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JAPANESE INDUSTRIAL STANDARD

Machine Oils

JIS K 2238-1983

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JAPANESE INDUSTRIAL STANDARD J I S

Machine Oils K 2238-1983

1. Scope

This Japanese Industrial Standard specifies machine oils mainly used as lubricant oils for various kinds of machines lubricated by the complete dissipation type oiling system.

Remark: The units given in { } in this standard are based on the International System of Units (SI) and are appended for reference.

2. Classification

Machine oils shall be classified into 18 classes given in Table below according to viscosity classification provided in JIS K 2001.

3. Quality

Machine oils shall be of refined mineral oils containing no water or precipitates. They shall meet the requirements of Table below when subjected to the tests specified in 4 Test Methods.

Applicable Standards: See page 4.

Table

Class \ Item	Kinematic viscosity cSt{mm²/s} (1) (40°C)	Colour (ASTM)	Ignition point °C	Pour point °C	Copper corrosion (100°C, 3h)
ISO VG 2	1.98 to 2.42 incl.	2 max.	80 min.	- 5 max.	1 max.
ISO VG 3	2.88 to 3.52 incl.				
ISO VG 5	4.14 to 5.06 incl.				
ISO VG 7	6.12 to 7.48 incl.	2 max. (2)	130 min.		
ISO VG 10	9.00 to 11.0 incl.				
ISO VG 15	13.5 to 16.5 incl.	2 max.	150 min.		
ISO VG 22	19.8 to 24.2 incl.	2.5 max.			
ISO VG 32	28.8 to 35.2 incl.	—			
ISO VG 46	41.4 to 50.6 incl.		160 min.	0 max. (3)	
ISO VG 68	61.2 to 74.8 incl.				
ISO VG 100	90.0 to 110 incl.		180 min.	0 max.	
ISO VG 150	135 to 165 incl.				
ISO VG 220	198 to 242 incl.				
ISO VG 320	288 to 352 incl.				
ISO VG 460	414 to 506 incl.				
ISO VG 680	612 to 748 incl.		200 min.	+ 5 max.	
ISO VG 1000	900 to 1100 incl.			+ 10 max.	
ISO VG 1500	1350 to 1650 incl.				

Notes (1) 1cSt = 1mm²/s

(2) For specific use oils requiring thin colour such as oils for spinning machines, the colour (Saybolt number) shall be + 15 or more.

(3) The pour point of machine oils for cold weather shall be - 12.5°C or lower.

4. Test Methods

4.1 Sampling Method Sampling shall be performed in accordance with JIS K 2251.

4.2 Kinematic Viscosity The kinematic viscosity shall be determined by the kinematic viscosity testing method specified in JIS K 2283.

4.3 Colour The colour shall be assessed by ASTM colour testing method specified in JIS K 2580.

However, in the case of Note (2), the Saybolt colour test method shall be employed.

4.4 Ignition Point The ignition point shall be determined by the Cleveland open type ignition point testing method specified in JIS K 2265.

4.5 Pour Point The pour point shall be determined by the pour point testing method specified in JIS K 2269.

4.6 Copper Corrosion The copper corrosion test shall be performed in accordance with JIS K 2513.

5. Designation of Product

The machine oils shall be designated by the name and class of the product.

Example: Machine oil ISO VG 2
This may be abbreviated as Machine oil 2.

6. Marking

The following particulars shall be marked indefeasibly at an easily visible position of the container. However, such particulars may be indicated in the invoice when the above marking is difficult, for example, in the cases of tank wagons, tankers and tank lorries.

(1) Name and class

(2) Lot number

(3) Net volume

(4) Name of manufacturer (or abbreviation)

(5) Date of manufacture (or abbreviation)

Applicable Standards:

JIS K 2001-Viscosity Classification for Industrial Liquid Lubricants

JIS K 2251-Method of Sampling Crude Oil and Petroleum Products

JIS K 2265-Testing Methods for Flash Point of Crude Oil and Petroleum Products

JIS K 2269-Testing Methods for Pour Point and Cloud Point of Crude Oil and Petroleum Products

JIS K 2283-Testing Method for Kinematic Viscosity and Calculating Method for Viscosity Index of Crude Oil and Petroleum Products

JIS K 2513-Testing Method for Copper Corrosion of Petroleum Products

JIS K 2580-Testing Methods for Color of Petroleum Products

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