Oxidation Rates of Ozone

Temperature has an important influence on the half-life of ozone.
Table 1 shows the half-life of ozone in air.
Table 2 shows the half-life of ozone in water.

If Ozone is fails to come into contact with a Virus, Bacteria, Fungus, Mould or Odour and therefore fails to expel its third oxygen molecule in an oxidising effect, it will quickly dissipate back into the atmosphere as normal oxygen.

The rate Ozone decomposes is referred to as its half-life eg: If Ozone is at 4ppm (parts per million) and it has a half-life is 20 minutes then in 20 minutes the Ozone concentration will be at 2ppm. In another 20 minutes will be at 1ppm and so on until there is nothing left.

In water the half-life of ozone is much shorter than in air, in other words ozone decomposes faster in water.

The solubility of ozone decreases at higher temperatures and is less stable. On the other hand, the reaction speed increases with a factor 2 or 3 per 10 °C [5,6]. Principally, ozone dissolved in water cannot be applied when temperatures are above 40 °C, because at this temperature the half-life of ozone is very short.

Table 1: Air

Air Temperature (°c)	Time / Half Life
-50	3 Months
-35	18 Days
-25	8 Days
-20	3 Days
120	1.5 Days
250	1.5 Seconds

Table 2: Water

Water Temperature (°c)	Time / Half Life
15	30 Minutes
20	20 Minutes
25	15 Minutes
30	12 Minutes
35	8 Minutes
40	0 Minutes