

Technical Regulations TR CU 012/2011

In accordance with Article 13 of the Agreement on Uniform Principles and Rules of Technical Regulation in the Republic of Belarus, the Republic of Kazakhstan and the Russian Federation dated 18 November 2010, the Customs Union Commission (hereinafter referred to as the Commission) **decided:**

1. To adopt the Technical Regulation of the Customs Union "On the Safety of Equipment for Use in Explosive Atmospheres" (TR CU 012/2011) (attached).
2. Item 2 was invalidated by Decision No. 158 of the Board of the Eurasian Economic Commission dated 01.12.2020 (enters into force upon the expiry of 30 calendar days from the date of its official publication).
3. To establish that:
 - 3.1. The Technical Regulation of the Customs Union "On the Safety of Equipment for Use in Explosive Atmospheres" (hereinafter referred to as the Technical Regulation) enters into force on 15 February 2013;
 - 3.2. Conformity assessment documents confirming compliance with the mandatory requirements established by the regulatory legal acts of the Customs Union or by the legislation of a Member State of the Customs Union, issued or adopted in respect of products subject to technical regulation under the Technical Regulation (hereinafter referred to as products) before the date of entry into force of the Technical Regulation, shall remain valid until the end of their validity period, but no later than 15 March 2015. The documents specified above, issued or adopted before the date of official publication of this Decision, shall remain valid until the end

of their validity period.

From the date of entry into force of the Technical Regulation, the issuance or adoption of conformity assessment documents confirming compliance of products with the mandatory requirements previously established by the regulatory legal acts of the Customs Union or by the legislation of a Member State of the Customs Union shall not be permitted;

3.3. Until 15 March 2015, the production and placing on the market of products in accordance with the mandatory requirements previously established by the regulatory legal acts of the Customs Union or by the legislation of a Member State of the Customs Union shall be permitted, provided that conformity assessment documents confirming compliance of the products with the specified mandatory requirements were issued or adopted before the date of entry into force of the Technical Regulation.

Such products shall bear the national conformity mark (mark of product circulation on the market) in accordance with the legislation of a Member State of the Customs Union.

The marking of such products with the single mark of product circulation on the market of the Member States of the Customs Union shall not be permitted;

3.3¹. Until 15 November 2013, the production and placing on the market in the single customs territory of the Customs Union of products that, before the date of entry into force of the Technical Regulation, were not subject to mandatory conformity assessment confirming compliance with the mandatory requirements established by the regulatory legal acts of the Customs Union or by the legislation of a Member State of the Customs Union shall be permitted without documents confirming mandatory conformity assessment and without the national conformity mark (mark of product circulation on the market);

3.4. The circulation of products placed on the market during the period of validity of the conformity assessment documents specified in subparagraph 3.2 of this Decision, as well as of the products specified in subparagraph 3.3¹ of this Decision, shall be permitted throughout the service life of the products established in accordance with the legislation of a Member State of the Customs Union.

Note. Paragraph 3 as amended by Decision No. 250 of the Board of the Eurasian Economic Commission dated 04.12.2012 (enters into force upon the expiry of 30 calendar days from the date of its official publication).

4. The Secretariat of the Commission, together with the Parties, shall prepare a draft Plan of Measures necessary for the implementation of the Technical Regulation and, within three months from the date of entry into force of this Decision, ensure its submission to the Commission for approval in accordance with the established procedure.

5. The Russian Party, with the participation of the Parties and based on monitoring the results of application of the standards, shall ensure the preparation of proposals for updating the lists of standards specified in paragraph 2 of this Decision and their submission, at least once a year from the date of entry into force of the Technical Regulation, to the Secretariat of the Commission for approval by the Commission in accordance with the established procedure.

6. The Parties shall:

6.1. by the date of entry into force of the Technical Regulation, designate the state control (supervision) authorities responsible for carrying out state control (supervision) over compliance with the requirements of the Technical Regulation and inform the Commission thereof;

6.2. ensure the carrying out of state control (supervision) over compliance with the requirements of the Technical Regulation from the date of its

entry into force.

Members of the Customs Union Commission:

*From the Republic From the Republic From the Russian
of Belarus of Kazakhstan Federation*

S. Rumas U. Shukeyev I. Shuvalov

APPROVED

**by Decision of the Commission
of the Customs Union
dated 18 October 2011 No. 825**

TECHNICAL REGULATION OF THE CUSTOMS UNION

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Foreword

1. This Technical Regulation of the Customs Union has been developed in accordance with the Agreement on Common Principles and Rules of Technical Regulation in the Republic of Belarus, the Republic of Kazakhstan and the Russian Federation dated 18 November 2010.

2. This Technical Regulation of the Customs Union establishes, within the single customs territory of the Customs Union, uniform mandatory requirements for the application and implementation to equipment for use in explosive atmospheres in order to ensure the free movement of such equipment placed on the market within the single customs territory of the Customs Union.

3. If other Technical Regulations of the Customs Union and (or) Technical Regulations of the Eurasian Economic Community (hereinafter – EurAsEC)

establishing requirements for the specified equipment that differ from the explosion safety requirements are adopted with respect to equipment for use in explosive atmospheres, such equipment shall comply with the requirements of those Technical Regulations of the Customs Union and (or) Technical Regulations of EurAsEC applicable to it.

Article 1. Scope of application

1. This Technical Regulation of the Customs Union establishes requirements for equipment for use in explosive atmospheres, compliance with which ensures the safety of its use in explosive atmospheres.
2. This Technical Regulation of the Customs Union has been adopted to protect human life and health and property and to prevent actions that mislead consumers.
3. This Technical Regulation of the Customs Union applies to electrical equipment (electrical equipment), including Ex components, and non-electrical equipment for use in explosive atmospheres.

