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AIR QUALITY IN IN SWIMMING POOLS

Traditionally, one expects to smell chlorine in pool areas and cannot be surprised that analysis of pool water reveals the presence of chemicals that have been added to the water (e.g. sanitizers), chemicals derived from humans using pools (e.g. urine, sweat, hairsprays) or chemicals formed by interactions between chlorine and these other chemicals (e.g. chloroform). However, not everyone realises that the chlorine that one can smell is not present as a vapour but as an aerosol. One also expects to experience some irritation to the eyes and upper respiratory tract as a result of exposure to the air in swimming pool areas. Whatever the possible dangers to health from chlorine itself or from chloroform, the consensus view is that they are far less than those from the transmission of infectious agents that could occur in the absence of chlorination. Indeed, notwithstanding the use of chlorine, infections of the skin, eyes and middle ear are not infrequently picked up in swimming pools. Michael Lawrence (1990) drew attention to the fact that aerosolization of swimming pool water with all its chlorine and other pollutants is increased to health hazard levels by the agitation of the water in "wave pools" and where there are "water flume slides" and that to minimize this, special attention needs to be paid to the design and operation of ventilation systems in pool areas. For the most part dilution systems are used in pool areas. However, air inlets and exhaust vents are often not optimally located (i.e. at floor and ceiling levels, respectively) lest bathers are exposed to cold draughts. Also ventilation rates tend to be curtailed to reduce energy costs. There is no complete solution to these problems, but they can certainly be alleviated by the avoidance of inlet-to-outlet short-circuiting of air flow and by incorporating ways to adjust flow rates to circumstances - e.g. raising them in line with increasing pool occupancy.

Reference

Lawrence M (1990) Agitated swimming pools: the air quality problem in At the Centre June 1990 pp19-20

Editor's note:

For those interested in the subject of swimming pool ventilation, there are two useful papers in the Proceedings of Roomvent '90 (Published by Norsk VVS, Postbox 5042, Majorstua, 0301 Oslo, Norway). They are:

Hanssen S O & Mathisen H M, Evaporation from swimming pools. Paper No. 31 7 references.

Hyldgaard C E, Water evaporation in swimming pools. Paper No. 33 13 references.