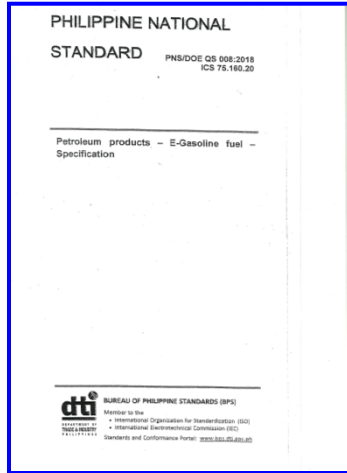


# SUMMARY OF APPLICABLE STANDARDS

## A. Fuel Quality Standards (PNS)

### 1. Biofuels & its Blends



**Title :** PNS/DOE QS 008:2018 – Petroleum Products - E-Gasoline Specification

**Date Promulgated :** May 2018

**Highlights/Developments of the PNS :** *A technical standard for E10 mandate or 10% bioethanol blend under the Biofuels Act of 2006.*

- This standard is a revision/update of PNS/DOE QS 008:2012.
- In this edition, the Euro 2 fuel grades (500 ppm, max. Sulfur content) was removed and thus effectively provided only the Euro 4-PH gasoline fuel grades (50 ppm, max. Sulfur content) to align with the emission requirement of DENR under DAO No 2015-04 & 2016-23.
- Improvements were also made on several specs, incorporated other properties and its limits (e.g. relaxed the limit of density for all grades, reduced the limits of T50 for R91, categorize the hydrocarbon and oxygenates properties and introduced methanol and oxygen content as new property) as well as updating of test methods.

**Scope of the PNS :** This standard specifies the requirements for bioethanol-blended gasoline, otherwise referred to as E-gasoline used as fuel in spark-ignition internal combustion engines. This standard does not include aviation gasoline.

**Implementing Guideline :** DC No.2019-02-002 – “Department Circular Implementing the Specifications for PNS/DOE QS 008:2018 – E-Gasoline-Specification”

**Signed/Published :** 07 February 2019 / 01 April 2019



**Title :** PNS/DOE QS 004:2017 – Petroleum Products – CME-blended automotive diesel oil Specification

**Date Promulgated :** 18 December 2017

**Highlights/Developments of the PNS :** *A technical standard for B2 mandate or 2% biodiesel blend under the Biofuels Act of 2006.*

- This standard is a revision/update of PNS.DOE QS 004:2012 .
- In this edition, the Euro 2 fuel grades (500 ppm, max. Sulfur content) was removed and thus effectively provided only the Euro IV-PH automotive diesel oil grade (50 ppm, max. Sulfur content) to align with the emission requirement of DENR under DAO No 2015-04 & 2016-23.
- Further the PNS provided only the requirements for automotive diesel oil (ADO) separate from industrial diesel oil (IDO) for effective implementation and monitoring.

**Scope of the PNS :** This standard specifies the requirement for CME-blended diesel oil suitable for various types of automotive diesel engines.

**Implementing Guideline :** (final draft DC for signature/approval)

**Signed/Published :**



**Title :** PNS/DOE QS 013:2017 – Petroleum Products – CME-blended industrial diesel oil Specification

**Date Promulgated :** December 2017

**Highlights/Developments of the PNS :** *A technical standard for B2 mandate or 2% biodiesel blend under the Biofuels Act of 2006.*

- This standard is a revision/update of PNS/DOE QS 004:2012 for Industrial Diesel Oil (IDO).
- In this edition, a new PNS number was created to separate the requirements of IDO from automotive diesel oil (ADO) which carried the original designation of PNS/DOE QS 004.
- Improvements /changes were also made on several specs, incorporated other properties and its limits (e.g. introduced Cetane number or derived cetane number as new property, removed the distillation property, reduced the limit of Carbon residue and increased the limit of density, flash point and kinematic viscosity) as well as updating of test methods.

**Scope of the PNS :** This standard specifies the requirement for CME-blended diesel oil suitable for various types of industrial diesel engines.

**Implementing Guideline :** (final draft DC for signature/approval)

**Signed/Published :**



**Title : PNS/DOE QS 010:2015 – Petroleum Products - High FAME-Blended Diesel Oils (B5) Specification**

**Date Promulgated** : November 27, 2015

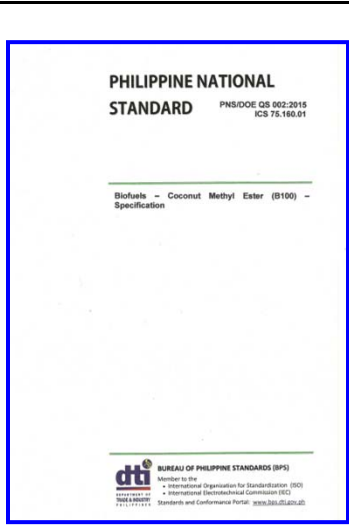
**Highlights/Developments of the PNS** : *This standard support future energy policy towards the integration of higher biodiesel blends in the petroleum/fuel sector.*

- This is a new standard developed/formulated to addresses the technical requirements of high FAME-blended diesel oil (B5) and suitable test methods.

