

LUBRICATING GREASE FOR CONSTRUCTION MACHINERY
(JCMAS P 040:2004)
IMPLEMENTATION MANUAL

April 2012

JCMA Lubricants Standards Implementation Panel

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NOTICE:

The quality, performance and product class marking of the lubricating grease for construction machinery that are “on file” notified and submitted under this JCMA Lubricating Grease Standards Implementation System (hereinafter may be alternatively referred to as the “On-file Submitting System”, the “On-file System”, or the “System”) are provided and guaranteed solely on the basis of individual judgment and responsibility of the party who has submitted the specified reporting documents for filing, whereby the party shall assume all resultant liabilities.

It is not implied or suggested in this System that the JCMA Lubricants Standards Implementation Panel (hereinafter may be referred to as the “Panel”) guarantees the quality or performance of the products on file, and the Panel assumes no responsibility whatsoever with regard to such matters.

Should there arise any problem related to the quality, performance, or product class marking on lubricating grease filed under this System, users of this System and/or the related standards are solely responsible for resolving the issue.

In order to facilitate proper implementation of the Standard for Lubricating Grease for Construction Machinery (JCMAS P 040:2004), users of this System and/or the related standards are requested to fully understand the content of this manual prior to utilization of the System.

Any changes made to the content of this manual will be notified through the website of the JCMA Lubricants Standards Implementation Panel (<http://www.jalos.or.jp/onfile/>) or other appropriate means. Users are strongly recommended to confirm the latest information before their on-file reporting actions.

1. Introduction

This manual has been prepared as a part of the activities of the Japan Construction Machinery and Construction Association (the “JCMA”) and its Lubricants Standards Implementation Panel, which is a voluntary organization comprising various industry associations and academic societies in Japan involved in the field of hydraulic fluids and lubricating grease for construction machinery, to promote proper implementation of the JCMA Standards (JCMAS) for lubricants, in particular, the Standards for Lubricating Grease for Construction Machinery (JCMAS P 040:2004) in Japan as well as in the international markets. The objective of this manual is to describe the procedures and other related matters for lubricant suppliers or marketers to notify and submitter with the Panel applicable products conforming to the JCMAS mentioned above.

In this manual, the term "lubricating grease for construction machinery" means lubricating grease applied to sliding parts employed in construction machinery such as hydraulic excavators, mini-diggers, bulldozers, wheel loaders and other types of construction machinery.

The system of on-file reporting and submitting described in this manual has been drafted by the Special Committee on the JCMA Lubricant Standard Promotion, which is a subordinate organization of the Equipment Engineering Committee - Fuels and Lubricants Subcommittee of the JCMA, and subsequently established by the JCMA Lubricants Standards Implementation Panel after obtaining consent of related industry associations.

2. Objective and Working Organization of the JCMA Lubricating Grease Standards Implementation System

2.1 Objective

The system described in this manual has been developed with the objective of promoting the Standards for Lubricating Grease for Construction Machinery (JCMAS P 040:2004), established by JCMA, for application to construction machinery. Effective utilization of this system by marketers of lubricating grease for construction machinery will provide consumers with clear-cut guidance in selecting the optimum grades when procuring lubricating grease, along with improved reliability expected in the hydraulic systems operating on board the construction machinery.

2.2 Working Organizations

In order to facilitate the implementation of the Standards for Lubricating Grease for Construction Machinery (JCMAS P 040:2004), the JCMA Lubricants Standards Implementation Panel has been organized with participation of various related industry associations. Additionally, a Lubricating Grease Steering Committee has been organized under the above Panel. Figure 1 illustrates the relationships among these organizations together with related associations.

The JCMA Lubricants Standards Implementation Panel is an organ for decision making relating to the implementation of the standards, with its secretariat offices set up at the JCMA for the main activities, and the Petroleum Association of Japan ("PAJ") for supporting functions.

The Lubricating Grease Steering Committee as a subordinate organ under the Panel is charged with developing and drafting of new provisions or revisions to this manual and the related standards, together with activities for promotion and promulgation of the standards as

well as reporting to the Panel. The constituent members of the Lubricating Grease Steering Committee consist mainly of personnel nominated by construction machinery manufacturers, lubricants suppliers, and additives suppliers, which are the member corporations of industry associations participating in the JCMA Lubricants Standards Implementation Panel, with additional participants to be invited from other industries as and when needed.

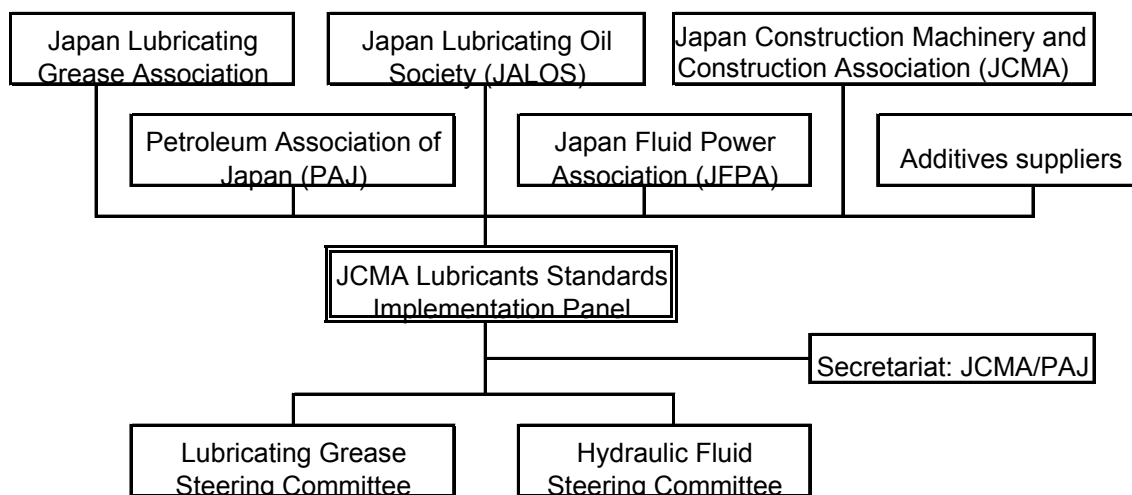


Figure 1 Working Organizations for JCMA Lubricating Grease Standards Implementation

3. Standard for Lubricating Grease for Construction Machinery (JCMAS P 040:2004)

3.1 Background of Establishment of the Standard

Lubricating grease have been classified either by their components (base oils, thickeners, and additives) or by their uses such as in JIS K 2220, which is also supplemented by an ISO classification system in its Appendix. However, these classifications did not necessarily specify the quality and performance required for use with construction machinery, thus sometimes leading to mechanical troubles such as seizure at pins or bushings. Because of this, individual construction machinery manufacturers had to ensure customer's use of a good quality product by designating a specially prepared own brand product or other appropriate products selected from the marketplace. Against this situation, however, users were voicing their desire to have grease specifications that are able to satisfy the use in modern construction machinery with extended lubrication intervals, and also to cover a plural number of machinery models. Furthermore, because of the high market share of construction machinery developed and designed by the Japanese manufacturers in the global market, the SAE Fuels and Lubricants Division Steering Committee for Asia, in which the Japanese construction machinery manufacturers are actively participating, had also requested JCMA to establish grease specifications that are equivalent to what is being referred to in Japanese

market. On the basis of the above-mentioned situation and requirement, the Equipment Engineering Committee - Fuels and Lubricants Subcommittee of the JCMA initiated a discussion about establishing an industry standard for lubricating grease most suitable for use in construction machinery. In developing a draft for the standard, the Committee has set itself the following objectives:

- (a) To establish a quality standard covering the operating conditions of modern construction machinery and leading to an extended service life of the equipment.
- (b) To develop, to the extent possible, a standard consistent with the existing ISO standards with a view to incorporating the standard into the ISO standardization system in the future.

Based on the above objectives and after about five years of study, the JCMAS P 040 has been developed.

3.2 Outline of the Standard

The general lubricating grease for construction machinery with a designation JCMAS GK and the biodegradable grease for construction machinery with a designation JCMAS GKB conforming to the Standard for Lubricating Grease for Construction Machinery, JCMAS P 040:2004, are intended for application in construction machinery. The specification for the general lubricating grease (JCMAS GK) sets forth the performance and quality of lubricating grease used for periodic lubrication maintenance of hydraulic excavators, bulldozers, wheel loaders and other types of construction machinery. The requirements are also intended to specify lubricating grease that can satisfy users in terms of cost, lubrication intervals, availability, and handling characteristics and cover two consistency grades of Nos. 1 and 2.

The specification for the biodegradable grease for construction machinery (JCMAS GKB) is set forth for a grease product intended for use where biodegradability is required, and covers one consistency grade only of No.2 due to the nature of market requirement. (See Table 1)

The JCMAS GK defines, in addition to physical and chemical properties, provisions for worked penetration, apparent viscosity, heat resistance, rust-preventing characteristics, extreme pressure properties, anti-wear properties, mechanical stability, water resistance, oxidation stability, and seal compatibility required for a lubricating grease for construction machinery, The JCMAS GKB defines, in addition to physical and chemical properties, provisions for worked penetration, apparent viscosity, heat resistance, rust-preventing characteristics, extreme pressure properties, anti-wear properties, mechanical stability, water

resistance, oxidation stability, required for a lubricating grease for construction machinery as well as the criteria related to the environmental protection. For the criteria related to the environmental protection, it is provided that the product in question must satisfy the Certification Criteria 4.1 of Eco Mark Product Category No.110 “Biodegradable Lubricating Oil Version 2.4” as stipulated by the Japan Environment Association Eco Mark Office.

