



Hydrochlorothiazide

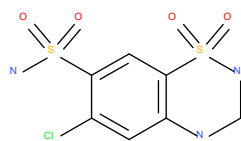
Hydrochlorothiazide (HCT or HCTZ) is a monohydrate active ingredient from the group of thiazide diuretics. It is often used as a combination preparation in hypertension, heart failure, or to flush out edema.

Furthermore, the use is prohibited by the World Anti-Doping Agency for its ability to mask the use of performance-enhancing drugs.

The LANUV measurements meet the following criteria necessary for clear identification:

- 1) match of the exact mass, ± 5 ppm
- 2) match of the isotope pattern, min. 70 %
- 3) match of a reference spectrum
- 4) match of retention time

mass: 297.74
g/mol
CAS: 58-93-5
 $C_7H_8ClN_3O_4S_2$



Analysis and occurrence

Hydrochlorothiazide can be detected in the negative mode with the existing measurement method. It was found in all the investigated rivers (Rhine, Ruhr, Ems and Lippe) therefore it belongs to the ubiquitous substances. The general precautionary value of $0.1 \mu\text{g/L}$ is regularly exceeded. The estimated concentration are between 0.1 and $0.5 \mu\text{g/L}$.

Relevance

Due to the substance properties, hydrochlorothiazide remains primarily in the water phase and does not show a tendency to bioaccumulation. Also because of the high consumption quantity of HCT it is classified as potentially relevant to drinking water on the basis of current available data.

Acute and chronic data from organisms from three trophic levels are available. Based on these, a PNEC of $1000 \mu\text{g/L}$ is set¹. The PNEC is significantly higher than the estimated concentrations in NRW.

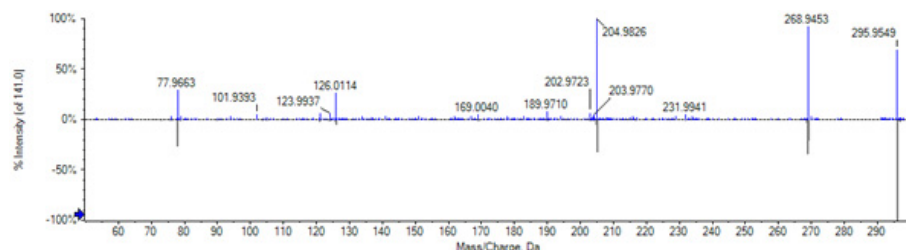


Figure 1: comparison of fragment-ion-spectra, blue: sample Ruhr near Mülheim, gray: reference substance

Further procedure:

Hydrochlorothiazide belongs to the ubiquitous substances and occurs repeatedly in comparable concentrations exceeding of the general precautionary value. It has been included in the regular monitoring.

¹ [Environmetnal Risk Assessment Data – Hydrochlorthiazide - AstraZeneca](#)