 20623 closed on 2000-09-22. Please find attached the voting results, the comments received, and resolution of the comments, prepared by the project leader, Tim Berryman (UK).

As a negative vote was submitted (Sweden) the results were reviewed by the ISO/TC 28 Advisory Group (28/AG N 232). At the AG meeting held on 21 June 2001, the following resolution was adopted (28/AG N 238):

**ISO/TC 28/AG Resolution 4**

The ISO/TC 28/AG agrees that ISO/CD 20623 *Petroleum and related products — Determination of the lubrication properties of fluids — Four ball method (European conditions)*, is progressed to DIS ballot once the accepted comments from the CD ballot have been incorporated.

The ISO/TC 28/AG also agrees that the middle part of the title is changed to "*Determination of the extreme-pressure and anti-wear properties of fluids*".

A revised text has been prepared and forwarded to ISO/CS for distribution as a DIS.

Yours sincerely

*Paula Watkins*

Paula Watkins  
Secretary to ISO/TC 28

**Ballot results on: ISO/CD 20623, Petroleum and related products — Determination of the lubrication properties of fluids — Four ball method (European conditions) [28 N 2110]**

Date circulated: 2000-06-22

Closing date: 2000-09-22

<b>P-member</b>	<b>Agree</b>	<b>Agree with comments</b>	<b>Do not agree</b>	<b>Abstain</b>	<b>Did not reply</b>
Austria	X				
Belgium	X				
Canada	X				
China	X				
Egypt	X				
France		X			
Germany		X			
India		X			
Israel	X				
Italy	X				
Japan	X				
Republic of Korea	X				
Netherlands	X				
Norway	X				
Poland	X				
Romania	X				
Singapore				X	
Slovakia	X				
South Africa					X
Spain					X
Sweden			X		
Switzerland				X	
Thailand					X
Trinidad & Tobago				X	
Turkey	X				
UK	X				
USA	X				
<b>TOTAL</b>	<b>17</b>	<b>3</b>	<b>1</b>	<b>3</b>	<b>3</b>

Date 2001-05-17	ISO/CD 20623
Secretariat <b>API/ANSI</b>	ISO/TC 28

<b>Member Body</b>	<b>COMMENTS</b> Comments shall be reproduced as received either by re-typing them, or directly by pasting them on this form	<b>OBSERVATION OF THE SECRETARIAT</b> on each comment submitted
<b>FRANCE</b>	9.1: The makeup torke is not strong enough, we suggest 100 Nm +/- 10 Nm.	Not accepted — IP239, ASTM D 2596 and ASTM D 2783 all specify 68 Nm, and state that higher torques lead to lower weld points.
<b>GERMANY</b>	<p>10.3: Conditions of "wear test" have to be defined as repeatability and reproducibility given in 13.3 for MWSD were obtained with specific conditions and are not applicable with other conditions.</p> <p>We agree with the following editorial comments:</p> <p>1) Text, formulas and equations should be adjusted so that always the same unit is used, e.g. replace "decanewtons" in clause 3.6 by "newtons" and add a multiplication factor of one hundred to the formula.</p> <p>2) Please improve readability of figures and formulas / equations.</p> <p>3) Clause 10.1.1: Please check the equation given here: a MASS cannot be set equal to a FORCE.</p>	<p>Accepted in principle — Note added. Precision of MWSD more related to measurement errors than test conditions.</p> <p>Accepted in principle — 1 daN = 10 N.</p> <p>Noted — Function of reproduction.</p> <p>Not related — Only masses and loads compared.</p>
<b>SWEDEN</b>	<p><b><u>1. General comments</u></b></p> <p>The method is not appropriate for determination of lubrication properties, possibly comparison of AW/EP additives can be made. Use the description "- determination of extreme-pressure (EP) and anti-wear (AW) properties of fluids – ", as mentioned in 1 Scope.</p>	<p>Accepted in principle — Title amended to:</p> <p><i>Petroleum and related products — Determination of the extreme pressure and anti-wear properties of fluids — Four ball method (European conditions)</i></p>

