X-RAY DIFFRACTION FROM AL POWDER USING ENERGY DISPERSIVE TECHNIQUE

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Using the energy dispersive x-ray diffraction (EDXD) technique, the room temperature diffraction pattern of Al powder was obtained at diffraction angles 30^o and 50^o. The diffraction lines present in the obtained spectra were identified to be (111), (200), (220), (311+222), (400), (331+420), and (422) and compared with the expected values. Additionally, The diffraction patterns from various Al powder samples were obtained to study the effects of powder grain size, orientation, and annealing on the diffraction pattern intensities. From the small angle diffraction pattern the average relative intensities (I_R) of the (111), (200), and (220) lines were measured to be equal to 100,62, and 32 respectively. From the large diffraction angle I_R for (220), (311+222), (400), (331+420), and (422) lines were measured to be 100, 201, 17, 90, 19.5 respectively. Comparison with calculated values of I_R showed good agreement.