Thermal conditions in the HORECA sector

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The hotel, restaurant and catering (HORECA) sector employs a large number of people in the European Union and have a great importance in the economy of several EU countries. This sector include hotels, pubs, restaurants, contract caterers in various industrial and commercial premises, fast food takeaways, cafes and bistros and are associated with a number of risk factors; physically demanding work, exposure to high noise levels, hot or cold work environments, cuts, burns and falls. Exposure to hot thermal environments is common in this sector, mainly due to the presence of machinery and cooking equipment that produce heat (e.g. ovens and stoves). Besides that, inadequate ventilation may increase the poor thermal conditions in this type of establishments. High temperatures can cause thermal discomfort or heat stress and may also increase the probability of work accidents occurrence, promote behavioural disorders and reduce work performance. Thus, this study aimed to evaluate thermal parameters and to assess occupational exposure to heat stress in the HORECA sector.

The study was conducted in 8 establishments located in Porto, during the spring of 2011. The examined establishments are particularly popular to a great number of customers and the amount of food and food related products that are produced for consumption during this period is proportionally high. The methodology applied in this study was based on: the analysis and observation of structural and operational characteristics of the establishments by the application of a checklist, the assessment of thermal parameters (air temperature, natural wet bulb temperature, relative humidity, globe temperature and air velocity) and the determination of the WBGT index. The period and duration of measurements, the estimation of metabolic rate and determination of the WBGT index followed the ISO 7243:1989. The values of monitored parameters were compared with the current evaluation criteria: (1) air temperature: 18°C -22°C and (2) relative humidity: 50%-70% (Portuguese reference range-Decree-Law No. 243/86 of August 20th); (3) WBGT index: 28°C (ISO 7243:1989, reference values for persons acclimatized to heat and metabolic rate class 2).

The results showed that, regarding to air temperature, all establishments had average values above 22 °C, ranged between 23.8 °C and 28.3 °C. In terms of the relative humidity, it was found that 80% of establishments analyzed obtained average values below the lower limit of the recommended range. The lowest value obtained for this parameter was 40.2% and the highest was 56.0%. The air velocity values varied from 0.01 m/s and 0.11 m/s. For WBGT index, the results obtained are above the reference value set for these activities (28 °C), revealing that

none of the establishments are configured to heat stress conditions. The highest value obtained for WBGT index was 24.8 °C that can be explained by high air temperature (28.1 °C).

It is suggested that the correction of the ventilation rates and conditions of these establishments will improve the thermal conditions and they will bring the values to the optimal levels as indicated by the law.