

# **Vehicle Standard (Australian Design Rule 80/04 – Emission Control for Heavy Vehicles) 2023**

Made under section 12 of the *Road Vehicle Standards Act 2018*

## **Explanatory Statement**

Approved by the Hon Catherine King MP, Minister for Infrastructure, Transport, Regional  
Development and Local Government

**January 2023**

## CONTENTS

1.	LEGISLATIVE AUTHORITY .....	3
1.1.	<b>National Road Vehicle Standards</b> .....	3
1.2.	<b>Exemption from Sunsetting</b> .....	3
1.2.1	<b>Justification</b> .....	3
1.2.1.1.	<b>Intergovernmental dependencies</b> .....	3
1.2.1.2.	<b>Commercial dependencies</b> .....	4
1.2.2.	<b>Effect on parliamentary oversight</b> .....	4
2.	PURPOSE AND OPERATION .....	4
2.1.	<b>Overview of the Regulatory Framework</b> .....	4
2.2.	<b>Overview of the ADR</b> .....	5
2.3.	<b>Design Requirement</b> .....	5
2.4.	<b>Exemptions and Alternative Procedures</b> .....	7
2.5.	<b>Alternative Standards</b> .....	8
3.	MATTERS INCORPORATED BY REFERENCE .....	9
3.1.	<b>Other Legislative Instruments</b> .....	9
3.2.	<b>International Vehicle Regulations</b> .....	9
3.3.	<b>Technical standards</b> .....	14
4.	CONSULTATION .....	25
4.1.	<b>General Consultation Arrangements</b> .....	25
4.2.	<b>Specific Consultation Arrangements</b> .....	25
5.	REGULATORY IMPACT .....	26
6.	STATEMENT OF COMPATIBILITY WITH HUMAN RIGHTS .....	26
6.1.	<b>Overview</b> .....	26
6.2.	<b>Human Rights Implications</b> .....	26
6.3.	<b>Conclusion</b> .....	26

## **1. LEGISLATIVE AUTHORITY**

### **1.1. National Road Vehicle Standards**

Vehicle Standard (Australian Design Rule 80/04 – Emission Control for Heavy Vehicles) 2023, also referred to as ADR 80/04, is made under section 12 of the *Road Vehicle Standards Act 2018* (the Act). Section 12 of the Act allows the Minister to determine National Road Vehicle Standards.

### **1.2. Exemption from Sunsetting**

ADR 80/04 is exempt from the sunseting provisions of the *Legislation Act 2003*.

#### **Source of the Exemption**

A standard made under section 12 of the Act is not subject to the sunseting provisions of section 50 of the *Legislation (Exemptions and Other Matters) Act 2003* through section 12 of the *Legislation (Exemptions and Other Matters) Regulation 2015* (table item 56C). A similar exemption was previously granted in respect of national road vehicle standards made under section 7 of the *Motor Vehicle Standards Act 1989* (MVSA) (item 40, section 12 of the *Legislation (Exemptions and Other Matters) Regulation 2015*). This exemption is important to ensure that ADR 80/04 continues to remain in force, and available to regulators and industry.

#### **1.2.1 Justification**

It is appropriate that standards made under section 12 of the Act, also known as the Australian Design Rules (ADRs), remain enduring and effective to regulate ongoing road worthiness of vehicles throughout their useful life and reduce regulatory burden on vehicle manufacturers.

##### **1.2.1.1. Intergovernmental dependencies**

The exemption concerns ADRs which facilitate the establishment and operation of the intergovernmental vehicle standard regime that Commonwealth, State and Territory governments rely on to regulate the safety of vehicles on public roads.

The Commonwealth uses the ADRs as the basis on which approvals to supply types of road vehicles to the market are granted under the *Road Vehicle Standards Rules 2019*. States and territories use the ADRs as the primary criteria on which vehicles are assessed for road worthiness. This ‘in-service’ aspect is dependent on the date of manufacture, which determines the applicable version of the ADRs against which the vehicle can be assessed. The ability to rely on national standards is particularly relevant given the long service life of vehicles – the average age of vehicles in Australia is 12.1 years. While the ADRs are regularly updated to reflect changes in technology, it is not possible to apply these new standards retrospectively to vehicles that are already in use.

With former ADRs kept on the Federal Register of Legislation, State and Territory governments can use them to ensure vehicles continue to comply with the ADRs that were in force when they were first supplied to the market.

In the event that the Commonwealth could not justify the maintenance of the ADRs, State and Territory governments would be compelled to create their own vehicle standards. Whilst this could mean adopting the substance of the lapsed ADRs as an interim measure, the differing needs and agendas of each State and Territory government may result in variations to in-service regulations. Having different vehicle standards across the states and territories would make the scheme operate contrary to the underlying policy intent of the Act which is to set nationally consistent performance based standards.

#### **1.2.1.2. Commercial dependencies**

The effect on vehicle manufacturers to redesign existing models to comply with new ADRs would present a burden and be a costly and onerous exercise. Manufacturers should not be expected to continually go back to redesign existing vehicles. Furthermore, ongoing product recalls to comply with new ADRs would undermine consumer confidence with significant financial impact to manufacturers. This exemption allows vehicle manufacturers to focus their efforts to ensure new models supplied to the market continue to comply.

#### **1.2.2. Effect on parliamentary oversight**

Despite the exemption from sunseting, ADRs are subject to regular reviews, when developments in vehicle technology necessitate updates to requirements. Comprehensive parliamentary scrutiny is available through these reviews.

Reviews of the ADRs ensure the ongoing effectiveness of a nationally consistent system of technical regulations for vehicle design, which are closely aligned, wherever appropriate with leading international standards such as United Nations regulations. Aligning with such standards facilitates the rapid introduction of the latest safety devices and technological advances into the Australian market, reducing regulatory burden.

The Act enables the Australian Government to establish nationally uniform standards that apply to new road vehicles or road vehicle components when they are provided to the market in Australia. The Act applies to vehicles or components whether they are manufactured in Australia or imported.

The making of the vehicle standards necessary for the Act's effective operation is provided for in section 12, which empowers the Minister to “determine standards for road vehicles or road vehicle components”.

## **2. PURPOSE AND OPERATION**

### **2.1. Overview of the Regulatory Framework**

The Act establishes a framework to regulate the importation and first provision of road vehicles to the market in Australia. The core principle of this framework is that vehicles which comply with appropriate standards are suitable for provision to the market in Australia. The Australian Design Rules (ADRs) have set out those standards since the early 1970s. At that time, they were applied cooperatively by the Australian Motor Vehicle Certification Board representing the Commonwealth and state and territory governments. In 1989, this arrangement was replaced by the *Motor Vehicle Standards Act 1989* (the MVSA) and the Australian Design Rules were determined as national standards. As of 2018, the MVSA has been replaced by the Act.

A majority of Australian road vehicle standards such as ADR 80/04 harmonise closely with international regulations. This is so that manufacturers can more easily comply with regulation, and so that regulations capture the well-developed views of the international community. This ultimately leads to safer and cheaper products for Australians.