The identifying feature of equipment for use in explosive atmospheres and Ex components is the presence of explosion protection provisions specified in the manufacturer's technical documentation and Ex marking applied to the equipment and Ex component.

4. This Technical Regulation of the Customs Union does not apply to:
 - medical devices;
 - equipment in which the explosion hazard arises solely due to the presence of explosive substances and unstable chemical compounds;
 - equipment for domestic and non-industrial use in conditions where an explosive atmosphere is formed as a result of an unforeseen leakage of combustible gas;

- Personal Protective Equipment;
- seagoing vessels, inland and mixed (river-sea) navigation vessels, mobile offshore platforms and drilling platforms for operation in maritime and inland waters, other floating craft, as well as Machinery and Equipment used on them;
- public transport vehicles intended for the carriage of passengers and cargo by air, road, rail or water transport;
- nuclear weapons, research facilities of nuclear defence organisations, except for equipment forming part thereof and located in hazardous areas.

Article 2. Definitions

The following terms and their definitions are used in this Technical Regulation of the Customs Union:

"abnormal operating mode" means a mode in which the characteristics of equipment for use in explosive atmospheres exceed the limits specified by the manufacturer in the technical documentation;

"analysis of the manufacturer's production status" means an assessment of whether the manufacturer has the conditions necessary to ensure that the equipment produced complies with the requirements of this Technical Regulation of the Customs Union;

"commissioning" means a documented event recording the readiness of equipment for its intended use;

"type of protection" means special measures provided in equipment for use in explosive atmospheres to prevent ignition of the surrounding explosive atmosphere;

"explosion safety" means the absence of an unacceptable risk of ignition of the surrounding explosive atmosphere associated with the possibility of causing harm and (or) damage;

"explosion protection" means measures ensuring the explosion safety of equipment for use in explosive atmospheres;

"hazardous area" means a part of an enclosed or open space in which an explosive atmosphere is present or may form in a quantity requiring special protective measures during the design, manufacture, installation and operation of equipment;

"explosive atmosphere" means a mixture with air, under atmospheric conditions, of combustible substances in the form of gas, vapour, mist, dust, fibres or flying particles, in which, after ignition, flame propagates in a self-sustaining manner;

"equipment identification" means establishing the identity of the equipment's characteristics to its essential features;

"manufacturer" means a legal entity or an individual registered as an individual entrepreneur that, in its own name, manufactures and (or) sells equipment for use in explosive atmospheres and is responsible for its compliance with the requirements of this Technical Regulation of the Customs Union;

"importer" means a resident of a Member State of the Customs Union who has concluded a foreign trade contract with a non-resident of the Member States of the Customs Union for the transfer of equipment for use in explosive atmospheres, sells such equipment and is responsible for its compliance with the safety requirements of this Technical Regulation of the Customs Union;

"Ex component" means explosion-protected technical equipment installed on or in equipment, necessary for the safe functioning of equipment in explosive atmospheres but not intended for independent use;

"maximum surface temperature" means the highest temperature arising during operation on one of the parts or surfaces of equipment in the event of a violation of the specified operating modes provided for in the manufacturer's technical documentation, or in the event of damage, but within the deviations established for the specific type of protection;

"Ex marking" means the special explosion protection mark and the identification symbols of the characteristics determining the explosion safety of equipment and Ex components for use in explosive atmospheres, applied to the equipment and Ex components and specified in the manufacturer's technical documentation;

"normal operating mode" means an equipment operating mode in which its electrical and mechanical characteristics do not exceed the limits specified by the manufacturer in the technical documentation;

"equipment for use in explosive atmospheres" means technical equipment (a machine, apparatus, stationary or mobile installation, an element of their control or protection systems, a device providing protection, or an instrumentation device) intended for operation in explosive atmospheres and which may contain its own potential ignition sources for the surrounding explosive atmosphere, but whose design provides measures to eliminate an unacceptable risk of ignition of that atmosphere;

"failure" means an event consisting in the loss of the operable condition of equipment;

"quality management system certificate" means a document by which a certification body for quality management systems certifies that the quality of the manufacturer's work and services complies with the

requirements of ISO 9000 standards;

"special explosion protection mark" means a mark applied to equipment and Ex components, certifying that the equipment and Ex components are manufactured in an explosion-protected design;

"autoignition temperature of an explosive gas atmosphere" means the lowest temperature of a heated surface which, under specified conditions, ignites combustible substances in the form of a gas-air or vapour-air mixture;

"dust layer autoignition temperature" means the lowest temperature of a heated surface at which a dust layer of a specified thickness on that surface self-ignites;

"manufacturer's technical documentation" means a system of graphical and textual documents used in the design, manufacture and operation of equipment for use in explosive atmospheres (parts, assembly units, systems and sets), as well as in the design, construction and operation of protection systems;

"equipment protection level" means the level of protection against explosion assigned to equipment depending on the hazard of its becoming an ignition source and the conditions of use in explosive atmospheres.

Article 3. Rules for placing on the market

1. Equipment for use in explosive atmospheres shall be placed on the market within the single customs territory of the Customs Union provided that it has undergone the necessary conformity assessment procedures established by this Technical Regulation of the Customs Union, as well as by other Technical Regulations of the Customs Union and Technical Regulations of the Eurasian Economic Community (hereinafter – EurAsEC) applicable to such equipment.

2. Equipment for use in explosive atmospheres whose compliance with the requirements of this Technical Regulation of the Customs Union has not been confirmed shall not bear the single mark of product circulation on the market of the Member States of the Customs Union and shall not be permitted to be placed on the market.

