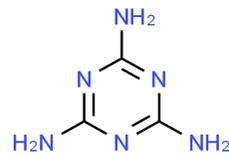




### Melamine

Melamine (1,3,5-Triazine-2,4,6-triamine) is a heterocyclic aromatic compound with high nitrogen content. It has many industrial applications and is used in consumer and commercial products. It is used as a reagent for the manufacture of melamine resins, which are used as glues and adhesives or to make thermosets.

mass: 126,12  
g/mol  
CAS: 108-78-1  
 $C_3H_6N_6$



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

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

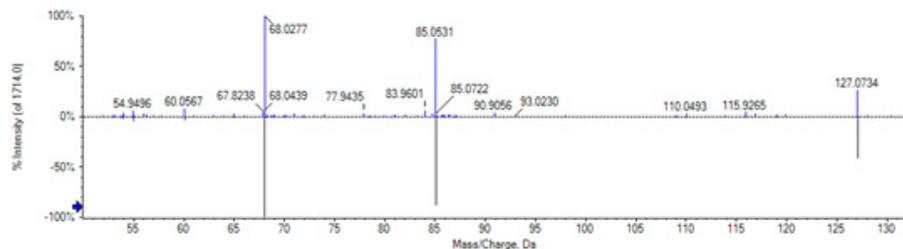


Figure 1: comparison of fragment-ion-spectra, blue: sample Ruhr near Mülheim, gray: reference substance

<sup>1</sup> SDS Melamine >99% - <https://www.carlroth.com/medias/SDB-6034-GB-EN.pdf>

### Analysis and occurrence

Melamine can be detected with the existing measuring method in positive mode. Melamine has a low retention time on reversed phases therefore the analytic is complex. With the current method retention time fluctuations occur. In order to obtain reliable data it is questionable whether this is necessary and useful to optimize the measuring method for melamine.

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 0.4 to 0.8  $\mu\text{g/L}$ .

### Relevance

Due to the substance properties (hydrophilic, low bioaccumulation potential, low adsorption tendency to particles), melamine is classified as potentially relevant to drinking water based on the available data. In 2013 the UBA set a GOW of 1.0  $\mu\text{g/L}$ .

Acute and chronic data from organisms from three trophic levels are available. Based on these, a PNEC of 0.51 mg/L is set<sup>1</sup>. The PNEC is significantly higher than the estimated concentrations in NRW.

### Further procedure:

In order to guarantee an optimized measuring method and therefore reliable measurement results, melamine is transferred to the ECHO measuring program<sup>1</sup>.