Table 1 Classification of lubricating grease for construction machinery

Class		Operating temperature limit, °C	Suitability for use conditions :		Application example :
Use	Consistency Grade		Contact with water	Bio-degradability	
General grease (GK)	No. 1	-20~+130	Suited	No	General construction machinery
	No. 2	-20~+130	Suited	No	
Biodegradable grease (GKB)	No.2	-20~+130	Suited	Yes	Construction machinery to be used at the site requiring environmental protection

3.3 Test Items and Acceptance Criteria

Table 2 presents the performance requirements and acceptance criteria specified in the Standard for Lubricating Grease for Construction Machinery, JCMAS GK (JCMAS P 040:2004). The performance requirements and acceptance criteria specified in the Standard for Lubricating Grease for Construction Machinery, JCMAS GK (JCMAS P 040:2004 are shown in Table 4.

In conducting various test items given in Table 2, use of alternative test methods as provided in Appendix 1 “Cross-reference Table of Test Methods” is permitted. In the event that an alternative test method has been employed, the on-file submitting documents must clearly indicate which method has been used for acquiring the test data submitted.

In the event that the Standard for Lubricating Grease for Construction Machinery, JCMAS GK or JCMAS GKB (JCMAS P 040:2004) has been revised, the latest version shall apply. Similarly, as for the test methods stipulated in the Standard for Lubricating Grease for Construction Machinery, JCMAS GK (JCMAS P 040:2004), the latest version test standards must be used unless the year of establishment for a particular test item is specified.

Table 2 General lubricating grease for construction machinery (GK) performance criteria

Performance criteria				
Item	Test method ²⁾	Consistency Grade		
		No. 1	No. 2	
Range of operating temperature (°C)		-20 ~ +130	-20 ~ +130	
Thickener type		Report ¹⁾	Report ¹⁾	
Worked penetration	JIS K2220	310 ~ 340	265 ~ 295	
Unworked penetration	JIS K2220	Report ¹⁾	Report ¹⁾	
Apparent viscosity (-10°C, shear rate: 10S ⁻¹) (Pa * s)	JIS K2220	250 or less	500 or less	
Base oil kinematic viscosity (40°C) (mm ² /s)	JIS K2283	Report ¹⁾	Report ¹⁾	
Heat resistance				
Dropping point (°C)	JIS K2220	170 or more	170 or more	
Oil separation (100°C, 24h) (mass %)	JIS K2220	10 or less	5 or less	
Eevaporation loss (99°C, 22h) (mass %)	JIS K2220	2.0 or less	2.0 or less	
Rust prevention				
Humidity cabinet test (14 days)	JIS K2220	Class A	Class A	
Copper corrosion (100°C, 24h)	JIS K2220	No discoloration to green or black		
Extreme-pressure/ anti-wear properties				
Four-ball load carrying characteristics (weld load) (N)	ASTM D2596	1961 or more	1961 or more	
Four-ball wear preventive property (wear scar diameter) (mm)	ASTM D2266	0.7 or less	0.7 or less	
Mechanical stability				
Worked stability	JIS K2220	400 or less	375 or less	
Water washout characteristics				
Water washout loss (38°C, 1h) (mass %)	JIS K2220	10 or less	10 or less	
Oxidation stability				
Oxidation stability (90°C, 100h) (KPa)	JIS K2220	80 or less	80 or less	
Seal compatibility test (100°C, 72h)				
NBR	Hardness change	JIS K6253	-30 or more	-30 or more
	Tensile strength change (%)	JIS K6251	-70 or more	-70 or more
	Elongation change (%)	JIS K6251	-80 or more	-80 or more
	Volume change (%)	JIS K6258	0 ~ 40	0 ~ 40
AU (urethane)	Hardness change	JIS K6253	-5 ~ +5	-5 ~ +5
	Tensile strength change (%)	JIS K6251	-70 or more	-70 or more
	Elongation change (%)	JIS K6251	-60 or more	-60 or more
	Volume change (%)	JIS K6258	-5 ~ +15	-5 ~ +15

Table footnote ¹⁾ Report the test results.

Table footnote ²⁾ For testing method, refer to 3.4.

NOTE 1 Apply the durometer type A for measuring hardness change in the seal compatibility test

NOTE 2 Apply low nitrile rubber material (SRE-NBR/L) defined in ISO 13226 as “NBR” for the seal compatibility test.

NOTE 3 The characteristics of the “AU” material to be used in the seal compatibility test shall be in accordance with Table 3.

Table 3 Seal material characteristics

Criteria		Unit	AU
	Hardness	Durometer A	88 ~ 98
	Tensile strength	MPa	29.4 or more
	Elongation	%	300 or more

Table 4 Biodegradable grease for construction machinery (GKB) performance criteria

Performance criteria			
Item	Test method	Consistency Grade	
		No. 2	
Range of operating temperature (°C)		-20 ~ +130	
Thickener type		Report ¹⁾	
Worked penetration	JIS K2220	265 ~ 295	
Unworked penetration	JIS K2220	Report ¹⁾	
Apparent viscosity (-10°C, shear rate: 10S ⁻¹) (Pa · s)	JIS K2220	500 or less	
Base oil kinematic viscosity (40°C) (mm ² /s)	JIS K2220	Report ¹⁾	
Heat resistance			
Dropping point (°C)	JIS K2220	170 or more	
Oil separation (100°C, 24h) (mass %)	JIS K2220	5 or less	
Evaporation loss (99°C, 22h) (mass %)	JIS K2220	2.0 or less	
Rust resistance			
Humidity cabinet test (14 days)	JIS K2220	Class A	
Copper corrosion (100°C, 24h)	JIS K2220	No discoloration to green or black	
Extreme-pressure/ anti-wear properties			
Four-ball load carrying characteristics (weld load) (N)	ASTM D2596	981 or more	
Four-ball wear preventive property (wear scar diameter) (mm)	ASTM D2266	0.7 or less	
Mechanical stability			
Worked stability	JIS K2220	375 or less	
Water washout characteristics			
Water washout loss (38°C, 1h) (mass %)	JIS K2220	10 or less	
Oxidation stability			
Oxidation stability (99°C, 100h) (kPa)	JIS K2220	80 or less	
Seal compatibility test (100°C, 72h)			
NBR (nitrile rubber)	Hardness change	JIS K6253	Report ¹⁾
	Tensile strength change (%)	JIS K6251	Report ¹⁾
	Elongation change (%)	JIS K6251	Report ¹⁾
	Volume change (%)	JIS K6258	Report ¹⁾
AU (urethane)	Hardness change	JIS K6253	Report ¹⁾
	Tensile strength change (%)	JIS K6251	Report ¹⁾
	Elongation change (%)	JIS K6251	Report ¹⁾
	Volume change (%)	JIS K6258	Report ¹⁾
Standards for environment			

Biodegradability (28 days)	OECD 301B OECD 301C OECD 301F ASTM D5864 ASTM D6731	To satisfy Certification Criteria 4.1 with Eco Mark Product Category No.110 "Biodegradable Lubricating Oil Version 2.4"
Fish acute toxicity 96h LC ₅₀ value	OECD 203 JIS K 0102-98 JIS K 0420-71	To satisfy Certification Criteria 4.1 with Eco Mark Product Category No.110 "Biodegradable Lubricating Oil Version 2.4"

Table footnote ¹⁾ Report the test results.

Table footnote ²⁾ For testing method, refer to 3.4.

- NOTE 1 Apply the durometer type A for measuring hardness change in the seal compatibility test
- NOTE 2 Apply low nitride rubber material (SRE-NBR/L) defined in ISO 13226 as "NBR" for the seal compatibility test.
- NOTE 3 The characteristics of the "AU" material to be used in the seal compatibility test shall be in accordance with Table 3.

3.4 Test Methods

3.4.1 Sampling method

Sampling methods shall be in accordance with JIS K 2251.

3.4.2 Test apparatus in general

Test apparatus shall be, in general, in accordance with JIS K 2220.

3.4.3 Basic grease tests

Basic grease tests shall be in accordance with JIS K 2220.

3.4.4 Base oil kinematic viscosity test

Base oil kinematic viscosity tests shall be in accordance with that specified in JIS K 2283.

3.4.5 Four ball extreme-pressure test

Four ball extreme-pressure test shall be in accordance with ASTM D 2596.

3.4.6 Four ball wear resistance test

Four ball wear resistance test shall be in accordance with ASTM D 2266.

3.4.7 Seal compatibility test

Seal compatibility tests shall be in accordance with the dip test methods for vulcanized rubber as specified in JIS K 6258. Then, for evaluation purpose, tensile test methods for vulcanized rubber as specified in JIS K 6251 and hardness test methods for vulcanized rubber and thermoplastic rubber as specified in JIS K 6253 are to be applied.

3.4.8 Environmental criteria

Environmental criteria shall be in accordance with Japan Environmental Association Eco Mark Product Category No.110 "Biodegradable Lubricating Oil Version2.4", subclause 4.1.

