

**ANTI-CORROSION PROTECTION OF GAS PIPELINE AND  
GAS-TRANSPORTED TECHNOLOGICAL EQUIPMENT**

**Rassokha A.N., Cherkashina A.N., Makhraeva M.A.**

**National Technical University  
«Kharkiv Polytechnic Institute»,  
Kharkiv**

Composition and coating technology based on furan-epoxy polymers on the outer surface of main pipelines and other processing equipment, providing effective protection against the impact of various operational factors: high humidity, temperature, cyclic loads, the presence of aggressive, including highly mineralized media, hydrocarbon liquids have been developed, investigated and tested on an industrial scale.

The use of furan-epoxy polymers as anticorrosive systems allows to increase the service life of pipelines for transporting oil, gas, oil products. Combined furano-epoxy materials have a complex of valuable properties that combine the positive qualities of furan and epoxy components: they have high resistance to the action of physically and chemically aggressive media, high heat resistance, manufacturability; are characterized by high wetting power and adhesion to the metal surface, a high level of strength characteristics.

Functional modification of furano-epoxy polymers with coal tar promotes a significant reduction of internal stresses in the coating, which causes a sharp increase in the strength and operational properties of the protective system. To structure the furano-epoxy reactive oligomer (PCO) under industrial conditions, it is recommended to use aminophenol agents (such as Agidol AF-2), which have high resistance to thermal exposure.

The technological process of the formation of protective furan-epoxy coatings on the outer surface of large-diameter pipes (720-1420 mm) includes the following steps: the pipe along the roller conveyor enters the application area of the protective material, where it is fixed and starts rotating at a certain speed around its axis. Furano-epoxy material is applied by means of an atomizer, which moves at a constant linear speed. The pipe leaves the coating formation zone and moves to the drying unit, where the structuring of the PCO takes place. The process technology has the elements of "know-how".

The developed furano-epoxy materials are recommended to be used as protective anticorrosion coatings for sections of main pipelines with increased soil aggressiveness, significant temperature and cyclic loads (on well trains, air passages, at compressor stations and after them, etc.).