

Spatial Distribution of PCDD/F in Soils of the Greater Nuremberg Area in Relation to the
Main Sources

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1 PCDD/F Sources in the Nuremberg Area

Nuremberg is an old industrial city with high traffic density. Since 1967 a municipal waste incinerator has been situated in the center of the city; near Nuremberg there is a toxic waste incinerator. There are lots of metal processing companies, foundries which use nonferrous metals, and metal regeneration plants; there is also a municipal crematory. Until the early seventies the sewage sludge from the municipal waste water treatment was distributed over several sites throughout the city.

In view of all these potential PCDD/F-sources, the city council of Nuremberg decided to carry out a measuring programme over all the city areas in order to get an overview of the possible danger to the people of Nuremberg which might be caused by the PCDD/F-pollution of soils.

2 Measuring points and sampling

The basis for the sampling was a grid with a 2-km-distance between measuring points resulting in a 2 x 2 km grid. The soil samples were taken from a 3 x 3 m area, if possible. In the downtown area which is mighty built-up, in many cases only smaller areas could be found. The soil samples were mixed from up to 10 individual samples from 20 cm depth, in some cases only the surface material from up to 2 cm depth was sampled.

3 Results and Discussion

By the end of July 92 the results will be complete but some tendencies are already visible.

- The PCDD/F-pollution in the soils is smaller in the undeveloped areas towards the border of the city. The average is at about 1 ng TE (I)/kg or even below
- In the downtown areas a basic pollution of 3 ng TE (I) is found
- The PCDD/F-concentration is above the basic concentration in the vicinity of specific sources especially

near streets with high traffic density
(typically; 5 - 12 ng TE (I)/kg)

in the surroundings of PCDD/F sources in the sector of metalworking and metal regeneration

at certain special points via entry of toxic by-products from the chemical industry, through sewage sludge or from old neglected landfill deposits. In such cases, concentrations between 10 and about 3000 ng TE(I)/kg were found