

דרישות לאישור רכב להובלת חומרים מסוכנים לפי ה ADR

סוגי המפרטים בהם נדרשים לעמוד כלי הרכב – בהתאמה לסוג החומר המסוכן המובל (סעיף 9.1 ב ADR):

EX/II, EX/III: רכב המיועד להוביל חומרים נפוצים (קבוצה 1).

FL: רכב המיועד להוביל גזים ונוזלים דליקים (קבוצות 2.1, 3, 4).

OX: רכב המיועד להוביל מי חמצן בריכוז מעל 60% (מס' או"מ 2015 קבוצה 5.1).

AT: רכב המיועד להוביל חומרים מסוכנים שלגביהם לא נדרש רכב מהסוגים הנ"ל.

תנאים:

- רק הצהרה החתומה ע"י יצרן/ יבואן הרכב, בדבר עמידה במפרט/ים הנ"ל, תהיה קבילה לצורך הוצאת אישור לרכב להוביל חומר מסוכן.
- בהתאם לסוג המפרט, יאושרו קבוצות החומרים המסוכנים המותרים להובלה ברכב.

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CHAPTER 9.2

REQUIREMENTS CONCERNING THE CONSTRUCTION OF VEHICLES

9.2.1 Compliance with the requirements of this Chapter

9.2.1.1 EX/II, EX/III, FL, OX and AT vehicles shall comply with the requirements of this Chapter, according to the table below.

For vehicles other than of EX/II, EX/III, FL, OX and AT:

- the requirements of 9.2.3.1.1 (Braking equipment in accordance with ECE Regulation No. 13 or Directive 71/320/EEC) are applicable to all vehicles first registered (or which entered into service if the registration is not mandatory) after 30 June 1997;
- the requirements of 9.2.5 (Speed limitation device in accordance with ECE Regulation No. 89 or Directive 92/24/EEC) are applicable to all motor vehicles with a maximum mass exceeding 12 tonnes first registered after 31 December 1987 and all motor vehicles with a maximum mass exceeding 3.5 tonnes but not more than 12 tonnes first registered after 31 December 2007.

TECHNICAL SPECIFICATIONS		VEHICLES					COMMENTS
		EX/II	EX/III	AT	FL	OX	
9.2.4	PREVENTION OF FIRE RISKS						
9.2.4.2	Vehicle cab					X	
9.2.4.3	Fuel tanks	X	X		X	X	
9.2.4.4	Engine	X	X		X	X	
9.2.4.5	Exhaust system	X	X		X		
9.2.4.6	Vehicle endurance braking		X	X	X	X	
9.2.4.7	Combustion heaters						
9.2.4.7.1		X ^d	X ^d	X ^d	X ^d	X ^d	^d Applicable to motor vehicles equipped after 30 June 1999. Mandatory compliance by 1 January 2010 for vehicles equipped before 1 July 1999. If the date of equipping is not available the date of first registration of the vehicle shall be used instead.
9.2.4.7.2							
9.2.4.7.3					X ^d		
9.2.4.7.4							^d Applicable to motor vehicles equipped after 30 June 1999. Mandatory compliance by 1 January 2010 for vehicles equipped before 1 July 1999. If the date of equipping is not available the date of first registration of the vehicle shall be used instead.
9.2.4.7.6		X	X				
9.2.5	SPEED LIMITATION DEVICE	X ^e	X ^e	X ^e	X ^e	X ^e	^e Applicable to motor vehicles with a maximum mass exceeding 12 tonnes first registered after 31 December 1987, and all motor vehicles with a maximum mass exceeding 3.5 tonnes but not more than 12 tonnes registered after 31 December 2007.
9.2.6	COUPLING DEVICE OF TRAILERS	X	X				

9.2.1.2 MEMUs shall comply with the requirements of this Chapter applicable to EX/III-vehicles.

9.2.2 Electrical equipment

9.2.2.1 General provisions

The electrical installation as a whole shall meet the provisions of 9.2.2.2 to 9.2.2.6 in accordance with the table of 9.2.1.

