COPPER PATINAS FORMED IN DIFFERENT ATMOSPHERES AND EXPOSURE TIMES.

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Atmospheric corrosion products in copper samples, known as patinas, formed in industrial-marine, severe-marine and rural atmospheres exposed for 1,2,3, and 4 years, have been studied. The nature and structure of the products formed, characterized by X-ray diffraction (XRD) and infrared spectrometry (FTIR), depend on the time of exposure and the type of atmosphere. Copper patinas have been extensively mentioned in the literature, but the structural nature of their compounds, which vary according to the time of exposure and types of atmospheres, is still not adequately described in the literature. In order to give a contribution to this area, copper panels were exposed for 1, 2, 3, and 4 years in different types of atmospheres representing situations commonly observed, and subsequently the patinas were studied by XRD and FTIR.150 mm X 1 mm copper panels from commercial copper were exposed to three different atmospheric conditions in Portugal: industrial-marine (Leixoes, near Oporto, highly industrialized city close to the Ocean, subject to SO_2 from refineries); rural (Pego, small village in rural environment). The panels, attached to the appropriate stands, in accordance with ISO 8565 [1], were exposed for periods of 1, 2, 3 and 4 years, adequately collected for laboratory analysis by infrared spectrometry (FTIR).