

JAPANESE
INDUSTRIAL
STANDARD

Translated and Published by
Japanese Standards Association

JIS K 2398 : 2001
(JACA)

Windshield washer fluids
for automobiles

ICS 43.040.99; 71.100.40

Descriptors : windscreen washers, washing, cleaning materials, road vehicle components

Reference number : JIS K 2398 : 2001 (E)

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 a result of proposal for revision of Japanese Industrial Standard submitted by the Japan Autochemical Industrial Association (JACA) with the draft being attached, based on the provision of Article 12 Clause 1 of the Industrial Standardization Law. Consequently **JIS K 2398 : 1989** is replaced with this Standard.

Date of Establishment: 1989-03-01

Date of Revision: 2001-08-20

Date of Public Notice in Official Gazette: 2001-08-20

Investigated by: Japanese Industrial Standards Committee
Standards Board
Technical Committee on Consumer Life
Products

JIS K 2398 : 2001, First English edition published in 2002-03

Translated and published by: Japanese Standards Association
4-1-24, Akasaka, Minato-ku, Tokyo, 107-8440 JAPAN

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

© JSA 2002

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

Windshield washer fluids for automobiles

Introduction Though water repellent windshield washer fluids being similar products are different in main components and water repellency, since washing methods are the same from the viewpoint of using this product, the water repellent windshield washer fluids are unified with this Standard and added. In this revision of the standard for windshield washer fluids, the revision is carried out by a thorough review including that of the standard structure. For the revised points, classification and water repellency are adopted as new items, and for influences on rubber, the specification values are partly amended including the dispersion of the standard specimen.

1 Scope This Japanese Industrial Standard specifies the washing fluids (hereafter referred to as "washer fluids") to be used for washing the windshield of automobiles.

Remarks : Washer fluids mean the fluids to be used to remove the dirt on the windshield of automobiles by using a wiper while they are running.

2 Normative references The standards given in Attached Table 1 contain provisions which, through reference in this Standard, constitute provisions of this Standard. The most recent editions of the standards (including amendments) given in Attached Table 1 shall be applied.

3 Definitions Definitions of principal terms used in this Standard shall be as follows.

- a) **water repellency** Water repellency means that a water repellent component is adsorbed onto a glass surface to form a hydrophobic film.
- b) **pitting** Pitting corrosion is provided wherein metal corrosion is generated toward to an inside of metal.

4 Classification The classification of washer fluids shall be as given in Table 1.

Table 1 Classification

Classification	Properties	Symbol
Class 1	Non-water-repellent washer fluids mainly composed of alcohol and the like.	WW
Class 2	Water-repellent washer fluids ⁽¹⁾ to which silicone and the like are added.	WC

Note (1) Washer fluid of which the water repellency measured value is ≥ 65 is classed as class 2.

5 Quality The quality of washer fluid shall conform to the requirements shown in Table 2 when it is tested in accordance with 6. Washer fluid, which is either not colored or suitably colored, shall be homogeneous liquid containing no sediment and floating alien matters, and shall have no seriously offensive smell.

Table 2 Quality

Item				Quality		Test subclause number
				Class 1	Class 2	
Freezing point (Stock solution) °C				-20 max.		6.5
pH value	(Stock solution)			6.5 to 10.0	4.0 to 10.0	6.6
	(Minimum concentration for use)					
Detergency (Minimum concentration for use)				Comparing with reference comparison liquid, it has equal or superior clear visibility.		6.7
Miscibility (Stock solution)				No separation, nor precipitates, nor deposits	—	6.8
Water repellency (°)	(Stock solution)			—	65 min.	6.9
	(Minimum concentration for use)					
Corrosive- ness on metal (Minimum concentra- tion for use) (50 ± 2 °C) (48 h)	Change of mass mg/cm²	Aluminium		± 0.30		6.10
		Brass		± 0.15		
		Galvanized steel plate		± 0.80		
			Appearance of test piece after test		There shall be no remarkable pitting or roughened surface except the contact part between a test piece and spacer.	
	Influence to rubber (Stock solution) (50 ± 2 °C) (120 h)	Change of mass %	Natural rubber		± 1.5	
Chloroprene rubber			± 3.0			
Change of hard- ness		Natural rubber		± 5.0		
		Chloroprene rubber		± 5.0		
		Appearance of test piece after test		There shall not be stickiness on surface, exfoliation of carbon black, crack, etc.		
Influence to paint film (Stock solution) (50 ± 2 °C) (6 h)	Hardness by pencil scratch test	Baked acrylic- resin enamel coating plate (Metallic color)	Blue	HB or harder		6.12
		Aminoalkyd- resin enamel coating plate (Solid color)	White	HB or harder		
			Black	HB or harder		
			Appearance of paint film surface after test		There shall be no softening or swelling of paint film, and no change of gloss nor color between before and after the test. Further the fixing of colored stuff contained in washer fluid shall be almost negligible for color.	