3.5 Information on New Filing, Effective Period of On-filing, and Classification Indication for a Lubricating Grease Conforming to the Standards

The first date as of which the product class marking under this System can be displayed on a product conforming to the Standard for Lubricating Grease for Construction Machinery (JCMAS P 040:2004), and the method of such indication shall be as follows:

- The first date as of which a product class mark can be displayed on a product qualifying for JCMAS GK and JCMAS GKB (JCMAS P 040:2004) shall be April 1, 2011.
- For indication of the relevant product classification, the year of issuance of the applicable standards shall be omitted and a marking such as “JCMAS GK No.1”, for instance, be indicated.

4. Selection of Test Organizations

With respect to the various friction characteristics tests and physical/chemical properties that are specified in the Standards for Lubricating Grease for Construction Machinery (JCMAS P 040:2004), for the purpose of the on-file reporting and submitting in accordance with the procedures to be described hereinafter, test results data are considered valid only if the tests have been conducted at test organizations that can satisfy the precision requirements stipulated in the relevant standard test methods..

5. Procedures for the On-file Reporting and Submitting

5.1 Outline

Lubricant marketers or suppliers who wish to use the On-file System described herein based on the Standards for Lubricating Grease for Construction Machinery (JCMAS P 040:2004) are required to verify, in accordance with the requirements given in this manual, that the product being submitted “on-file” conforms to the above standards through evaluation tests conducted at test organizations that satisfy the conditions specified in this manual, and complete the procedures in accordance with the steps described in the sections titled “On-file Reporting and Submitting Procedures”, “Retention and Submission of Test Data”, and other relevant paragraphs appearing in later sections, such steps being required individually for each product brand as well as for each product formulation being filed.

The intent of this System is for each user to make it publicly known that the product being filed conforms to the above-mentioned standard, based on the user’s own responsibility and

by way of formally filing (“on-filing”) requisite information with the Panel. Accordingly, it is not intended for this System or the Panel to certify or authenticate the conformity of any product with a JCMA Standard against which the product is filed in the above process. Each user of this System must therefore fully understand such context and pay attention not to cause any misunderstanding on the part of end users including consumers, and make a conscientious effort to maintain the conformity with the relevant standards for the product placed in the market.

5.2 On-file Submitting Flow

The outline of the on-file reporting and submitting procedure is shown in Figure 2.

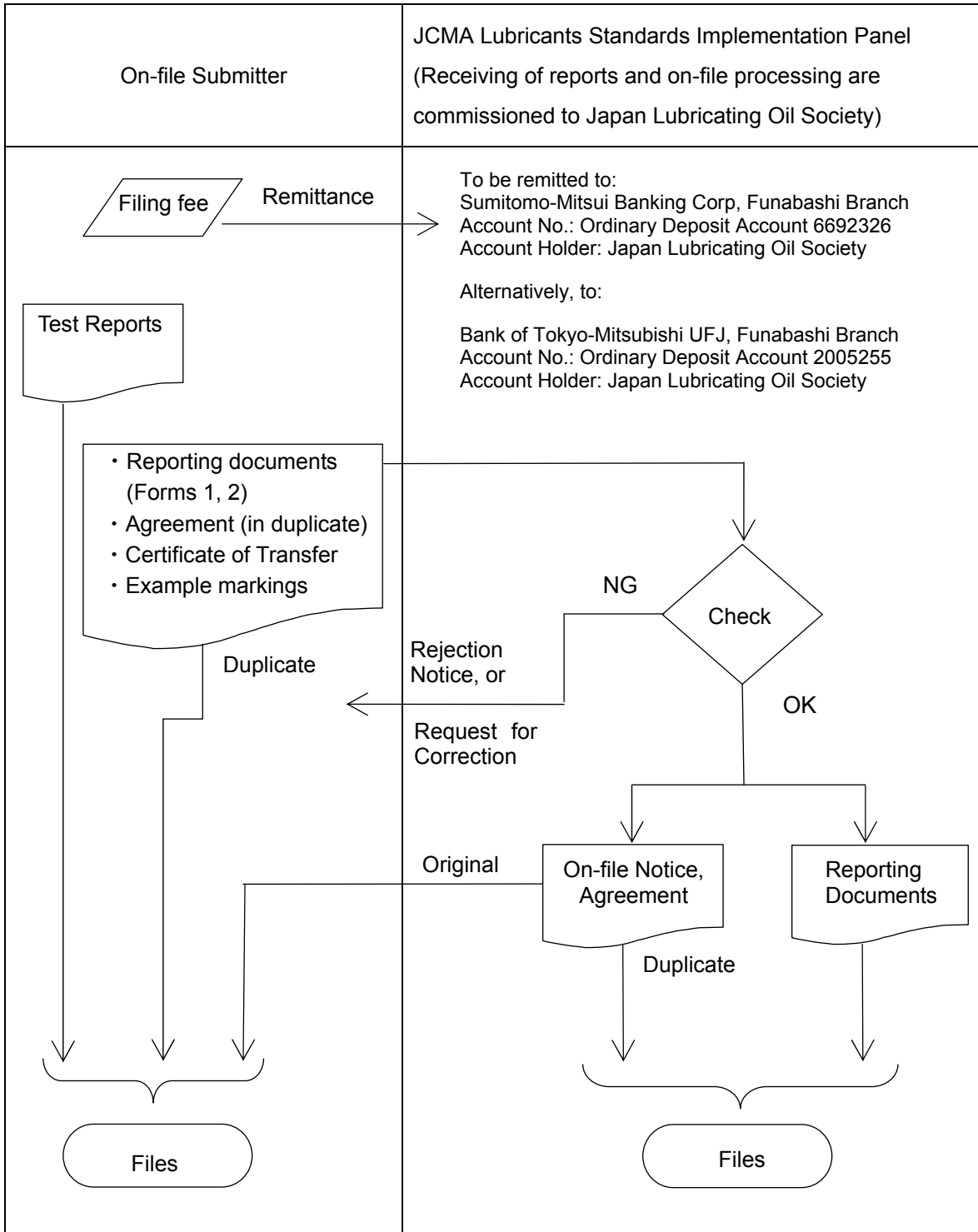


Figure 2 On-file Submitting Flow

5.3 On-file Reporting and Submitting Procedure

The party who wishes to initiate the process of on-file reporting and submitting (hereinafter referred to as the “submitter”) must first remit a filing fee as indicated in Appendix 2 to a designated bank account of the JCMA Lubricants Standards Implementation Panel. Thereafter, the submitter is to prepare a set of requisite reporting documents (see Forms 1 and 2 in Appendix 2), and an original and a duplicate of the On-file Notice/Agreement Form (see Appendix 3) by filling out Part B of the form. The submitter shall then forward the package of the reporting documents together with a bank certificate of the filing fee transfer to the attention of the JCMA Lubricants Standards Implementation Panel. Note here that, since paperwork for receiving and processing on-filing documents is commissioned to the Japan Lubricating Oil Society (JALOS), the package of the reporting documents shall be sent to the address given below:

Japan Lubricating Oil Society
c/o Business Department
JCMA Lubricants Standards Implementation Panel
No. 2-16-1, Hinode, Funabashi-shi, Chiba
273-0015 Japan

Any expenses incidental to remitting the filing fee to the designated bank account shall be borne by the submitter. The reporting documents and the filing fee will not be returned after reception of the same by the Panel. In the event of a change in the filing fee schedule, the JCMA Lubricants Standards Implementation Panel will announce it through its associated organizations.

In addition to the above-mentioned documents, at the time of the on-file reporting and submitting, the submitter must submit to the JCMA Lubricants Standards Implementation Panel a representative example of product class marking to be displayed on the product container and an entire product label design or its artwork. (see Section 6: Marking)

5.4 Retention and Submission of Test Data

The lubricating grease test reports as the basic data for the on-file reporting and submitting must be prepared in a format specified in the relevant JCMA Standards, and the submitter has the responsibility for the safekeeping of the test reports. Further, other related test reports shall also be prepared in accordance with the respective testing standards and retained by the submitter. The test reports must be retained until the submitter withdraws the

product concerned from the on-file listing. The submitter must submit the test reports promptly whenever a request for them has been received from the JCMA Lubricants Standards Implementation Panel.

5.5 Examination of Documents

Upon receipt of the on-file reporting documents, the JCMA Lubricants Standards Implementation Panel will examine them as to:

- (1) whether all the necessary items have been entered;
- (2) whether lubricating grease performance data has been prepared as specified; and
- (3) test results data for test items for which acceptance criteria have been specified.

Further, the Panel will examine the proposed product class marking format and the product labels for any inadequacy and/or potentially misleading expressions.

If any one of the above items has been found inadequate or unsatisfactory, the Panel will issue the submitter a notice of on-file rejection (with reasoning for the rejection) or a request for necessary correction.

If all the documents are found to be in order and satisfactory, the JCMA Lubricants Standards Implementation Panel will forward an On-file Notice to the submitter and put its duplicate copy into a file together with the related reporting documents.

5.6 Grease Code

A Grease Code shall be established by the submitter in accordance with the procedures described below. The Grease Code is posted in the website of the JCMA Lubricants Standards Implementation Panel together with the product name and other information so that the grease user could easily find whether the product in question is submitted on-file or not. The Grease Code is decided by the submitter and recorded by the JCMA Lubricants Standards Implementation Panel. Each Grease Code shall be established in the format shown below:

G
 ┌───┐ ┌───┐ ┌───┐
(1) (2) (3) (4)

Where:

- (1) Category code (an alphabetic capital letter): A “G” is assigned to lubricating grease.