ADRs often directly incorporate United Nations (UN) Regulations as an appendix, where the appendix provides the technical requirements of the ADR and the rest of the ADR facilitates its application to Australia. To this end, Section 6 creates exemptions and alternate procedures. For instance, manufacturers are exempt from requirements that pertain to UN type approvals, and instead, need to comply with the approvals process set out in the Act. Likewise, Section 7 provides for the acceptance of certain alternate standards that have equivalent requirements to the appendix. For instance, a vehicle covered by a type approval under the UN Regulation would comply with the ADR.

Under the Act, the ADRs are National Road Vehicle Standards intended to make vehicles safe to use, control the emission of gas, particles or noise, secure vehicles against theft, provide for the security marking of vehicles and promote the saving of energy. The ADRs are applied to vehicles as criteria for approval under various regulatory pathways set out in the Road Vehicle Standards legislation. Vehicles approved under these regulatory pathways can be provided to the market in Australia for use in transport. ADRs apply equally to imported and locally manufactured vehicles

## **2.2. Overview of the ADR**

Clause 2.1 clarifies that this national road vehicle standard sets exhaust emission requirements for engines used in heavy road motor vehicles (passenger (M category) and goods carrying (N category) vehicles with a gross vehicle mass over 3.5 tonnes).

The policy intent of the requirements mandated through ADR 80/04 is to reduce the public health impacts of exhaust emissions produced by heavy road motor vehicles, such as oxides of nitrogen (NO<sub>x</sub>) and particulate matter (PM), which can cause respiratory and cardiovascular illnesses and cancer. This is because heavy road motor vehicles, particularly diesel vehicles, are a significant source of these air pollutants, particularly near roads with higher volumes of vehicle traffic.

## **2.3. Design Requirement**

Heavy vehicle engines conforming to ADR 80/04 are designed to produce up to 80 per cent less oxides of nitrogen and up to 66 per cent less particulate emissions than vehicles meeting the minimum requirements specified in ADR 80/03. To meet the performance based requirements of the ADR, most heavy diesel vehicles will need be fitted with a selective catalytic reduction (SCR) system (which uses a consumable reagent to break down oxides of nitrogen), an exhaust gas recirculation (EGR) system to reduce the production of oxides of nitrogen and a particulate filter to burn off particulate emissions produced in the combustion process.

Clause 5.1 requires all heavy vehicles (except battery electric and hydrogen fuel cell vehicles) to meet the requirements set out in Appendix A of this standard, as varied by Section 6 Exemptions and Alternative Procedures or the alternative standards in Section 7. Appendix A is the UN Regulation No. 49 – *Uniform provisions concerning the measures to be taken against the emission of gaseous and particulate pollutants from compression-ignition engines and positive ignition engines for use in vehicles*, incorporating the 07 series of amendments. This series of UN Regulation 49 is based on the Euro VI standards adopted in the European Union.

The key changes from ADR 80/04 relative to ADR 80/03 are:

- an increase in the distance a vehicle’s emission control systems is required to meet the relevant performance requirements;
- a 70 per cent reduction in emissions limits for hydrocarbons;
- a 77-80 per cent reduction in the emissions limits for NOx;
- a 50-66 per cent reduction in the mass emissions limits for particulates;
- the introduction of a limit on the number of particles to control fine particle emissions, which can go further into the bloodstream and lungs;
- improved emissions tests (laboratory and on-road) to ensure reductions in emissions are also realised during normal operation on the road; and
- more stringent requirements for on-board diagnostic systems that monitor the emissions control systems, including a reduction in the thresholds at which a malfunction is detected and an increased frequency of monitoring (in-use performance ratio).

**Table 1 - Euro V and Euro VI emissions limits for heavy diesel vehicles**

<b>Emission</b>	<b>Euro V (Stationary Cycle<sup>1</sup>)</b>	<b>Euro V (Transient Cycle<sup>2</sup>)</b>	<b>Euro VI (Stationary Cycle)</b>	<b>Euro VI (Transient Cycle)</b>
<b>Oxides of nitrogen (NOx)</b>	2,000 mg/kWh	2,000 mg/kWh	400 mg/kWh (80% lower)	460 mg/kWh (77% lower)
<b>Particulate matter</b>	20 mg/kWh	30 mg/kWh	10 mg/kWh (50% lower)	10 mg/kWh (66% lower)

<sup>1</sup> A stationary cycle test is performed at steady engine speeds, similar to highway operation

<sup>2</sup> A transient cycle test is performed at more variable engine speeds, similar to city operation

## 2.4. Exemptions and Alternative Procedures

### Exemptions

Section 6 creates exemptions from some requirements of Appendix A (UN R49) which pertain to gaining a Type Approval in the UN context. This is because they are not required in the Australian context where the Commonwealth administers approvals through the Act and the ADRs. Consequently, manufacturers supplying new vehicles to Australia are exempt from most administrative (non-technical) requirements of UN R49. Section 6 also provides that the requirements of UN R49 which go beyond the Stage C requirements are not mandatory under ADR 80/04. This is because a regulatory impact analysis found the costs of adopting additional testing required to comply with Stage D or E would outweigh the benefits to the community.

Clause 6.1 states that compliance with sections 3, 4, 8, 9, 10, 11, 12, 13 and 14, Appendices 1 to 4 and annexes 1 and 2A, 2B, 2C, 2D, 3 and 13 of UN R49 are not required for the purposes of complying with ADR 80/04. This is because they refer to gaining a Type Approval in the UN context.

### Alternative Procedures

Clause 6.2 provides that vehicles fitted with an emission system that uses a consumable reagent (such as diesel exhaust fluid) is not required to comply with the reagent freeze protection requirements in Clause 2.4 of Annex 11 of Appendix A. This is because the requirements of this test, which is performed at -18 degrees Celsius, are not relevant to Australian conditions and would increase regulatory burden for no real-world benefit.

Clause 6.3. states that the on-board diagnostic system fitted to the engine or vehicle type must comply with the requirements meeting the Euro VI Stage C requirements. These systems monitor the performance of the emission systems and may prompt the operator to undertake corrective action, if the emission systems are found to be malfunctioning.

Clause 6.4 states that documentation required in specified parts of Appendix A need not be supplied in an application for a vehicle or component type approval under the *Road Vehicle Standards Rules* but must be retained and supplied to the Department on request.

Clauses 6.5 and 6.6 modify the requirements for the on-road tests using a Portable Emissions Measurement System (PEMS) in Annexes 8 and 10 of Appendix A to avoid the need for vehicle manufacturers to perform additional PEMS testing specifically for the Australian market. This is because the cost that would be borne by manufacturers to perform additional testing specifically for the Australian market would outweigh the benefits to the community due to the relatively small number of heavy vehicles sold in Australia (around 50,000 units per year compared with over 1 million light vehicles).

Clause 6.7 permits vehicles powered by a hybrid electric powertrain to be tested in accordance with the technical requirements of Amendment 4 of United Nations Global Technical Regulation No. 4 (GTR 4) in lieu of the requirements of Appendices 1-6 of Annex 4 of Appendix A. This is because the UN Regulation adopted as Appendix A adopts an earlier version of GTR 4 that does not include the latest testing provisions for hybrid electric vehicles.