Table 2 (concluded)

Item			Quality		Test subclause number
			Class 1	Class 2	
Influence to plastics (Stock solution) ($50 \pm 2\text{ }^{\circ}\text{C}$) (120 h)	Change of mass mg/cm^2	Polyethylene resin	± 1.0		6.13
		Polypropylene resin	± 1.0		
		ABS resin	± 4.0		
		Non-rigid polyvinyl chloride resin	± 3.0		
		Polyacetal resin	± 3.0		
	Appearance of test piece after test		No serious deformation.		
Stability for heating ($50 \pm 2\text{ }^{\circ}\text{C}$) (8 h)	pH value	(Stock solution)	6.5 to 10.0	4.0 to 10.0	6.14
		(Minimum concentration for use)			
	Appearance of fluid after test		No crystalline precipitate.		
Stability at low temperature ($-15 \pm 2\text{ }^{\circ}\text{C}$) (8 h)	Stock solution		No crystalline precipitate.		6.15
	Minimum concentration for use				

Remarks 1 Stock solution means the washer fluid itself taken directly out of the container.

2 The minimum concentration for use means the fluid of stock solution diluted with water by the largest dilution ratio indicated on the container.

6 Test methods

6.1 General matters The general matters concerning tests shall be in accordance with JIS K 0050.

Further, caution items on the test are shown as follows.

- Use of protective tools** If necessary, a protective tool shall be put on in order to protect skin, eyes and the like.
- Operation** The operation shall be carried out while safety is confirmed.
- Disposal of waste** A sample and the like to be discarded shall be treated so as not to become a contamination source against water quality, the atmosphere and the like.
- Conformance to laws** Treat following the connected laws and regulations.

6.2 Standard condition of testing place The standard condition for a testing place shall be at ordinary temperature (5 °C to 35 °C) and ordinary humidity (45 % to 85 %) which are specified in JIS Z 8703.

Remarks : In the next revision, ordinary temperature (23 ± 2 °C) and ordinary humidity (50 ± 5 %) will be specified from the relation with ISO.

6.3 Rounding off of numerical values Rounding off of numerical values shall be carried out in accordance with **JIS Z 8401**.

6.4 Sampling method The sampling method shall be as follows.

- a) **The number of samples to be sampled** Manufacture under the same manufacturing conditions, form a lot by products of the same quality, and sample at random the number of pieces given in Table 3 by the appropriate method such as table of random numbers according to the number of containers of the lot.

Table 3

Number of containers	Number of pieces to be sampled
1 to 1 000	1
1 001 to 50 000	2
5 001 to 10 000	3
10 001 to 30 000	4
30 001 min.	5

Remarks : The number of pieces to be sampled may be decreased according to the process capability index.

6.5 Freezing point

6.5.1 Measuring apparatus for freezing point The apparatus shall be assembled as shown in Fig. 1 with the following appliances:

- a) **Cooling vessel** This is a glass Dewar vessel, measuring 2 L or more in capacity and 270 mm or more in depth.
- b) **Cooling tube** This is an air-jacketed test tube which is equipped with a side pipe for exhausting inside from a jacket and the bottom of which is equipped with a small pipe. On its top, a cork or a rubber stopper is attached which has two openings for a stirrer and a thermometer.
- c) **Stirrer** This is the coil-type steel stirrer (Number of coils is 5) which is made of steel wire of 1.6 mm diameter specified in **JIS G 4314**, and movable up and down by manual operation or an electric motor.
- d) **Thermometer** This is either a glass bar-type thermometer having scale range from -50°C to 0°C and is subdivided to 0.1°C , or an instrument of temperature which has an equal precision to this.

