

# EFFECT OF BENDING ANGLES ON THE GALVANIZING AND GALVANNEALING COATINGS ON THE STEEL PLATE COLD COMMERCIAL (SPCC)

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## Abstract

*This study conducted the effect of bending angles on the galvanizing and galvannealing coatings on the steel plate cold commercial. Both coatings consisted of serial Fe-Zn intermetallic layers such as  $\zeta$ -FeZn<sub>13</sub>,  $\delta_p$ -FeZn<sub>10</sub>,  $\delta_k$ -FeZn<sub>7</sub> and  $\Gamma$ -Fe<sub>3</sub>Zn<sub>10</sub> layers with different fraction. The greater part of the first coating was the  $\zeta$  phase and in the other was the  $\delta$  phase. Formable of the coatings was examined using bending test with angles about 150, 120, 90, 60 and 30 degrees. As results, the galvanizing coating except for bending angle of 30 degree seems strong for tension load. By contrast, most galvannealing coatings bent in all angles were cracks running perpendicular from the steel surface to  $\eta$ -zinc region. Similar to the tension load, compressed load as resulted of the bending test did not provide any influence to the galvanizing coating, but significantly lead to cracks in the galvannealing coating both parallel and vertical direction to the steel surface.*

**Keywords :** *bending test, phase of Fe-Zn intermetallic, galvanizing and galvannealing coatings*