## 2.5. Alternative Standards

Section 7 sets out standards that are considered to be equivalent to ADR 80/04. If a vehicle meets the requirements of one of these standards, it also complies with ADR 80/04. These alternative standards are acceptable because they are expected to achieve an equivalent policy outcome. Vehicle manufacturers have the flexibility to demonstrate compliance to ADR 80/04 through clause 5.1 and Appendix A as varied by Section 6 Exemptions and Alternative Procedures, or through Section 7 Alternative Standards.

Clause 7.1 identifies United Nations Regulation No. 49 – *Uniform provisions concerning the measures to be taken against the emission of gaseous and particulate pollutants from compression-ignition engines and positive ignition engines for use in vehicles*, incorporating the 06 or 07 series of amendments, as an acceptable alternative standard, if the vehicle meets the Stage C or later requirements. This standard is featured in Appendix A of ADR 80/04 and makes up most of the technical requirements of ADR 80/04. These are the sixth and seventh series of amendments to the original internationally agreed standard for heavy vehicle noxious emissions.

Clause 7.2 identifies United Nations Regulation No. 83 *Uniform provisions concerning the approval of vehicles with regard to the emission of pollutants according to engine fuel requirements*, incorporating all amendments up to and including the 07 series of amendments as an acceptable alternative standard. This is an equivalent UN regulation based on the Euro 6b and 6c requirements for vehicles with a kerb mass up to 2,610kg and variants with a kerb mass up to 2,840kg, including some NB1 category vehicles sold in Australia.

Clause 7.3 identifies United Nations Regulation No. 154 – *Uniform provisions concerning the approval of light duty passenger and commercial vehicles with regards to criteria emissions, emissions of carbon dioxide and fuel consumption and/or the measurement of electric energy consumption and electric range (WLTP)*, as an acceptable alternative standard. This is the latest equivalent UN regulation based on the Euro 6d requirements for vehicles with a kerb mass up to 2,610kg and variants with a kerb mass up to 2,840kg, including some NB1 category vehicles sold in Australia.

Clause 7.4 identifies the Commission Regulation (EU) No 582/2011 of 25 May 2011 implementing and amending Regulation (EC) No 595/2009 of the European Parliament and of the Council with respect to emissions from heavy duty vehicles (Euro VI) and amending Annexes I and III to Directive 2007/46/EC of the European Parliament and of the Council, as an acceptable alternative standard. This is the equivalent European regulation adopting the Euro VI emission requirements for heavy vehicles are the sixth and seventh series of amendments to the original internationally agreed standard for heavy vehicle noxious emissions.

Clause 7.5 identifies the United States (US) Code of Federal Regulations (CFR), Part 86 – Control of air pollution from new and in-use motor vehicles and new and in-use motor vehicle engines certification and test procedures - Subpart A 40 CFR 86.007-11 Emission standards and supplemental requirements for 2007 and later model year diesel heavy-duty engines and vehicles, as an acceptable alternative standard.



Clause 7.6, identifies the technical requirements of the United States Code of Federal Regulations (CFR), Part 86 - Control of air pollution from new and in-use motor vehicles and new and in-use motor vehicle engines certification and test procedures - Subpart A 40 CFR 86.008-10 Emission standards for 2008 and later model year Otto-cycle heavy-duty engines and vehicles, as an acceptable alternative standard for engines which operate on petrol, liquefied petroleum gas or natural gas.

Clause 7.7, identifies the technical requirements of the United States Code of Federal Regulations (CFR) Title 40, Part 86 – Control of air pollution from new and in-use motor vehicles and new and in-use motor vehicle engines certification and test procedures, Tier 3 requirements as specified by Subpart S 86.1811-17 Exhaust Emission standards for light-duty vehicles, light-duty trucks and medium-duty passenger vehicles as an acceptable alternative standard for vehicles with a gross vehicle mass over 3,500kg that fall within the scope of the US noxious emission standards for light vehicles. These include some variants of American pick-up trucks converted to right hand drive for the Australian market.

Clauses 7.8 (for diesel vehicles), 7.9 (for petrol and liquefied petroleum gas vehicles) and 7.10 (for natural gas vehicles) identifies the technical requirements of the heavy vehicle noxious emission standards adopted by Japanese Ministry of Instructure, Transport and Tourism (as last amended on 15 February 2019) as an acceptable alternative standard.

### **3. MATTERS INCORPORATED BY REFERENCE**

#### **3.1. Other Legislative Instruments**

Clause 4.1.1 of ADR 80/04 includes a reference to the Vehicle Standard (Australian Design Rule Definitions and Vehicle Categories) 2005 (which may also be cited as the Australian Design Rule – Definitions and Vehicle Categories). This sets out definitions for many terms used in the ADRs, including the vehicle categories used in ADR applicability tables.

The ADRs may be freely accessed online through the Federal Register of Legislation. The website is [www.legislation.gov.au](http://www.legislation.gov.au).

In accordance with subsection 12 of the Act, each of these ADRs are incorporated as in force or existing from time to time. The ellipses (...) indicates the version(s) (e.g. 00, 01 etc.) of the ADR in force at the time.

#### **3.2. International Vehicle Regulations**

##### ***United Nations Regulations and/or Resolutions***

Clause 6.6 includes a reference to Amendment 4 of United Nations Global Technical Regulation (GTR) No. 4 *United Nations Global Technical Regulation on Test procedure for compression ignition (C.I.) engines and positive-ignition (P.I.) engines fuelled with natural gas (NG) or liquefied petroleum gas (LPG) with regard to the emission of pollutants (WHTC)*. This GTR is the latest international standard for engine bench testing agreed by contracting parts to the United Nations 1998 agreement on

Clause 7.1 includes a reference to Supplement 4 to the 06 series of amendments or later to United Nations Regulation No. 49 – *Uniform provisions concerning the measures to be taken against the emission of gaseous and particulate pollutants from compression-ignition engines and positive ignition engines for use in vehicles*. This regulation is based on the international (Euro VI) standards for heavy vehicle noxious emissions.

Clause 7.2 includes a reference to the 07 series of amendments to United Nations Regulation No. 83 – *Uniform provisions concerning the approval of vehicles with regard to the emission of pollutants according to engine fuel requirements*. This regulation is based on the Euro 6b and 6c standards for light vehicle noxious emissions. UN Regulation 83/07 is accepted as an alternative standard for heavy vehicle models with a reference mass under 2,610 kg that are unable to obtain a type approval to UN Regulation 49.

Clause 7.3 includes a reference to United Nations Regulation No. 154 – *Uniform provisions concerning the approval of light duty passenger and commercial vehicles with regards to criteria emissions, emissions of carbon dioxide and fuel consumption and/or the measurement of electric energy consumption and electric range (WLTP)*. Level 1A of UN Regulation 154 is based the Euro 6d laboratory test requirements for light vehicle noxious emissions. UN Regulation 154 is accepted as an alternative standard for heavy vehicle models with a reference mass under 2,610 kg that are unable to obtain a type approval to UN Regulation 49.

Appendix A (which adopts the text of UN Regulation 49/07) includes a number of references to UN vehicle regulations and resolutions. Further information on these references can be found in table 2.

