

## عنوان مقاله:

External Coatings of Pipelines: Challenges related to Corrosion Risks

## محل انتشار:

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## خلاصه مقاله:

As far as external corrosion risk of pipelines is concerned, disbondment of coatings through ageing processes is the major threat encountered, because it may lead to a "shielding effect" of the cathodic protection (CP) current. Recently, failures have been detected through in-line inspection (ILI) on some buried pipelines coated with various kinds of coatings, such as 3 layer polyolefin (3LPO) plant coatings, heat-shrinkable sleeves (HSS) applied at field joints or fusion-bonded epoxy (PBE). Massive disbanding generally occurred above ambient temperature, leading to significant corrosion in some cases. Experience feedback with HSS and 3LPO is especially detailed in this paper. In spite of possible coating damage, no corrosion has been identified so far in the submerged zone of offshore pipelines even under disbandments. The most critical zone for offshore pipelines is the transition area on risers between riser thick coatings and atmospheric paint system where accelerated corrosion may occur. Practical experience has shown that electrical inspection methods applied on the ground surface, especially ON/OFF Close Interval Potential Surveys (CIPS) and Direct Current Voltage Gradient (DCVG) may be efficient to detect coating damage including disbondments and/or associated corrosion. Important efforts are produced to understand the influence of parameters leading to disbondment of 3LPO coatings and to assess those influencing corrosion under disbonded coatings. The main results of the studies carried out so far are presented. In addition, a programme is currently launched to better know the long term behaviour of various field joint coatings especially at the overlap with parent coatings.

## کلمات کلیدی:

Pipelines, coatings, cathodic protection, corrosion, disbondment

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