**Scope of the PNS** : This standard specifies the requirement for high FAME-blended diesel oils suitable for various types of diesel engines and other similar types of engines.

**Implementing Guideline** : **None**

*(no mandate yet for higher blends. The PNS serves only as a reference or voluntary standard)*



**Title : PNS/DOE QS 002:2015 – Biofuels – Coconut Methyl Ester (B100) Specification**

**Date Promulgated** : November 27, 2015

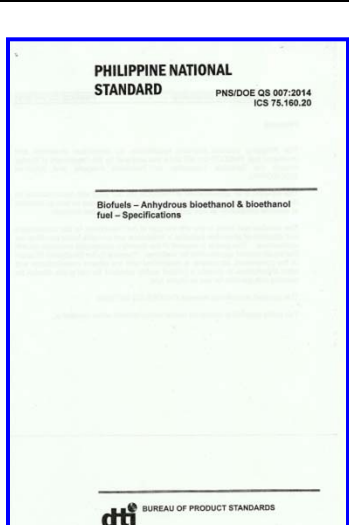
**Highlights/Developments of the PNS** : *A technical standard for biodiesel (B100) for blending to diesel oils in the production of B2 under the Biofuels Act of 2006.*

- This standard is a revision/update of PNS/DOE QS 002:2007 .
- In this edition, improvement were also made on several specs, incorporated other properties and its limits (e.g. iodine number as new property, increased minimum limit of oxidation property and reduced the maximum sulfur content) as well as updating of test methods.

**Scope of the PNS** : This standard specifies the requirements for **coconut methyl ester (B100)** suitable for blending to diesel fuel for use in various types of compression ignition engines and other similar types of engines.

**Implementing Guideline** : **DC No. 2016-05-006 – “Implementing the Modified Philippine National Standard Specification for Biofuels – Coconut Methyl Ester (PNS/DOE QS 002:2015)”**

**Signed/Published** : 02 May 2016 /



**Title : PNS/DOE QS 007:2014 – Biofuels – Anhydrous bioethanol & bioethanol fuel Specification**

**Date Promulgated** : 29 January 2014

**Highlights/Developments of the PNS** *This standard was made in line with the goal of the Department for the development and utilization of alternative fuels that is indigenous and provides major benefit to the environment in support of the Biofuels Act of 2006.*

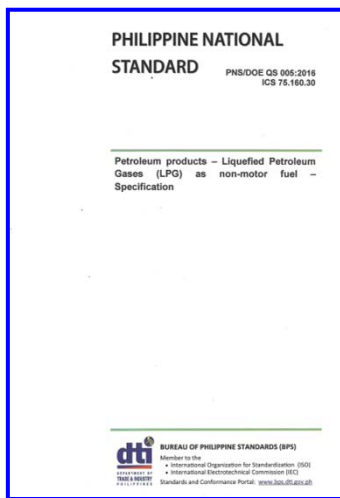
- This standard is a revision/update of PNS/DOE QS 007:2005.
- In this edition, improvement/changes were also made on several specs, incorporated other properties and its limits (e.g. change in color, inorganic chloride content, denaturant, electrical conductivity as new property) as well as updating of test methods.

**Scope of the PNS** : This standard specifies the requirements for biofuel grade ethanol in pure form (E100) and denatured (E98) for use as blending component of automotive spark ignition engine and other similar types of engines

**Implementing Guideline** : **DC No. 2015-07-0012 “ Implementing the PNS Specifications for Anhydrous Bioethanol Fuel “**

**Signed/Published** :29 June 2015

## 2. Petroleum Products & other petroleum related products



### Title : PNS/DOE QS 005:2016 – Petroleum Products – Liquefied Petroleum Gases (LPG) as Non-Motor Fuel Specification

**Date Promulgated** : 22 December 2016

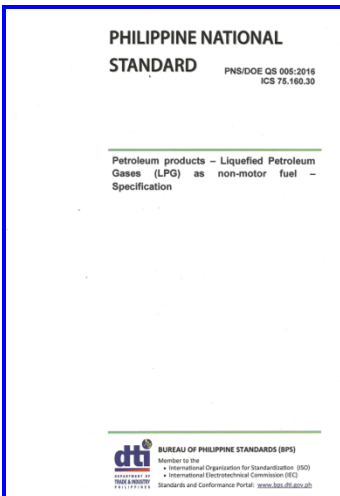
**Highlights/Developments of the PNS** : This standard is in line with DOE's policy and program of updating the fuel quality specification in terms of current requirement of the industry, its users and manufacturers and also by endeavoring to harmonize internationally/regional environmental standards.

