



# Petroleum Products Specifications Amendment Regulations 2007

Anand Satyanand, Governor-General

## Order in Council

At Wellington this 26th day of March 2007

Present:

His Excellency the Governor-General in Council

Pursuant to the Ministry of Energy (Abolition) Act 1989, His Excellency the Governor-General, acting on the advice and with the consent of the Executive Council, makes the following regulations.

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## Regulations

- 1 Title**  
These regulations are the Petroleum Products Specifications Amendment Regulations 2007.

**2 Commencement**

These regulations come into force on 1 May 2007.

**3 Principal regulations amended**

These regulations amend the Petroleum Products Specifications Regulations 2002.

**4 Interpretation**

Regulation 3(1) is amended by inserting the following definitions in their appropriate alphabetical order:

“**autumn** means, in Schedules 1 and 2, 1 April to 31 May (inclusive)

“**spring** means, in Schedules 1 and 2, 1 September to 30 November (inclusive)

“**summer** means,—

“(a) in Schedules 1 and 2, 1 December to 31 March (inclusive); and

“(b) in Schedule 3, 15 October to 14 April (inclusive)

“**winter** means,—

“(a) in Schedules 1 and 2, 1 June to 31 August (inclusive); and

“(b) in Schedule 3, 15 April to 14 October (inclusive)”.

**5 New Schedules 1, 2, and 3 substituted**

Schedules 1, 2, and 3 are revoked and the Schedules 1, 2, and 3 set out in the Schedule of these regulations substituted.

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## Schedule

### New Schedules 1, 2, and 3 substituted

r 5

### Schedule 1

#### Requirements for regular grade petrol

rr 4, 6, 7, 8

Property	Effective on and from 1 May 2007	Effective on and from 1 January 2008	Test method
Research Octane Number (RON)	91.0 minimum	91.0 minimum	ASTM D2699
Motor Octane Number (MON)	82.0 minimum	82.0 minimum	ASTM D2700
Colour	Not to be mistaken for water	Not to be mistaken for water	Visual
Percentage volume evaporated at 70°C (E70) <sup>1</sup>	22 minimum 48 maximum	22 minimum 48 maximum	ASTM D86
Percentage volume evaporated at 100°C (E100)	45 minimum 70 maximum	45 minimum 70 maximum	ASTM D86
Percentage volume evaporated at 150°C (E150)	75 minimum	75 minimum	ASTM D86
End point (°C)	210 maximum	210 maximum	ASTM D86
Residue (percentage volume)	2 maximum	2 maximum	ASTM D86
Flexible Volatility Index <sup>2</sup> [VP (kPa) + (0.7 × E70)]	115.0 maximum	115.0 maximum	ASTM D86 and ASTM D5191
Vapour Pressure <sup>3</sup> (VP) (kPa)	Maxima: Auckland and Northland: 65 kPa summer; 80 kPa autumn and spring; 90 kPa winter; rest of North Island: 70 kPa summer; 80 kPa autumn and spring; 90 kPa winter; South Island: 75 kPa summer; 85 kPa autumn and spring; 95 kPa winter Minimum: 45 kPa all year	Maxima: Auckland and Northland: 65 kPa summer; 80 kPa autumn and spring; 90 kPa winter; rest of North Island: 70 kPa summer; 80 kPa autumn and spring; 90 kPa winter; South Island: 75 kPa summer; 85 kPa autumn and spring; 95 kPa winter Minimum: 45 kPa all year	ASTM D5191

<sup>1</sup> For regular grade petrol blended with more than 1% and not more than 10% volume ethanol, the E70 maximum is increased by 1% per 1% volume ethanol in the blend.

<sup>2</sup> For regular grade petrol blended with more than 1% and not more than 10% volume ethanol, the flexible volatility index maximum allowed is: 115.0 summer; 120.0 autumn and spring; 130.0 winter. Petrol that complies with the previous season's quality, and that is stored in a filling station tank to which fewer than 3 deliveries of petrol have been made since 6 weeks before the beginning of the season, is regarded as complying with this specification.