Article 4. Explosion safety requirements

1. Equipment for use in explosive atmospheres (hereinafter – equipment) shall comply with the requirements necessary for safe functioning and operation with regard to the risk of explosion:

for preventing the formation of an explosive atmosphere that may be created through the release of combustible substances by the equipment;

for preventing ignition of the explosive atmosphere, taking into account the nature of each source of explosion initiation;

in accordance with the field of application of the equipment and the levels and types of protection according to Annex 1.

2. The explosion safety of equipment shall be ensured in normal operating modes and within the deviations established by the manufacturer's technical documentation, taking into account the conditions of its use.

3. Equipment for use in explosive atmospheres shall be designed and manufactured in such a way that, when used for its intended purpose and when the requirements for installation, operation (use), transportation, maintenance and repair are met, the following safety requirements are fulfilled:

1) the equipment shall ensure explosion safety throughout its intended (design) service life;

2) the equipment shall function under actual or foreseeable environmental conditions;

3) the equipment shall retain its explosion safety under changing environmental conditions and in the presence of external effects (humidity, vibration, contamination, lightning and switching overvoltages, etc.), taking into account the operating-condition limits established by the manufacturer.

Equipment parts shall be designed to withstand the relevant mechanical and thermal effects and shall withstand exposure to existing or anticipated aggressive substances;

4) if the equipment contains parts that may be ignition sources, it shall be opened only in the de-energised state or contain only intrinsically safe circuits, or have protection against contact by personnel and warning labels;

5) where enclosures contain stored electrical charges (capacitors) and heated elements that may be ignition sources, the enclosures shall open after a time delay sufficient to discharge the built-in capacitors to a safe residual energy value or to reduce the temperature of the heated elements below the maximum surface temperature or temperature class specified on the equipment; If, when providing explosion protection for the equipment by purging with protective gas, continued purging with protective gas after the power supply is switched off is provided for until the built-in capacitors are discharged or the temperature of the heated elements is reduced to the above values, the manufacturer shall affix a warning label to the opening parts of the equipment.

6) the surface temperature of equipment with an equipment protection level "special explosion-proof" ("very high") and "explosion-proof" ("high") and (or) its parts shall be below the autoignition temperature of the

surrounding explosive gas atmosphere and the dust layer autoignition temperature during operation (within the deviations established in the manufacturer's technical documentation) in the specified abnormal operating modes and when the environmental conditions change.

A temperature above the autoignition temperature of the surrounding explosive atmosphere during operation (within the deviations established in the manufacturer's technical documentation) is permitted only if the manufacturer takes additional measures to protect the specified equipment.

The temperature increase caused by external heating sources and chemical reactions shall be taken into account;

7) the surface temperature of equipment with an equipment protection level of "increased reliability against explosion" ("increased") shall not exceed the maximum surface temperature in the normal operating mode.

The design of such equipment shall not contain parts capable of generating sparks that ignite the surrounding explosive atmosphere;

8) Group I equipment shall be dust-protected and shall prevent the risk of ignition of coal dust;

9) in Group III equipment, including cable entries and connections, dust (taking into account its particle size) shall not form explosive mixtures with air or hazardous accumulations inside the equipment;

10) equipment that may release combustible gases or dust shall have enclosed designs. Any openings or leaky connections in the equipment shall be designed so that the gases or dust generated do not cause an explosive atmosphere to arise outside the equipment. Openings through which materials are introduced or discharged shall be designed and equipped so as to limit the release of combustible materials during filling

or draining;

11) equipment intended for use at facilities and (or) in areas thereof where dust is present shall be designed so that dust deposited on its surface does not ignite. Dust deposits shall be limited by cleaning the surfaces, the frequency of which shall be specified in the operating (use) manual. The surface temperature of equipment parts shall be below the dust layer autoignition temperature. In this case, provisions shall be made to limit the surface temperature of equipment parts in order to prevent hazardous heat generation depending on the thickness of the deposited dust layer;

12) safe manual shutdown of equipment included in automatic processes shall be provided in the event of a violation of its operating modes established in the manufacturer's technical documentation, if this does not adversely affect safety;

13) in the event of emergency shutdown of the equipment, the accumulated energy shall dissipate to a safe value within the time specified on the warning plates placed on the opening covers;

14) the equipment shall be fitted with appropriate input devices, and, if the equipment is intended to be used in combination with other equipment, their connection shall be safe;

15) if the equipment has detection or warning signalling devices for monitoring the explosive atmosphere, the locations and conditions of their installation shall be specified in the manufacturer's technical documentation;

16) the equipment shall not contain materials capable of releasing combustible substances that create an explosive atmosphere;

17) within the operating conditions established in the manufacturer's technical documentation, the possibility of a chemical reaction between

the materials used and the substances constituting the potentially explosive atmosphere, which may adversely affect explosion protection, shall be excluded;

18) the equipment shall not contain materials that, when their characteristics change under the influence of the ambient temperature and operating conditions, or in combination with other materials, reduce the equipment protection level of the equipment;

19) Ex components installed in the equipment or used to replace parts of the equipment and protection systems shall function safely in accordance with the explosion safety requirements when installed in accordance with the manufacturer's operating (use) manuals;

20) equipment that may be exposed to external influences shall be provided with additional protection provisions. The equipment shall withstand external influences without compromising its explosion protection;

21) if the equipment is located in a housing or enclosed container that forms part of the type of protection, such housing or container shall be opened only with a special tool or by applying appropriate protection measures;

22) to prevent hazardous overloading of the equipment, the use of measuring, regulating and control devices shall be provided (maximum circuit breakers, temperature limiters, differential pressure relays, flowmeters, time-delay relays, overspeed indicators and (or) similar types of devices).

