Draft of 8 May 2026

REGULATION

OF THE MINISTER FOR ENERGY[1)] AND THE MINISTER FOR CLIMATE AND THE ENVIRONMENT[2)]

of [date]

on quality requirements for liquefied natural gas (LNG)[3)]

Pursuant to Article 3(2)(5) of the Act of 25 August 2006 on the system for monitoring and controlling fuel quality (Journal of Laws 2025, item 1529), the following is hereby decreed:

§ 1. The quality requirements for liquefied natural gas (LNG) are set out in the Annex to the Regulation.

§ 2. The Regulation shall enter into force 14 days after its publication.

MINISTER FOR ENERGY

MINISTER FOR CLIMATE AND THE ENVIRONMENT

Approved for legal, legislative, and editorial compliance
Arkadiusz Żurawel
Director of the Legal Department of the Ministry of Energy
/signed with a qualified electronic signature/

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1)The Minister for Energy heads the government Department for Energy Resource Management, pursuant to § 1(2)(2) of the Regulation of the Prime Minister of 25 July 2025 on the specific scope of activities of the Minister for Energy (Journal of Laws [Dziennik Ustaw], item 1206).

2)The Minister for Climate and the Environment heads the government Department for Climate, pursuant to § 1(2)(1) of the Regulation of the Prime Minister of 25 July 2025 on the detailed scope of the activities of the Minister for Climate and the Environment (Journal of Laws, item 995).

3)This Regulation was notified to the European Commission on …… under number ……, pursuant to § 4 of the Cabinet Regulation of 23 December 2002 on the functioning of the national system for notification of standards and legal acts (Journal of Laws, item 2039, and 2004, item 597), which implements Directive (EU) 2015/1535 of the European Parliament and of the Council of 9 September 2015 laying down a procedure for the provision of information in the field of technical regulations and of rules on Information Society services (codification) (OJ L 241 of 17.9.2015, p. 1).

Annexes to the Regulation of the Minister for Energy and the Minister for Climate and the Environment of
(Journal of Laws, item)

QUALITY REQUIREMENTS FOR LIQUEFIED NATURAL GAS (LNG)[1)]

No.	Parameter	Entity	Range	
			minimum	maximum
1	Nitrogen content	% (mol/mol)	–	3,5
2	Oxygen content	% (mol/mol)	–	0,5
3	Content of hydrogen sulphide and carbonyl sulphide[2)]	mg/m^3	–	5
4	Total sulphur content[2)]	mg/m^3	–	30
5	Combustion heat[2)]	MJ/m^3	34 — for nominal Wobbe index[3)] of 50	–
6	Wobbe Index	MJ/m^3	45,0	56,9
7	Methane number	index	70[4)]	–

[1)] Prepared taking into account the parameters for oxygen, hydrogen sulphide, carbonyl sulphide, total sulphur and methane index, as specified in the standard PN-EN 16723-2:2017-10 Natural gas and biomethane used in transport and biomethane injected into the natural gas network – Part 2: Automotive fuels specification, as well as on the basis of the state of the art resulting from the testing of this fuel and experience in its use.

[2)] The indicated parameter value applies to the fuel after regasification.

[3)] The Wobbe index is defined as the ratio of combustion heat, with reference to unit volume of gaseous fuel, to the square root of its relative density under the same reference conditions. The reference conditions are:

1) for volume:
   (a) temperature: 273.15 K (0 °C),
   (b) pressure: 101.325 kPa;
2) for calorie values:
   (a) temperature: 298.15 K (25 °C),
   (b) pressure: 101.325 kPa.

The acceptable range of Wobbe index variability is 45.0–56.9 MJ/m^3.

[4)] The methane number depends on the composition of the natural gas being distributed. The algorithm for calculating the methane number is set out in standard PN-EN 16726+A1:2018-11 Gas infrastructure – Gas quality – Group H.