- (2) Country code (a three digit numeral): An international telephone country code of the nation where the submitter is domiciled or the lubricating grease is manufactured. (Example: Japan: 081, USA: 001, England (UK): 044, etc.)
- (3) Marketer code (three alphabetic capital letters): Any three alphabetic capital letters chosen by the submitter (e.g., Komatsu Ltd.: KMT, Cosmo Oil Lubricants: CLC, etc.). Note that a submitter is not allowed to use more than one marketer codes. If a submitter is already using a marketer code in the JASO on-filing system for automotive products such as two cycle gasoline engine oils, four-cycle engine oils for motorcycles, and diesel engine oils, the same marketer code shall be used. If a marketer code desired by a submitter has already been used by another submitter, the JCMA Lubricants Standards Implementation Panel may request a change of the code to avoid duplication.
- (4) Control code (a three digit numeral): An arbitrary number to be assigned by a submitter for own control purpose. A submitter is not allowed to assign one and the same control code to different products or different trial products.

For guidance, examples of Grease Code assignment are shown in Appendix 4.

5.7 Publication of On-File Information

For promotion of the Standard for Lubricating Grease for Construction Machinery (JCMAS P 040:2004) and improved understanding and recognition among the users of lubricating grease for construction machinery, the JCMA Lubricants Standards Implementation Panel will publish commercial names, submitter names, consistency grades, the Grease Codes and product class (either JCMAS GK or GKB) of lubricating grease products submitted on-file through media such as an Internet webpage.

Prior to the above publication the JCMA Lubricants Standards Implementation Panel will advise the submitter of the information being posted. In case any information so advised or a part thereof is found incorrect, the submitter must promptly notify the Panel of necessary correction in writing.

The JCMA Lubricants Standards Implementation Panel will not assume any responsibilities for any loss or damage incurred by a submitter due to the published information which has been confirmed beforehand by the submitter.

5.8 On-File Maintenance

The JCMA Lubricants Standards Implementation Panel will send a letter of inquiry to

each submitter by the end of each year to confirm if the submitter wishes to continue the submitted status of its products on file from January 1 onward of the year subsequent to the first year of on-file submitting, along with a request for confirmation on sales data of the products concerned. Upon receipt of the above inquiry:

- i) If continuation of on-filing of the products concerned is desired, the submitter intending continuation of on-filing (hereinafter, the “renewing submitter”) must notify the JCMA Lubricants Standards Implementation Panel of the desire and the amount due on the on-file maintenance fee by the end of February of the subsequent year, such amount being calculated according to the sales quantity (for the period from January to December of the preceding year) and the method as specified in Appendix 2. Upon notification from the renewing submitter, the JCMA Lubricants Standards Implementation Panel will examine the request and issue an invoice to the renewing submitter in April. Upon receiving the invoice, the renewing submitter shall promptly remit the on-file maintenance fee to a bank account designated by the JCMA Lubricants Standards Implementation Panel. Any expenses incidental to the remittance of the on-file maintenance fee shall be borne by the renewing submitter. The on-file maintenance fee will not be returned once received by the Panel. If the renewing submitter does not remit the on-file maintenance fee in due time, the JCMA Lubricants Standards Implementation Panel will assume that the product concerned has been discontinued, and may eliminate the on-file submitting for the product.
- ii) If continuation of on-filing of the products concerned is not desired, the submitter must promptly notify the JCMA Lubricants Standards Implementation Panel to that effect, and stop indicating the Grease Code and the product class on its product container. Upon receipt of the above notice to discontinue the JCMA Lubricants Standards Implementation Panel will immediately eliminate the on-file submitting for the product.

In the event of a change in the on-file maintenance fee or its calculation method, the JCMA Lubricants Standards Implementation Panel will announce it through the associated organizations.

Figure 3 shows a general flow of on-file maintenance procedure.

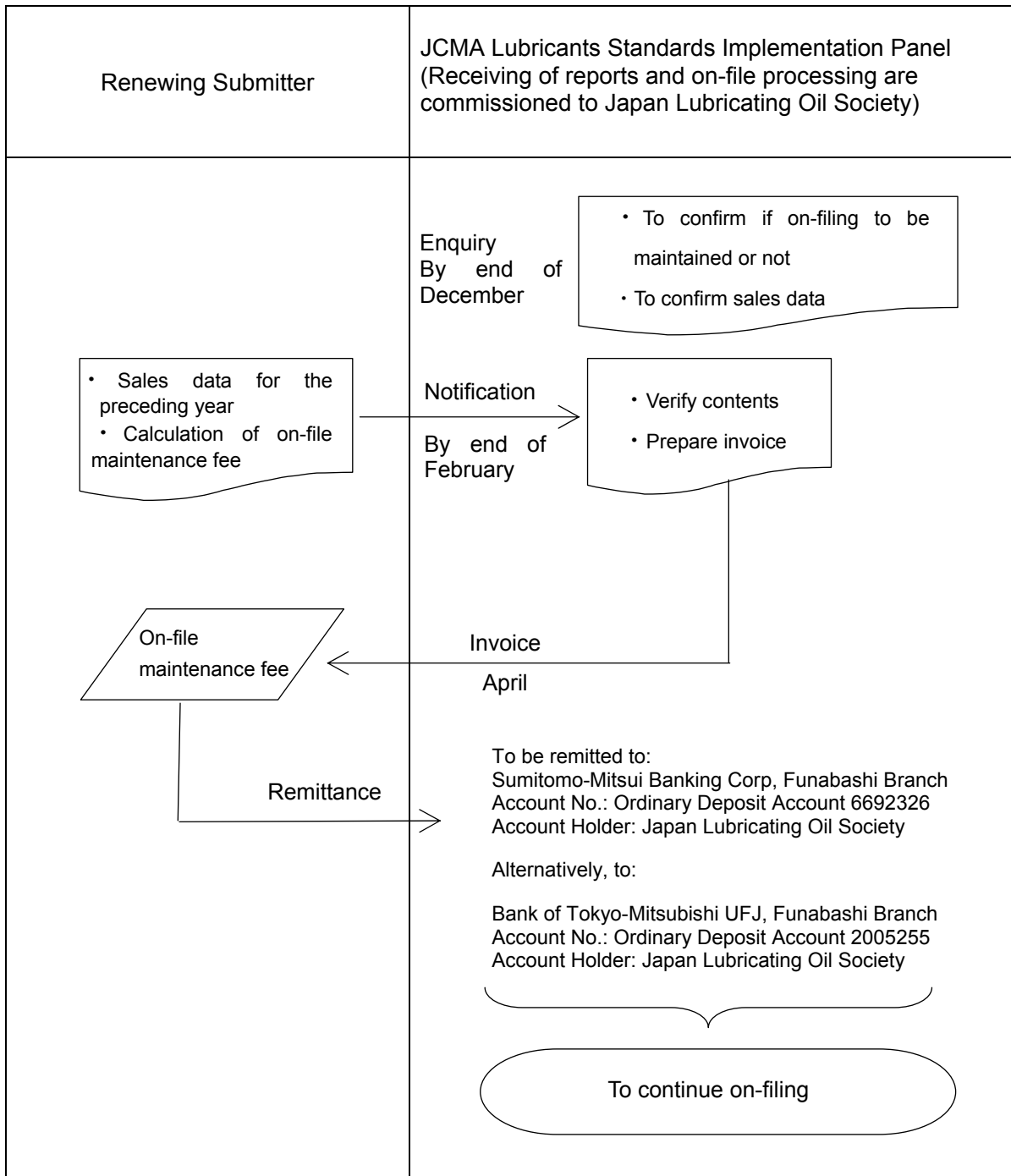


Figure 3 Flow of On-file Maintenance Procedure

5.9 Liability for Product Quality

The quality and performance of the lubricating grease for construction machinery submitted on-file under this System are provided and guaranteed solely on the basis of individual responsibility of the submitter, whereby the submitter (the marketer) shall assume all resultant liabilities.

It is not implied or suggested in this System that the JCMA Lubricants Standards Implementation Panel will guarantee the quality or performance of the products on file, and the Panel assumes no responsibility whatsoever with regard to any loss or damage arising from the use of this System.

Should there arise any problems concerning quality or performance on a product filed under this System, the submitter must act to resolve the issues at his own responsibility.

In case this System is in contravention of any laws or regulations of a country concerned (including local administration statutes), such legal stipulations take precedence over this System. Accordingly, the JCMA Lubricants Standards Implementation Panel will not assume any responsibility whatsoever with regard to any loss or damage arising from the use of this System in spite of its nonconformity with certain legal stipulations.

5.10 Confidentiality

Except for the conditions described in Section 5.7 - Publication of On-File Information, the JCMA Lubricants Standards Implementation Panel will not disclose on-file information to a third party without a written permission of the submitter concerned, provided disclosure of such on-file information is allowed if the disclosure is required as a legislative action by public authorities. Even if information submitted or filed is inadvertently made known to a third party, the JCMA Lubricants Standards Implementation Panel will not be held responsible for compensation as to any loss or damage arising out of such exposure of the information.

If the JCMA Lubricants Standards Implementation Panel has received a written inquiry from a third party with respect to a trouble or a dispute at the marketplace, it is allowed for the Panel to inform the inquirer of the on-filing status of the lubricating grease product and the name of the marketer corresponding to the Grease Code concerned. Further, if the inquirer desires to communicate with the submitter concerned, the JCMA Lubricants Standards Implementation Panel may notify the submitter and leave any responses with the submitter, without taking any further actions of its own.