4. The design of the equipment shall ensure protection against the following potential ignition sources:

- 1) sparks (electrical and frictional), flames, high temperatures of heated surfaces, electromagnetic, ultrasonic, optical and ionising radiation;
- 2) static electricity (electrostatic charges capable of causing hazardous discharges);
- 3) stray currents and leakage currents that may lead to hazardous corrosion, sparking or overheating of surfaces and thereby create the possibility of ignition;
- 4) overheating resulting from friction or impacts that may arise between materials and parts coming into contact with each other during rotation or the penetration of foreign objects;
- 5) pressure compensation carried out by regulating devices, which may cause shock waves or compression leading to ignition.
- 6) lightning strikes;
- 7) exothermic reactions, including self-ignition of a dust layer.

All hazard factors associated with the occurrence of an explosion shall be taken into account, and sources initiating the ignition of explosive atmospheres shall be identified. Taking into account the assessment of the hazard factors performed, the methods of ensuring explosion protection (types of protection) for equipment intended for use in explosive atmospheres shall be selected.

5. Devices providing protection for equipment in abnormal operating modes shall meet the following requirements:

- 1) protection devices shall function independently of any measuring or control device necessary for operation. Failure of a protection device shall be detected by technical means provided for in the technical documentation;

- 2) emergency shutdown shall directly actuate the relevant control devices without an intermediate software command;
 - 3) emergency control means of protection devices shall be equipped with mechanisms or other devices preventing restarting. A new start command may be executed, and normal operation may resume, only after the restart interlocks have been specifically reset;
 - 4) the control devices and indicators used shall be designed to ensure the highest possible level of operational safety with regard to the risk of explosion;
 - 5) devices with a measuring function shall be designed and manufactured taking into account the operating requirements and conditions of their use in an explosive atmosphere and shall meet the requirements for ensuring measurement uniformity;
 - 6) the accuracy of readings and the functioning of devices with a measuring function shall be verifiable;
 - 7) the emergency threshold of a potential ignition source of devices with a measuring function shall be below the limiting conditions for the occurrence of explosion and (or) ignition of the explosive atmospheres being detected, taking into account the safety factor established in the technical documentation, operating conditions and errors of the measuring system;
 - 8) the software of the equipment it controls shall take into account the risks associated with program errors.
6. When the equipment is supplied to the consumer, it shall be accompanied by the manufacturer's technical documentation, which shall include:

- 1) the name and (or) designation of the equipment (type, brand, model), its parameters and characteristics affecting safety, and the name and (or) trademark of the manufacturer;
- 2) information on its intended use;
- 3) instructions for installation, assembly, commissioning or adjustment;
- 4) instructions for using the equipment and safety measures to be observed during operation (including commissioning, intended use, maintenance, all types of repairs and technical inspections, protection provisions aimed at reducing the intensity and localising harmful occupational factors, transportation and storage conditions);
- 5) specified service-life indicators and (or) specified service life;
- 6) a list of critical failures, possible errors by personnel (the user) leading to abnormal operating modes of the equipment, and actions preventing such errors;
- 7) parameters of limit states;
- 8) information on the measures to be taken when a malfunction of the equipment is detected;
- 9) information on the need to complete the equipment with additional elements (cable entries, etc.);
- 10) requirements for ensuring the preservation of the technical characteristics of the equipment that determine its explosion safety;
- 11) requirements for packaging, preservation, transportation and storage conditions, specified storage periods, and instructions on the prescribed periods for re-inspection of the condition and replacement of individual elements, parts and assemblies whose storage period has expired;

- 12) requirements for disposal of the equipment;
- 13) rules and conditions for storage, transportation and disposal (where necessary, requirements for these shall be established);
- 14) requirements for personnel;
- 15) the location of the manufacturer and contact information;
- 16) the name and location of the person authorised by the manufacturer, the importer, and contact information;
- 17) the Date of Manufacture.

The technical documentation shall be produced on paper. A set of technical documentation on electronic media may be enclosed with it.

7. The equipment shall bear marking that includes:

- 1) the name of the manufacturer or its registered trademark;
- 2) designation of the equipment type;
- 3) serial number;
- 4) certificate of conformity number;
- 5) Ex marking. The image of the special explosion protection mark is specified in Appendix 2.

8. The marking and manufacturer's technical documentation shall be provided in Russian and in the state language(s) of the Member State of the Customs Union, where the legislation of the Member State of the Customs Union contains corresponding requirements.

9. The marking shall be applied to the surface of this equipment or to a nameplate accessible for inspection without disassembly or the use of tools, and shall remain legible throughout the entire service life of the equipment.

10. At the manufacturer's discretion or in accordance with the supply contract (agreement), the equipment marking may include additional information relevant to its safe use, including:

- 1) rated voltage or rated voltage range;
- 2) continuous permissible operating voltage;
- 3) symbol for the type of current (if the rated frequency is not specified);
- 4) symbol for the class of protection against electric shock;
- 5) the degree of protection provided by the enclosure;
- 6) the rated power consumption or useful power, or the rated current;
- 7) the mass;
- 8) overall dimensions;
- 9) the Date of Manufacture.

Article 5. Ensuring Compliance with Safety Requirements

1. Compliance of equipment with this Customs Union Technical Regulation shall be ensured either by directly fulfilling its safety requirements or by voluntarily fulfilling the requirements of interstate standards or, in their absence, national (state) standards of the Customs Union Member States, the application of which on a voluntary basis ensures compliance with the requirements of this Customs Union Technical Regulation, as well as standards containing rules and methods for research (testing) and

measurements, including sampling rules, required for applying and fulfilling the requirements of this Customs Union Technical Regulation and carrying out conformity assessment (confirmation) of equipment for use in explosive atmospheres (hereinafter referred to as the standards).

2. The lists of standards referred to in paragraph 1 of this Article shall be approved by the Customs Union Commission (hereinafter referred to as the Commission).