Version of 8 May 2026

EXPLANATORY MEMORANDUM

The draft Regulation has been drawn up on the basis of the authorisation contained in Article 3(2)(5) of the Act of 25 August 2006 on the system for monitoring and controlling fuel quality (Journal of Laws of 2025, item 1529), hereinafter referred to as the 'Act on the fuel quality monitoring and control system', pursuant to which the Minister responsible for energy resources and the Minister responsible for climate matters shall specify, by way of a regulation, the quality requirements for liquefied natural gas (LNG), taking into account the quality parameters set out in the relevant standards in this field, the state of technical knowledge resulting from research into this fuel, or experience in its use. The definition of liquefied natural gas (LNG) is contained in Article 2(1)(7a) of the Act on the fuel quality monitoring and control system. Under current legislation, liquefied biomethane is also classified as liquefied natural gas (LNG). The Act on the fuel quality monitoring and control system does not define this term, whilst the definition of biomethane is set out in Article 2(3c) of the Act of 20 February 2015 on renewable energy sources (Journal of Laws of 2026, items 68 and 516).

The need to regulate quality requirements for liquefied natural gas (LNG),including liquefied biomethane, stems not only from the obligation to implement a statutory mandate, but above all from ongoing technological development and the growing interest of the fuel sector in the production of liquefied natural gas (LNG), including liquefied biomethane, intended for use as motor vehicle fuel, on the territory of Poland. Furthermore, the definition of quality requirements for liquefied natural gas (LNG), including liquefied biomethane, which has the same quality parameters as liquefied natural gas (LNG), intended for use as motor vehicle fuel, will enable liquefied natural gas (LNG), including liquefied biomethane, to be covered by the fuel quality monitoring and control system (Article 11(1) of the Act on the fuel quality monitoring and control system), which is administered by the President of the Office for Competition and Consumer Protection pursuant to Article 12(1) of the Act on the fuel quality monitoring and control system. The operator of this system monitors the quality of fuels placed on the market in Poland with the assistance of the Trade Inspectorate (Article 12(3) of the Act on the fuel quality monitoring and control system). The purpose of this system is to prevent the transport, storage and placing on the market of, amongst other

things, fuels, as well as the stockpiling of fuels at plant-based filling stations, which do not meet the quality requirements set out in the regulations issued, inter alia, pursuant to Article 3(2) of the Act on the fuel quality monitoring and control system, and the consequence of achieving this objective is the elimination of fuels that do not meet quality requirements relevant to environmental protection, human health and the proper operation of engines fuelled by such fuels.

It should be borne in mind that liquefied natural gas (LNG), including liquefied biomethane, emits much less pollutants into the atmosphere than coal, oil and other fossil fuels, also contributing to the reduction of CO_2 emissions compared to traditional fuels. Most of its impurities and the heavier hydrocarbons it contains are removed during liquefaction. As a result, liquefied natural gas (LNG), including liquefied biomethane, contributes to reducing emissions of nitrogen oxides and other greenhouse gases in combustion processes. The main objective of the project is to establish the desired quality requirements for liquefied natural gas (LNG), including liquefied biomethane, which will make the fuel safe for both the environment and motor vehicles. Furthermore, the entry into force of the proposed measures may lead to increased consumer interest in more environmentally friendly gas-based fuel, which may become more widely available on the market.

Bearing in mind the requirements set out in the statutory authorisation, the draft regulation has been drawn up, amongst other things, taking into account certain parameters specified in the standard defining the quality parameters for liquefied natural gas (LNG) and liquefied biomethane used to refuel vehicles: PN-EN 16723-2:2017-10 Natural gas and biomethane for use in transport and biomethane for injection in the natural gas network – Part 2: Specification for vehicle fuels, hereinafter referred to as ‘the standard PN-EN 16723-2:2017-10’ (i.e. oxygen parameters, hydrogen sulphide parameters, carbonyl sulphide parameters, total sulphur parameters and methane number parameters) and on the basis of the state of technical knowledge resulting from the testing of this fuel and experience in its application, as indicated in reference no. 1 in the Annex to the Regulation. This European standard specifies the requirements and test methods for liquefied natural gas, liquefied biomethane and mixtures of these two gases when used as fuel for motor vehicles. The standard was drawn up in 2017 and was developed by the European Committee for Standardisation (CEN) – Technical Committee (TC) 408 in response to the European

Commission standardisation mandate M/475. This standard is therefore one of the substantive bases for the development of the project.