5.11 Changes in Filed Data

In case where any changes in the corporate name or the marketer code or the contact

address of the submitter is to be made to the on-file data, the submitter concerned must notify the JCMA Lubricants Standards Implementation Panel of the details in advance. In this case, the submitter is required to pay for the filing fees as specified in Section 5.3, and renew the respective Grease Code.

If the changes required are only for the contact address, the submitter shall notify the JCMA Lubricants Standards Implementation Panel of the fact by filling out the Form 3 of Appendix 2. No payment of the filing fee is required in this case.

Appendix 4 presents case examples of required reporting and/or notification for changes.

5.12 Precautions for Submitter

In displaying the Grease Code and the product class marking on a product container based on this System, the submitter concerned is required to pay due attention to the following conditions:

- (1) The quality, performance and product class marking of a product to be marketed are identical to those described in the on-file documents for the product;
- (2) In the event of any trouble arising with respect to the quality, performance or marking of the product, the submitter is responsible for resolving or redressing the issue, with expenses incurred in settling the issue being also borne by the submitter.
- (3) The submitter must publicize and make it widely known to general consumers through the sales channels of the submitter that the quality, performance and product class marking of the lubricating grease for construction machinery submitted on-file under this System are provided and guaranteed solely on the basis of individual responsibility of the submitter.

If a submitter discontinues marketing of a lubricating grease product listed on-file, the submitter shall promptly notify the JCMA Lubricants Standards Implementation Panel of the cancellation of on-file status for the product.

6. Marking

When displaying a Grease Code on a product container after receiving the On-file Notice letter from the Panel, the submitter concerned must make it clear that the Grease Code is provided on its own responsibility and use the format exemplified in Appendix 5.

Users of this System must not use in advertisements or in other occasions an expression which might lead to a misunderstanding that the quality or performance of the lubricating grease products concerned has been certified or authenticated by the JCMA Lubricants

Standards Implementation Panel.

As specified in Section 5.3, users of this System must mail representative examples of product class marking to be displayed on the product container and an entire product label design or its artwork to the JCMA Lubricants Standards Implementation Panel.

7. Market Sampling

For protecting legitimate interests of consumers and on-file submitters, the JCMA Lubricants Standards Implementation Panel may conduct market sampling regarding the lubricating grease for construction machinery submitted on-file so that the Panel can verify the Standard for Lubricating Grease for Construction Machinery (JCMAS P 040:2004) is adequately implemented in the marketplace.

For this purpose the Panel may randomly collect samples of products from the marketplace, examine the product class marking and inspect their quality and performance against the requirements specified in the above mentioned Standard, and check the information against the respective on-file report documents. In the event that any clear discrepancy with the relevant on-file document is found in this market sampling, the JCMA Lubricants Standards Implementation Panel may ask the on-file submitter in writing for explanation or make a request for remedy.

The JCMA Lubricants Standards Implementation Panel may publish the results of market sampling in a manner where specific names of submitters or products are unidentifiable.

8. Use of the Standards by Construction Machinery Manufacturers or Marketers

Manufacturers or marketers of construction machinery or related equipment may use the Standard for Lubricating Grease for Construction Machinery (JCMAS P 040:2004) on the basis of individual judgment and responsibility of such parties, by referring to the Standard in the Owner's Manual or any other documents to make recommendations on proper grades of lubricating grease to be used by the machinery operators.

The party making a lubrication recommendation based on the above-mentioned Standard must not use in advertisements or other materials an expression which might lead to a misunderstanding that the quality or performance of the lubricating grease products concerned has been certified or authenticated by the JCMA Lubricants Standards Implementation Panel (for example, by stating a "lubricating grease certified by the JCMA Lubricants Standards Implementation Panel").

The party who intends to make a lubrication recommendation based on this Standard is required to mail to the JCMA Lubricants Standards Implementation Panel a representative example of the Owner's Manual concerned.

9. List of References

Listed below are contact addresses from which detailed information or requisite materials regarding this System could be found or obtained:

9.1 For obtaining and forwarding On-File forms and On-File documents:

The JCMA Lubricants Standards Implementation Panel
c/o Business Department
Japan Lubricating Oil Society
No. 2-16-1 Hinode, Funabashi-shi, Chiba
273-0015 Japan
Tel: 81-47-433-5181
Fax: 81-47-431-9579
URL: <http://www.jalos.or.jp/onfile/>

9.2 For obtaining the JCMA Standards (JCMAS):

Secretariat - Standards Department
Japan Construction Machinery and Construction Association
No. 3-5-8, Shiba Park
Minato-ku, Tokyo
105-0011 Japan
Tel: 81-3-5776-7858
Fax: 81-3-3432-0289

9.2.1 Elastomer specimens U801 (AU) and G361 (HNBR):

Marketing Division – Kanto Branch
NOK Corporation.
No. 1-12-15 Shiba-daimon, Minato-ku, Tokyo
105-8585 Japan
Tel: 81-3-3432-6472
Fax: 81-3-3432-2831

9.2.2 Elastomer specimen SRE-NBR/L (NBR):

Polymer Technology Division
Chemicals Evaluation and Research Institute, Japan

No. 1600 Shimotakano, Sugito-cho, Kitakatsushika
Saitama, 345-0043 Japan
Tel: 81-480-37-2601
Fax: 81-480-37-2521
URL: <http://www.ceri.or.jp/>

9.3 Related foreign test standards:

9.3.1 For obtaining ASTM test standards and inquiring on testing facilities:

ASTM International
100 Barr Harbor Drive
P.O. Box C700
West Conshohocken, PA 19428-2959
U.S.A.
Tel: 1-610-832-9585
Fax: 1-610-832-9555
URL: <http://www.astm.org/>
e-mail: service@astm.org

Appendix 1

Cross-reference Table of Test Methods: JIS/JPI, etc. vs. ISO, etc.

Test Item	Test Description	ISO/ASTM+ T.M. No.	JIS/JPI T.M. No.
Worked penetration, Unworked penetration	Standard Test Methods for Cone Penetration of Lubricating Grease	ISO2137 ASTMD217 IP50	JIS K2220
Apparent viscosity	Standard Test Method for Measuring Apparent Viscosity of Lubricating Greases	ASTMD1092	JIS K2220
Kinematic viscosity	Crude petroleum and petroleum products -- Determination of kinematic viscosity and calculation of viscosity index from kinematic viscosity	ISO 3104:93 ASTM D 445	JIS K 2283
Dropping point	Petroleum products -- Lubricating grease -- Determination of dropping point	ISO 2176 ASTM D 556 IP 132	JIS K 2220
Oil separation	Standard Test Method for Oil Separation from Lubricating Grease During Storage	ASTM D 1742 IP 121	JIS K 2220
Evaporation loss	Standard Test Method for Evaporation Loss of Lubricating Greases and Oils	ASTM D972 IP 183	JIS K 2220
Humidity cabinet	Lubricating Grease -- Humidity Cabinet Test	(N.A.)	JIS K 2220
Copper corrosion	Standard Test Method for Detection of Copper Corrosion from Lubricating Grease	ASTM D 4048 IP 112	JIS K 2220
E.P. Property	Standard Test Method for Measurement of Extreme-Pressure Properties of Lubricating Grease (Four-Ball Method)	ASTM D 2596	JPI- 5S -40-93
Anti-wear property	Standard Test Method for Wear Preventive Characteristics of Lubricating Fluid (Four-Ball Method)	ASTM D 4172	JPI - 5S -32-90
Extended Worked Stability	Penetration of Lubricating Greases After Prolonged Working	FTM 791/313.3	JIS K 2220
Water washout	Standard Test Method for Determining the Water Washout Characteristics of Lubricating Greases	ISO 11009 ASTM D1264 IP 215	JIS K 2220
Oxidation stability	Standard Test Method for Oxidation Stability of Lubricating Greases by the Oxygen Pressure Vessel Method	ASTM D 942 IP 142	JIS K 2220
Elastomer tensile strength	Rubber, vulcanized or thermoplastic -- Determination of tensile stress-strain properties	ISO 37:94	JIS K 6251-04
Elastomer hardness	Rubber -- Determination of indentation hardness by means of pocket hardness meters	ISO 7619:97	JIS K 6253-97
Elastomer compatibility	Rubber, vulcanized or thermoplastic -- Determination of the effect of liquids	ISO 1817:99	JIS K 6258-03
Biodegradability	Standard Test Method for Determining Aerobic Aquatic Biodegradation of Lubricants or Their Components	OECD 301B OECD 301C OECD 301F ASTM D5864 ASTM D6731	To satisfy Certification Criteria 4.1 for Eco Mark Product Category No.110 "Biodegradable Lubricating Oil, Version 2.4"
Fish toxicity	Fish -- Acute toxicity test	OECD 203 JIS K 0102-98 JIS K 0420-71	To satisfy Certification Criteria 4.1 for Eco Mark Product Category No.110 "Biodegradable Lubricating Oil, Version 2.4"

Appendix 2

On-File Reporting and Maintenance of Lubricating Greases for Construction Machinery

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1. Reminders on Completing Report Forms

- (1) When completing the on-file report forms, refer to relevant sections of the System Implementation Manual and report without falsification.
- (2) In case any test method is referenced in the report forms without indication of the year of issuance, use the latest version available at the time of reporting.
- (3) Product marking and sales based on false declaration may be punishable under the Act Against Unjustifiable Premiums and Misleading Representation (Article 4, Clause 1, Item 1) or the Unfair Competition Prevention Law (Article 2, Clause 1, Item 13).