Article 6. Conformity Confirmation

1. Before placing it on the market in the single customs territory of the Customs Union, equipment shall undergo the conformity confirmation procedure for compliance with the requirements of this Customs Union Technical Regulation.

Conformity confirmation of equipment is mandatory and shall be carried out in the form of certification.

2. Conformity confirmation procedures for equipment's compliance with the requirements established by this Customs Union Technical Regulation shall be carried out by accredited certification bodies (for conformity assessment (confirmation)) and accredited testing laboratories (centres) included in the Unified Register of Certification Bodies and Testing Laboratories (Centres) of the Customs Union.

3. Conformity confirmation of equipment shall be carried out according to schemes in accordance with the Regulation on the Procedure for Applying Standard Conformity Assessment (Confirmation) Schemes in the Technical Regulations of the Customs Union, approved by the Customs Union Commission:

1) for serially produced equipment:

equipment certification based on testing of a type sample in an accredited testing laboratory (centre) and analysis of the production condition, followed by inspection control (scheme 1c);

2) for a limited batch of equipment:

certification of an equipment batch based on testing samples of equipment from that batch (scheme 3c) in an accredited testing laboratory (centre);

certification of individual items of equipment based on testing an individual item of equipment in an accredited testing laboratory (scheme 4c).

4. For certification under scheme 1c, the applicant may be a legal entity registered in accordance with the legislation of a Customs Union Member State in the territory of that Member State, or an individual acting as an individual entrepreneur, which is either the manufacturer or performs the functions of a foreign manufacturer under an agreement with that manufacturer, in terms of ensuring the compliance of the supplied products with the requirements of this Technical Regulation and responsibility for non-compliance of the supplied products with the requirements of this Customs Union Technical Regulation (the person performing the functions of a foreign manufacturer).

5. For certification under schemes 3c and 4c, the applicant may be a legal entity registered in accordance with the legislation of a Customs Union Member State in the territory of that Member State, or an individual acting as an individual entrepreneur, which is either the manufacturer or seller, or performs the functions of a foreign manufacturer under an agreement with that manufacturer, in terms of ensuring the compliance of the supplied products with the requirements of this Technical Regulation and responsibility for non-compliance of the supplied products with the

requirements of this Customs Union Technical Regulation (the person performing the functions of a foreign manufacturer).

6. When carrying out equipment certification:

1) the manufacturer (the person authorised by the manufacturer) or importer shall provide the certification body (for conformity assessment (confirmation)) with a set of documents for the equipment confirming its compliance with the explosion safety requirements of this Customs Union Technical Regulation, including:

technical specifications (if available);

operating documents;

a list of the standards with which the equipment complies, selected from the List of Standards referred to in paragraph 1 of Article 5 of this Customs Union Technical Regulation (if applied by the manufacturer);

an explanatory note containing a description of the technical solutions adopted and a Risk Analysis confirming fulfilment of the explosion safety requirements of this Customs Union Technical Regulation, if the standards are absent or were not applied;

the manufacturer's quality management system certificate (if available);

a contract (supply agreement) or shipping documentation (for an equipment batch).

2) the certification body (for conformity assessment (confirmation)) shall:

identify the equipment presented by establishing the identity of its characteristics with the features specified in Article 1 of this Customs Union Technical Regulation, as well as with the provisions established by paragraphs 8 and 9 of Article 4 of this Customs Union Technical

Regulation;

arrange for testing of the equipment sample (samples) in an accredited testing laboratory (centre) for compliance with the requirements of the standards from the List of Standards referred to in paragraph 1 of Article 5 of this Customs Union Technical Regulation, and analyse the test report (reports). The test report shall specify the list of technical Documentation (drawings of explosion protection provisions) confirming the compliance of the equipment and Ex component with the requirements of this Customs Union Technical Regulation.

Where necessary due to the specific nature of manufacture and installation, as specified by the manufacturer in the technical documentation for manufacture or installation, equipment testing may be carried out at the place of its manufacture and (or) installation.

If the standards were not applied by the manufacturer or are absent, the certification body (for conformity assessment (confirmation)) shall confirm the equipment's compliance directly with the explosion safety requirements of this Customs Union Technical Regulation. For this purpose, the certification body shall:

- using the technical documentation and the description of the technical solutions adopted and the Risk Analysis confirming fulfilment of the explosion safety requirements of this Customs Union Technical Regulation, contained in the manufacturer's explanatory note, determine the specific safety requirements for the equipment being certified;
- determine the standards establishing measurement and testing methods from the List of Standards referred to in paragraph 1 of Article 5 of this Customs Union Technical Regulation or, in their absence, determine the methods for monitoring, measuring and testing the equipment to confirm its compliance with the specific requirements established;

arrange for equipment testing in an accredited testing laboratory (centre);

conduct an analysis of the manufacturer's production condition. If the manufacturer has a certified quality management system for the production or development and production of equipment, assess whether this system can ensure the stable production of certified equipment complying with the requirements of this Technical Regulation;

When confirming the conformity of an equipment batch (individual equipment), an analysis of the production condition shall not be carried out;

conduct inspection control (if provided for by the certification scheme) of the certified equipment throughout the entire validity period of the certificate of conformity by testing samples in an accredited testing laboratory (centre) and (or) analysing the production condition (scheme 1c);

issue a certificate of conformity in the uniform form approved by a decision of the Commission:

- for serially produced equipment, with a validity period of not more than 5 years;
- for an equipment batch (individual equipment), no validity period shall be established.

A certificate of conformity for Ex components with the requirements of this Customs Union Technical Regulation shall be issued upon completion of the procedures specified in this subparagraph, using the same form.