**Table 2 – UN Regulations and Resolutions referenced in Appendix A.**

<b><i>UN Regulations/Resolutions</i></b>	<b><i>References in Appendix A</i></b>
<i>Consolidated Resolution on the Construction of Vehicles (R.E.3.), document ECE/TRANS/WP.29/78/Rev.6.</i>	<i>Cl. 1.1, 4.12.3.1                      Annex 2B, 2C ,                      Section I, Cl 0.4                      Annex 7, Cl 3.2.1.8,                      Table 1                      Annex 9A, Cl.2.4.1                      Annex 11, Cl.2.1.1</i>
<i>UN Regulation No. 83 - Uniform provisions concerning the approval of vehicles with regard to the emission of pollutants according to engine fuel requirements</i>	<i>Cl. 1.2, 5.24                      Annex 6, Cl. 2.1,                      2.2, 3.1, 3.2                      Annex 8, Appendix                      2, Cl A2.2.5.1.9                      Annex 9A Cl. 2.4.1,                      2.4.1.1-2.4.1.3,                      2.4.1.5.1                      Annex 11, Cl. 2.1.1,                      2.1.2.1-2.1.2.2.4</i>
<i>UN Regulation No. 85 - Uniform provisions concerning the approval of internal combustion engines or electric drive trains intended for the propulsion of motor vehicles of categories M and N with regard to the measurement of net power and the maximum 30 minutes power of electric drive trains</i>	<i>Cl. 2.38, 8.5.4,                      9.4.2.3, 9.4.2.5,                      9.4.3.3.1, 9.4.3.4.                      Annex 1, footnote 6                      to Part 2 of Table,                      Appendix to                      information                      document Cl 5.2                      Annex 3, example 5</i>

<b><i>UN Regulations/Resolutions</i></b>	<b><i>References in Appendix A</i></b>
<i>UN Regulation No. 154 - Uniform provisions concerning the approval of light duty passenger and commercial vehicles with regards to criteria emissions, emissions of carbon dioxide and fuel consumption and/or the measurement of electric energy consumption and electric range (WLTP)</i>	<i>Cl. 1.2, 5.24 Annex 8, Appendix 2, Cl. A.2.2.5.1.9 Annex 9A, Appendix 1, Cl. 2.4.1, 2.4.1.4, 2.4.1.5.1 Annex 12, Appendix 1, Cl. A.1.2.1</i>
<i>UN Regulation No. 101 - Uniform provisions concerning the approval of passenger cars powered by an internal combustion engine only, or powered by a hybrid electric power train with regard to the measurement of the emission of carbon dioxide and fuel consumption and/or the measurement of electric energy consumption and electric range, and of categories M1 and N1 vehicles powered by an electric power train only with regard to the measurement of electric energy consumption and electric range</i>	<i>Annex 2B and 2C, end of Section II Annex 12, Appendix 1, Cl. A.1.2.1.2, A.1.2.1.3.</i>
<i>UN/ECE Regulation No. 37 - Uniform provisions concerning the approval of filament lamps for use in approved lamp units of power-driven vehicles and of their trailers</i>	<i>Annex 9B, Cl. 4.6.1</i>

The Consolidated Resolution on the Construction of Vehicles (R.E.3.), document ECE/TRANS/WP.29/78/Rev.6, and the UN Regulations (including Regulations 37, 49, 83, 85, 101 and 154), may be freely accessed online through the UN World Forum for the Harmonization of Vehicle Regulations (WP.29). The WP.29 website is [www.unece.org/trans/main/welcwp29.html](http://www.unece.org/trans/main/welcwp29.html).

In accordance with subsections 14(1)(b) and 14(2) of the *Legislation Act 2003*, each of these UN documents are incorporated as in force on the date this national road vehicle standard is made.

### ***European Union (EU) Regulations***

Clause 7.4 includes a reference to Regulation (EC) No 595/2009 of the European Parliament and of the Council of 18 June 2009 together with the technical requirements of Commission Regulation (EU) No 582/2011 of 25 May 2011, incorporating all amendments up to and including those adopted in Commission Regulation (EU) No 627/2014 of 12 June 2014 or later. These are the European regulations implementing the Euro VI noxious emission standard for heavy vehicles.

European Union regulations including Regulation (EC) No 595/2009 and Regulation (EU) No 582/2011 may be freely accessed online through the EUR-Lex website. The English version of the EUR-Lex website [eur-lex.europa.eu/homepage.html?locale=en](http://eur-lex.europa.eu/homepage.html?locale=en).

In accordance with subsections 14(1)(b) and 14(2) of the *Legislation Act 2003*, the EU regulation is incorporated as in force on the date this national road vehicle standard is made.

### ***United States Code of Federal Regulations (US CFR)***

Clause 7.5 includes a reference to the United States Code of Federal Regulations (CFR), Part 86 – Control of air pollution from new and in-use motor vehicles and new and in-use motor vehicle engines certification and test procedures - Subpart A 40 CFR 86.007-11 Emission standards and supplemental requirements for 2007 and later model year diesel heavy-duty engines and vehicles. This is the equivalent US standard regulating heavy vehicle noxious emissions.

Clause 7.6 includes a reference to the United States Code of Federal Regulations (CFR), Part 86 - Control of air pollution from new and in-use motor vehicles and new and in-use motor vehicle engines certification and test procedures - Subpart A 40 CFR 86.008-10 Emission standards for 2008 and later model year Otto-cycle heavy-duty engines and vehicles. This is the equivalent US standard regulating heavy vehicle noxious emissions for vehicles powered by petrol, liquefied petroleum gas or natural gas.

Clause 7.7, identifies the technical requirements of the United States Code of Federal Regulations (CFR), Part 86 – Control of air pollution from new and in-use motor vehicles and new and in-use motor vehicle engines certification and test procedures, Tier 3 requirements as specified by Subpart S 40 CFR 86.1811-17 Exhaust Emission standards for light-duty vehicles, light-duty trucks and medium-duty passenger vehicles. This is the equivalent US noxious emission standards for light vehicles, which apply to some lighter vehicles within the scope of ADR 80/04.

The US CFR may be freely accessed online at [www.ecfr.gov](http://www.ecfr.gov).

In accordance with subsections 14(1)(b) and 14(2) of the *Legislation Act 2003*, these provisions of the US CFR are incorporated as in force on the date this national road vehicle standard is made.

### ***Japanese Ministry of Land, Infrastructure, Transport and Tourism (MLIT) Regulations***

Clause 7.8 includes a reference to the Japanese Ministry of Land, Infrastructure and Transport Announcement No. 619 of 15 July 2002 (as last amended by Announcement No. 212 of 15 February 2019), Chapter 2, Section 1, Article 41 (Emission Control Device), paragraph (5) [WHTC-Mode Mean Value Regulations at Time of Completion Inspection, etc. for Diesel Motor Vehicles (with GVW exceeding 3.5 tons)]. This is the equivalent Japanese standard regulating noxious emissions for diesel powered heavy vehicles.

Clause 7.9 includes a reference to the Japanese Ministry of Land, Infrastructure and Transport Announcement No. 619 of 15 July 2002 (as last amended by Announcement No. 212 of 15 February 2019), Chapter 2, Section 1, Article 41 (Emission Control Device), paragraph (1) [JE05-Mode Mean Value Regulations at Time of Completion Inspection, etc. for Gasoline•LPG Motor Vehicles (with GVW exceeding 3.5 tons)]. This is the equivalent Japanese standard regulating noxious emissions for petrol and liquefied petroleum gas powered heavy vehicles.