2. On-File Reporting Procedure

2.1 Filing Fee

The filing fee required for a new on-file submitting shall be ¥40,000 for each product being filed. No payment of the filing fee is required in the case of a change in the contact address.

2.2 On-File Reporting and Remittance of Filing Fee

Prior to initiating a new on-file reporting and submitting for a lubricating grease, a filing fee specified in 2.1 for each product being filed must be remitted to one of the bank accounts shown below. To initiate the reporting and submitting process, a bank certificate of the fee transfer and other necessary documents listed below are to be prepared and submitted to the JCMA Lubricants Standards Implementation Panel at the address given below:

Sumitomo-Mitsui Banking Corporation, Funabashi Branch
Account No.: Ordinary Deposit Account 6692326
Account Holder: Japan Lubricating Oil Society

Or:

Bank of Tokyo-Mitsubishi UFJ, Funabashi Branch
Account No.: Ordinary Deposit Account 2005255
Account Holder: Japan Lubricating Oil Society

2.3 Contact addresses for obtaining and forwarding On-File forms and On-File documents:

The JCMA Lubricants Standards Implementation Panel
c/o Business Department
Japan Lubricating Oil Society

No. 2-16-1 Hinode, Funabashi-shi, Chiba, 273-0015 Japan

Tel: 81-47-433-5181 / Fax: 81-47-431-9579

2.3.1 Documents required for filing:

- (1) A bank certificate of filing fee transfer
- (2) Form-1: Cover Sheet
- (3) Form-2: Test Results Data
- (4) On-file Notice and Agreement Form in duplicate
- (5) A representative example of marking to be displayed on the product container and an entire product label design or its artwork.

3. On-File Maintenance Fee

- (1) If a submitter desires continuation of on-file status of the products concerned, the submitter must bear the on-file maintenance fee according to the sales quantity during the applicable calendar year, in addition to the filing fee paid at the time of initial filing.
- (2) The on-file maintenance fee is calculated for each submitter and for the total of the sales quantity of all products submitted for the previous year, in the manner shown below:

Total Sales Quantity of Submitted Product(s) for the Previous Year	On-File Maintenance Fee
Less than 500Tons	¥15,000
500Tons or more	To be calculated at a rate of ¥30 per Ton, up to the maximum of ¥300,000

- (3) The submitter must notify the JCMA Lubricants Standards Implementation Panel of the sales quantity by the end of February of the subsequent year, using the notification form sent beforehand from the Panel. At the same time, the submitter shall promptly remit the on-file maintenance fee calculated in accordance with the above described method and based on the reported sales quantity, to a bank account designated by the Panel for remittance of the filing fee as stipulated in Section 2.2 of this document (for the account of Japan Lubricating Oil Society).
- (4) If the renewing submitter fails to return the sales report or to remit the on-file maintenance fee in due time, the JCMA Lubricants Standards Implementation Panel will eliminate all the on-file submitting for the particular submitter.

[Calculation Example–1] In the case where the on-file submitting was completed by April 1, 2012 and 150Tons of the products was sold by December 31, 2012:

The first year term in this case is the period between April 1, 2012 and December 31, 2012, with the second year term being the period between January 1, 2013 and December 31, 2013. Accordingly, the on on-file maintenance fee for the second year is calculated on the basis of the sales quantity in the previous year. In this case, it is determined according to the declared sales quantity during the period of April 1, 2012 to December 31, 2012, hence;

$$\text{On-file renewal fee} = \text{¥15,000}$$

[Calculation Example–2] In the case where Grease A was first submitted on-file effective July 15, 2012, and a total of 100Tons was sold by December 31, 2012, followed by 300Tons of sale in the year 2013; whereas the on-file submitting for Grease B was completed as of May 1, 2013, and 250Tons of Grease B was sold by December 31, 2013: (See Figure 3.1.):

Since the total sales quantity of Grease A in the year 2012 is 100Tons, an on-file maintenance fee to be paid in the year 2013 is ¥15,000. The total sales quantity of the two products in the year 2013 is 550Tons, i.e., 300Tons of Grease A plus 250Tons of Grease B. Hence, an on-file maintenance fee due for the year 2014 is calculated as indicated below.

$$550\text{Tons} \times \text{¥30/Ton} = \text{¥16,500}$$

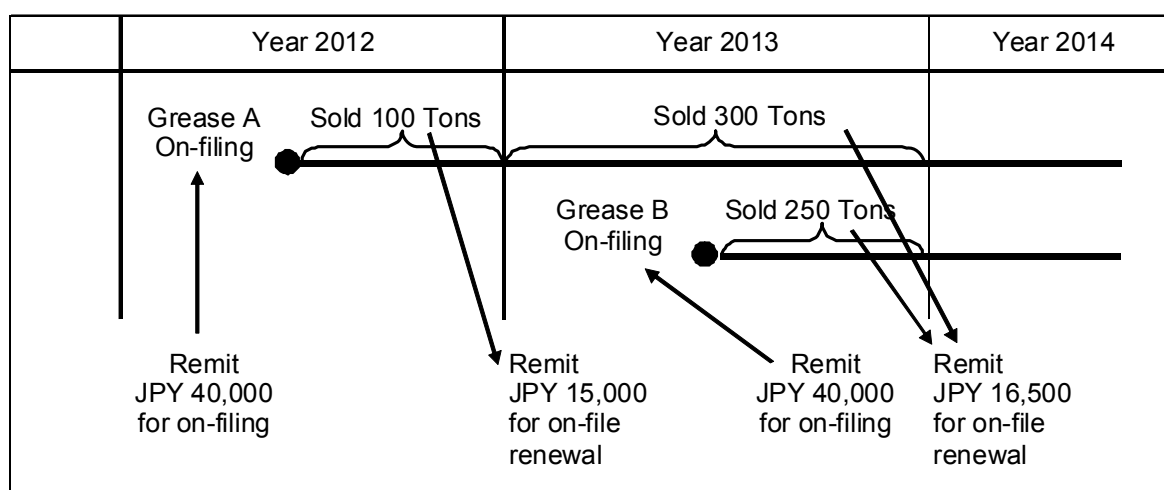


Figure 3.1 Calculation Example of On-File Maintenance Fee

4. On-File Change Notification Procedure

In the case where the submitter wishes to change any subject described in the on-file report, in accordance with Section 5.11 of the System Implementation Manual, the following documents must be prepared regardless of the need for renewal of the Grease Code, and then be submitted to the JCMA Lubricants Standards Implementation Panel.

(1) Documents required when changing contact address of the submitter:

Form-3: Change Notice for Contact Address

Form-1 Cover Sheet for Reporting Documents

Report for Filing Lubricating Grease for Construction Machinery

To: Messrs. JCMA Lubricants Standards Implementation Panel

Date of Reporting		:	(Year)	(Month)	(Day)
Submitter Name (In Japanese/English)	Corporate Seal	<u>Contact Address:</u>			
		Name: _____			
Person in Charge:		Position/Title: _____			
Name: _____ Seal		Postal Address: _____			
Position/Title: _____		Tel _____			
		Fax _____			

Grease for On-file Submitting	
In-house Product ID or Code	
Commercial Name	
Product Class (Tick one)	<input type="checkbox"/> GK <input type="checkbox"/> GKB
Consistency Grade	
Grease Code	

For Use by JCMA Lubricants Standards Implementation Panel			
Received by	:	Signature/Seal	
Date of Receipt	:	(Year)	(Month) (Day)
Receipt No.	:		
Remarks	:		

Form-2: Test Results Data

Form-2a: Test Results Data for JCMAS GK (General Lubricating Grease, JCMAS GK)

Item	Test method ²⁾	Results Grade	Performance Criteria	
			Consistency Grade	
			No. 1	No. 2
Range of operating temperature (°C)			-20 ~ +130	-20 ~ +130
Thickener type			Report ¹⁾	Report ¹⁾
Worked penetration	JIS K2220		310 ~ 340	265 ~ 295
Unworked penetration	JIS K2220		Report ¹⁾	Report ¹⁾
Apparent viscosity (-10°C, shear rate: 10S ⁻¹) (Pa * s)	JIS K2220		250 or less	500 or less
Base oil kinematic viscosity (40°C) (mm ² /s)	JIS K2283		Report ¹⁾	Report ¹⁾
Dropping point (°C)	JIS K2220		170 or more	170 or more
Oil separation (100°C, 24h) (mass %)	JIS K2220		10 or less	5 or less
Eevaporation loss (99°C, 22h) (mass %)	JIS K2220		2.0 or less	2.0 or less
Humidity cabinet test (14 days)	JIS K2220		Class A	Class A
Copper corrosion (100°C, 24h)	JIS K2220		No discoloration to green or black	
Four-ball load carrying characteristics (weld load) (N)	ASTM D2596		1961 or more	1961 or more
Four-ball wear preventive property (wear scar diameter) (mm)	ASTM D2266		0.7 or less	0.7 or less
Worked stability	JIS K2220		400 or less	375 or less
Water washout losses (38°C,1h) (mass %)	JIS K2220		10 or less	10 or less
Oxidation stability (90°C,100h) (KPa)	JIS K2220		80 or less	80 or less
NBR	Hardness change	JIS K6253	-30 or more	-30 or more
	Tensile strength change (%)	JIS K6251	-70 or more	-70 or more
	Elongation change (%)	JIS K6251	-80 or more	-80 or more
	Volume change (%)	JIS K6258	0 ~ 40	0 ~ 40
AU (urethane)	Hardness change	JIS K6253	-5 ~ +5	-5 ~ +5
	Tensile strength change (%)	JIS K6251	-70 or more	-70 or more
	Elongation change (%)	JIS K6251	-60 or more	-60 or more
	Volume change (%)	JIS K6258	-5 ~ +15	-5 ~ +15

Table footnote ¹⁾ Report the test results.