Following the completion of the reconciliation, public consultation and review stages, the draft Regulation drawn up as a result of these processes was discussed with representatives of the Oil and Gas Institute – the State Research Institute, during which it was finally determined exactly which parameters and their values should be regulated in the Regulation, so that they could be monitored within the framework of the fuel quality monitoring and control system.

With regard to the parameters agreed during consultations with the Oil and Gas Institute – National Research Institute, their values and deviations from the parameters specified in the standards PN-, EN 16723-2:2017-10, a consensus was reached with industry representatives during the public consultation process. Part of these consultations was a conference organised on 22 August 2025, pursuant to § 47(2) of Resolution No. 190 of the Council of Ministers of 29 October 2013 – Rules of Procedure of the Council of Ministers (Official Journal [Monitor Polski] of 2026, item 404), a conference attended by representatives of the sector (which was also attended by representatives of the President of the Office of Competition and Consumer Protection), during which the final substantive wording of the draft was agreed.

It should be emphasised that, under the current legal framework, following the entry into force on 1 April 2025 of the amendments to the Act on the fuel quality monitoring and control system, introduced by Article 4 of the Act of 21 February 2025 amending the Act on biocomponents and liquid biofuels and certain other acts (Journal of Laws, item 303), a new definition of the term ‘liquefied natural gas (LNG)’ is now in force. Currently, this term means ‘a mixture of liquefied petroleum gases, mainly C1 methane, including liquefied biomethane, as referred to in Article 2(3c) of the Act of 20 February 2015 on renewable energy sources, used in engines adapted for the combustion of this fuel, falling within CN code 2711 11 00 or CN code 2711 19 00’. The purpose of the amendment of the definition was to ensure that gaseous fuels of mineral origin can be freely mixed with the renewable equivalent. Both liquefied natural gas (LNG) and liquefied biomethane are treated in the same way in the context of legal issues related to its trading, production and accounting, with similar quality parameters.

The annex to the draft Regulation sets out the parameters (and their scope) for liquefied natural gas (LNG), including liquefied biomethane, which will be subject to inspection by the Trade Inspectorate, in accordance with the provisions of the Act on the fuel quality monitoring and control system. These parameters are as follows:

1) nitrogen content;
2) oxygen content;
3) hydrogen sulphide and carbonyl sulphide content;
4) total sulphur content;
5) combustion heat;
6) Wobbe index,
7) methane number.

Exceeding the maximum levels in liquefied natural gas (LNG), including liquefied biomethane, of any of the parameters listed in subparagraphs 1–4 (in the case of the combustion heat and the methane number, the minimum level shall be specified) may jeopardise the operation of engines and other systems in motor vehicles and pose a risk to the integrity of the tanks. Furthermore, it may pose a risk to human health and the environment. In the case of hydrogen sulphide and carbonyl sulphide content, total sulphur content and combustion heat, the values given for these parameters relate to the fuel after regasification. In accordance with the third paragraph of section 1 of standard PN-EN 16723-2:2017-10, it is recommended that, in order to verify compliance with the selected requirements set out in this standard, LNG or liquefied biomethane should be regasified prior to testing.

Nitrogen is present in natural gas and biogas of agricultural origin, but its content decreases during liquefaction of these gases. The high nitrogen content affects the energy parameters of the gas and the quality of fuel combustion. Consequently, its maximum concentration has been set at 3.5 % (mol/mol), which is safe for the environment and for motor vehicles.

Oxygen plays a fundamental role in electrochemical corrosion processes; consequently, its maximum content has been set at 0.5 % (mol/mol). In addition, due to the oxidative and corrosive potential of oxygen, its excessively high content can be a problem for automotive installations and storage tanks, reducing the mechanical strength of the material from which they are made. The value of 0.5 % was adopted in § 38 of the Regulation of the Minister for

the Economy of 2 July 2010 on the detailed conditions for the operation of the gas system (Journal of Laws 2025, items 1382 and 1635). Liquefied natural gas (LNG), including liquefied biomethane, is a multi-purpose fuel; that is to say, the same consignment may be destined for a liquefied natural gas (LNG) regasification station serving an end customer, as well as for a liquefied natural gas (LNG) refuelling station, and consequently, there is no justification for establishing different requirements in individual regulatory acts.