The certificate of conformity shall contain, in its annex, inter alia, the following information:

a description of the design and explosion protection provisions;

special conditions of use (if the Ex marking contains the "X" mark);

3) the manufacturer (the person authorised by the manufacturer) or importer shall:

upon receipt of the certificate of conformity, affix the single mark of product circulation on the market of the Customs Union Member States and the registration number of the certification body (for conformity assessment (confirmation));

compile a set of documents for the equipment, including:

- the documents for the equipment specified in subparagraph 1 of this paragraph;
- the test report (reports);
- the certificate of conformity;

take all necessary measures to ensure that the production process is stable and ensures that the equipment manufactured complies with the requirements of this Customs Union Technical Regulation (scheme 1c).

7. If the manufacturer makes changes to the design and (or) technical Documentation confirming the compliance of the equipment and (or) Ex component with the requirements of this Customs Union Technical Regulation, which affect the explosion safety indicators of the equipment, the manufacturer shall submit to the certification body (for conformity assessment (confirmation)) that issued the certificate of conformity a description of the changes, the technical documentation (drawings of explosion protection provisions) incorporating the changes, and a sample for additional testing, if the certification body (for conformity assessment (confirmation)) considers that an examination only of the amended technical documentation would be insufficient to decide on the conformity

of the equipment and (or) Ex component with this Customs Union Technical Regulation as amended.

In this case, the certification body (for conformity assessment (confirmation)) shall examine the amended technical documentation (drawings of explosion protection provisions) and, if it considers this insufficient, conduct additional testing of the sample. If the results are positive, the certification body (for conformity assessment (confirmation)) shall issue a decision confirming the validity of the certificate of conformity with account taken of the changes made, or issue a new certificate of conformity with the Customs Union Technical Regulation if the changes made require the equipment and (or) Ex component to be considered as a new product.

8. In the territories of the Customs Union Member States, the set of documents, including documents confirming conformity, shall be retained:

for equipment – by the manufacturer (the person authorised by the manufacturer) for at least 10 years from the date on which production of this equipment is discontinued;

for an equipment batch (single product) – held by the importer, manufacturer or person authorised by the manufacturer for at least 10 years from the date of sale of the last product in the batch.

Documents and materials confirming the certification results shall be retained by the certification body that issued the certificate of conformity for at least 5 years after expiry of the certificate of conformity.

The set of documents shall be provided to the state supervision authorities upon their request.

Article 7. Marking with the single mark of product circulation on the market of the Member States of the Customs Union

1. Equipment complying with the requirements of this Technical Regulation of the Customs Union and having undergone the conformity confirmation procedure in accordance with Article 6 of this Technical Regulation of the Customs Union shall bear the single mark of product circulation on the market of the Member States of the Customs Union.

Equipment shall bear the single mark of product circulation on the market of the Member States of the Customs Union if it complies with the requirements of all Technical Regulations of the Customs Union and Technical Regulations of EurAsEC applicable to it and providing for the application of the single mark of product circulation on the market of the Member States of the Customs Union.

2. The single mark of product circulation on the market of the Member States of the Customs Union shall be applied before the equipment is placed on the market.

3. The single mark of product circulation on the market of the Member States of the Customs Union shall be applied to each unit of equipment (product) by any method ensuring a clear and distinct image throughout the entire service life of the equipment.

The single mark of product circulation on the market of the Member States of the Customs Union shall be applied to the product itself and shall also be included in the manufacturer's technical documentation accompanying it.

4. The single mark of product circulation on the market of the Member States of the Customs Union may be applied only to the packaging and indicated in the manufacturer's technical documentation accompanying it, if it is impossible to apply this mark directly to the equipment due to its design features.

Article 8. Safeguard Clause

1. The Member States of the Customs Union shall take all measures to restrict or prohibit the placing on the market of equipment for use in explosive atmospheres in the single customs territory of the Customs Union, as well as to withdraw from the market such equipment that does not comply with the safety requirements of this Technical Regulation of the Customs Union.

Appendix 1
to the Technical Regulation
of the Customs Union "On the Safety
of Equipment for Use in
Explosive Atmospheres"
(TR CU 012/2011)

Classification of Parameters Determining Equipment Explosion Safety

I. Classification of Hazardous Areas

1. The classification of hazardous areas is used to select equipment according to its equipment protection level, ensuring the safe operation of such equipment in the relevant hazardous area.

2. Depending on the frequency and duration of the presence of an explosive gas or dust atmosphere, hazardous areas are divided into the following classes:

- 1) for explosive gas atmospheres — Classes 0, 1 and 2;
- 2) for explosive dust atmospheres — Classes 20, 21 and 22.

II. Classification of Equipment by Groups

Depending on the field of application, equipment is divided into the following groups:

1) Group I equipment — equipment intended for use in underground mine workings and their surface structures that are hazardous due to mine gas and (or) combustible dust. Depending on its design, Group I equipment may have one of 3 equipment protection levels;

2) Group II equipment — equipment intended for use in locations (other than underground mine workings and their surface structures) that are hazardous due to explosive gas atmospheres. Depending on its design, Group II equipment may have one of 3 equipment protection levels. Group II equipment may be divided into subgroups IIA, IIB and IIC depending on the category of the explosive mixture for which it is intended;

3) Group III equipment — equipment intended for use in locations (other than underground mine workings and their surface structures) that are hazardous due to explosive dust atmospheres. Depending on its design, it may have one of 3 equipment protection levels. Group III equipment may be divided into subgroups IIIA, IIIB and IIIC depending on the characteristics of the explosive atmosphere for which it is intended.

III. Classification of Equipment by Equipment Protection Levels

1. Depending on the risk of becoming an ignition source and the conditions of its use in explosive atmospheres, equipment is classified by equipment protection levels:

1) "very high" ("extremely explosion-protected");

2) "high" ("explosion-protected");

3) "increased" ("increased explosion protection reliability").