Form-2b: Test Results Data for JCMAS GKB (Lubricating Grease, Biodegradable, JCMAS GKB)

Item	Test method ²⁾	Results Grade No. 2	Performance Criteria
			Consistency Grade
			No. 2
Range of operating temperature (°C)			-20 ~ +130
Thickener type			Report ¹⁾
Worked penetration	JIS K2220		265 ~ 295
Unworked penetration	JIS K2220		Report ¹⁾
Apparent viscosity (-10°C, shear rate: 10S ⁻¹) (Pa * s)	JIS K2220		500 or less
Base oil kinematic viscosity (40°C) (mm ² /s)	JIS K2283		Report ¹⁾
Dropping point (°C)	JIS K2220		170 or more
Oil separation (100°C, 24h) (mass %)	JIS K2220		5 or less
Eevaporation loss (99°C, 22h) (mass %)	JIS K2220		2.0 or less
Humidity cabinet test (14 days)	JIS K2220		Class A
Copper corrosion (100°C, 24h)	JIS K2220		No discoloration to green or black
Four-ball load carrying characteristics (weld load) (N)	ASTM D2596		1961 or more
Four-ball wear preventive property (wear scar diameter) (mm)	ASTM D2266		0.7 or less
Worked stability	JIS K2220		375 or less
Water washout losses (38°C,1h) (mass %)	JIS K2220		10 or less
Oxidation stability (90°C,100h) (KPa)	JIS K2220		80 or less
NBR	Hardness change	JIS K6253	Report ¹⁾
	Tensile strength change (%)	JIS K6251	Report ¹⁾
	Elongation change (%)	JIS K6251	Report ¹⁾
	Volume change (%)	JIS K6258	Report ¹⁾
AU (urethane)	Hardness change	JIS K6253	Report ¹⁾
	Tensile strength change (%)	JIS K6251	Report ¹⁾
	Elongation change (%)	JIS K6251	Report ¹⁾
	Volume change (%)	JIS K6258	Report ¹⁾
Biodegradability, 28 days	OECD 301B OECD 301C OECD 301F ASTM D5864 ASTM D6731		To satisfy Certification Criteria 4.1 with Eco Mark Product Category No.110 "Biodegradable Lubricating Oil Version 2.4"
Fish acute toxicity, 96h LC ₅₀ value	OECD 203 JIS K 0102-98 JIS K 0420-71		To satisfy Certification Criteria 4.1 with Eco Mark Product Category No.110 "Biodegradable Lubricating Oil Version 2.4"

Table footnote ¹⁾ Report the test results.

Form-3: Change Notice on Contact Address

Lubricating Grease for Construction Machinery: Notice of Change in On-file Contact Address

To: Messrs. JCMA Lubricants Standards Implementation Panel

In accordance with the provisions in Section 5.11 of the System Implementation Manual, we hereby notify the Panel that we wish to make the following change(s) in the contact address submitted on-file for the lubricating grease(s) for construction machinery with the Reception Number indicated below:

Lubricating Grease for Construction Machinery for Change(s) of On-file Data:

Reception No. : _____

In-house Product ID/Code : _____

Commercial Name : _____

Product Class (Tick one) : GK GKB

Consistency Grade : _____

Grease Code : _____

Description of Change(s) in submitter's contact address

Item	Current Address	New Address

(In the event of a change in the person responsible for the on-file submitting, the columns below shall be completed by the new person in charge)

Notification Date : _____ (Year) (Month) (Day)

Submitter Name : _____ Corporate Seal

Person in Charge : _____ Seal

Position/Title : _____

Signature : _____

For Use by JCMA Lubricants Standards Implementation Panel	
Received by :	Signature/Seal
Date of Receipt :	(Year) (Month) (Day)
Receipt No. :	
Remarks :	

Appendix 3

Part A

On-file Notice for Lubricating Grease for Construction Machinery (Original)

Date:

To:

The JCMA Lubricants Standards Implementation Panel is pleased to advise you that the lubricating grease for construction machinery with the Reception No. indicated below has been submitted on-file for the Grease Code and the Product Class as indicated below:

Reception No.	:	_____
In-house Product ID/Code	:	_____
Commercial Name	:	_____
Product Class (Tick one)	:	<input type="checkbox"/> GK <input type="checkbox"/> GKB
Consistency Grade	:	_____
Grease Code	:	_____

Agreement Concerning Lubricating Grease On-Filing (Original)

Part B

To: Messrs. JCMA Lubricants Standards Implementation Panel

We as the submitter hereby agree to the following terms and conditions in marketing the above lubricating grease for construction machinery submitted on-file:

1. The quality, performance and product class marking of the said lubricating grease product shall be provided and guaranteed solely on the basis of individual responsibility of the submitter, and the relevant information to that effect, as well as the fact that the JCMA Lubricants Standards Implementation Panel (the "Panel") does not guarantee the quality or performance of the said product shall be publicized to general consumers through the sales channels of the submitter.
2. In the event of any trouble in the market arising from the use of the said lubricating grease product, the submitter shall solve it on its own responsibility, recognizing that no responsibility whatsoever shall be assumed by the Panel, and pay utmost attention not to cause any trouble or inconvenience to the Panel in addressing the issue.
3. The submitter undertakes that the quality/performance data and the product class marking example described in the report document represent the said lubricating grease product to be actually placed in the market.
4. Pursuant to the intent and purpose of the Clause 1 of this Agreement, the submitter must not use in marketing (including wholesaling and retailing) and in advertisements or other promotional materials any expression which might lead to a misunderstanding that the quality/performance of the said lubricating grease product has been guaranteed, certified or authenticated by the Panel.
5. In the event that the Panel requests the submitter for submission of the data for the lubricating grease product submitted on-file, the submitter shall promptly submit the data, complying with the Panel's instructions on the style, format and media to be used upon the submission.
6. The submitter authorizes the Panel to publish the commercial name, submitter, consistency grades, and product class of the said lubricating grease product through media such as an Internet webpage. The submitter further acknowledges that, when market sampling is conducted by the Panel, the results of the market sampling may be published by the Panel in a manner where specific names of submitters or products are unidentifiable.
7. The submitter shall pay the on-file maintenance fees as specified in the System Implementation Manual by due date each year. The submitter will not protest or dispute even if an on-file submitting has been eliminated ex officio due to failure in remitting the on-file maintenance fee in accordance with the System Implementation Manual
8. In the event that the marketing of the said lubricating grease product is discontinued, the submitter shall promptly inform the Panel as to cancellation of the on-file status for the product. Upon receipt of the above notice the Panel will eliminate the on-file submitting for the product as appropriate.

9. For provisions other than mentioned in the above, the submitter undertakes to accept all conditions and/or requirements set forth in the System Implementation Manual with clear understanding thereof, and in the event of its revision, to comply with the provisions of the latest Manual.

Report Date : _____ (Year) (Month) (Day)
Submitter Name : _____ Corporate Seal
Person in Charge : _____
Position/Title : _____
Signature : _____

Appendix 3

Part A

On-file Notice for Lubricating Grease for Construction Machinery (Duplicate)

Date:

To:

The JCMA Lubricants Standards Implementation Panel is pleased to advise you that the lubricating grease for construction machinery with the Reception No. indicated below has been submitted on-file for the Grease Code and the Product Class as indicated below:

Reception No.	:	_____
In-house Product ID/Code	:	_____
Commercial Name	:	_____
Product Class (Tick one)	:	<input type="checkbox"/> GK <input type="checkbox"/> GKB
Consistency Grade	:	_____
Grease Code	:	_____

Agreement Concerning Lubricating Grease On-Filing (Duplicate)

Part B

To: Messrs. JCMA Lubricants Standards Implementation Panel

We as the submitter hereby agree to the following terms and conditions in marketing the above lubricating grease for construction machinery submitted on-file:

1. The quality, performance and product class marking of the said lubricating grease product shall be provided and guaranteed solely on the basis of individual responsibility of the submitter, and the relevant information to that effect, as well as the fact that the JCMA Lubricants Standards Implementation Panel (the "Panel") does not guarantee the quality or performance of the said product shall be publicized to general consumers through the sales channels of the submitter.
2. In the event of any trouble in the market arising from the use of the said lubricating grease product, the submitter shall solve it on its own responsibility, recognizing that no responsibility whatsoever shall be assumed by the Panel, and pay utmost attention not to cause any trouble or inconvenience to the Panel in addressing the issue.
3. The submitter undertakes that the quality/performance data and the product class marking example described in the report document represent the said lubricating grease product to be actually placed in the market.
4. Pursuant to the intent and purpose of the Clause 1 of this Agreement, the submitter must not use in marketing (including wholesaling and retailing) and in advertisements or other promotional materials any expression which might lead to a misunderstanding that the quality/performance of the said lubricating grease product has been guaranteed, certified or authenticated by the Panel.
5. In the event that the Panel requests the submitter for submission of the data for the lubricating grease product submitted on-file, the submitter shall promptly submit the data, complying with the Panel's instructions on the style, format and media to be used upon the submission.
6. The submitter authorizes the Panel to publish the commercial name, submitter, consistency grades, and product class of the said lubricating grease product through media such as an Internet webpage. The submitter further acknowledges that, when market sampling is conducted by the Panel, the results of the market sampling may be published by the Panel in a manner where specific names of submitters or products are unidentifiable.
7. The submitter shall pay the on-file maintenance fees as specified in the System Implementation Manual by due date each year. The submitter will not protest or dispute even if an on-file submitting has been eliminated ex officio due to failure in remitting the on-file maintenance fee in accordance with the System Implementation Manual
8. In the event that the marketing of the said lubricating grease product is discontinued, the submitter shall

promptly inform the Panel as to cancellation of the on-file status for the product. Upon receipt of the above notice the Panel will eliminate the on-file submitting for the product as appropriate.

