

Standard Test Method

Four-Point Bend Testing of Materials for Oil and Gas Applications

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Foreword

Four-point bend testing is used extensively in the oil and gas industry to evaluate resistance of metals to sulfide stress cracking and stress corrosion cracking. The surface of the specimen to be exposed to the environment in service is stressed in tension and the other surface in compression. The test is carried out for a specified exposure period with the specimen held under constant displacement using compact loading jigs. The compact nature of the jigs enables testing of several specimens in the test vessel simultaneously. Despite the apparent simplicity of the test, there are many factors that can influence the test results. The purpose of this standard is to establish a reliable methodology for conducting the tests to enhance repeatability and reproducibility of test data. The results of the tests can then be used with greater confidence to rank the performance of metals, the relative aggressiveness of environments, and to provide a basis for qualifying metals for service application. As such, the standard will be of particular benefit to materials and corrosion engineers in the oil and gas sector and to test houses providing critical data.

This standard was originally prepared in 2016 by Task Group 494, Four-Point Bend Test Method, which is administered by Specific Technology Group (STG) 32, Oil and Gas Production—Metallurgy. It is published under the auspices of STG 32.

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