



Belgium, 1 June 2020.

## Is ozone effective to kill coronavirus in water?

The coronavirus SARS-CoV-2 causing COVID-19 belongs to the so-called enveloped viruses. As enveloped viruses are surrounded by a lipid host cell membrane, which is not robust, the SARS-CoV-2 virus is very likely more sensitive to oxidizing disinfection processes than other viruses such as adenovirus, norovirus, rotavirus and hepatitis A virus<sup>1,2,3</sup>. It shall be noted that ozone is the strongest oxidizing active substance used in drinking water treatment, pool water treatment, evaporative cooling systems, and many other kinds of water treatment.

In order to proof virucidal efficacy, the European Chemical Agency (ECHA) has defined representative viruses suitable to demonstrate efficacy against all pathogenic viruses. According to ECHA Guidelines<sup>4</sup> a set of indicator viruses including Bacteriophage MS2 has to be used for virucidal efficacy proof of drinking water disinfectants (PT 5) in simulated use tests. As part of the active substance approval EurO<sub>3</sub>zon has executed multiple successful tests proofing the excellent activity of ozone against the viruses required by the Guidelines in particular the Bacteriophage MS2.

The results of our tests are suited to describe the efficacy of ozone against pathogenic viruses in general. Following the concept of testing with indicator viruses and taking into account the already known properties of coronaviruses<sup>1</sup>, the applicability of our test results to describe the efficacy of ozone in particular against coronavirus SARS-CoV-2 is realistic, although the efficacy of ozone against SARS CoV-2 was not tested yet<sup>5</sup>.

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<sup>1</sup> Water, sanitation, hygiene, and waste management for the COVID-19 virus, WHO Interim guidance 19 March 2020: <https://www.who.int/publications-detail/water-sanitation-hygiene-and-waste-management-for-covid-19>

<sup>2</sup> Stellungnahme des Umweltbundesamtes: Trinkwasser und Coronavirus SARS-CoV-2 —Übertragung unwahrscheinlich, UBA, March 12<sup>th</sup> 2020: [https://www.umweltbundesamt.de/sites/default/files/medien/374/dokumente/stellungnahme\\_uba\\_sars-co2\\_und\\_trinkwasser-1.pdf](https://www.umweltbundesamt.de/sites/default/files/medien/374/dokumente/stellungnahme_uba_sars-co2_und_trinkwasser-1.pdf)

<sup>3</sup> Stellungnahme des Umweltbundesamtes: Coronavirus SARS-CoV-2 und Besuch in Schwimm- oder Badebecken beziehungsweise Schwimm- oder Badeteichen, UBA, March 12<sup>th</sup> 2020: [https://www.umweltbundesamt.de/sites/default/files/medien/374/dokumente/stellungnahme\\_uba\\_sars-co2\\_badebecken.pdf](https://www.umweltbundesamt.de/sites/default/files/medien/374/dokumente/stellungnahme_uba_sars-co2_badebecken.pdf)

<sup>4</sup> Guidance on the Biocidal Products Regulation, Vol. II: Efficacy-Assessment and Evaluation (Parts B+C), Version 3.0, April 2018: [https://echa.europa.eu/documents/10162/23036412/bpr\\_guidance\\_assessment\\_evaluation\\_part\\_vol\\_ii\\_part\\_bc\\_en.pdf/950efa-f2bf-0b4a-a3fd-41c86daae468](https://echa.europa.eu/documents/10162/23036412/bpr_guidance_assessment_evaluation_part_vol_ii_part_bc_en.pdf/950efa-f2bf-0b4a-a3fd-41c86daae468)

<sup>5</sup> <https://www.ioa-pag.org/resources/Documents/EOC%20Files/IOA%20Coronavirus%20Statement.pdf>