Vehicle Standard (Australian Design Rule 79/04 — Emission Control for Light Vehicles) 2011 Amendment 1

I, ANTHONY NORMAN ALBANESE, Minister for Infrastructure and Transport, determine this vehicle standard under subsection 7 of the *Motor Vehicle Standards Act 1989*.

Dated 7 May 2012

ANTHONY NORMAN ALBANESE

Minister for Infrastructure and Transport

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1 LEGISLATIVE PROVISIONS

1.1 NAME OF LEGISLATIVE INSTRUMENT

1.1.1 This instrument is the *Vehicle Standard (Australian Design Rule 79/04 – Emission Control for Light Vehicles) 2011 Amendment 1*.

1.1.2 This instrument may also be cited as ADR 79/04 Amendment 1.

1.2 COMMENCEMENT

1.2.1 This instrument commences the day after it is registered.

2 AMENDMENT OF VEHICLE STANDARD

2.1.1 The changes specified in Schedule 1 amend *Vehicle Standard (Australian Design Rule 79/04 – Emission Control for Light Vehicles) 2011*.

3 SCHEDULE 1

[1] Insert new clause 5.4 which reads:

"5.4 For the purposes of the Type VI test specified in paragraph 5.3.5 of Appendix A, flex fuel ethanol vehicles that meet the applicable hydrocarbon (HC) emission limit for N_1 Class III vehicles in column L_2 of the table to paragraph 5.3.5.2 of Appendix A when tested on the ethanol (E75) reference fuel in paragraph 2 of Annex 10 of Appendix A, shall be deemed to meet the HC emission limit for this test on ethanol."

[2] Insert new clause 5.5 which reads:

"5.5. In Table A to paragraph 5.2 of Appendix A, footnote 3 is amended to read "The ethanol (E75) reference fuel specified in paragraph 2 of Annex 10 of Appendix A shall be used for this test."

[3] Insert new clause 5.6 which reads:

"5.6 The Ethanol (E75) reference fuel specification in paragraph 2 of Annex 10 of Appendix A is amended to read:

Type: Ethanol (E75)

Parameter	*Unit*	*Limits*[1]		*Test method*[2]
		Minimum	*Maximum*	
Research octane number, RON		95.0	-	EN ISO 5164
Motor octane number, MON		85.0	-	EN ISO 5163
Density at 15 °C	kg/m^3	Report		ISO 12185
Vapour pressure	kPa	50.0	60.0	EN ISO 13016-1 (DVPE)
Sulphur content[3, 4]	mg/kg	-	10	EN ISO 20846 EN ISO 20884
Oxidation stability	minutes	360		EN ISO 7536
Existent gum content (solvent washed)	mg/(100 ml)	-	4	EN ISO 6246
Appearance This shall be determined at ambient temperature or 15 °C whichever is higher.		Clear and bright, visibly free of suspended or precipitated contaminants		Visual inspection
Ethanol and higher alcohols[7]	% V/V	70	80	EN 1601 EN 13132 EN 14517
Higher alcohols (C3-C8)	% V/V	-	2.0	
Methanol	% V/V		0.5	
Petrol[5]	% V/V	Balance		EN 228
Phosphorus	mg/l		0.3[6]	EN 15487 ASTM D 3231
Water content	% V/V		0.3	ASTM E 1064 EN 15489
Inorganic chloride content	mg/l		1	ISO 6227 - EN 15492
pHe		6.50	9.0	ASTM D 6423 EN 15490
Copper strip corrosion (3h at 50 °C)	Rating	Class 1		EN ISO 2160
Acidity, (as acetic acid CH_3COOH)	% m/m (mg/l)	-	0.005 (40)	ASTM D 1613 EN 15491
Carbon/hydrogen ratio		report		
Carbon/oxygen ratio		report		

[1] The values quoted in the specifications are "true values". In establishment of their limit values the terms of ISO 4259 Petroleum products - Determination and application of precision data in relation to methods of test have been applied. When fixing a minimum value, a minimum difference of 2R above zero was taken into account. When fixing a maximum and minimum value, the minimum difference used was 4R (R = reproducibility). Notwithstanding this procedure, which is necessary for technical reasons, fuel manufacturers shall aim for a zero value where the stipulated maximum value is 2R and for the mean value for quotations of maximum and minimum limits. Where it is necessary to clarify whether fuel meets the requirements of the specifications, the terms of ISO 4259 shall be applied.

[2] In cases of dispute, the procedures for resolving the dispute and interpretation of the results based on test method precision, described in EN ISO 4259 shall be used.

[3] In cases of national dispute concerning sulphur content, either EN ISO 20846 or EN ISO 20884 shall be called up similar to the reference in the national annex of EN 228.

[4] The actual sulphur content of the fuel used for the Type VI Test shall be reported.

[5] The unleaded petrol content can be determined as 100 minus the sum of the percentage content of water and alcohols.

[6] There shall be no intentional addition of compounds containing phosphorus, iron, manganese, or lead to this reference fuel.

[7] Ethanol to meet specification of EN 15376 is the only oxygenate that shall be intentionally added to this reference fuel."

[4] Insert new clause 5.7 which reads:

"5.7 For the purposes of calculating the Lambda value when tested at 'high idle speed' in accordance with Paragraph 5.3.7.3. of Appendix A on the ethanol (E75) reference fuel in paragraph 2 of Annex 10 of Appendix A:

- the Atomic ratio of hydrogen to carbon shall be 2.61; and
- the Atomic ratio of oxygen to carbon shall be 0.329."

[5] Insert new clause 5.8 which reads

"5.8 For the purposes of determining the total mass of Hydrocarbons emitted in accordance with paragraph 6.6.2. of Annex 4a of Appendix A, when tested on the ethanol (E75) reference fuel in paragraph 2 of Annex 10 of Appendix A, the density shall be 0.886 g/l."

[6] Insert new clause 5.9 which reads:

"5.9 For the purposes of determining the correction for dilution air concentration in accordance with paragraph 6.6.4 of Annex 4a of Appendix A, when tested on the ethanol (E75) reference fuel in paragraph 2 of Annex 10 of Appendix A, the dilution factor shall be calculated as follows:

$$DF = \frac{12.7}{C_{CO2} + (C_{HC} + C_{CO}) \cdot 10^{-4}}$$ "