POOL WATER TREATMENT ADVISORY GROUP

Results of a study on aerosols in swimming pools

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Dr.ir. M.(Maarten)G.A. Keuten is an expert in swimming pool technology. In addition to his many years of experience in the design, construction and operation of swimming pools, he has participated in various task groups such as Legionella, chemical storage, swimming pool training courses, stainless steel in swimming pools, suction and entrapment in swimming pools and Dutch and European standards committees. In 2018 he obtained his doctorate at Delft University for research into possibilities for a non-chlorinated swimming pool. In addition to various scientific publications, he organized a number of international conferences in the field of swimming pools, the latter to discuss specific knowledge about Corona and swimming pools with international colleagues. He was a member of the scientific committee at the last three international swimming pool conferences. Since his PhD, he has worked as a swimming pool researcher at TUDelft and the Hellebrekers, as well as being a teacher and developer of various training courses for pool operators.

Presentation Abstract

Aerosols play an important role in the transmission of SARS-CoV-2. In swimming pools, aerosols originate both from swimmers breath and splashing pool water. To investigate the fate of aerosols in a swimming pool hall and the influence of ventilation, a study was done in four different public swimming pools. Recreational elements like water slide, whirlpools and waterfalls were used to produce a steady aerosol formation. Meanwhile, different settings of the ventilation system were used to study the aerosol level in the swimming pool hall. As was expected, it was found that aerosol levels were reduced most quickly at highest ventilation rates. But, it was also found that recirculation of swimming pool air had little

influence on the removal of the aerosols. Also, occupation-controlled-ventilation reduced the removal of aerosols due to reduction of ventilation. The calculated amount of fresh air intake during the “intelligent lockdown”, with reduced occupation, was 10-20 times higher than the mandatory minimal fresh air intake, despite 70% air recirculation. Based on the results of this study, the Dutch pools were advised to maintain ventilation at 80-100% during opening hours and set recirculation to “normal” settings from before this pandemic.