Other parameters analysed include: hydrogen sulphide and carbonyl sulphide content, as well as total sulphur content. These parameters are specified because of the highly harmful environmental impact of the combustion products of sulphur compounds that may be present in gaseous fuel. Sulphur contamination in fuel is harmful to the engine, as an excessively high sulphur content shortens the service life of the catalytic converter and disrupts the operation of the fuel injection control system. Corrosion of certain elements is also possible. Consequently, the maximum concentrations of hydrogen sulphide and carbonyl sulphide have been set at 5 mg/m^3 (combined for hydrogen sulphide and carbonyl sulphide), and the maximum concentration of total sulphur at 30 mg/m^3.

The combustion heat is a value that characterises the energy content of a gaseous fuel. The combustion heat has been set at 34 MJ/m^3 (assuming there is a minimum level), for the nominal Wobbe index of 50. The Wobbe index is a key parameter determining the interchangeability of natural gases (primarily liquefied natural gas (LNG)) and their suitability for use in gas-fired appliances. The Wobbe index has been entered in the table as a separate parameter in order not to determine separately the levels of ethane, propane and butane in liquefied natural gas (LNG), which would complicate the testing of this fuel and increase the costs of these tests. This is due to the fact that liquefied natural gas (LNG) is ‘ageing’ and the process involves a change in the chemical composition of this gas during its long-term storage or transport. Firstly, methane and nitrogen evaporate from the liquid, while more and more heavier fractions, such as ethane, propane and butane, remain in the tank. The value of the Wobbe index is fundamental to maintaining the stable operation of combustion equipment. The Wobbe index directly depends on the chemical composition of the gas, including the content of heavier hydrocarbons such as ethane, propane and butane. Increasing the proportion of these components in the gas mixture results in an increase in calorific value and density, which in turn raises the Wobbe index. The ‘ageing’ of gas leads to an increase in the

Wobbe index, which is an undesirable process and requires monitoring to ensure the safe and efficient operation of gas installations.

In view of the above, in consultation with the Oil and Gas Institute – National Research Institute and representatives of the sector, the annex to the draft Regulation now includes the Wobbe index not only in the table under the row relating to the heat of combustion, but also in a separate row as a distinct parameter.

The last parameter regulated in the draft Regulation is the methane number. It is an important parameter that characterises motor fuels and depends on the composition of the natural gas distributed. The value of the methane number determines the susceptibility of the fuel to knock-on combustion, the higher the value, the greater the resistance of the fuel to such combustion. Spark-ignition engines are mostly designed for fuels with a methane number of 70 and such a minimum level has been established in the project. A decrease in the methane number up to 65 may cause about a 10 % decrease in the efficiency of these engines. Therefore, the higher the methane number, the more efficient the operation of the engine. Reference no. 4 in the Annex to the Regulation cites the standard PN-EN 16726+A1:2018-11 Gas infrastructure – Gas quality – Group H. This standard specifies the algorithm for calculating the methane index.

It should be borne in mind that not all parameters mentioned in the PN-EN 16723-2:2017-10 standard have been introduced into the draft Regulation. Some parameters have been omitted, whilst several others have been added which do not appear in the standard but which, according to industry representatives, should be regulated and inspected by the Trade Inspectorate. In addition, as regards the selection of parameters and their values, the expert opinion of the Oil and Gas Institute – National Research Institute 'Development of guidelines for the control of the quality of hydrogen and liquefied natural gas (LNG) used for the propulsion of motor vehicles', prepared in June 2020, was also used, which includes, inter alia, an analysis of the quality parameters for liquefied natural gas (LNG) contained in:

1) PN standard-EN 16723-2:2017-10;
2) PN-, EN ISO 15403-1:2010 Natural gas – Natural gas used as a compressed fuel for vehicles – Part 1: The specification of quality, hereinafter referred to as 'standard PN-EN ISO 15403-1:2010';

3) PKN standard-ISO/TR 15403-2:2010 Natural gas – Natural gas used as a compressed fuel for vehicles – Part 2: Quality specification, hereinafter referred to as 'PKN-ISO/TR 15403-2:2010 standard' (revoked on 26 May 2025);
4) The SAE Information Report J2699 *Liquefied Natural Gas (LNG) Vehicle Fuel*, prepared in February 2018 ('the SAE Report J2699:2018');
5) the specification laid down by the *California Air Resources Board (CARB)* for compressed natural gas (CNG).