Clause 7.10 Japanese Ministry of Land, Infrastructure and Transport Announcement No. 619 of 15 July 2002 (as last amended by Announcement No. 212 of 15 February 2019), Chapter 2, Section 1, Article 41 (Emission Control Device), paragraph (1) [JE05-Mode Mean Value Regulations at Time of Completion Inspection, etc. for Motor Vehicles Fueled by Other Fuel (with GVW exceeding 3.5 tons)]. This is the equivalent Japanese standard regulating noxious emissions for natural gas powered heavy vehicles.

The Japanese MLIT Regulations are available for purchase only from the Japanese Automobile Standards Internationalization Center (JASIC). While not freely available, these standards are all readily accessible and widely used by vehicle manufacturers and test facilities as part of their professional libraries. Section 49 of the explanatory memorandum for the Road Vehicle Standards Bill 2018 explains the importance of being able to incorporate technical standards that are not available free of charge and this arrangement was accepted by the Parliament through the passing of the Road Vehicle Standards Bill 2018.

Section 12 of the Act allows the Minister to incorporate a broad range of documents, both as in force at a particular time and as in force from time to time, when making national vehicle standards. This ensures that Australia's legislative framework is well-prepared for future developments in the international road vehicle space.

In accordance with subsections 14(1)(b) and 14(2) of the *Legislation Act 2003*, these provisions of the Japanese MLIT Regulations are incorporated as in force on the date this national road vehicle standard is made.

### **3.3. Technical standards**

Appendix A (which adopts the text of UN Regulation 49/07) includes a number of references to technical standards developed by organisations. These are:

- American Society for Testing and Materials (ASTM)
- International Organization for Standardization (ISO)
- European Committee for Standardization (CEN)
- Society of Automotive Engineers (SAE)
- German Institute for Standardisation (DIN)

Table 3 contains a list of the standards referenced in Appendix A as varied by Clause 6.1 of the ADR.<sup>3</sup>

ASTM standards may be freely accessed online through the ASTM International Reading Room. This requires the user to register using an email and password. The ASTM International Reading Room website is [www.astm.org/readinglibrary/](http://www.astm.org/readinglibrary/).

---

<sup>3</sup> Clause 6.1 states that compliance with certain parts of Appendix A are not required to comply with this vehicle standard. To minimise confusion, standards referenced in these parts of Appendix A are not included in Table 3.

The ISO, CEN, SAE and DIN standards are available for purchase only from the International Organization for Standardization (ISO) and various associated national standards bodies.

While not freely available, these standards are all readily accessible and widely used by vehicle manufacturers and test facilities as part of their professional libraries. Section 49 of the explanatory memorandum for the Road Vehicle Standards Bill 2018 explains the importance of being able to incorporate technical standards that are not available free of charge and this arrangement was accepted by the Parliament through the passing of the Road Vehicle Standards Bill 2018.

Section 12 of the Act allows the Minister to incorporate a broad range of documents, both as in force at a particular time and as in force from time to time, when making national vehicle standards. This ensures that Australia’s legislative framework is well-prepared for future developments in the international road vehicle space.

In accordance with subsections 14(1)(b) and 14(2) of the *Legislation Act 2003*, each of these standards are incorporated as in force on the date this national road vehicle standard is made.

**Table 3 – Technical Standards adopted by reference in Appendix A**

<b>Technical Standard</b>	<b>References in Appendix A</b>
<i>ASTM E 29-06B - Standard Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications</i>	<i>Annex 4, Cl. 8, 10.4.4.4. Annex 8, Appendix 1, Cl. A1.3. Annex 10, Cl. 7.6</i>
<i>ASTM F 1471-93 - Standard Test Method for Air Cleaning Performance of a High-Efficiency Particulate Air- Filter System</i>	<i>Annex 4, App. 2, Cl A.2.2.2., A.2.2.4</i>
<i>ASTM D 974 - Standard Test Method for Acid and Base Number by Color-Indicator Titration</i>	<i>Annex 5, table: Type: diesel (B7)</i>
<i>ASTM D1617 - Standard Test Method for Ester Value of Solvents and Thinners</i>	<i>Annex 5, table: Type: Ethanol for dedicated compression ignition engines (ED95)</i>
<i>ASTM E 1064 - Standard Test Method for Water in Organic Liquids by Coulometric Karl Fischer Titration</i>	<i>Annex 5, table Type: Petrol (E10)</i>
<i>ASTM D 3231 - Standard Test Method for Phosphorus in Gasoline</i>	<i>Annex 5, table Type: Petrol (E10)</i>
<i>ASTM D 3246 - Standard Test Method for Sulfur in Petroleum Gas by Oxidative Microcoulometry</i>	<i>Annex 5, table Type: LPG</i>
<i>ASTM 6667 – Standard Test Method For Determination Of</i>	<i>Annex 5, table</i>

<b>Technical Standard</b>	<b>References in Appendix A</b>
<i>Total Volatile Sulfur in Gaseous Hydrocarbons and Liquefied Petroleum Gases by Ultraviolet Fluorescence</i>	<i>Type: LPG</i>
<i>ASTM7150-09 - Standard Test Method for Evaluation of Diesel Engine Oils in the T-11 Exhaust Gas Recirculation Diesel Engine</i>	<i>Annex 13, Appendix 4, Cl. 2.4.4.3</i> <i>Annex 13, Appendix 7, Cl. 1</i>
<i>EN ISO 4264 - Petroleum products - Calculation of cetane index of middle-distillate fuels by the four variable equation</i>	<i>Annex 5, table: Type: diesel (B7)</i>
<i>EN-ISO 5165 - Petroleum products - Determination of the ignition quality of diesel fuels - Cetane engine method</i>	<i>Annex 5, table: Type: diesel (B7)</i>
<i>EN ISO 3675 - Crude Petroleum and Liquid Petroleum Products. Laboratory Determination of Density. Hydrometer Method</i>	<i>Annex 5, table: Type: diesel (B7)</i> <i>Annex 5, table Type: Petrol (E10)</i> <i>Annex 5,table: Type: Ethanol (E85)</i>
<i>EN-ISO 3405 - Petroleum and related products from natural or synthetic sources - Determination of distillation characteristics at atmospheric pressure</i>	<i>Annex 5, table: Type: diesel (B7)</i>
<i>EN ISO 12185 - Crude petroleum and petroleum products - Determination of density - Oscillating U-tube method</i>	<i>Annex 5, table: Type: diesel (B7)</i> <i>Annex 5, table: Type: Ethanol for dedicated compression ignition engines (ED95)</i> <i>Annex 5, table: Type: Petrol (E10)</i>
<i>EN-ISO 3104 - Petroleum products - Transparent and opaque liquids - Determination of kinematic viscosity and calculation of dynamic viscosity</i>	<i>Annex 5, table: Type: diesel (B7)</i>
<i>EN ISO 20846 - Petroleum products - Determination of sulfur content of automotive fuels - Ultraviolet fluorescence method</i>	<i>Annex 5, table: Type: diesel (B7)</i> <i>Annex 5, table: Type: Petrol (E10)</i>