2. The "very high" ("extremely explosion-protected") equipment protection level applies to equipment intended to operate in accordance with the operating parameters specified by the manufacturer, providing the

required equipment protection level even in the event of highly unlikely failures, remaining operational in the presence of an explosive atmosphere, and in which, upon failure of one protection provision, the required equipment protection level is provided by a second independent protection provision, or the required equipment protection level is provided in the event of 2 protection provision failures occurring independently of each other.

Equipment with this equipment protection level is intended for use in underground mine workings and their surface structures where there is a risk of the presence of mine gas and (or) combustible dust (Group I equipment), or at facilities and (or) their sections (Group II and III equipment) where an explosive atmosphere formed by mixtures with air of combustible substances in the form of gas, vapour, mist or dust, fibres or volatile substances is present continuously for prolonged periods or frequently.

3. The "high" ("explosion-protected") equipment protection level applies to equipment intended to operate in accordance with the operating parameters specified by the manufacturer and providing the required equipment protection level and operation in the normal operating mode in the event of 1 recognised probable failure.

Group I equipment with this equipment protection level must be capable of safe shutdown when the regulated concentration of mine gas in the surrounding environment is reached.

Equipment with this equipment protection level is intended for use in underground mine workings and their surface structures where there is a possibility of the presence of mine gas and (or) combustible dust (Group I equipment), or at facilities and (or) their sections (Group II and III equipment) where an explosive atmosphere in the form of gas, vapour, mist, dust, fibres or volatile particles may arise.

4. The "increased" ("increased explosion protection reliability") equipment protection level applies to equipment intended to operate in accordance with the operating parameters specified by the manufacturer and providing operation only in the normal operating mode stipulated by the manufacturer.

Group I equipment with this equipment protection level must be capable of safe shutdown when the regulated concentration of mine gas in the surrounding environment is reached.

Equipment with this equipment protection level is intended for use in underground mine workings and their surface structures (Group I equipment), or at facilities and (or) their sections (Group II and III equipment) where, under normal operating conditions, the presence of mine gas and (or) combustible dust or an explosive atmosphere formed by mixtures with air of combustible substances in the form of gas, vapour, mist or dust, fibres or volatile substances is unlikely, and if an explosive atmosphere exists, it exists only for a short period of time.

IV. Types of Equipment Protection

1. Depending on the specific measures provided to prevent ignition of the surrounding explosive atmosphere, equipment may have one type or a combination of several types of protection:

1) for electrical equipment intended for use in explosive gas atmospheres:

"d" — flameproof enclosure;

"e" — increased safety;

"i" ("ia", "ib", "ic") — intrinsic safety (intrinsically safe electrical circuit);

"m" ("ma", "mb", "mc") — encapsulation;

"nA" — non-sparking equipment;

"nC" — contact device in a flameproof enclosure, or hermetically sealed device, or non-incendive component, or sealed device;

"nR" — restricted-breathing enclosure;

"nL" — equipment containing electrical circuits with limited energy;

"nZ" — pressurized enclosure;

"o" — oil immersion;

"p" ("px", "py", "pz") — pressurization or purging of the enclosure;

"q" — powder filling;

"s" — special protection;

2) for electrical equipment intended for use in explosive dust atmospheres:

"t" ("ta", "tb", "tc") — protection by enclosure;

"i" ("ia", "ib") — intrinsic safety (intrinsically safe electrical circuit);

"m" ("ma", "mb", "mc") — encapsulation;

"p" — pressurization or purging of the enclosure;

"s" — special protection;

3) for non-electrical equipment intended for use in explosive atmospheres:

"c" — constructional safety;

"b" — ignition source control;

"k" — liquid immersion protection;

"d" — protection by flameproof enclosure;

"fr" — protection by restricted-breathing enclosure;

"p" — protection by pressurization;

4) other recognised types of protection.

2. Types of equipment protection are determined by the following specific measures provided in equipment with various equipment protection levels to prevent ignition of the surrounding explosive atmosphere:

1) flameproof enclosure "d" — a type of equipment protection in which parts capable of igniting an explosive gas atmosphere are enclosed in an enclosure capable of withstanding the explosion pressure of an explosive mixture inside it and preventing the explosion from propagating into the surrounding explosive atmosphere;

2) protection by enclosure "t" — a type of protection in which the equipment is protected by an enclosure providing protection against dust ingress and by means of limiting the surface temperature;

3) increased safety "e" — a type of protection in which additional measures are used to prevent possible exceeding of the permissible temperature and the occurrence of sparking in the normal operating mode or the specified abnormal operating mode;

4) intrinsic safety (intrinsically safe electrical circuit) "i" — a type of protection based on limiting the electrical energy (power) in an electrical discharge and the temperature of electrical equipment components to a value below the level that causes ignition through sparking or thermal effects;

5) encapsulation "m" — a type of protection in which equipment parts capable of igniting an explosive atmosphere through sparking or heating are enclosed in compound to prevent ignition of the explosive atmosphere during operation or installation;

6) type of protection "n" — a type of protection in which additional protection measures are taken to prevent ignition of the surrounding explosive gas atmosphere in the normal and specified abnormal operating modes of electrical equipment;

7) oil immersion "o" — a type of protection in which equipment or equipment parts are immersed in a protective liquid that prevents ignition of an explosive gas atmosphere that may be present above the liquid or outside the enclosure;

8) pressurization or purging of the enclosure "p" — a type of protection that prevents the external atmosphere from entering the enclosure or room due to the presence of protective gas in them at a pressure exceeding the pressure of the external atmosphere;

