

## ENSURING SAFETY DURING TRANSPORTATION MOVING OF CYLINDERS WITH COMPRESSED OR LIQUEFIED GAS

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**Introduction.** The use of gas cylinders is widely used in the pharmaceutical industry. In the manufacture of pharmaceuticals, gases and their mixtures are used primarily for monitoring and analysis. Among them - gases, which are an essential tool in conducting chemical research of substances: helium, argon, synthetic air, nitrogen, hydrogen, etc. Cylinders with compressed and liquefied gases belong to the group of dangerous goods. Therefore, it is important to know the safety rules for their transportation

**Aim.** To study the safety rules for the transportation of gas cylinders.

**Materials and methods.** Content analysis, method of analysis and synthesis.

**Results and discussion.** Persons responsible for the transportation of compressed and liquefied gas cylinders, as well as those who accept, store and dispense cylinders, must undergo training, check knowledge of safety requirements and obtain appropriate certificates. Cylinders with compressed and liquefied gases must be transported with safety caps fixed on the neck on specially equipped vehicles in a horizontal position, using as a spacer between them wooden blocks with embedded nests or rubber rings with a thickness of at least 25 mm (2 rings per cylinder). During transportation, the cylinders are laid in one direction with valves. Vehicles for the transport of LPG cylinders shall be equipped with a reliable ground for the discharge of static electricity. The movement of cylinders at storage or use points is carried out using specially adapted trolleys or stretchers.

The driver of the vehicle carrying the cylinders is obliged to:

- to undergo special training and appropriate briefings, medical examination during employment and subsequent periodic medical examinations, pre-trip medical control and vehicle inspection for compliance with its equipment for the transportation of cylinders;
- comply with the Traffic Rules and the requirements of the Instruction on the Transport of Dangerous Goods approved by the head of the organization;
- in the case of an emergency stop, mark with an emergency stop sign or with a red flashing light.

During transportation of cylinders it is forbidden:

- sharply to move from a place;
- To overtake vehicles that are moving at a speed of more than 30 km per hour;
- to brake sharply;
- use open fire and smoke;
- at the same time to transport other goods that are not specified in the transport documentation and passengers.

For the transportation of cylinders, drivers with an experience of at least 3 years of relevant work experience and a certificate of special training are allowed.

The freight forwarder accompanying the vehicle carrying cylinders must have a certificate for the right to escort a dangerous cargo for the approved route.

The transportation route is determined by the company performing the transportation and coordinates it with the sender and the regional road safety department of the Office of Preventive Action of the National Police. Forms of the route are filled in 2 copies, 1 - stored in the enterprise, and the second one by the driver.

**Conclusions.** The use of these rules will avoid accidents and ensure the safety of personnel.