<sup>3</sup> Petrol that complies with the previous season's quality, and that is stored in a filling station tank to which fewer than 3 deliveries of petrol have been made since 6 weeks before the beginning of the season, is regarded as complying with this specification. For regular grade petrol blended with more than 1% and not more than 10% volume ethanol, the maximum vapour pressure allowed is: Auckland and Northland: 72 kPa summer; 87 kPa autumn and spring; 90 kPa winter; rest of North Island: 77 kPa summer; 87 kPa autumn and spring; 90 kPa winter; South Island: 82 kPa summer; 92 kPa autumn and spring; 95 kPa winter.

**Schedule 1—continued**

<b>Property</b>	<b>Effective on and from 1 May 2007</b>	<b>Effective on and from 1 January 2008</b>	<b>Test method</b>
Copper strip corrosion (3 hours at 50°C)	Class 1 maximum	Class 1 maximum	ASTM D130
Sulphur <sup>4</sup> (mg/kg)	150 maximum	50 maximum	IP 497 or ASTM D5453
Existent gum (solvent washed) (mg/100 ml)	5 maximum	5 maximum	ASTM D381
Oxidation stability induction period (minutes)	360 minimum	360 minimum	ASTM D525
Lead (mg/l)	5 maximum	5 maximum	IP 224
Benzene (percentage volume)	1 maximum	1 maximum	ASTM D5580
Total aromatic compounds (including benzene) (percentage volume)	42 maximum pool average and 45 maximum cap	42 maximum pool average and 45 maximum cap	ASTM D5580
Oxygenates <sup>5</sup> (percentage volume)	1 maximum for total oxygenates, with the exception of ethanol; 10 maximum for ethanol	1 maximum for total oxygenates, with the exception of ethanol; 10 maximum for ethanol	ASTM D4815
Olefins (percentage volume)	18 maximum	18 maximum	ASTM D1319
Manganese <sup>6</sup> (mg/l)	2.0 maximum	2.0 maximum	ASTM D3831
Phosphorus (mg/l)	1.3 maximum	1.3 maximum	ASTM D3231

<sup>4</sup> Ultimate requirement for “sulphur-free” petrol of 10 ppm maximum sulphur content.

<sup>5</sup> Regulation 4 provides—

“If petrol contains ethanol greater than 1% by volume, the seller of the petrol must provide or display information to consumers on the possible vehicle maintenance requirements that may result from using ethanol blends.”

<sup>6</sup> To be reviewed by 2010 (indicative time frame).

## Schedule 2

rr 4, 6, 7, 8

### Requirements for premium grade petrol

Property	Effective on and from 1 May 2007	Effective on and from 1 January 2008	Test method
Research Octane Number (RON)	95.0 minimum	95.0 minimum	ASTM D2699
Motor Octane Number (MON)	85.0 minimum	85.0 minimum	ASTM D2700
Colour	Not to be mistaken for water	Not to be mistaken for water	Visual
Percentage volume evaporated at 70°C (E70) <sup>7</sup>	22 minimum 48 maximum	22 minimum 48 maximum	ASTM D86
Percentage volume evaporated at 100°C (E100)	45 minimum 70 maximum	45 minimum 70 maximum	ASTM D86
Percentage volume evaporated at 150°C (E150)	75 minimum	75 minimum	ASTM D86
End point (°C)	210 maximum	210 maximum	ASTM D86
Residue (percentage volume)	2 maximum	2 maximum	ASTM D86
Flexible Volatility Index <sup>8</sup> [VP (kPa) + (0.7 × E70)]	115.0 maximum	115.0 maximum	ASTM D86 and ASTM D5191
Vapour Pressure <sup>9</sup> (VP) (kPa)	Maxima: Auckland and Northland: 65 kPa summer; 80 kPa autumn and spring; 90 kPa winter; rest of North Island: 70 kPa summer; 80 kPa autumn and spring; 90 kPa winter; South Island: 75 kPa summer; 85 kPa autumn and spring; 95 kPa winter Minimum: 45 kPa all year	Maxima: Auckland and Northland: 65 kPa summer; 80 kPa autumn and spring; 90 kPa winter; rest of North Island: 70 kPa summer; 80 kPa autumn and spring; 90 kPa winter; South Island: 75 kPa summer; 85 kPa autumn and spring; 95 kPa winter Minimum: 45 kPa all year	ASTM D5191
Copper strip corrosion (3 hours at 50°C)	Class 1 maximum	Class 1 maximum	ASTM D130

