## 1.4.33. METHODS DIFFRACTION X-RAY AND TECHNOLOGY APPLIED TO NONDESTRUCTIVE TESTING OF JET ENGINES

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In this work we apply the method used Hanawalt, for an unknown material is identified. Use of Fluorescence Spectrometry X-ray for a qualitative analysis identifying the elements that make up the material and for a quantitative analysis by determining the concentration profile of the components of the material. The method of Hanawalt allows the identification of an unknown material by diffraction of x-rays. The Fluorescence Spectrometry X-ray is a technique that has greater potential for analyzing the composition and impurities in materials both in liquid and solid. It has the advantage of being a new non-destructive, fast, high precision and sensitivity. Using these features we will analyze the advantages and disadvantages to the use of such methods in advanced Non-Destructive Testing, viewing options more accurate and low operating costs. After the evidence of the effectiveness of the method we analyze the air compressor low pressure, high pressure, the combustion chamber and turbine section of jet engines used in commercial and military aircraft to check the possible occurrence of discontinuities along its useful life, as well as the emergence of other forms of fatigue of the material used in their manufacture. Thus, we get new forms and methods of analysis of these materials sectors contributing to the quality and safety of commercial and military aviation.