The first group of quality parameters not included in the draft Regulation is the hydrocarbon composition of the fuel. The standards PN-, EN 16723-2:2017-10 do not specify any requirements in this regard, but do set a limit for a parameter directly related to the hydrocarbon composition of the fuel, namely the hydrocarbon dew point. Other documents on the quality of liquefied natural gas (LNG) limit, with regard to these fuels, the maximum content primarily of propane and hydrocarbons heavier than propane. SAE Report J2699:2018 also sets out requirements for the minimum methane content and the maximum ethane content. It should be noted, however, that the content of individual hydrocarbons in compressed natural gas (CNG) is limited due to the possibility of the formation of hydrocarbon condensates under unfavourable conditions of pressure and temperature. In the case of compressed natural gas (CNG), the presence of hydrocarbon liquids may cause damage to the compressor (as confirmed by the standard PN-EN ISO 15403-1:2010). In the case of liquefied natural gas (LNG), this is not the case, as the gas is refuelled using cryogenic pumps rather than compressors. However, it should be borne in mind that engines burning methane-based fuel, including those fuelled with liquefied natural gas (LNG), are designed to inject gaseous hydrocarbons into the combustion chamber, making the presence of liquids undesirable. The presence of liquefied hydrocarbons in the fuel may cause difficulties in controlling the amount of fuel injected into the engine. Furthermore, if a certain amount of liquid higher hydrocarbons (with a very low methane number) reaches the engine, severe knocking may occur, which in turn could cause serious damage to the engine. Both the PN-EN ISO 15403-1:2010 standards, as well as industry publications (including *Worldwide Fuel Charter, First Edition, Worldwide Fuel Charter Methane-Based Transportation Fuels* dated 28 October 2019, hereinafter referred to as '*WFC 2019*') permit a maximum hydrocarbon dew point of –2 °C for natural gas-based fuel. It should be noted that liquefied natural

gases are characterised by cricondentherm temperatures (the lowest temperatures at which hydrocarbons may condense) ranging from –92.1 °C to –6.7 °C, with an average of –35.1 °C. The very low dew point temperatures of hydrocarbons determined for liquefied natural gas (LNG) result from the technological process of liquefying this gas, which requires, amongst other things, the removal of heavy hydrocarbons. In view of the above, there is no technical justification for setting acceptable limits for both the hydrocarbon composition and the dew point of hydrocarbons in liquefied natural gas (LNG).

As regards carbon dioxide and heavier hydrocarbons of group C6+, it should be pointed out that the increased content of these components may be detrimental to the liquefied natural gas (LNG) installation and its regasification for operational reasons. However, according to Technical Standard ST-IGG-4403:2022 of the Polish Chamber of Commerce for the Gas Industry, 'Gaseous fuels. Quality of gaseous fuels in the distribution network', drawn up on 1 August 2022, limits are below 0.01 % (mol/mol) for C6+ and below 0.0050 % (mol/mol) for CO_2 (Table 1 – Additional requirements for the quality of LNG supplied to the distribution network), so the content of these components in the fuel is negligible. It was therefore decided not to include this parameter in the Regulation.

The hydrogen content is not determined for most gaseous fuels. It should be emphasised that hydrogen does not occur under conditions of thermodynamic equilibrium in liquefied natural gas (LNG). There is therefore no justification for testing for its presence in liquefied natural gas (LNG).

Other gaseous impurities that may be present in natural gas-based fuel include carbon oxides. The requirements regarding carbon dioxide content stem from the fact that, in the presence of water, carbon dioxide can be converted into an acidic component which may cause corrosion; all metal components are susceptible to this, particularly the fuel tank (as emphasised in the PKN standard-and ISO/TR 15403-2:2010). As indicated in the *WFC 2019*, due to its properties, carbon dioxide can lead to damage such as swelling, cracking or blistering on rubber. In addition, carbon dioxide as a non-combustible gas reduces the calorific value of the gas. What is relevant is that carbon dioxide is a critical pollutant for the liquefaction process of natural gas. Therefore, as indicated in the industry literature, natural gas must be freed of carbon dioxide before it can be liquefied. Therefore, as highlighted in the