<b>Technical Standard</b>	<b>References in Appendix A</b>
<i>EN ISO 20884 - Petroleum products - Determination of sulfur content of automotive fuels - Wavelength-dispersive X-ray fluorescence spectrometry</i>	<i>Annex 5, table: Type: diesel (B7)</i>  <i>Annex 5, table: Type: Petrol (E10)</i>
<i>EN-ISO 2160 - Petroleum products - Corrosiveness to copper - Copper strip test</i>	<i>Annex 5, table: Type: diesel (B7)</i>  <i>Annex 5, table: Type: Petrol (E10)</i>  <i>Annex 5, table: Type: Ethanol (E85)</i>
<i>EN-ISO 10370 - Petroleum products - Determination of carbon residue - Micro method</i>	<i>Annex 5, table: Type: diesel (B7)</i>
<i>EN-ISO 6245 - Petroleum products - Determination of ash</i>	<i>Annex 5, table: Type: diesel (B7)</i>
<i>EN-ISO 12937 - Petroleum products - Determination of water - Coulometric Karl Fischer titration method</i>	<i>Annex 5, table: Type: diesel (B7)</i>  <i>Annex 5, table: Type: Ethanol for dedicated compression ignition engines (ED95)</i>
<i>EN-ISO 12205 - Petroleum products - Determination of the oxidation stability of middle-distillate fuels</i>	<i>Annex 5, table: Type: diesel (B7)</i>
<i>EN ISO 12156 - Diesel fuel — Assessment of lubricity using the high-frequency reciprocating rig (HFRR)</i>	<i>Annex 5, table: Type: diesel (B7)</i>
<i>EN ISO 8819 - Liquefied petroleum gases - Detection of hydrogen sulfide - Lead acetate method</i>	<i>Annex 5, table Type: LPG</i>
<i>ISO 1388-4 - Ethanol for industrial use — Methods of test — Part 4: Estimation of content of carbonyl compounds present in moderate amounts — Titrimetric method</i>	<i>Annex 5, table: Type: Ethanol for dedicated compression ignition engines (ED95)</i>
<i>EN ISO 13016-1 - Liquid petroleum products - Vapour pressure - Part 1: Determination of air saturated vapour pressure (ASVP) and calculated dry vapour pressure equivalent (DVPE)</i>	<i>Annex 5, table: Type: Petrol (E10)</i>  <i>Annex 5, table - Type: Ethanol (E85)</i>

<b>Technical Standard</b>	<b>References in Appendix A</b>
<i>EN-ISO 7536 - Petroleum products - Determination of oxidation stability of gasoline - Induction period method</i>	<i>Annex 5, table: Type: Petrol (E10)  Annex 5, table: Type: Ethanol (E85)</i>
<i>EN-ISO 6246 - Petroleum products - Gum content of fuels - Jet evaporation method</i>	<i>Annex 5, table: Type: Petrol (E10)  Annex 5, table: Type: Ethanol (E85)</i>
<i>EN ISO 5164 - Petroleum products - Determination of knock characteristics of motor fuels - Research method</i>	<i>Annex 5, table: Type Petrol (E10)  Annex 5, table: Type: Ethanol (E85)</i>
<i>EN ISO 5163 - Petroleum products - Determination of knock characteristics of motor and aviation fuels - Motor method</i>	<i>Annex 5, table: Type Petrol (E10)  Annex 5, table: Type: Ethanol (E85)</i>
<i>EN ISO 7536 - Petroleum products - Determination of oxidation stability of gasoline - Induction period method</i>	<i>Annex 5, table: Type: Ethanol (E85)</i>
<i>ISO 6251 - Liquefied petroleum gases — Corrosiveness to copper — Copper strip test</i>	<i>Annex 5, table: Type: LPG</i>
<i>ISO 6974 - Natural gas. Determination of composition with defined uncertainty by gas chromatography</i>	<i>Annex 5, table: Type: Natural Gas/ Biomethane</i>
<i>ISO 6326-5 Natural Gas - Determination of Sulfur Compounds - Part 5: Lingener Combustion Method</i>	<i>Annex 5, table: Type: Natural Gas/ Biomethane</i>
<i>ISO 2575:2004 - Road vehicles — Symbols for controls, indicators and tell-tales</i>	<i>Cl. 6.2.1</i>
<i>ISO 8422/1991 - Sequential sampling plans for inspection by attributes</i>	<i>Appendix 3, Cl. A3.5</i>
<i>ISO 5725-Accuracy of Measurement Methods and Results</i>	<i>Annex 4, Cl. 5.1.1</i>
<i>ISO 5167 - Measurement of fluid flow by means of pressure differential devices inserted in circular cross-section conduits running full</i>	<i>Annex 4, Cl. 8.4.1.3.</i>

<b>Technical Standard</b>	<b>References in Appendix A</b>
<i>ISO 9000 – Quality Management</i>	<i>Annex 4, Cl. 9.2 Annex 4, App. 7, Cl. A.7.4.1.</i>
<i>ISO 4259 Petroleum products – Determination and application of precision data in relation to methods of test</i>	<i>Annex 5, table: Type: diesel (B7) Annex 5, table: Type: Ethanol for dedicated compression ignition engines (ED95) Annex 5, table: Type: Petrol (E10)</i>
<i>ISO Standard 7000:2004 - Graphical symbols for use on equipment</i>	<i>Annex 9B, Cl.4.6.1.</i>
<i>ISO 27145 - Road vehicles — Implementation of World-Wide Harmonized On-Board Diagnostics (WWH-OBD) communication requirements</i>	<i>Annex 9B, Cl.4.7.3 Annex 9B, App.6</i>
<i>ISO 15765-4 - Road vehicles — Diagnostic communication over Controller Area Network (DoCAN) — Part 4: Requirements for emissions-related systems</i>	<i>Annex 9B, Cl.4.7.3</i>
<i>ISO 13400 - Road vehicles — Diagnostic communication over Internet Protocol (DoIP)</i>	<i>Annex 9B, Cl.4.7.3 Annex 9B, App. 6</i>
<i>ISO 15031-3 Road vehicles — Communication between vehicle and external equipment for emissions-related diagnostics — Part 3: Diagnostic connector and related electrical circuits: Specification and use</i>	<i>Annex 9B, Cl. 4.7.3.1</i>
<i>ISO 15031 Data analysis for diagnostic applications using OBD</i>	<i>Annex 9B, Cl. 4.7.3.3</i>
<i>ISO 15031-7 Road vehicles — Communication between vehicle and external equipment for emissions-related diagnostics — Part 7: Data link security</i>	<i>Annex 9B, Cl. 4.6</i>
<i>ISO 3675 - Crude Petroleum and Liquid Petroleum Products. Laboratory Determination of Density. Hydrometer Method</i>	<i>Annex 12, Appendix 1, Cl. A.1.2.1.2.</i>
<i>ISO 8178 - Reciprocating internal combustion engines — Exhaust emission measurement</i>	<i>Annex 15, App. 6, Cl. A.6.4.2</i>