Member Body	COMMENTS	OBSERVATION OF THE SECRETARIAT
SWEDEN	<p>Comments shall be reproduced as received either by re-typing them, or directly by pasting them on this form</p> <p><b><u>2. Clause 5.1 Cleaning solvents</u></b></p> <p>Should include a warning to use solvents with relatively low volatility, since any residual film or solvent may affect results. Even better, the dry polishing with a lint-free cloth will remove such a film. See also § 8.</p> <p><b><u>3. Clause 6.7 Erecting plate</u></b></p> <p>The text indicates the use of an assembly device (a fixture), not an erecting plate (??? whatever that is ???).</p> <p><b><u>4. Clause 8 Preparation of apparatus</u></b></p> <p>The last sentence "Clean four..." should be separated as a new sub-paragraph (8.1) to be noticed. Write the whole procedure since the cleaning of the machine can be different from cleaning of the four balls.</p> <p><b><u>5. Clause 9.1</u></b></p> <p>Change "...erecting plate..." to "...assembly device..." or "...assembly fixture..." (see 6.7).</p> <p><b><u>6. Clause 9.4</u></b></p> <p>Change "..., which applies to a load of 10 N,..." to "..., which weighs 1 kg...". The load is depending on where the weight is placed on the level.</p>	<p>on each comment submitted</p> <p>Not accepted — Low volatility would leave a film.</p> <p>Accepted — Name changed (name comes from 7<sup>th</sup> Luxembourg report).</p> <p>Accepted in principle — Clauses numbered 8.1 and 8.2.</p> <p>Accepted — See response to comment 3.</p> <p>Accepted in principle — Changed to "...has a mass of 1 kg,...".</p>

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<p><b>SWEDEN</b> [continued]</p>	<p><b><u>7. Clause 9.8</u></b> "...appropriate length of time". The test time should be mentioned and decided for in the standard. Especially for the EP test, the two commonly used test times of 10 s and 60 s respectively are not acceptable from a standardization point of view, the use of different test time, results are not comparable and will create confusion. Spelling error in last word "posaition".</p> <p><b><u>8. Clause 10.1.2</u></b> See 9.8. The use of two different test times can not be acceptable for a standard.</p> <p><b><u>9. Clause 10.2.1</u></b> See 9.8 and 10.1.2. The use of a linear loading is a very good initiative!</p> <p><b><u>10. Clause 11.1</u></b> Needs an explanation of how the Hertz diameters at 392 N and 3100 N are derived. Since the test is not run at 392 N but rather 300 and 400 N, the reference points are maybe to be exact?</p> <p><b><u>11. Clause 12.1</u></b> The idea to use two different test times is not acceptable.</p> <p><b><u>12. Clause 12.2</u></b> See 12.1.</p>	<p>Not accepted — Test time set by specification and related to product. Of course, results from different times cannot be compared, and that is why it is necessary to include the test time in the expression of results. Spelling error corrected.</p> <p>Not accepted — See response to comment 7.</p> <p>Noted.</p> <p>Not accepted — In practice, test is likely to be run at 392 N, as this is equal to 400 kgf. These are just points to enable the Hertz line to be drawn on the wear-load curve if required.</p> <p>Not accepted — See response to comment 7.</p> <p>Not accepted — See response to comment 7.</p>

Member Body	COMMENTS	OBSERVATION OF THE SECRETARIAT
<p><b>SWEDEN</b> [continued]</p>	<p>Comments shall be reproduced as received either by re-typing them, or directly by pasting them on this form</p> <p><b>13. Clause 12.3</b> See 12.1.</p> <p><b>14. Clause 12.4</b> See 12.1</p> <p><b>15. Clause 13.3</b> The precision values given will effectively discard the use of these test methods. Since the repeatability and reproducibility of weld load and MHL are exponential functions, an acceptable precision can (at the best) be achieved at very low loads, if at all! See attached precision graphs. According to the DIN tests, the precision is far better. What is the basis for these precision data? Have a Round Robin test been performed? Have different test times (10 s and 60 s) been used for these tests and the results used together in the statistical analyses? <i>The conclusion must be: the proposed standard has no purpose if the precision of the test methods are as given by the standard draft.</i></p>	<p>on each comment submitted</p> <p>Not accepted — See response to comment 7.</p> <p>Not accepted — See response to comment 7.</p> <p>Noted — Although exponential, factors are very small (e.g. at a weld load of 5 kN, the reproducibility is approximately 1 kN). Perhaps “old” DIN figures seen. Those published here come from an IP/DIN round robin, and were first published in 1997. Both test times were included. Purpose of test is stated in the scope. EC Mandate 238 requires this test to be standardized.</p>
<p><b>INDIA</b></p>	<p>6.3 The loading discs that are available with existing equipment are in kg. To implement the Clause 6.3, all the users of existing equipment are required to procure new set of loading discs in the range of 60 N to 8 kN. To avoid this inconvenience, the applied load should be specified in kg from 6 to 800 kg instead of 60 N to 8 kN in line with IP 239.</p> <p>9.1 67 Nm may be replaced with 68 in line with IP 239.</p>	<p>Not accepted — kg/N relationship covered in 10.1.1. New IP 239/01 follows same approach as this text.</p> <p>Accepted.</p>