Gas Composition Transition Agency Report 2013 of 1 August 2013, carbon dioxide is not found in the final product of the liquefaction process, liquefied natural gas (LNG). The need to remove carbon dioxide before natural gas is liquefied means that it is not appropriate to monitor the carbon dioxide content or to specify a maximum limit for this component in liquefied natural gas (LNG). However, monitoring the carbon monoxide content in gaseous fuels used to power motor vehicles is only relevant when the fuel in question is synthetic gas derived, for example, from the gasification of biomass or coal (*WFC 2019*). This means that it is not appropriate to also control the content of this impurity in liquefied natural gas (LNG), obtained by liquefaction of natural gas or possibly biomethane resulting from biomass fermentation.

Other contaminants subject to concentration limits in natural gas-based fuels used to power motor vehicles include water, mercury, methanol, glycol, particulates, oil mist, amines and silicon compounds.

Water contained in gaseous fuel is a corrosive factor and, in the case of compressed natural gas (CNG), can also adversely affect the operation of the compressor (as highlighted in PKN-ISO/TR 15403-2:2010). Excess water can also cause fuel supply problems, including clogging of the fuel line (due to the mere presence of water), the formation of ice particles or the formation of frost in the fuel system, especially at low ambient temperatures (*WFC 2019*). It should be noted that water, alongside carbon dioxide, is a critical contaminant in the natural gas liquefaction process, hence, as highlighted in the industry literature, natural gas must be dried prior to liquefaction to a level where the water content does not exceed 0.1 ppm; consequently, the water content in the final product of the natural gas liquefaction process should not exceed 0.5 ppm, i.e. approximately 0.4 mg/m^3. This value is approximately 75 times lower than the permissible water content in gaseous fuel, as specified in the Regulation of the Minister of Energy of 30 June 2016 on quality requirements for compressed natural gas (CNG) (Journal of Laws, item 1094) and the PKN standard-ISO/TR 15403-2:2010. Therefore, it is not appropriate to control the parameter of water content in liquefied natural gas (LNG), as confirmed in the SAE Report J2699:2018. Another parameter is directly linked to the water content in the gas: the water dew point, which is limited in accordance with the standards PN-, EN 16723-2:2017-10. The limit for the water dew point is, depending on climatic conditions, between –30 °C and –10 °C. Assuming the water content of liquefied natural gas (LNG), resulting from the process conditions, at 0.5 ppm, the

calculated water dew point is around –85 °C. Even the assumed 10 times higher water content of liquefied natural gas (LNG) does not exceed the most stringent permissible value, as the water dew point for gas containing 5 ppm of water is around –45 °C. Therefore, this parameter also does not need to be controlled and does not need to be included in the proposed regulation.

As already mentioned, there is also a limit on the mercury vapour content in gaseous fuels. The limit for this pollutant is set exclusively by the Regulation of the Minister for Energy of 30 June 2016 on quality requirements for compressed natural gas (CNG) and is 30 μg/m^3. As highlighted in a special report by the journal *LNG Industry* (report *Eliminating elemental mercury* of May 2016), mercury contained in the gas can cause corrosion of aluminium heat exchangers, making mercury contamination a key issue for gas liquefaction plants. Aluminium corrodes through amalgamation once its protective aluminium oxide layer has been compromised, for example by scratching the surface during maintenance work. In such cases, the metal is exposed to mercury, water and oxygen. The amalgamation reaction occurs rapidly, reducing structural integrity. The second mechanism of corrosion of aluminium under the influence of mercury is the diffusion of mercury through the grain boundaries in the aluminium-metal structure, forming cracks and weakening the structure. As indicated in specialist literature, the need to remove mercury from the gas before it is liquefied means that the mercury content in the final product is in the range of up to several dozen (10–40) ng/m^3. The typical content of mercury in liquefied natural gas (LNG), which is nearly 1000 times lower than the limit value specified in the Regulation of the Minister of Energy of 30 June 2016 on quality requirements for compressed natural gas (CNG), means that there is no justification for conducting quality control of liquefied natural gas (LNG) in this respect and defining requirements for this parameter in the proposed regulation.

