MALAYSIAN STANDARD

MS 381 : 1983
ICS : 75.100

SPECIFICATION FOR STRAIGHT MINERAL LUBRICATING OILS (FIRST REVISION)

SIRIM

STANDARDS & INDUSTRIAL RESEARCH INSTITUTE OF MALAYSIA

This Malaysian Standard, which had been approved by the Chemical and Pharmaceutical Industry Standards Committee and endorsed by the Council of the Standards and Industrial Research Institute of Malaysia (SIRIM) was published under the authority of the SIRIM Council in November, 1983.

SIRIM wishes to draw attention to the fact that this Malaysian Standard does not purport to include all the necessary provisions of a contract.

The Malaysian Standards are subject to periodical review to keep abreast of progress in the industries concerned. Suggestions for improvements will be recorded and in due course brought to the notice of the Committees charged with the revision of the standards to which they refer.

The following references relate to the work on this standard:

Committee reference : SIRIM 402/2/8

Draft for comment : D19(ISC B)R

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Committee representation

The Chemical and Pharmaceutical Industry Standards Committee under whose supervision this Malaysian Standard was prepared, comprises representatives from the following Government Ministries, trade, commerce and manufacturer associations and scientific and professional bodies.

Federation of Malaysian Manufacturers

Malaysian Institute of Chemistry

Malaysian Paint Manufacturers Association

Malaysian Pharmaceutical Society

Ministry of Defence (Defence Research Centre)

Ministry of Health (Institute for Medical Research)

Ministry of Science, Technology and the Environment (Chemistry Department)

National Chambers of Commerce and Industry of Malaysia

Petronas

The Technical Sub-committee on Lubricants responsible to the Technical Committee on Petroleum and Petroleum Products prepared this Malaysian Standard and both committees consist of the following representatives:

Technical Committee on Petroleum and Petroleum Products

Encik Cleopas Lim (Chairman)	Ministry of Transport
Encik Harcharan Singh Tara	Chemistry Department
Encik Yu Chun Lum	Defence Research Centre
Prof. Chan Kai Cheong	University of Malaya
Dr. M.S. Sambhi	Malaysian Scientific Association
Lt. Col. T.W. Butcher	Automobile Association of Malaysia
Encik K.P. Sreenivasan	National Chambers of Commerce and Industry of Malaysia
Encik Foo Say Moo	Petronas
Encik Tam Hoi Sang	Federation of Malaya Motor Traders
Encik Lee Ewe Chung	Petroleum Oil Industry

Technical Sub-committee on Lubricants

Encik Maram Mohamed (Chairman)	Petronas
Encik Lee Ewe Chung	Mobil Oil Malaysia Sdn. Bhd.
Encik Wan Mohd. Omar bin Wan Omar	B.P. Malaysia Sdn. Bhd.
Encik Tan Poh Ching	Shell Malaysia Trading Sdn. Bhd.
Encik Yu Chun Lum	Defence Research Centre
Encik Albert Samuel/Encik Lim Chin Kee	Esso Malaysia Bhd.
Encik Yeoh Hock Eng	Malaysian Industrial Development Authority
Lt. Col. T.W. Butcher	Automobile Association of Malaysia
Encik Leong Weng Thow/ Encik Gan Eng Kiong	Castrol (M) Sdn. Bhd.
Encik Ooi Cheng Lee (Secretary)	Standards and Industrial Research Institute of Malaysia

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Shell Malaysia Trading Sdn. Bhd.

FOREWORD

This Malaysian Standard is the first revision of MS 381 : 1976. It is prepared by the Technical Sub-committee on Lubricants. This Sub-committee was formed by the Technical Committee on Petroleum and Petroleum Products under the authority of the Chemical and Pharmaceutical Industry Standards Committee, to prepare and develop national standards for items associated with lubricants.

The standard is technically identical to BS 4475 : 1975, 'Specification for straight mineral lubricating oils'. This Malaysian Standard is designed to be of assistance to all concerned with the selection of lubricants for industrial equipment, whether as machine designers or lubricant suppliers, and to those responsible for the use and maintenance of the equipment.

This Malaysian Standard defines three quality levels of oil (corresponding respectively to tables 1, 2A, and 2B) but is not considered necessary to specify all three qualities in each of the viscosity grades of MS 379*. Table 1 covers 14 grades, table 2A covers 13 grades and table 2B, 13 grades. However, as a move towards future rationalization of oil stocks, the concept of preferred grades has been introduced for all three qualities of oil. It is not expected that this step will have an immediate effect on the grades of lubricants requested by or supplied to users, but it is hoped that equipment manufacturers will select these preferred grades when designing new equipment and will recommend their use, thus providing a progressive reduction in the number of grades required. In general, alternate grades have been selected as the preferred grades, which are printed in bold type and indicated by an asterisk, except that grade 1000 has been preferred to grade 1500 because of the limited availability of the latter.

The oils specified in table 1 are intended primarily for use in total loss lubrication systems (TLS) in which the oil runs to waste after having performed its function. The oils specified in tables 2A and 2B are intended for enclosed (circulating) lubrication systems (CS), in which the oil is retained or recirculated. The requirements in table 2A relate to systems not subject to wide ranges of operating temperatures, whereas those in table 2B relate to systems subject to low temperature start-up or other conditions, which limit the acceptable variation in viscosity over the operating temperature range, and to systems in which higher bulk temperatures may be excepted. Experience has shown that oils with viscosity indices (VI) in the range 35 to 40 are satisfactory for applications where CSA oils are required; in this revision therefore, tables 2A and 2B relate to minimum viscosity indices of 35 and 70 respectively.

*MS 379, 'Viscosity classification for industrial liquid lubricants (First revision)'.

As a general guide, CS oils complying with this standard may be expected to give reasonable service in applications where the bulk oil temperature is 60°C or less, for a period of 6 months to 12 months, or longer, depending on factors such as the design of the lubrication system, the degree of aeration of the oil, the peak and bulk oil temperatures, the rate of make-up and the extent and type of contamination. Where the system operates at higher temperatures, the rate of oil deterioration caused by oxidation is likely to be higher and the service life shorter, but in practice the effective service life is often limited by contamination of the oil rather than by its oxidation.

With the single exception that it permits the use of pour point depressants, this Malaysian Standard does not deal with lubricating oils containing additives, which are widely used to improve oil properties; nor does this standard cover oils intended for machines where the conditions of operation call for special properties, such as low temperature fluidity and inertness to refrigerants as in the case of refrigerator oils.

Straight mineral oils are in general not appropriate for applications where the oil is subjected to severe thermal and mechanical stresses or exacting environmental conditions but they are suitable for many applications where less severe conditions prevail. For such applications, oils complying with this standard can be selected in the confidence that they will be products of known and reliable quality.