Pesticides

Micro- pollutants such as pesticides may occur in surface water, but also increasingly in groundwater. Drinking-water standards for pesticides in the European Union are strict: 0,1 µg l-1 for each compound.
Several surveys show that ozone can be very effective for the oxidation of several pesticides. At a water treatment plant in Zevenbergen (Holland) it was proved that three barriers (storage–ozonation–granular active carbon filter (GAC filter)) are effective and safe enough for the removal of pesticides. From 23 tested pesticides, 50 % was degraded sufficiently (80 % degradation). Table 1 shows an overview of pesticides that are easily degraded by ozone. For highly resistant pesticides, a higher dosage of ozone is advised, or ozone combined with hydrogen peroxide.

Table 1: degradation of pesticides that are easily degradable by ozonation (%)

Pesticide	**pH 7,2; 5° C; O_3 / DOC=1,0**	**pH 7,2; 20° C; O_3 / DOC=1,0**	**pH 8,3; 20° C; O_3 / DOC=1,0**
diazinon	86	92	92
dimethoate	97	97	97
parathion-methyl	85	91	91
diuron	91	95	98
linuron	67	81	89
methabenzthiazuron	78	90	94
metobromuron	83	91	94
MCPA	83	87	90
MCPP	91	93	93
chlortoluron; isoproturon; metoxuron; vinclozolin	>99	>99	>99

DOC = Dissolved Organic Carbon