<b>Technical Standard</b>	<b>References in Appendix A</b>
<i>EN 16709 - Automotive fuels - High FAME diesel fuel (B20 and B30) - Requirements and test methods</i>	<i>Cl. 4.6.2</i>
<i>EN 15940 Automotive fuels - Paraffinic diesel fuel from synthesis or hydrotreatment - Requirements and test method</i>	<i>Cl. 4.6.2</i>
<i>EN 1822 - High efficiency air filters (EPA, HEPA and ULPA)</i>	<i>Annex 4, App. 2, Cl A.2.2.2, A.2.2.4  Annex 4, App. 8 Cl. A.8.2.1.3, A.8.2.3.1, A.8.2.3.3</i>
<i>EN 22719 - Petroleum Products and Lubricants - Determination of Flash Point - Pensky-Martens Closed Cup Method</i>	<i>Annex 5, table: Type: diesel (B7)</i>
<i>EN 116 - Diesel and domestic heating fuels - Determination of cold filter plugging point - Stepwise cooling bath method</i>	<i>Annex 5, table: Type: diesel (B7)</i>
<i>EN 12916 - Petroleum products - Determination of aromatic hydrocarbon types in middle distillates - High performance liquid chromatography method with refractive index detection</i>	<i>Annex 5, table: Type: diesel (B7)</i>
<i>EN 12662 - Liquid petroleum products - Determination of total contamination in middle distillates, diesel fuels and fatty acid methyl esters</i>	<i>Annex 5, table: Type: diesel (B7)</i>
<i>EN 15751 - Automotive fuels - Fatty acid methyl ester (FAME) fuel and blends with diesel fuel - Determination of oxidation stability by accelerated oxidation method</i>	<i>Annex 5, table: Type: diesel (B7)</i>
<i>EN 14078 - Liquid petroleum products - Determination of fatty acid methyl ester (FAME) content in middle distillates - Infrared spectrometry method</i>	<i>Annex 5, table: Type: diesel (B7)</i>
<i>EN 14214 - Liquid petroleum products - Fatty acid methyl esters (FAME) for use in diesel engines and heating applications - Requirements and test methods</i>	<i>Annex 5, table: Type: diesel (B7)</i>
<i>EN 15721 - Ethanol as a blending component for petrol - Determination of higher alcohols, methanol and other impurities - Gas chromatographic method</i>	<i>Annex 5, table: Type: Ethanol for dedicated compression ignition engines (ED95)</i>

<b>Technical Standard</b>	<b>References in Appendix A</b>
<i>EN 15491 - Ethanol as a blending component for petrol - Determination of total acidity - Colour indicator titration method</i>	<i>Annex 5, table: Type: Ethanol for dedicated compression ignition engines (ED95)</i>
<i>EN 3679 - Determination of flash no-flash and flash point - Rapid equilibrium closed cup method (ISO 3679:2015)</i>	<i>Annex 5, table: Type: Ethanol for dedicated compression ignition engines (ED95)</i>
<i>EN 15691 - Ethanol as a blending component for petrol - Determination of dry residue (involatile material) - Gravimetric method</i>	<i>Annex 5, table: Type: Ethanol for dedicated compression ignition engines (ED95)</i>
<i>EN 15489 - Ethanol as a blending component for petrol - Determination of water content - Karl Fischer coulometric titration method</i>	<i>Annex 5, table: Type: Ethanol for dedicated compression ignition engines (ED95)  Annex 5, table: Type: Ethanol (E85)</i>
<i>EN 15692 - Ethanol as a blending component for petrol - Determination of water content - Karl Fischer potentiometric titration method</i>	<i>Annex 5, table: Type: Ethanol for dedicated compression ignition engines (ED95)  Annex 5, table: Type: Ethanol (E85)</i>
<i>EN 15485 - Ethanol as a blending component for petrol - Determination of sulfur content - Wavelength dispersive X-ray fluorescence spectrometric method</i>	<i>Annex 5, table: Type: Ethanol for dedicated compression ignition engines (ED95)  Annex 5, table: Type: Ethanol (E85)</i>
<i>EN 15486 - Ethanol as a blending component for petrol - Determination of sulfur content - Ultraviolet fluorescence method</i>	<i>Annex 5, table: Type: Ethanol for dedicated compression ignition engines (ED95)  Annex 5, table: Type: Ethanol (E85)</i>
<i>EN 15492 - Ethanol as a blending component for petrol - Determination of inorganic chloride and sulfate content -</i>	<i>Annex 5, table: Type: Ethanol for</i>

<b>Technical Standard</b>	<b>References in Appendix A</b>
<i>Ion chromatographic method</i>	<i>dedicated compression ignition engines (ED95)</i>  <i>Annex 5, table:</i> <i>Type: Ethanol (E85)</i>
<i>EN 12662 - Liquid petroleum products. Determination of total contamination in middle distillates, diesel fuels and fatty acid methyl esters</i>	<i>Annex 5, table:</i> <i>Type: Ethanol for dedicated compression ignition engines (ED95)</i>
<i>EN 15487 - Ethanol as a blending component for petrol - Determination of phosphorus content - Ammonium molybdate spectrometric method</i>	<i>Annex 5, table:</i> <i>Type: Ethanol for dedicated compression ignition engines (ED95)</i>
<i>EN 15484 - Ethanol as a blending component for petrol - Determination of inorganic chloride - Potentiometric method</i>	<i>Annex 5, table:</i> <i>Type: Ethanol for dedicated compression ignition engines (ED95)</i>
<i>EN 15488 - Ethanol as a blending component for petrol - Determination of copper content - Graphite furnace atomic absorption spectrometric method</i>	<i>Annex 5, table:</i> <i>Type: Ethanol for dedicated compression ignition engines (ED95)</i>
<i>EN 15938 - Automotive fuels - Ethanol blending component and ethanol (E85) automotive fuel - Determination of electrical conductivity</i>	<i>Annex 5, table:</i> <i>Type: Ethanol for dedicated compression ignition engines (ED95)</i>
<i>EN 14517 - Liquid petroleum products - Determination of hydrocarbon types and oxygenates in petrol - Multidimensional gas chromatography method</i>	<i>Annex 5, table:</i> <i>Type: Petrol (E10)</i>  <i>Annex 5, table:</i> <i>Type: Ethanol (E85)</i>
<i>EN 15553 - Petroleum products and related materials - Determination of hydrocarbon types - Fluorescent indicator adsorption method</i>	<i>Annex 5, table:</i> <i>Type: Petrol (E10)</i>
<i>EN 12177 - Liquid petroleum products - Unleaded petrol - Determination of benzene content by gas chromatography</i>	<i>Annex 5, table:</i> <i>Type: Petrol (E10)</i>
<i>EN 238 - Liquid petroleum products - Petrol - Determination of the benzene content by infrared spectrometry</i>	<i>Annex 5, table:</i> <i>Type: Petrol (E10)</i>