<sup>7</sup> For premium grade petrol blended with more than 1% and not more than 10% volume ethanol, the E70 maximum is increased by 1% per 1% volume ethanol in the blend.

<sup>8</sup> For premium grade petrol blended with more than 1% and not more than 10% volume ethanol, the flexible volatility index maximum allowed is: 115.0 summer; 120.0 autumn and spring; 130.0 winter. Petrol that complies with the previous season's quality, and that is stored in a filling station tank to which fewer than 3 deliveries of petrol have been made since 6 weeks before the beginning of the season, is regarded as complying with this specification.

<sup>9</sup> Petrol that complies with the previous season's quality, and that is stored in a filling station tank to which fewer than 3 deliveries of petrol have been made since 6 weeks before the beginning of the season, is regarded as complying with this specification. For premium grade petrol blended with more than 1% and not more than 10% volume ethanol, the maximum vapour pressure allowed is: Auckland and Northland: 72 kPa summer; 87 kPa autumn and spring; 90 kPa winter; rest of North Island: 77 kPa summer; 87 kPa autumn and spring; 90 kPa winter; South Island: 82 kPa summer; 92 kPa autumn and spring; 95 kPa winter.

## Schedule 2—continued

Property	Effective on and from 1 May 2007	Effective on and from 1 January 2008	Test method
Sulphur <sup>10</sup> (mg/kg)	150 maximum	50 maximum	IP 497 or ASTM D5453
Existent gum (solvent washed) (mg/100 ml)	5 maximum	5 maximum	ASTM D381
Oxidation stability induction period (minutes)	360 minimum	360 minimum	ASTM D525
Lead (mg/l)	5 maximum	5 maximum	IP 224
Benzene (percentage volume)	1 maximum	1 maximum	ASTM D5580
Total aromatic compounds (including benzene) (percentage volume)	42 maximum pool average and 45 maximum cap	42 maximum pool average and 45 maximum cap	ASTM D5580
Oxygenates <sup>11</sup> (percentage volume)	1 maximum for total oxygenates, with the exception of ethanol; 10 maximum for ethanol	1 maximum for total oxygenates, with the exception of ethanol; 10 maximum for ethanol	ASTM D4815
Olefins (percentage volume)	18 maximum	18 maximum	ASTM D1319
Manganese <sup>12</sup> (mg/l)	2.0 maximum	2.0 maximum	ASTM D3831
Phosphorus (mg/l)	1.3 maximum	1.3 maximum	ASTM D3231

<sup>10</sup> Ultimate requirement for “sulphur-free” petrol of 10 ppm maximum sulphur content.

<sup>11</sup> Regulation 4 provides—

“If petrol contains ethanol greater than 1% by volume, the seller of the petrol must provide or display information to consumers on the possible vehicle maintenance requirements that may result from using ethanol blends.”

<sup>12</sup> To be reviewed by 2010 (indicative time frame).

