Unit for testing of the photocatalysts in liquid phase

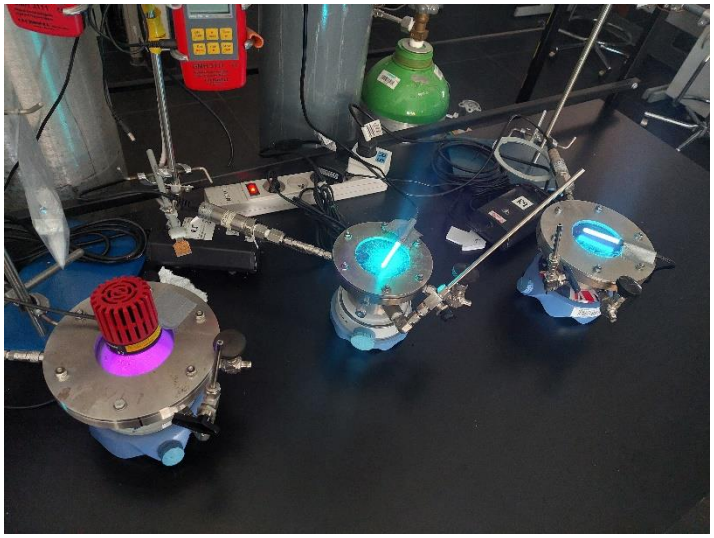
Description/Parameters:

The photocatalytic measurements are carried out in stainless steel batch photoreactors with different geometry (V = 0.14 – 0.72 dm^3). Mercury or LEDs lamps can be used as a source of irradiation. The stirring is applied. Gaseous products are analyzed on a gas chromatograph (Shimadzu Tracera GC–2010 Plus) equipped with a barrier discharge ionization detector (BID). These gases are mainly H_2, CO, CH_4.

Usage/Services:

Testing the photocatalytic properties of materials that can be in powder form or applied on a support (ceramic foam, glass, etc.).

- Reactions: photocatalytic reduction of CO_2, photocatalytic generation of hydrogen from aqueous solutions of alcohols.
- Amount of photocatalyst: 0.3 g photocatalyst in powder form.
- Used liquid phases: 100 ml 0.2 M NaOH (photocatalytic reduction of CO_2) or 100 ml 50% CH_3OH (photocatalytic hydrogen generation). Photocatalytic tests can be carried out using radiation:
  - 8 W Hg UVC λ_{max} = 254 nm,
  - 8 W Hg UVA λ_{max} = 365 nm,
  - 6.8 W UVA LED λ_{max} = 365 nm,
  - 3.4 or 4.8 W VIS LED λ_{max} = 405 nm.
- Reaction temperature: 30 °C.
- Pressure in the reactor: max. 1400 kPa CO_2 or He.



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