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DRAFT TANZANIA STANDARD

Petroleum Products - Determination of Sulfated ash in lubricating Oils and additives.

TANZANIA BUREAU OF STANDARDS

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National foreword

The Tanzania Bureau of Standards is the statutory National standards body for Tanzania, established under the Act.No.3 of 1975, amended by Act.No.2 of 2009.

This Draft Tanzania Standard is being adopted by Lubricants and oils products Technical Committee under the supervision of the Chemicals Divisional Standards Committee.

This Draft Tanzania Standard is the identical adoption of ISO 3987:2010 Petroleum Products-Determination of sulfated ash in lubricating Oils and additives.

The text of the International standard is hereby being recommended for approval without deviation for publication as draft Tanzania standard.

Terminology and conventions

Some terminologies and certain conventions are not identical with those used as Tanzania standards; attention is drawn especially to the following: -

The comma has been used as a decimal marker for metric dimensions. In Tanzania Standards, its current practice to use full point on the baseline as the decimal marker.

Where the words “International Standard(s)” appear, referring to this standard they should read “Tanzania Standard”.

Scope

This International Standard describes a procedure for the determination of the mass percentage of sulfated ash from unused lubricating oils containing additives and from additive concentrates used in compounding. These additives usually contain one or more of the following metals: barium, calcium, magnesium, zinc, potassium, sodium and tin. The elements sulfur, phosphorus and chlorine can also be present in combined form.

Application of this procedure to sulfated ash levels below 0,02 % (*m/m*) is restricted to oils containing ashless additives. The lower limit of applicability of the procedure is 0,005 % (*m/m*) sulfated ash.

NOTE 1 For the purposes of this International Standard, the terms % (*m/m*) and % (*V/V*) are used to represent the mass fraction and volume fraction of a material, respectively.

This International Standard is not intended for the analysis of used engine oils containing lead, nor is it recommended for the analysis of non-additive lubricating oils, for which ISO 6245 is suitable.

NOTE 2 There is evidence that magnesium does not react in the same manner as alkali metals in this procedure. If magnesium additives are present, it is advisable to interpret the data with caution.

NOTE 3 There is evidence that samples containing molybdenum can give low results, since molybdenum compounds are not fully recovered at the temperature of ashing.

The sulfated ash may be used to indicate the concentration of known metal-containing additives in new lubricating oils. When phosphorus is absent, barium, calcium, magnesium, sodium and potassium are converted to their sulfates, and tin (IV) and zinc to their oxides.

NOTE 4 Since zinc sulfate slowly decomposes to its oxide at the ignition temperature specified in the procedure, samples containing zinc may give variable results unless the zinc sulfate is completely converted to the oxide.

Sulfur and chlorine do not interfere, but when phosphorus is present with metals, it remains partially or wholly in the sulfated ash as metal phosphates.

NOTE 5 Fatty acid methyl esters (FAME) conforming to EN 14213 and EN 14214 , when tested using this International Standard, were shown to meet its precision.