The presence of particulate matter (dust) is also undesirable in gaseous fuels. The PKN-ISO/TR 15403-2:2010 standard and the PN-EN 16723-2:2017-10 standard do not quantify the permissible dust content of gas. The numerical value in this respect is specified only in the Regulation of the Minister of Energy of 30 June 2016 on quality requirements for compressed natural gas (CNG). It should be noted, however, that the permissible particulate matter content under this regulation is very high (1 g/m^3), 1,000 times higher than the permissible particulate matter content in gaseous fuel distributed via gas networks, as specified in the PN standard-C-04752:2011 Natural gas – Quality of gas in the transmission

network and the PN-C-04753:2011 standard: Natural gas – Quality of gas supplied to consumers from the distribution network. The high permissible dust content specified in the Minister for Energy Decree of 30 June 2016 on the quality requirements for compressed natural gas (CNG) contradicts the recommendations in standard PKN-ISO/TR 15403-2:2010 and standard PN-EN 16723-2:2017-10. As with other contaminants, the process of liquefying natural gas requires the removal of particulates; as indicated in the industry literature, this takes place during one of the final stages of gas purification prior to liquefaction. For CNG fuelling, the use of appropriate filters located as close as possible to the fuelling nozzle is recommended (PKN-ISO/TR 15403-2:2010, PN-EN 16723-2:2017-10, *WFC 2019*). Unfortunately, there is no information whether such solutions can be used in the case of refuelling of liquefied natural gas (LNG). At the moment, in the absence of clear guidelines on the permissible content of dust in gaseous fuel and the lack of standardized analytical methodologies that will allow a reliable assessment of the content of this pollutant (they are not included, among others, in the PN-EN ISO 15403- 1:2010 standard), it is not justified to introduce quality requirements in this respect.

The situation regarding the assessment of the quality of gaseous fuels in terms of their oil mist content is similar to that for particulate matter. The need to limit the content of this contaminant is highlighted in the PKN standard-, ISO/TR 15403-2:2010 and the PN standard-EN 16723-2:2017-10; however, the PN standard-EN 16723-2:2017-10 does not specify a numerical value. On the other hand, the PKN-ISO/TR 15403-2:2010 standard points out that, in fact, the limit values for oil content and the methods for measuring them have not yet been specified. Consequently, at the time of publication of this standard (i.e. on 29 September 2010), it was not possible to specify any precise values; however, current experience suggests that the acceptable range for oil mist content is between 0.007 % and 0.02 % V/V. In addition, it should be noted that the heavy hydrocarbons that may form part of the oily mist are removed from the natural gas before it is liquefied. Due to the lack of confirmed numerical values limiting the oil content in natural gas-based fuels and the absence of standardised analytical methods in the PKN standard-ISO/TR 15403-2:2010, the PN-EN 16723-2:2017-10 standard and the PN-EN ISO 15403-1:2010 standard, it is not justified to introduce quality requirements in this regard for liquefied natural gas (LNG) used to power motor vehicles.

The only pollutant whose content is limited in gaseous fuels, including liquefied natural gas (LNG), is, in accordance with standard PN-EN 16723- 2:2017-10, the silicon content derived from siloxanes. Siloxanes present in the fuel form silica during combustion, which then deposits on vehicle components such as valves, lambda sensors and cylinder walls. These deposits can cause wear and even cause the pistons and cylinder heads to seize up. Silica also forms deposits on the sensor elements, thereby hindering the diffusion of oxygen. Oxygen sensor manufacturers have shown that silicon levels above 0.1 mg/m^3 can severely damage oxygen sensors in vehicles and reduce their durability (*WFC 2019*). As highlighted in the technical literature, siloxanes are a typical contaminant found in biogas; consequently, their presence in liquefied natural gas (LNG) produced by the liquefaction of natural gas is unlikely. In the case of liquefied natural gas (LNG) produced by the liquefaction of biomethane, the presence of siloxanes is also unlikely, as substances with high molecular weights and high melting points are retained both during the purification of biogas to produce biomethane and during the preparation of biomethane for liquefaction (substances such as siloxanes fall into this category). In addition, a standardised method for measuring silicon content at the recommended limit of 0.1 mg/m^3 is not currently available. Although a method for measuring the silicon content in natural gas has been developed, it has not yet been fully validated.

