A case Study

Ozonia – keeping abreast with time

Cooling Water Treatment in a Thermal Power Station
Ozonia Switzerland and a water treatment company have successfully installed and commissioned a turnkey, fully assembled, containerised ozone system in a large Thermal Power Station.

The ozone produced by the plant will be used to treat the raw make-up water being fed to the cooling towers and to compliment the proprietary biocide dosing program being used in the cooling system at the moment.

The ozone, in conjunction with the biocide will represent one of the most powerful controllable disinfection systems ever used on a cooling system and will provide protection against legionella and similar undesirable micro-organisms found in cooling towers.

In addition to being one of the strongest oxidant known, ozone provides an environmentally favourable disinfectant system producing no undesirable by-products.

The stand-alone type plant consists of one of Ozonia’s larger standard OZAT® ozone generator type CFL complete with an integrated power supply system; a feedgas preparation unit with compressor and dryer; an ozone contacting system made-up from motive pumps, high efficiency injectors and special in-line diffusers installed in the make-up lines; an independent cooling system and control system. The plant, which is designed for automatic service, has been fitted with a modem link system for remote monitoring and analytic work.

In addition to the container plant, Ozonia have also supplied vent ozone destruct systems and ozone analysers to be installed at strategic places in the power station.
### Power Station Data

- **Number of towers**: 2
- **Total water volume**: 5000 m³
- **Make-up volume**: 1000 m³/h
- **Make-up source**: Reservoir
- **Make-up treatment**: Filter/O₃

### Ozone Plant Statistics

- **Ozone rating**: 4.2 kg/h
- **Ozone concentration**: 3–5 wt%
- **Feedgas**: Dry air
- **Regulation range**: 5 - 100%
- **Motive flow**: 125 m³/h
- **System pressure**: 3 bar (g)

- **Control**: PLC system with manual override
- **Electrical rating**: 250 kVA
- **Mains feed**: 3 x 400 V
- **Mains frequency**: 50 Hz

- **Container**: GRP

- **Dimensions**:
  - **Length**: 6650 mm
  - **Width**: 3650 mm
  - **Height**: 3500 mm
  - **Weight**: 15000 kg

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Ozone has also been applied successfully to industrial type cooling water systems with resultant improvement in operational efficiency due to increased heat transfer, reduced system corrosion, improved environmental impact and reduced ongoing chemical expenditure.