9.2.2.2 Wiring

9.2.2.2.1 The size of conductors shall be large enough to avoid overheating. Conductors shall be adequately insulated. All circuits shall be protected by fuses or automatic circuit breakers, except for the following:

- from the battery to the cold start and stopping systems of the engine;
- from the battery to the alternator;
- from the alternator to the fuse or circuit breaker box;
- from the battery to the starter motor;
- from the battery to the power control housing of the endurance braking system (see 9.2.3.1.2), if this system is electrical or electromagnetic;
- from the battery to the electrical lifting mechanism for lifting the bogie axle.

The above unprotected circuits shall be as short as possible.

9.2.2.2.2 Cables shall be securely fastened and positioned in such a way that the conductors are adequately protected against mechanical and thermal stresses.

9.2.2.3 Battery master switch

9.2.2.3.1 A switch for breaking the electrical circuits shall be placed as close to the battery as practicable. If a single pole switch is used it shall be placed in the supply lead and not in the earth lead.

9.2.2.3.2 A control device to facilitate the disconnecting and reconnecting functions of the switch shall be installed in the driver's cab. It shall be readily accessible to the driver and be distinctively marked. It shall be protected against inadvertent operation by either adding a protective cover, by using a dual movement control device or by other suitable means. Additional control devices may be installed provided they are distinctively marked and protected against inadvertent operation. If the control device(s) are electrically operated, the circuits of the control device(s) are subject to the requirements of 9.2.2.5.

9.2.2.3.3 The switch shall have a casing with protection degree IP 65 in accordance with IEC Standard 529.

9.2.2.3.4 The cable connections on the switch shall have protection degree IP 54. However, this does not apply if these connections are contained in a housing which may be the battery box. In this case it is sufficient to insulate the connections against short circuits, for example with a rubber cap.

9.2.2.4 Batteries

The battery terminals shall be electrically insulated or covered by an insulating battery box cover. If the batteries are not located under the engine bonnet, they shall be fitted in a vented box.

9.2.2.5 Permanently energized circuits

- 9.2.2.5.1 (a) Those parts of the electrical installation including the leads which shall remain energized when the battery master switch is open, shall be suitable for use in hazardous areas. Such equipment shall meet the general requirements of IEC 60079, parts 0 and 14¹ and the additional requirements applicable from IEC 60079, parts 1, 2, 5, 6, 7, 11, 15 or 18².

- (b) For the application of IEC 60079 part 14¹, the following classification shall be used:

Permanently energized electrical equipment including the leads which is not subject to 9.2.2.3 and 9.2.2.4 shall meet the requirements for Zone 1 for electrical equipment in general or meet the requirements for Zone 2 for electrical equipment situated in the driver's cab. The requirements for explosion group IIC, temperature class T6 shall be met.

However, for permanently energized electrical equipment installed in an environment where the temperature caused by non-electrical equipment situated in that environment exceeds the T6 temperature limit, the temperature classification of the permanently energized electrical equipment shall be at least that of the T4 temperature class.

- (c) The supply leads for permanently energized equipment shall either comply with the provisions of IEC 60079, part 7 ("Increased safety") and be protected by a fuse or automatic circuit breaker placed as close to the source of power as practicable or, in the case of "intrinsically safe equipment", they shall be protected by a safety barrier placed as close to the source of power as practicable.

- 9.2.2.5.2 Bypass connections to the battery master switch for electrical equipment which must remain energized when the battery master switch is open shall be protected against overheating by suitable means, such as a fuse, a circuit breaker or a safety barrier (current limiter).

