*bio*climatic GmbH
Im Niedernfeld 4
31542 Bad Nenndorf, GERMANY
Tel.: +49 57 23 94 40 0,
FAX: +49 57 23 94 40 30
E-Mail: info@bioclimatic.de

mobile pilot test unit

PHOENIX - bypass system

System description:

- Photo-Oxidation in bypass consists in injecting in the contaminated emission oxygen radicals (O*, OH^-,…) produced by treating ambient air with short UV-C waves (100 to 280 nm).

  ✓ Photons are creating highly reactive oxygen radicals:

$$O_2 + h\nu\ (185\ nm) \rightarrow 2\ O^\bullet$$

$$H_2O + h\nu\ (185\ nm) \rightarrow OH^\bullet + H^\bullet$$

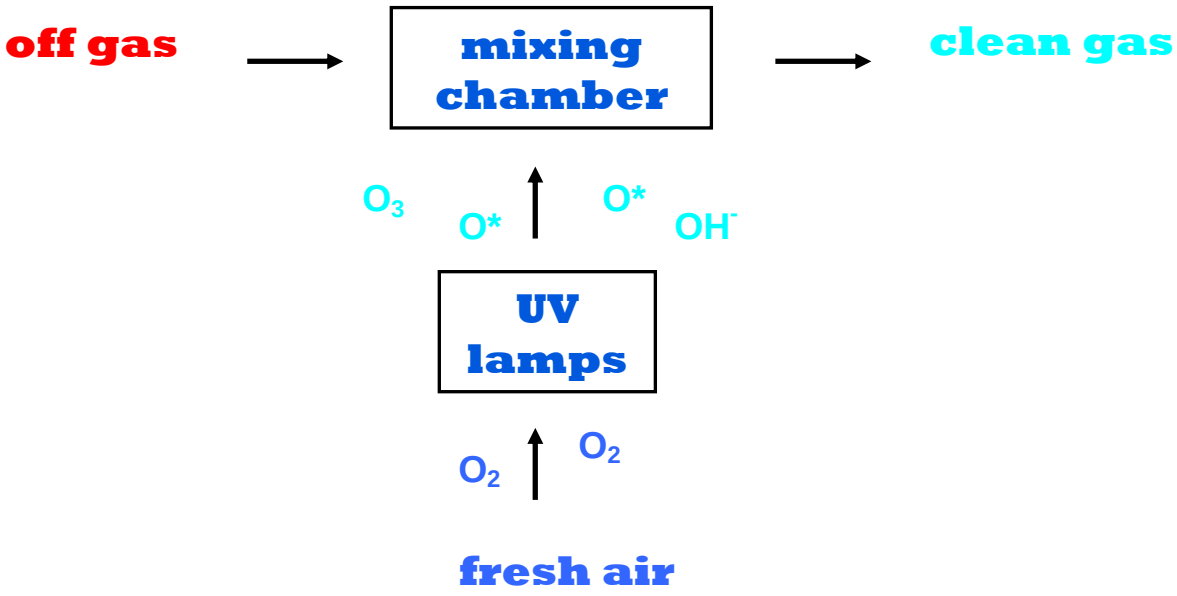
$$O_3 + h\nu\ (254\ nm) \rightarrow O_2 + O^\bullet$$

$$O^\bullet + H_2O \rightarrow 2\ OH^\bullet$$

  ✓ the generated radicals initiate chain reactions with the organic molecules, generating other radicals which can attack other pollutants:

$$OH^\bullet + C_xH_y \rightarrow C_xH_{y-1}{}^\bullet + H_2O$$

$$C_xH_{y-1}{}^\bullet + O_3 \rightarrow C_xH_{y-1}O + O_2$$



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Applications:

- ✓ degradation of organic and inorganic compounds
- ✓ odour removal

- **Advantages of photo- oxidation:**
  - ✓ Harmless gaseous reaction products
  - ✓ Compact and modular design
  - ✓ Standard carbon steel can be used as construction material
  - ✓ No start-up time and higher flexibility
  - ✓ No fluid supply and waste production
  - ✓ Almost no maintenance (lamps must be changed after 8.000 oh)
  - ✓ Outdoor location possible

flow rate:	max. 1.000 Bm³/h
temperature:	max. 200 °C
humidity:	max. 100 %