**Two-Dimensional Gas Chromatograph**

**Equipment:** Two-Dimensional Gas Chromatograph in combination with FID and HR- MS-Agilent

**No. of Equipment:** UJEP36

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**Equipment Description**

**Two-Dimensional Gas Chromatograph with High Resolution Mass Spectrometry**

Gas Chromatograph (Agilent 7890) equipped with multimode inlet (split/splitless/LVI/PTV), GCxGC modulator ZOEX and coupled with flame ionization detector and mass spectrometry detector (Agilent 7250) quadrupole – time-of-flight (q-TOF). Deans Switch placed blind GCxGC modulator allows two-dimensional chromatography on FID or q-TOF.

Two-Dimensional Gas Chromatograph Agilent 7890:

* Injection modes: split/splitless, pulsed split/splitless, solvent vent, direct inject mode, cold injection (from 40 °C)
* Carrier gas: helium
* Deans Switch
* Zoex Thermal Modulator ZX2, secondary oven
* Typical stationary phases for GCxGC: first dimension ZB-5HT (30 m x 0,25 mm x 0,25 µm), second dimension DB-17 (1,5 m x 0,1 mm x 0,2 µm)

Mass Spectrometer q-TOF Agilent 7250:

* Mass range: 20 –1200 m/z
* Ionization: electron impact capable of low energy ionization (energy 10 – 70 eV)
* Detection: q-TOF
* Measuring modes: full scan, MRM

**Specification of expertise relevant to NanoEnviCzworkpackages:**

**WP4**a-c, **WP5**a-c, **WP6**a,b,e, **WP7**a-d,f-h, **WP8**c, **WP9**b

**Detailed description of expertise**

**Please, specify the main research topics connected with equipment**:

Quantitative and qualitative analyses of organic compounds in various environmental matrices(liquid extracts or gases). It can be used for environmental studies, e. g. degradation of organic compounds and identification of degradation products.

**Please, specify the secondary research topics connected with equipment**:

Qualitative analyses of organic compounds in more complex matrices (e. g. pyrolysis oil).

**Keywords describing research area:**

GCxGC-MS, GC-MS/MS, degradation, remediation, phytoremediation, environmental, qualitative analysis, chlorinated organic compounds

**Competence**

**Relevance for applied and industrial research:**

Analyses of organic compounds in various industrial and environmental matrices, e. g. process gas, waste, wastewater.