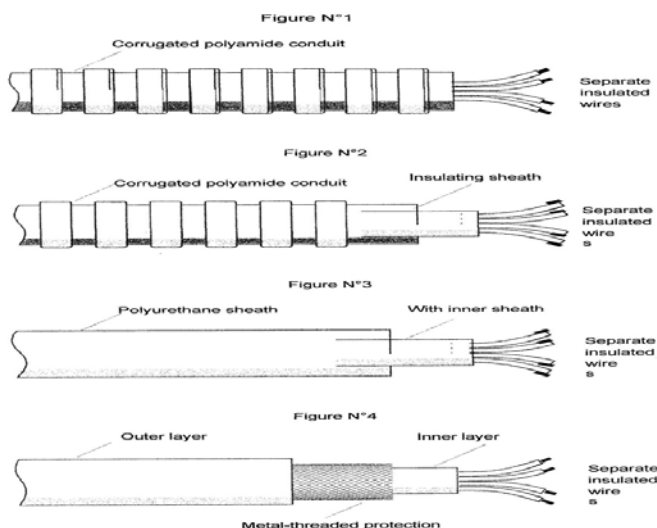
9.2.2.6 Provisions concerning that part of the electrical installation situated to the rear of the driver's cab

The whole installation shall be so designed, constructed and protected such that it cannot provoke any ignition or short-circuit under normal conditions of use of vehicles and that these risks can be minimized in the event of an impact or deformation. In particular:

9.2.2.6.1 Wiring

The wiring located to the rear of the driver's cab shall be protected against impact, abrasion and chafing during normal vehicle operation. Examples of appropriate protection are given in figures 1, 2, 3 and 4 below. However, the sensor cables of anti-lock braking devices do not need additional protection.

¹ The requirements of IEC 60079 part 14 do not take precedence over the requirement of this Part.
² As an alternative, the general requirements of EN 50014 and the additional requirements of EN 50015, 50016, 50017, 50018, 50019, 50020, 50021 or 50028 may be used



9.2.2.6.2 *Lighting*

Lamp bulbs with a screw cap shall not be used.

9.2.2.6.3 *Electrical connections*

Electrical connections between motor vehicles and trailers shall have a protection degree IP54 in accordance with IEC standard 529 and be designed to prevent accidental disconnection. Connections shall be in conformity with ISO 12098:2004 and ISO 7638:2003, as appropriate.

9.2.3 **Braking equipment**9.2.3.1 *General provisions*

Motor vehicles and trailers intended for use as transport units for dangerous goods shall fulfil all relevant technical requirements of ECE Regulation No.13³ or Directive 71/320/EEC⁴, as amended, in accordance with the dates of application specified therein.

9.2.3.1.2 EX/III, FL, OX and AT vehicles shall fulfil the requirements of ECE Regulation No.13³, Annex 5.

9.2.3.2 *(Deleted)*

9.2.4 **Prevention of fire risks**9.2.4.1 *General provisions*

The following technical provisions shall apply in accordance with the table of 9.2.1.

9.2.4.2 *Vehicle cab*

Unless the driver's cab is made of materials which are not readily flammable, a shield made of metal or other suitable material of the same width as the tank shall be fitted at the rear of the cab. Any windows in the rear of the cab or in the shield shall be hermetically closed and made of fire-resistant safety glass with fire-resistant frames. Furthermore, there shall be a clear space of not less than 15 cm between the tank and the cab or the shield.

9.2.4.3 *Fuel tanks*

The fuel tanks for supplying the engine of the vehicle shall meet the following requirements:

- (a) In the event of any leakage, the fuel shall drain to the ground without coming into contact with hot parts of the vehicle or the load;
- (b) Fuel tanks containing petrol shall be equipped with an effective flame trap at the filler opening or with a closure enabling the opening to be kept hermetically sealed.

³ ECE Regulation No. 13 (Uniform provisions concerning the approval of vehicles of categories M, N and O with regard to braking).

⁴ Directive 71/320/EEC (originally published in the Official Journal of the European Communities No. L202 of 6.9.1971).

9.2.4.4 *Engine*

The engine propelling the vehicle shall be so equipped and situated to avoid any danger to the load through heating or ignition. In the case of EX/II and EX/III vehicles the engine shall be of compression-ignition construction.

9.2.4.5 *Exhaust system*

The exhaust system (including the exhaust pipes) shall be so directed or protected to avoid any danger to the load through heating or ignition. Parts of the exhaust system situated directly below the fuel tank (diesel) shall have a clearance of at least 100 mm or be protected by a thermal shield.