Unit : mm

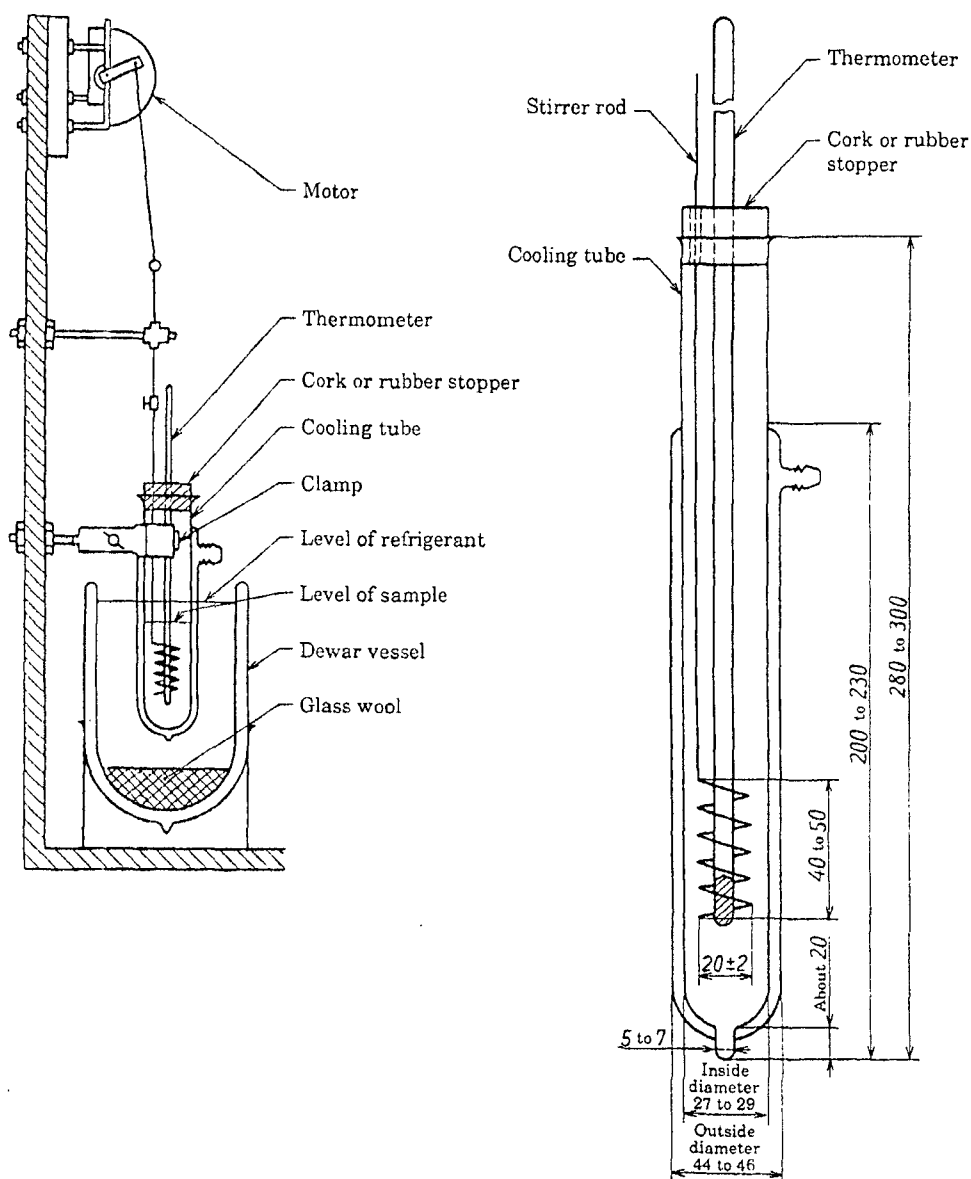


Fig. 1 An example of measuring apparatus for freezing point

6.5.2 Chemicals for refrigerant One of the following shall be used for the refrigerant.

- Ethanol** Ethanol specified in JIS K 8102 or in JIS K 1505.
- Methanol** Methanol specified in JIS K 8891 or in JIS K 1501.
- Propan-2-ol** Propan-2-ol specified in JIS K 8839 or in JIS K 1522.

6.5.3 Sample Sample shall be taken from the stock solution.