

General safety guidelines

■ Ozone is highly toxic if inhaled. It can be detected even in the smallest quantities by its typical odour. The MAK value is 0.2 mg/m³ (MAK: the maximum long-term concentration in the workplace). Higher ozone concentrations of 1 g/m³ are highly irritating to the eyes and lead to coughing and watering of the eyes. Very high concentrations above 1 g/m³, can lead to a numbing of the sense of smell and, over a longer period, can cause damage to the lungs, with fatal consequences in certain circumstances. Due to the characteristic smell of ozone the danger of being harmed by its effects is comparatively small.

Guidelines to installation

- During installation, observe all applicable directives for accident prevention (in Germany: ZH 1/471 and DIN 19627 "Ozone Generating Systems for Water Treatment".
- Ozone systems must be located in locked rooms. These rooms must be secured against unauthorised access. There may be no permanent workplaces in these rooms.
- Ozone systems should be installed with care in order to ensure that no leakages can occur. Use exclusively ozone-resistant materials. An ozone system consists of the following components: ozone generating system, mixing system, reaction tank and residual ozone gas eliminator.
- In those places from where ozone gas can escape in the event of a system failure (residual ozone gas eliminator) an ambience ozone monitor should be installed. In the event of a gas leak, this device should immediately halt the ozone generating process.
- In addition, installation rooms must be fitted with a mechanical ventilation system which automatically switches on when the ozone gas monitor has been activated. The system should be a based on a fan acting by suction and should ensure a threefold air change every hour.
- Three warning signs "Ozone system, access to authorised personnel only", "Toxic materials" and the no smoking sign must be displayed at the entrance to the room.
- Ensure that ozone dosage stops if the water to be treated stops circulating or is absent.
- It must be possible to cut off the main power supply to the ozone systems by an emergency cut-out switch (located near the door).
- ProMinent[®] residual ozone gas eliminators are supplied with an activated carbon filling and are designed exclusively for the destruction of ozone in the exhaust air from the reaction tank in typical drinking water or swimming pool applications (ozone dosage: approx. 1 ppm). Ozone concentrations of above 5 g/m³ in exhaust ozone destructors can represent a fire and explosion hazard.
- The pipe work to the exhaust ozone destructor must descend continuously. It must be of a sufficient diameter and avoid water pockets. A water separator with an air trap should be fitted upstream from the residual ozone gas eliminator. The height of the water trap: at least 1 m. The exhaust gas pipe work leading from the exhaust ozone destructor out of the building must descend continuously. Water pockets must be avoided. If this is not possible a water separator with an air trap must be fitted downstream from the exhaust ozone destructor, which prevents condensate from entering the exhaust ozone gas destructor.



Guidelines for commissioning

The ozone generating system operates using high voltages. For safety reasons the ozone generating system can only be commissioned by qualified personnel. Before commissioning the ozone system and its environment should be inspected to ensure all parameters are complied with. This inspection should be repeated once annually. Qualified personnel for OZVa systems are those persons who have been trained and authorised by ProMinent.

Operating guidelines

- The ozone system may be operated only in the given ambient conditions (max. ambient temperature 40 °C, humidity 85 %, non-condensing).
- The ozone system must only be operated by trained personnel.

Servicing guidelines

- The ozone system must be serviced at regular intervals. All servicing and repair work should be carried out by qualified personnel. During any service work the system should be disconnected from the power supply. Ozone system safety devices (e.g. door trip switch) must not be short circuited or decommissioned. Before opening parts of the system which contain ozonated gas, these should be rinsed until there are no longer any discernible traces of ozone. Before working on the parts connected to high voltage, those parts must be safely electrically discharged.
- The carbon level of the residual ozone gas eliminator must be inspected at regular intervals (every 6 months) and carbon should be refilled if necessary. In a mixing system which is working ineffectively, or with higher dosages (> 1.5 ppm) it is to be expected that the activated carbon will be consumed at a higher rate.