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## ASMOL INTERACTION WITH THE METAL OF PIPELINES

### Background

Asmol and asmol-based insulating materials are not widely used in practice, despite their known unique properties. Real causes of limitation may be unfair competition and corporative interests, yet it is often declared that asmol exerts negative effect on the pipe metal due to its higher acidity.

It is true that asmol has pH of 5.5. Such acidity is explained by the presence of bonded functional groups in asmol polymolecules that ensure strong adhesion of the isolating coating. By these groups the asmol molecules “cling” to the metal surface and cause no change in its strength. Nevertheless, to finish with this question, the authors have conducted special test to assess possible impact of asmol on the properties of pipe metal during pipeline long service. The paper presents some results of these tests.

### Aims and Objectives

To assess the probability of pipeline strength changes caused by asmol as the base of new insulating materials that have chemical affinity with metals.

### Methods

Experimental methods (strength test, microstructural and chemical analysis of samples) and methods of the probability theory and mathematical statistics were used.

### Results

Pipe metal was tested after prolong interaction between the metal and asmol solution, features of surface film forming were studied, and the cause and mechanism of getting high protective ability of the asmol-based insulator were identified. The conducted tests confirmed that no negative effects were observed at pipe metal contact with asmol-based insulating materials. It was shown that during pipeline long operation an additional protective film on the metal surface is formed with the thickness of up to 10  $\mu$ , which is of chemical nature, ensures high adhesion and excellent anticorrosive protection.

**Key words:** underground pipeline, insulating coating, protective film, asmol, strength test, chemical affinity

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