



JAPANESE
INDUSTRIAL
STANDARD

Translated and Published by
Japanese Standards Association

JIS K 2228 : 2017

(JACA/JSA)

**Rubber lubricant of non-petroleum
base for motor vehicle brake
systems**

ICS 75.100

Reference number : JIS K 2228 : 2017 (E)

PROTECTED BY COPYRIGHT



Documents

Document Sharing Hub

11 S

Date of Establishment: 1988-03-01

Date of Revision: 2017-01-20

Date of Public Notice in Official Gazette: 2017-01-20

Investigated by: Japanese Industrial Standards Committee
Standards Board for ISO area
Technical Committee on Road Vehicles

JIS K 2228:2017, First English edition published in 2017-09

Translated and published by: Japanese Standards Association
Mita MT Building, 3-13-12, Mita, Minato-ku, Tokyo, 108-0073 JAPAN

In the event of any doubts arising as to the contents,
the original JIS is to be the final authority.

© JSA 2017

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

Printed in Japan

PROTECTED BY COPYRIGHT

Contents

	Page
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Classification	2
5 Quality	2
6 General items	4
7 Sampling	5
8 Standard atmospheric conditions for testing	5
9 Test methods	5
9.1 Kinematic viscosity	5
9.2 Pour point	5
9.3 pH value	5
9.4 Worked penetration	5
9.5 Dropping point	5
9.6 Evaporation	5
9.7 Oxidation stability	5
9.8 Foreign matters	5
9.9 Wetting	6
9.10 Rubber swelling property	6
9.11 Metal corrosion resistance	9
9.12 Shed storage	14
9.13 Stroking performance	15
9.14 Compatibility of brake fluid	15
10 Container	16
11 Inspection	16
12 Marking	16
13 Designation of products	16

Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee as the result of proposal for revision of Japanese Industrial Standard submitted by Japan Auto Chemical Industry Association (JACA)/Japanese Standards Association (JSA) with the draft being attached, based on the provision of Article 12 Clause 1 of the Industrial Standardization Law applicable to the case of revision by the provision of Article 14.

Consequently **JIS K 2228:2009** is replaced with this Standard.

This **JIS** document is protected by the Copyright Law.

Attention is drawn to the possibility that some parts of this Standard may conflict with patent rights, applications for a patent after opening to the public or utility model rights. The relevant Minister and the Japanese Industrial Standards Committee are not responsible for identifying any of such patent rights, applications for a patent after opening to the public or utility model rights.

Rubber lubricant of non-petroleum base for motor vehicle brake systems

1 Scope

This Japanese Industrial Standard specifies non-petroleum base rubber lubricant (hereafter referred to as rubber lubricant), to be applied to the components of automobile brakes which use non-petroleum base brake fluids for transmission of working pressure. This Standard is not applicable to petroleum base or silicone base brake fluids.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. The most recent editions of the standards (including amendments) indicated below shall be applied.

JIS B 7502 *Micrometers*

JIS G 3141 *Cold-reduced carbon steel sheet and strip*

JIS G 3303 *Tinplate and blackplate*

JIS G 5501 *Grey iron castings*

JIS H 3100 *Copper and copper alloy sheets, plates and strips*

JIS H 4000 *Aluminium and aluminium alloy sheets, strips and plates*

JIS K 0050 *General rules for chemical analysis*

JIS K 2220 *Lubricating grease*

JIS K 2233 *Non-petroleum base motor vehicle brake fluids*

JIS K 2246 *Rust preventive oils*

JIS K 2251 *Crude petroleum and petroleum products—Sampling*

JIS K 2269 *Testing methods for pour point and cloud point of crude oil and petroleum products*

JIS K 2283 *Crude petroleum and petroleum products—Determination of kinematic viscosity and calculation of viscosity index from kinematic viscosity*

JIS K 2503 *Testing method of lubricating oil for aircraft*

JIS K 6253-2 *Rubber, vulcanized or thermoplastic—Determination of hardness—Part 2: IRHD method (hardness between 10 IRHD and 100 IRHD)*

JIS K 6253-4 *Rubber, vulcanized or thermoplastic—Determination of hardness—Part 4: IRHD pocket meter method*

JIS K 8034 *Acetone (Reagent)*

JIS K 8102 *Ethanol (95) (Reagent)*

JIS K 8680 *Toluene (Reagent)*

JIS K 8848 *Hexane (Reagent)*

JIS R 6253 *Waterproof abrasive papers*

JIS Z 8401 *Guide to the rounding of numbers*

JIS Z 8703 *Standard atmospheric conditions for testing*

3 Terms and definitions

For the purposes of this Standard, the following terms and definitions apply.