9. For provisions other than mentioned in the above, the submitter undertakes to accept all conditions and/or requirements set forth in the System Implementation Manual with clear understanding thereof, and in the event of its revision, to comply with the provisions of the latest Manual.

Report Date	:	(Year)	(Month)	(Day)	_____
Submitter Name	:				_____ Corporate Seal
Person in Charge	:	_____			
Position/Title	:	_____			
Signature	:	_____			

Appendix 4

Examples of Grease Code Setting and Reporting/Notification Requirements on Changes in On-file Data or Product Formulation

Details of Grease Code assignments and reporting or notification requirements on changes in on-file data or formulations are described in Sections 5.6 and 5.11 of the System Implementation Manual. For reference purposes, specific examples are shown in the following tables, with Variation Case 1 being the base on-file product newly submitted.

Variation case	Description	Actions required	Product		Submitter (Marketer, etc.)			Formulation				Examples of Grease Code
			Product name	Marketing region	Company name	Marketer code	Country	Consistency grade	Base oil group (*)	Thickener type	Performance Additives used	
1	Base on-file product	New On-filing	AAA	Japan	A	ABC	Japan	No.2	I	A	X	G081ABC001
2	Product name change	Change notice	BBB	USA	A	ABC	Japan	No.2	I	A	X	G081ABC002
3	Change or additional marketing region	(None)	AAA	Japan	A	ABC	Japan	No.2	I	A	X	G081ABC001
4	Change in submitter (marketer) name or code	Change notice	AAA	Japan	B	XYZ	Japan	No.2	I	A	X	G081XYZ001
5	Change in submitter (marketer) contact address	Notify	AAA	Japan	A	ABC	Japan	No.2	I	A	X	G081ABC001
6	Change to Case 1 in viscosity within VGRA	Change notice	AAA	Japan	A	ABC	Japan	No.1	I	A	X	G081ABC003
7	Change in base oil group	Change notice	AAA	Japan	A	ABC	Japan	No.2	II	A	X	G081ABC004
8	Change in thickener	Change notice	AAA	Japan	A	ABC	Japan	No.2	I	B	X	G081ABC005
9	Change in additive(s)	Change notice	AAA	Japan	A	ABC	Japan	No.2	I	A	Y	G081ABC006
10	Discontinuation	Notify										-

[Note] (*) The Base Oil Group refers to the system of classification (Group I, II, III, IV and V) adopted by the API in the USA

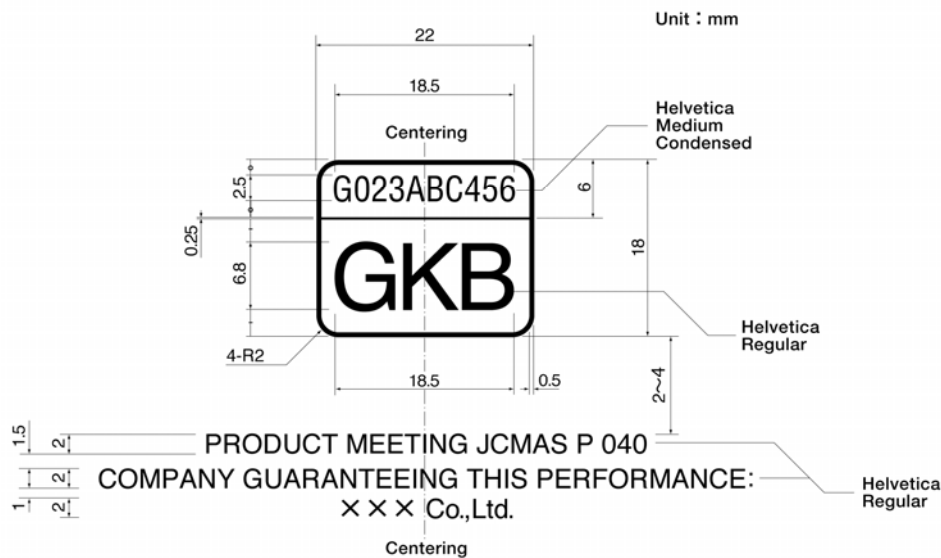
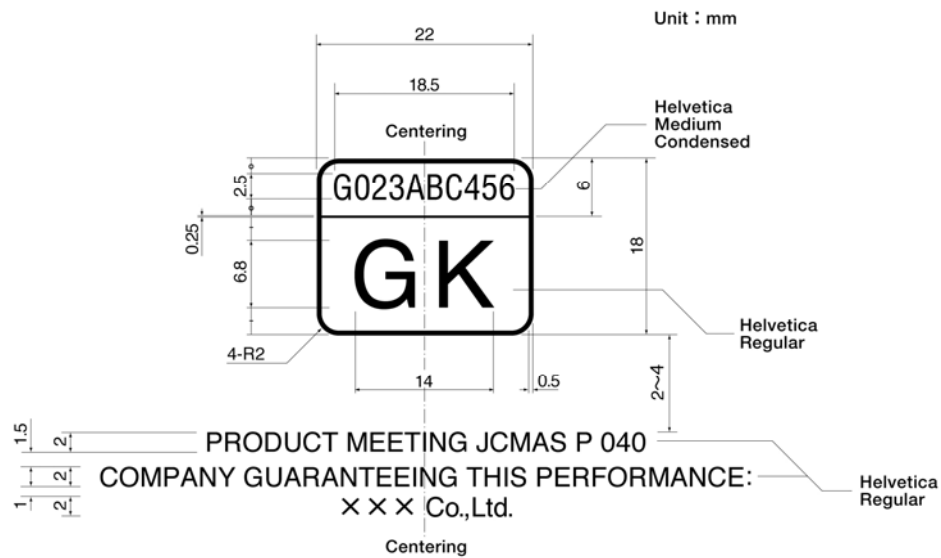
Appendix 5

Grease Code and Product Class Marking Display

When displaying the Grease Code and Product Class marking on the container of an on-file product, the marketer is required to follow general rules as illustrated in the examples below:

1. Examples of Marking Display

1.1 Dimensions and lettering fonts



1.2 Notes on the examples:

- (1) In the above illustration, the part showing “G023ABC456” is for displaying the Grease Code. For the lettering fonts for this part, use Helvetica Medium Condensed or Arial Narrow. The characters must be designed so that their sizes can fit in the specified dimensions for the frame.
- (2) For the characters indicating the Product Class, i.e. “GK” in the above examples, use Helvetica Medium or Arial fonts. The characters must be designed so that their size can fit in the specified dimensions for the frame.
- (3) For the alphanumeric display of the performance level, i.e. “PRODUCT MEETING JCMAS P 040” appearing under the Grease Code and Product Class marking in the above examples, use Helvetica Medium or Arial fonts, with a character size corresponding to the specified dimensions, and arranged in a single line. Likewise, for the display of the quality assurance statement, i.e. “GK PERFORMANCE GUARANTEED BY: (Company name)” in the above examples, use Helvetica Medium or Arial fonts, with a character size corresponding to the specified dimensions, and arranged in two or three lines.
- (4) The color of the characters and frame lines must be in sharp contrast with the background color.

2. Display method

- (1) The dimensions shown in the above marking examples are minimum required sizes. Enlarged designs may be used according to the size of the product container as long as like figures and proportions are maintained.
- (2) The marking may be displayed at any conspicuous location on the container.

3. Display examples



PRODUCT MEETING JCMAS P 040
COMPANY GUARANTEEING THIS PERFORMANCE:
X X X Co.,Ltd.

Figure dimensions not enlarged



PRODUCT MEETING JCMAS P 040
COMPANY GUARANTEEING THIS PERFORMANCE:
X X X Co.,Ltd.

Figure dimensions enlarged 1.5 times



PRODUCT MEETING JCMAS P 040
COMPANY GUARANTEEING THIS PERFORMANCE:
X X X Co.,Ltd.

Figure dimensions enlarged 2 times



PRODUCT MEETING JCMAS P 040
COMPANY GUARANTEEING THIS PERFORMANCE:
× × × Co.,Ltd.

Figure dimensions not enlarged



PRODUCT MEETING JCMAS P 040
COMPANY GUARANTEEING THIS PERFORMANCE:
× × × Co.,Ltd.

Figure dimensions enlarged 1.5 times



PRODUCT MEETING JCMAS P 040
COMPANY GUARANTEEING THIS PERFORMANCE:
× × × Co.,Ltd.

Figure dimensions enlarged 2 times