<b>Technical Standard</b>	<b>References in Appendix A</b>
<i>EN 1601 - Liquid petroleum products - Determination of organic oxygenate compounds and total organically bound oxygen content in unleaded petrol - Method by gas chromatography (O-FID)</i>	<i>Annex 5, table: Type: Petrol (E10)  Annex 5, table: Type: Ethanol (E85)</i>
<i>EN 13132 - Liquid petroleum products - Unleaded petrol - Determination of organic oxygenate compounds and total organically bound oxygen content by gas chromatography using column switching</i>	<i>Annex 5, table: Type: Petrol (E10)  Annex 5, table: Type: Ethanol (E85)</i>
<i>EN 237 - Liquid petroleum products - Petrol - Determination of low lead concentrations by atomic absorption spectrometry</i>	<i>Annex 5, table: Type: Petrol (E10)</i>
<i>EN 228 - Automotive fuels - Unleaded petrol - Requirements and test methods (includes Amendment :2017)</i>	<i>Annex 5, table: Type: Petrol (E10)  Annex 5, table: Type: Ethanol (E85)</i>
<i>EN 15376 - Automotive fuels - Ethanol as a blending component for petrol - Requirements and test methods</i>	<i>Annex 5, table: Type: Petrol (E10)  Annex 5, table: Type: Ethanol (E85)</i>
<i>EN 15490 - Ethanol as a blending component for petrol - Determination of pH<sub>e</sub></i>	<i>Annex 5, table: Type: Ethanol (E85)</i>
<i>EN 15491 - Ethanol as a blending component for petrol - Determination of total acidity - Colour indicator titration method</i>	<i>Annex 5, table: Type: Ethanol (E85)</i>
<i>EN 27941 - Commercial propane and butane - Analysis by gas chromatography (ISO 7941)</i>	<i>Annex 5, table Type: LPG</i>
<i>EN 15470 - Liquefied petroleum gases - Determination of dissolved residues - High temperature Gas chromatographic method</i>	<i>Annex 5, table Type: LPG</i>
<i>EN 15469 - Petroleum products - Test method for free water in liquefied petroleum gas by visual inspection</i>	<i>Annex 5, table Type: LPG</i>
<i>EN 24260 - Petroleum products and hydrocarbons - Determination of sulfur content - Wickbold combustion method (ISO 4260)</i>	<i>Annex 5, table Type: LPG</i>

<b>Technical Standard</b>	<b>References in Appendix A</b>
<i>EN 589 - Automotive fuels - LPG - Requirements and test methods</i>	<i>Annex 5, table Type: LPG</i>
<i>SAE J1939 - Diagnostic protocols for heavy-duty commercial vehicles</i>	<i>Annex 8, Appendix 1, Cl. A.1.2.4.4.</i>
<i>SAE J1708 - Serial Data Communications Between Microcomputer Systems in Heavy-Duty Vehicle Applications</i>	<i>Annex 8, Appendix 1, Cl. A.1.2.4.4.</i>
<i>SAE J1939-7 - Diagnostics Application Layer - defines the SAE J1939 messages to accomplish diagnostic services and identifies the diagnostic connector to be used for the vehicle service tool interface.</i>	<i>Annex 9B, Cl.4.7.3</i>
<i>SAE J1939-13 specifies the diagnostic connectors used for off-board connection to a vehicle's SAE J1939 communication links</i>	<i>Annex 9B, Cl. 4.7.3.3.</i>
<i>SAE J2186 - E/E Data Link Security</i>	<i>Annex 9B, Cl. 4.8</i>
<i>SAE Technical Paper 770141 - Optimization of a Flame Ionization Detector for Determination of Hydrocarbon in Diluted Automotive Exhausts</i>	<i>Annex 4, Cl. 9.3.7.1</i>
<i>SAE J1829 - Stoichiometric Air-Fuel Ratios of Automotive Fuels</i>	<i>Annex 4, App 5, A.5.5.1</i>
<i>DIN 51627-4 – Automotive Fuels – Test Methods – Part 4 - Determination of Electrical Conductivity in Ethanol Fuel</i>	<i>Annex 5: Table: Type: Ethanol for dedicated compression ignition engines (ED95)  Annex 5: Table: Type: Ethanol (E85)</i>
<i>E DIN 51627-3 Automotive Fuels - Test methods – Part 3: GC determination of contents of alcohols, ethers and petrol in ethanol fuel</i>	<i>Annex 5: Table: Type: Ethanol (E85)</i>



## **4. CONSULTATION**

### **4.1. General Consultation Arrangements**

It has been longstanding practice to consult widely on proposed new or amended vehicle standards. For many years, there has been active cooperation between the Commonwealth and the state/territory governments, as well as consultation with industry and consumer groups. Much of the consultation takes place within institutional arrangements established for this purpose. The analysis and documentation prepared in a particular case, and the bodies consulted, depend on the degree of impact the new or amended standard is expected to have on industry or road users.

Proposals that are regarded as significant need to be supported by a Regulation Impact Statement (RIS) meeting the requirements of the Office of Best Practice Regulation (OBPR) as published in the *Australian Government Guide to Regulatory Impact Analysis* or the *Regulatory Impact Analysis Guide for Ministers' Meetings and National Standard Setting Bodies*.

### **4.2. Specific Consultation Arrangements**

A consultation RIS 'Heavy Vehicle Emission Standards for Cleaner Air' was posted on the Department's website for public comment from 20 October 2020 to 26 February 2021. The RIS conforms to the requirements established by the OBPR in relation to regulatory proposals where the decision maker is the Australian Government's Cabinet, the Prime Minister, minister, statutory authority, board or other regulator. The OBPR reference number for the RIS is 21-01252.

Formal feedback to the RIS was received from members of the public, government agencies, industry bodies, health and environmental organisations. A majority of the feedback strongly or conditionally supported the implementation of a new ADR mandating Euro VI for heavy vehicles from the mid-2020s.

The Department also circulated an exposure draft of ADR 80/04 to the Technical Liaison Group (TLG) and the Strategic Vehicle Safety and Environment Group (SVSEG) for review and comment in October 2022.

TLG consists of technical representatives of government (Australian and state/territory), the manufacturing and operational arms of the industry (including organisations such as the Federal Chamber of Automotive Industries and the Australian Trucking Association) and of representative organisations of consumers and road users (particularly through the Australian Automobile Association).

SVSEG consists of senior representatives of government (Australian and state/territory), the manufacturing and operational arms of the industry and of representative organisations of consumers and road users (at a higher level within each organisation as represented in TLG).

## **5. REGULATORY IMPACT**

There are costs associated with mandating Euro VI noxious emission standards for heavy vehicles, but the related RIS shows that there will be positive net benefits. Overall, it is estimated that the implementation of ADR 80/04 will result in a net benefit of \$6,428 million by 2050 and a benefit-cost ratio of 3.52. The estimated health benefits and fuel savings from this measure (\$8,977 million by 2050) were found to outweigh any expected increases in capital costs for heavy vehicle manufacturers (\$1,488 million over the same period) or possible increases in operating costs for heavy vehicle operators and road managers (\$843 million over this period).

## **6. STATEMENT OF COMPATIBILITY WITH HUMAN RIGHTS**

The following Statement is prepared in accordance with Part 3 of the *Human Rights (Parliamentary Scrutiny) Act 2011*.

### **6.1. Overview**

ADR 80/04 specifies minimum performance-based requirements for exhaust emissions produced by heavy vehicles to reduce air pollution and its associated health impacts.

### **6.2. Human Rights Implications**

ADR 80/04 does not engage any of the human rights and freedoms recognised or declared in the international instruments listed in section 3 of the *Human Rights (Parliamentary Scrutiny) Act 2011*.

### **6.3. Conclusion**

ADR 80/04 is compatible with human rights, as it does not raise any human rights issues.