## Schedule 3 Requirements for diesel

rr 4, 6, 7, 8

Property	Effective on and from 1 May 2007	Effective on and from 1 January 2009	Test method
Density at 15°C (kg/m <sup>3</sup> )	820 minimum 850 maximum	820 minimum 850 maximum	ASTM D1298
Distillation – 95% volume recovered at (°C) (T95)	360 maximum	360 maximum	ASTM D86
Cetane	51 minimum cetane index or 51 minimum cetane number and 47 minimum cetane index	51 minimum cetane index or 51 minimum cetane number and 47 minimum cetane index	Cetane number: ASTM D613 Cetane index: ASTM D976
Water content (mg/kg)	200 maximum	200 maximum	ASTM D6304
Particulates (mg/l)	24 maximum	24 maximum	ASTM D6217
Colour (ASTM colour)	3.0 maximum	3.0 maximum	ASTM D1500
Cloud Point (°C) – Summer; Cloud Point and Cold Filter Plugging Point (CFPP) (°C) – Winter <sup>13</sup> .	Summer: +4 maximum Cloud Point; Winter: +2 maximum Cloud Point and –6 maximum Cold Filter Plugging Point	Summer: +4 maximum Cloud Point; Winter: +2 maximum Cloud Point and –6 maximum Cold Filter Plugging Point	Cloud Point: ASTM D5773 Cold Filter Plugging Point: IP 309
Sulphur <sup>14</sup> (mg/kg)	50 maximum	10 maximum	IP 497 or ASTM D5453
Polycyclic aromatic hydrocarbons (percentage mass)	11 maximum	11 maximum	IP 391
Filter Blocking Tendency	2.5 maximum; fuel must be of acceptable filterability so that it is fit for common purposes	2.5 maximum; fuel must be of acceptable filterability so that it is fit for common purposes	IP 387 or ASTM D2068
Lubricity – HFRR wear scar diameter at 60°C (µm)	460 maximum	460 maximum	IP 450
Viscosity (mm <sup>2</sup> per second at 40°C)	2.0 minimum 4.5 maximum	2.0 minimum 4.5 maximum	ASTM D445
Oxidation Stability (g/m <sup>3</sup> )	25 maximum	25 maximum	ASTM D2274
Carbon residue (on 10% distillation residue) (percentage mass)	0.2 maximum	0.2 maximum	ASTM D4530
Copper strip corrosion (3 hours at 50°C)	Class 1 maximum	Class 1 maximum	ASTM D130
Ash (percentage mass)	0.01 maximum	0.01 maximum	ASTM D482
Flash point (°C)	61 minimum	61 minimum	ASTM D93

<sup>13</sup> These are maximum criteria; cold flow properties of a fuel must be fit for common purposes in the region and the season in which it is sold. Diesel that complies with the previous season's quality, and that is stored in a filling station tank to which fewer than 3 deliveries of diesel have been made since 6 weeks before the beginning of the season, is regarded as complying with this specification. Sales for marine use may be summer grade at any time of the year.

<sup>14</sup> The limit for sulphur does not apply to sale for marine use.

Diane Morcom,  
Clerk of the Executive Council.

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### Explanatory note

*This note is not part of the regulations, but is intended to indicate their general effect.*

These regulations amend the Petroleum Products Specifications Regulations 2002 (the **principal regulations**). They come into force on 1 May 2007.

These amendments have the effect of amending the current specifications for fuel that is a blend of petrol and ethanol. The amendments cater for blends of more than 1% up to 10% by volume ethanol.

The regulations amend the principal regulations as follows:

- increasing the maximum percentage of regular and premium grade petrol evaporated at 70°C (**E70**) by 1% per 1% by volume ethanol blended into the petrol;
- increasing the flexible volatility index (**FVI**) by 5 in spring and autumn and by 15 in winter for blends of ethanol and petrol;
- increasing the vapour pressure (**VP**) maxima by 7 kPa for summer and autumn and spring for blends of ethanol and petrol.

In addition, these regulations change the diesel specification for carbon residue (at 10% distillation) from a maximum of 0.25% to a maximum of 0.2%. This change is for consistency with the particular test standard required by the regulations.

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Issued under the authority of the Acts and Regulations Publication Act 1989.

Date of notification in *Gazette*: 29 March 2007.

These regulations are administered by the Ministry of Economic Development.

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