9) powder filling "q" — a type of protection in which parts capable of igniting an explosive atmosphere are fixed in a specific position and completely surrounded by a filling material that prevents ignition of the external surrounding explosive atmosphere;

10) special protection "s" — a type of protection based on protection measures other than those provided for in subparagraphs 1–9 of this paragraph, but recognised as sufficient to ensure explosion protection during assessment or testing;

11) constructional safety "c" — a type of protection in which additional protection measures are taken to prevent ignition of the surrounding explosive atmosphere by heated surfaces, sparks and adiabatic compression generated by moving parts of the equipment;

12) ignition source control "b" — a type of protection providing for the installation in non-electrical equipment of a device that prevents the formation of an ignition source and by means of which internal built-in sensors monitor the parameters of equipment components and trigger automatic protection devices or alarms;

13) liquid immersion protection "k" — a type of protection in which potential ignition sources are safe or separated from the explosive atmosphere by complete or partial immersion in a protective liquid, with hazardous surfaces continuously covered by the protective liquid so that an explosive atmosphere that may be above the liquid level or outside the equipment enclosure cannot be ignited.

14) protection by restricted-breathing enclosure "fr" — a type of protection in which the ingress of the surrounding explosive atmosphere into the enclosure is limited by the enclosure to an acceptably low level at which the concentration of the explosive atmosphere in the enclosure is below the lower concentration limit for flame propagation.

V. Classification of Equipment by Temperature Classes

Depending on the maximum permissible surface temperature, equipment of Group II is subdivided into the following temperature classes:

T1 - 450 degrees Celsius;

T2 - 300 degrees Celsius;

T3 - 200 degrees Celsius;

T4 - 135 degrees Celsius;

T5 - 100 degrees Celsius;

T6 - 85 degrees Celsius.

**Annex 2
to the Technical Regulation
of the Customs Union "On the Safety
of Equipment for Use in
Explosive Atmospheres"
(TR CU 012/2011)**

Image of the special explosion protection mark

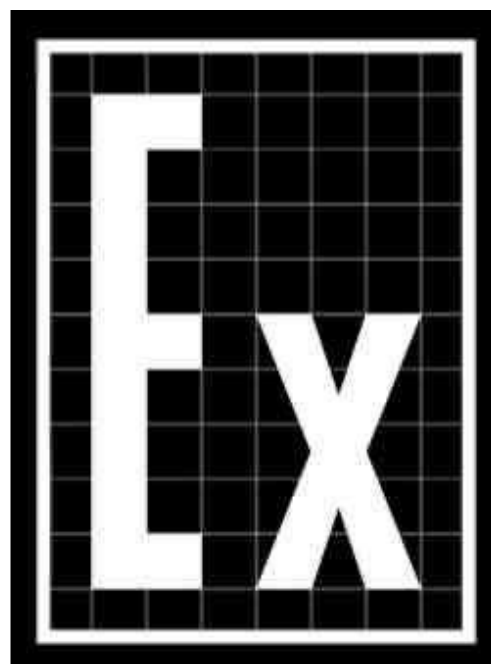
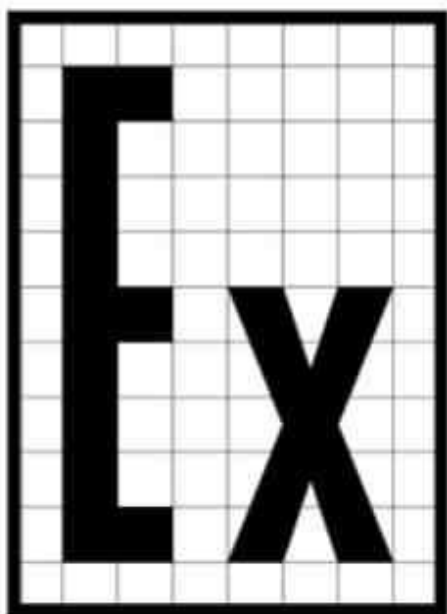


Fig. 1 Fig. 2

Description of the image of the special explosion protection mark

The image of the special explosion protection mark consists of a combination of 2 stylized letters of the Latin alphabet, "E" and "x", with the height of the letter "x" being $\frac{5}{9}$ of the height of the letter "E", enclosed in a rectangle on a light background (Fig. 1) or a contrasting background (Fig. 2), with a height-to-width ratio of $\frac{11}{8}$.

Ex stands for explosion protection (Explosion-proof).

The dimensions of the special explosion protection mark are determined by the manufacturer of equipment for use in explosive atmospheres. The basic height of the rectangle must be at least 10 mm. The dimensions of the special explosion protection mark must ensure the clarity of its elements and their visibility to the naked eye against the general colored background of the equipment or Ex component.

APPROVED
by Decision of the
Customs Union Commission
dated 18 October 2011 No. 825

LIST
of standards, the application of which
on a voluntary basis ensures compliance with the
requirements
of the Technical Regulation of the Customs Union
"On the Safety of Equipment
for Use in Explosive Atmospheres" (TR CU 012/2011)

Note. The List was invalidated by Decision No. 158 of the Board of the Eurasian Economic Commission dated 01.12.2020 (which enters into force upon the expiry of 30 calendar days from the date of its official publication).

APPROVED
by Decision of the
Customs Union Commission
dated 18 October 2011 No. 825

LIST
of standards containing rules and methods for research

(testing) and measurements, including rules for sampling, required for the application and fulfillment of the requirements of the Technical Regulation of the Customs Union "On the Safety of Equipment for Use in Explosive Atmospheres" (TR CU 012/2011) and for conducting conformity assessment of objects subject to technical regulation

Note. The List was invalidated by Decision No. 158 of the Board of the Eurasian Economic Commission dated 01.12.2020 (which enters into force upon the expiry of 30 calendar days from the date of its official publication).

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