Prospects of developing vehicles for liquefied natural gas transportation

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We developed a contemporary vehicle for transporting liquefied natural gas (LNG) used in implementing modern promising cryogenic technologies for airspace, aviation and other industries. We conducted a search for optimal solutions when selecting the design of load-bearing members in the assembly consisting of the vessel, the shell and the frame of the tank car and the tank container, ensuring reliable vehicle functioning during operation. The study validates design choices for a system of cut-off safety devices and high-speed valves for incident prevention during vehicle operation. Based on the investigations conducted, we suggest a means of storing liquefied natural gas in a vehicle tank, which ensures safe LNG vapour release from the tank into the atmosphere during railroad or road transportation. We present a technology of discharging LNG at the customer's site that ensures minimal LNG vapour release into the atmosphere. For the first time we supply a description and performance specifications for promising transportation devices, such as 40 cubic meter tank cars for LNG and ethylene.

***Keywords**: liquefied natural gas, tank car, tank truck, tank container, transportation, safe draining system, fibre vacuum insulation, vacuum shield insulation, container truck, flat-bed railcar*

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