

Evaluation and Chemical Analysis of Particulate Pollution in the Ironworks Site of El-Hadjar

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Abstract: The air that we breathe today is a mixture more or less polluted by location where we are. This mixture of pollutants generating significant and sustainable threats to human health, especially respiratory problems. The environmental concern is becoming increasingly strong, driven in particular by the current debate on sustainable development that is mirrored various international conferences [1]. Also the effects on a global scale are warming the atmosphere and therefore the Earth, or the destruction of the ozone layer. The air quality management contributes to the mastery of a better knowledge of the pollution generated by the steel industrial activity. This investigation is the first national enterprise approach to the management of environmental problems on an industrial scale, more particularly in the steel sector. Taking into account these principles, it is appropriate to follow the pollution by suspended particles in and around the steel complex of El Hadjar. The objectives of this work are: Knowledge Of highest concentration level of dust inside and outside the workplace. Evaluation Compared to WHO limits values [2] and European Directives [3];[4]. Determination Of heavy metals in dust fallout. For the choice of measurement sites, a clipping entire surface of the steel complex was carried out by a method called mesh. This method we devoted 19 measurement sites. The sampling method used is that of BERGHEROFF. Indicators are the overall amount of dusts deposited chemical analysis elements such as Cr, Cu, Zn, Ni, Pb and Mn [4]. The quantities of dust are analytically weighed and then analyzed atomic absorption analytical chemistry. Suspended particles that contaminate the air are the main carriers carry in the wind various polluting compounds (SO₂, Cu, Pb, H₂SO₄, NH₃ ...) [3]. At PMA 2, calculations show is discharged 4509 m³ per ton of fumes sinter. The results showed measurement sites S2, S3, S4, S5 and S18 are large emissions dusts. These sites except S18 represent the hot zone of complex. According to the incidence of values of the measured dust on the sites is all above the limit value. For heavy metals in the dusts, there is a high concentration of zinc in all sites. Knowing that is neurotoxic and carcinogenic Pb is present in large quantities with a peak in S3. For S11 and S17 its value is close to the norm. The chromium and nickel both carcinogenic move in the same direction with alarming values.

Keywords : Air pollution, dust emission, particulate fallout, TPS, method Bergeroff, heavy metals.