DPNS/DOE QS 006:2018
ICS xxxxxxx

Petroleum products – Industrial Fuel Oils - Specification

Foreword

This Philippine National Standard PNS/DOE QS 006:2018 Petroleum products – Industrial fuel oils - Specification was prepared by the Department of Energy through the Technical Committee on Petroleum Products and Additives (DOE/TCPPA) and was approved for adoption as Philippine National Standard by the Bureau of Philippine Standards

This standard cancels and replaces PNS/DOE QS 006:2005 with minor revision made particularly the deletion of the word "bunker" and referred only as industrial fuel oil, as well as updating of test methods.

The DOE/TCPPA undertook this review in keeping with the objectives of the Clean Air Act of the Philippines as well as with the DOE's policy and program of updating the fuel quality specifications of petroleum products in terms of the current requirement of the industry, its users and manufacturers vis-à-vis the continuing commitment in ensuring supply availability and also by endeavoring to harmonize internationally/regional environmental standards for fuels.

1 Scope

This standard specifies the requirements for industrial fuel oils used wholly or as blending component of different grades for various types of fuel oil-burning equipment.

2 References

The titles of the standard publications referred to in this standard are listed on the inside back cover.

3 Definition

For the purpose of this standard, industrial fuel oil is defined as residuals from distillation. It may be a blend of residual and distillates of petroleum origin

4 Classification

Industrial fuel oils shall be classified based on maximum sulfur content:

4.1 Regular grade – IFO 3.0

4.2 Special grade – IFO 2.0 and IFO 1.0

5 Requirements

Industrial fuel oils shall conform to the chemical and physical requirements specified in Table 1.

Table 1 – Chemical and physical requirements for Industrial Fuel Oil

Property	LIMIT			Test Method
	IFO 3.0	IFO 2.0	IFO 1.0	
Ash, % by mass, max.	0.20	0.20	0.20	PNS ASTM D482
Flash point, Pensky-Martens, ^{o}C, min.	60.0	60.0	60.0	PNS ASTM D93
Sulfur, % by mass, max.	3.0	2.0	1.0	PNS ASTM D129 or PNS ASTM D4294 or PNS ASTM D1552 or PNS ASTM D2622
Viscosity, mm^2/s at 50^{o}C, max.	300	200	200	PNS ASTM D445
Water and sediment, % by vol., max.	1.0	1.0	1.0	PNS ASTM D1796

NOTES
1. Density in kg/L at 15^{o}C may be reported in accordance with PNS ASTM D1298 or PNS ASTM D4052
2. Conradson carbon residue, % by mass, may be reported in accordance with PNS ASTM D189 or PNS ASTM D4530
3. Pour point, 0C, may be reported in accordance with PNS ASTM D97 as agreed upon between supplier and buyer.

6 Sampling

Industrial Fuel oil shall be sampled in accordance with PNS ASTM D 4057.

7 Test methods

Industrial Fuel oils shall be shall be tested in accordance with the methods specified in Table 1.

References:

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies:

PNS ASTM D93-16a (ASTM published ____), Standard Test Methods for Flash Point by Pensky-Martens Closed Cup Tester

PNS ASTM D97-17a (ASTM published___), Standard Test Method for Pour Point of Petroleum Products

PNS ASTM D129-13 (ASTM published___), Standard Test Method for Sulfur in Petroleum Products (General High Pressure Decomposition Device Method)

PNS ASTM D189-06(2014) (ASTM published ___), Standard Test Method for Conradson Carbon Residue of Petroleum Products

PNS ASTM D445-17a (ASTM published ___), Standard Test Method for Kinematic Viscosity of Transparent and Opaque Liquids (and Calculation of Dynamic Viscosity)

PNS ASTM D482-13 (ASTM published____), Standard Test Method for Ash from Petroleum Products

PNS ASTM D1298-12b(2017) (ASTM published____), Standard Test Method for Density, Relative Density, or API Gravity of Crude Petroleum and Liquid Petroleum Products by Hydrometer Method

PNS ASTM D1552-16e1 (ASTM published____), Standard Test Method for Sulfur in Petroleum Products by High Temperature Combustion and Infrared (IR) Detection or Thermal Conductivity Detection (TCD)

PNS ASTM D1796-11(2016) (ASTM published____), Standard Test Method for Water and Sediment in Fuel Oils by the Centrifuge Method (Laboratory Procedure)

PNS ASTM D2622-16 (ASTM published____), Standard Test Method for Sulfur in Petroleum Products by Wavelength Dispersive X-ray Fluorescence Spectrometry

PNS ASTM D4052-16 (ASTM published____), Standard Test Method for Density, Relative Density, and API Gravity of Liquids by Digital Density Meter

PNS ASTM D4057-12 (ASTM published____), Standard Practice for Manual Sampling of Petroleum and Petroleum Products

PNS ASTM D4294-16e1 (ASTM published____), Standard Test Method for Sulfur in Petroleum and Petroleum Products by Energy Dispersive X-ray Fluorescence Spectrometry

PNS ASTM D4530-15 (ASTM published____), Standard Test Method for Determination of Carbon Residue (Micro Method)

Abbreviations

PNS	-	Philippine National Standard
ASTM	-	American Society for Testing and Materials

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