9.2.4.6 *Vehicle endurance braking*

Vehicles equipped with endurance braking systems emitting high temperatures placed behind the rear wall of the driver's cab shall be equipped with a thermal shield securely fixed and located between this system and the tank or load so as to avoid any heating, even local, of the tank wall or the load.

In addition, the thermal shield shall protect the braking system against any outflow or leakage, even accidental, of the load. For instance, a protection including a twin-shell shield shall be considered satisfactory.

9.2.4.7 *Combustion heaters*

9.2.4.7.1 Combustion heaters shall comply with the relevant technical requirements of ECE Regulation No. 122⁵, as amended, or of Directive 2001/56/EC⁶, as amended, in accordance with the dates of application specified therein and the provisions of 9.2.4.7.2 to 9.2.4.7.6 applicable according to the table in 9.2.1.

9.2.4.7.2 The combustion heaters and their exhaust gas routing shall be designed, located, protected or covered so as to prevent any unacceptable risk of heating or ignition of the load. This requirement shall be considered as fulfilled if the fuel tank and the exhaust system of the appliance conform to provisions similar to those prescribed for fuel tanks and exhaust systems of vehicles in 9.2.4.3 and 9.2.4.5 respectively.

9.2.4.7.3 The combustion heaters shall be put out of operation by at least the following methods:

- (a) Intentional manual switching off from the driver's cab;
- (b) Stopping of the vehicle engine; in this case the heating device may be restarted manually by the driver;
- (c) Start up of a feed pump on the motor vehicle for the dangerous goods carried.

9.2.4.7.4 Afterrunning is permitted after the combustion heaters have been put out of operation. For the methods of 9.2.4.7.3 (b) and (c) the supply of combustion air shall be interrupted by suitable measures after an afterrunning cycle of not more than 40 seconds. Only heaters shall

⁵ ECE Regulation No. 122 (Regulation with regard to the type approval of a heating system and of a vehicle with regard to its heating system).

⁶ Directive 2001/56/EC of the European Parliament and of the Council of 27 September 2001 relating to heating systems for motor vehicles and their trailers (initially published in the Official Journal of the European Communities No. L292 of 9 November 2001).

be used for which proof has been furnished that the heat exchanger is resistant to the reduced afterrunning cycle of 40 seconds for the time of their normal use.

9.2.4.7.5 The combustion heater shall be switched on manually. Programming devices shall be prohibited.

9.2.4.7.6 Combustion heaters with gaseous fuels are not permitted.

9.2.5 Speed limitation device

Motor vehicles (rigid vehicles and tractors for semi-trailers) with a maximum mass exceeding 3.5 tonnes, shall be equipped with a speed limitation device according to the technical requirements of ECE Regulation No. 89[†], as amended. The device shall be set in such a way that the speed cannot exceed 90 km/h, bearing in mind the technological tolerance of the device.

9.2.6 Coupling devices of trailers

Coupling devices of trailers shall comply with the technical requirements of ECE Regulation No. 53^{*} or Directive 94/20/EC^{*}, as amended, in accordance with the dates of application specified therein.

[†] ECE Regulation No. 89: uniform provisions concerning the approval of:

I. Vehicles with regard to limitation of their maximum speed;

II. Vehicles with regard to the installation of a speed limitation device (SLD) of an approved type;

III. Speed limitation devices (SLD).

As an alternative, the corresponding provisions of directive 92/24/EEC of the Council of 31 March 1992 (originally published in the Official Journal of the European Communities No. L 129 of 14.03.1992), as amended, may apply provided that they have been amended in accordance with the latest amended form of ECE Regulation No. 89 applicable at the time of the vehicle approval.

^{*} ECE Regulation No. 53 (Uniform provisions concerning the approval of mechanical coupling components of combinations of vehicles).

^{*} Directive 94/20/EC of the European parliament and of the Council of 30 of May 1994 (originally published in the Official Journal of the European Communities No. L 193 of 29.07.1994).