- This standard is a revision/update of PNS/DOE QS 005:2005.
- In this edition improvement was made in the requirements on the use of odorant for health and safety consideration and updating of test method.
- Said PNS provided only the requirements for LPG as non-motor fuel separate from LPG as motor fuel for effective implementation and monitoring.

**Scope of the PNS** : This standard specifies the requirement for liquefied petroleum gases (LPG) for use as domestic, commercial and industrial fuel.

**Implementing Guideline** : (final draft DC for signature/approval)

**Signed/Published** :



### Title : PNS/DOE QS 012:2016 – Petroleum Products – Liquefied Petroleum Gases (LPG) as Motor Fuel Specification

**Date Promulgated** : 22 December 2016

**Highlights/Developments of the PNS** : *This standard is in support of the Philippine Government's effort to promote the utilization of alternative and clean fuel technology.*

- This standard is a revision/update of PNS/DOE QS 005:2005 particularly in the specification of LPG as motor fuel (Type 2B) with improvement made in the requirement on the use of odorant for health and safety consideration.
- This edition, a new PNS number was created to separate the application of LPG as motor fuel from LPG as non-motor fuel (domestic, commercial and industrial fuel) which carried the original designation PNS/DOE QS 005 for more effective implementation and monitoring.

**Scope of the PNS** : This standard specifies the requirements for liquefied petroleum gases (LPG) used as motor fuel.

**Implementing Guideline** : (final draft DC for signature/approval)

**Signed/Published** :



### Title : PNS/DOE QS 006:2018 – Petroleum Products – Industrial fuel oils Specification

**Date Promulgated** : 18 December 2018

**Highlights/Developments of the PNS** *This standard is in line with DOE's policy and program of updating the fuel quality specification in terms of current requirement of the industry, its users and manufacturers and also by endeavoring to harmonize internationally/regional environmental standards.*

- This standard is a revision/update of 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.

**Scope of the PNS** : 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.

**Implementing Guideline** : Draft DC on-going

**Signed/Published** :



**Title : PNS/DOE QS 014:2018 – Petroleum Products – Residual Marine Fuels Specification**



**Promulgated** : 22 December 2018

**Highlights/Developments of the PNS** : This standard is in line with objective of the Clean Air Acts of the Philippines as well as the DOE’s policy and program of formulating/developing/updating the fuel quality specifications of petroleum products in terms of current requirements 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. Also, this standard intends to adopt the program/guidelines of International Maritime Organization (IMO) for the requirement of *sulfur content* subject to statutory requirements set by MARINA.

- This is a new standard developed/formulated as a new and separate PNS for Residual Marine Fuel Specification, using ISO 8217:2017 (E) Petroleum Products – Fuels (class F)-Specifications of marine fuels as reference standard, specifically the residual marine fuel category ISO-F-RMG 180 and ISO-F-RMK 380.
- In this standard, the statutory requirement for the sulfur content is set at 3.0%, mass, maximum based on PNS for Fuel Oils (PNS/DOE QS 006).
- Some changes were also made on the following properties (e.g. Hydrogen sulfide, Aluminum plus silicon, Pour point and Used Lubricating Oil (ULO).

**Scope of the PNS** : This standard specifies the requirements for fuels for use in marine diesel engines and boilers, prior to conventional onboard treatment (settling, centrifuging, filtration) before use. The specifications for fuels in this document can also be applied for fuels used in stationary diesel engines of the same or similar type of those used for marine purposes.

**Implementing Guideline** : (draft DC on-going)

**Signed/Published** :



**Title : PNS/DOE ASTM D 910:2010 (ASTM published 2007) – Standard Specification for Aviation Gasoline – Grade 100LL**

**Date Promulgated** : 2010

**Highlights/Developments of the PNS** : *This standard is in line with the DOE’s policy and program of updating the fuel quality specification in terms of current requirement of the industry, its users and manufacturers and also by endeavoring to harmonize internationally/ regional environmental standards for fuels.*

- The standard is derived from ASTM D 910-07A Standard Specification for Aviation Gasoline and is limited only for Grade 100LL all other grades are excluded for the purpose of complying with the Clean Air Act of the Philippines

**Scope of the PNS** : This specification covers from formulating specification for purchases of aviation gasoline under contract and is intended primarily for use by purchasing agency .

**Implementing Guideline** : **None** ( *PNS serves only as reference or voluntary standard*)



**Title : PNS/DOE QS 009:2007 – Petroleum Products – Kerosene Specification**

**Date Promulgated** : 27 August 2007

**Highlights/Developments of the PNS** *This standard is in line with DOE’s policy and program of updating the fuel quality specification in terms of current requirement of the industry, its users and manufacturers and also by endeavoring to harmonize internationally/regional environmental standards.*

- This standard is a revision/update of PNS 32:1991 with minor revision made only in the property of color and updating of test methods.

**Scope of the PNS** : This standard specifies the requirements for kerosene intended for use as an illuminant and as fuel except for aviation.

**Implementing Guideline** : **None** ( *PNS serves only as reference or voluntary standard*)