The final group of contaminants subject to limits in fuels based on natural gas and biomethane consists of those that may be introduced into the gaseous fuel during its treatment processes. These contaminants are amines used in the process of removing carbon dioxide from the gas, as well as glycols and methanol used to dry the gas. In the technical documents specifying the quality of gaseous fuels, only the maximum permissible amine content is specified as a numerical value of 10 mg/m^3 (standard PN-EN 16723-2:2017-10), whilst for other contaminants, it is merely specified that the fuel should not contain them (PKN standard-ISO/TR 15403-2:2010). As indicated in specialist literature, the processes for removing carbon dioxide and water from natural gas, in addition to the stage involving chemical adsorption (using amines, glycols or methanol), are further enhanced, in the case of gas intended for liquefaction, by the use of membrane techniques or molecular sieves. This arrangement means that molecules of organic solvents (amines, methanol, glycol) used in earlier stages of gas purification are retained, for example, on molecular sieves. This is important because the organic solvents used in gas purification have high melting points

(methanol –98 °C, ethylene glycol –12.9 °C, diethylene glycol –10.5 °C, diethylamine –93 °C), so leaving them in the gas would lead to the formation of particulate matter that could clog individual elements of the gas liquefaction system. Thus, while in the case of compressed natural gas (CNG) it is important to control the content of organic solvents involved in the gas treatment process, in the case of liquefied natural gas (LNG) such control is not required.

Analysis of the results of quality control tests on liquefied natural gas (LNG), together with information on the conduct of the inspections and other measures taken, in accordance with the inspection programme drawn up on the basis of the fuel quality control plan, shall be included in the annual reports prepared and submitted by the provincial inspectors of the Trade Inspection Authority to the Administrator of the fuel quality monitoring and control system, i.e. the President of the Office of Competition and Consumer Protection. On the basis of those reports, that authority shall draw up and submit to the Council of Ministers, by 31 July of the following year, for the preceding calendar year, an annual summary report on the quality of liquid fuels, liquid biofuels and other renewable fuels and liquefied petroleum gas (LPG), compressed natural gas (CNG), liquefied natural gas (LNG) and hydrogen (Article 29(1) and (3) of the Act on the fuel quality monitoring and control system). The template for this report is set out in Annex 1 to the Regulation of the Minister for Energy of 4 December 2025 on the model annual summary report on the quality of liquid fuels, liquid biofuels and other renewable fuels, as well as liquefied petroleum gas (LPG), compressed natural gas (CNG), liquefied natural gas (LNG) and hydrogen, as well as the method for monitoring the quality of liquid fuels and liquid biofuels (Journal of Laws, item 1773).

It is proposed that the draft Regulation enter into force 14 days after its publication (i.e. in the course of 2026).

The draft Regulation is not covered by European Union law.

The draft Regulation is subject to the procedure for notification of legal acts as specified in the Regulation of the Council of Ministers of 23 December 2002 on the functioning of the national system for notification of standards and legal acts (Journal of Laws, item 2039, and of 2004, item 597).

The draft Regulation is not subject to the obligation referred to in Article 39(1) of Resolution no. 190 of the Council of Ministers of 29 October 2013 – Rules of Procedure of the Council of Ministers, consisting in its submission to the competent authorities and

institutions of the European Union, including the European Central Bank, for the purpose of obtaining an opinion, notification, consultation, or consent.

The draft Regulation does not contain requirements for service providers subject to the notification referred to in Articles 15(7) and 39(5) of Directive 2006/123/EC of the European Parliament and of the Council of 12 December 2006 on services in the internal market (OJ L 376, 27.12.2006, p. 36).

The draft Regulation does not concern the property rights and obligations of entrepreneurs or the rights and obligations of entrepreneurs towards public administration bodies and does not affect the activities of micro, small and medium-sized enterprises.

In accordance with Article 5 of the Act of 7 July 2005 on lobbying activities in the process of law making (Journal of Laws of 2025, item 677; and of 2026, item 160) and with § 52(1) of Resolution no. 190 of the Council of Ministers of 29 October 2013 – Rules of Procedure of the Council of Ministers, the draft was made available in the Public Information Bulletin on the website of the Government Legislation Centre in the Government Legislative Process tab. There was no expression of interest in working on the project in accordance with the procedure laid down in that Act.