3.1 rubber lubricant of non-petroleum base

non-petroleum base fluid or grease, to be applied to metal and rubber components of brake cylinders before the components are stored or assembled, for the purpose of rust prevention and lubrication of such components

3.2 grease

material base, which is solidified or semi-solidified by dispersing a thickener

4 Classification

The classification shall be as shown in Table 1.

Table 1 Classification

Class	State
Class 1	Liquid at ordinary temperature
Class 2	Grease at ordinary temperature

5 Quality

The quality of rubber lubricant, when tested in accordance with clause 9, shall comply with Table 2 for class 1 and Table 3 for class 2.

Table 2 Quality of rubber lubricant class 1

Item			Quality	No. of subclause
Kinematic viscosity (50 °C) mm ² /s			500 max.	9.1
Pour point °C			−5 max.	9.2
pH value (23 ± 5) °C			5.0 to 11.5	9.3
Wetting [(49 ± 1) °C, 95 %RH min., (500 ± 5) h]			Grade A ^{a)}	9.9
Rubber swelling property	Standard SBR cup (120 ± 2) °C (70 ± 2) h	Increase of base diameter mm	0 to 1.40	9.10
		Change in hardness IRHD	−15 to 0	
		Increase of volume %	0 to 16.0	
		Appearance	No stickiness, blisters, and sloughing.	
	Standard EPDM test piece (120 ± 2) °C (70 ± 2) h	Change in hardness IRHD	−15 to 0	
		Increase of volume %	0 to 16.0	
		Appearance	No stickiness, blisters, and sloughing.	

Table 2 (concluded)

Item				Quality	No. of subclause	
Metal corrosion resistance $\left((100 \pm 2) ^\circ\text{C} \right)$ $\left((120 \pm 2) \text{ h} \right)$	Condition of metal test piece	Mass change mg/cm^2	Tinplate	± 0.20	9.11	
			Steel	± 0.20		
			Aluminium	± 0.10		
			Cast iron	± 0.20		
			Brass	± 0.40		
			Copper	± 0.40		
	Appearance		No visible surface corrosion, except in the contact part between test pieces. Stain or discolouration is permitted.			
	Property of sample	Appearance		No gel at $(23 \pm 5) ^\circ\text{C}$. No adhering crystals ^{b)} .		
		Sediments volume fraction %		0.10 max.		
pH value $(23 \pm 5) ^\circ\text{C}$		5.0 to 11.5				
Shed storage (60 days)	Condition of part	Wheel cylinder	No gum or crystalline deposits. No visible surface corrosion. Stains or discolouration is permitted.		9.12	
		Wheel cylinder piston				
		Standard SBR cup	No significant change in shape and surface ^{c)} .			
Stroking performance				As specified in Table JA.1 or Table JA.3 of JIS K 2233 .	9.13	
Compatibility of brake fluid	Condition of mixed fluid $[(-40 \pm 2) ^\circ\text{C}, (22 \pm 2) \text{ h}]$		Transparent and uniform, with no precipitation. ^{d)}		9.14	
	Condition of mixed fluid, and sediments $[(60 \pm 2) ^\circ\text{C}, (22 \pm 2) \text{ h}]$		Transparent and uniform, with sediments of 0.05 % or less after centrifugal separation. ^{d)}			
Notes ^{a)} As specified in Table 11 of JIS K 2246 .						
^{b)} Confirm the absence of crystals on the wall of glass jar or on the surface of metal test piece.						
^{c)} Significant changes in the surface mean stickiness, blisters, and sloughing.						
^{d)} As an exception, the separation is unacceptable when castor oil base rubber lubricant is used.						