Excerpt from

Geochemical

ATLAS

Federal Republic of Germany

Distribution of heavy metals in waters and stream sediments

HEINRICH FAUTH, ROLAND HINDEL, ULRICH SIEWERS & JÜRGEN ZINNER

Sampling

Rudolf Wewer, Erich Adick, Klaus Bieramperl, Hubert Böttcher, Wolfgang Bolbecher, Andreas Bruns, Rainer Büsing, Cornelius Carp, Michael Dempewolf, Jörg Detlef Eckhardt, Fred Flohr, Manfred Gläser, Abdul Hanan, Henner Hartmann, Wilfried Kramm, Michael Krieter, Rainer Kretschmann, Jörg Leopold, Wilhelm Nichstädt, Klaus Rust & Horst Wolfrum

Sample preparation

Horst Fechner, Margarete Gryschka, Wolfgang Jürgens, Heidemarie Klesper, Brigitte Meyer & Frank Weinert

Analytics

Hermann Fesser, Ulrich Brinkmann, Joachim Cramm, Wolfgang Glatte, Bodo Harazim, Klaus Last, Bodo Mieke, Jürgen Rausch, Klaus Tacke & Wilhelm Wisch

Hannover 1985 (Digital processing and provision 2022)

FEDERAL INSTITUTE for GEOSCIENCES and NATURAL RESOURCES

In Commission: E. Schweizerbart'sche Verlagsbuchhandlung (Nägele u. Obermiller), Stuttgart

Authors' addresses[1],[2]:

Dr. H. FAUTH, Dr. U. SIEWERS, J. ZINNER,
Bundesanstalt für Geowissenschaften und Rohstoffe,
Stilleweg 2, D-30655 Hannover.

Dr. R. HINDEL,
Niedersächsisches Landesamt für Bodenforschung,
Stilleweg 2, D-30655 Hannover

ISBN 3-980 1097-0-4

Hannover 1985

Editor: Dr. D. Pfeiffer

Publisher address[2]:

Bundesanstalt für Geowissenschaften und Rohstoffe
Stilleweg 2, D-30655 Hannover

Distribution[2]:

E. Schweizerbart'sche Verlagsbuchhandlung
(Nägele u. Obermiller),
Johannesstr. 3A, D-70176 Stuttgart; Tel.: +49 711/351456-0

---

[1] At the time of digital provision, the authors mentioned are no longer active in the BGR for reasons of age. The digital processing was carried out by U. Rauch, Bundesanstalt für Geowissenschaften und Rohstoffe, Dienstbereich Berlin, Wilhelmstraße 25-30, D-13593 Berlin, Email: uwe.rauch@bgr.de, geochemischeatlanten@bgr.de.

[2] The addresses were updated to the status of the year 2022.

2.3.2.14 Tungsten in stream sediments

Altogether, 95 % of the samples contain less than 2 ppm W (detection limit) and 0.1 % of them (about 50 samples) are above 16 ppm W. The North German lowlands were only randomly sampled.

Tungsten is invariably bound to oxygen and occurs in magmatic, metamorphic, and sedimentary mineral deposits. Magmatic tungsten deposits are formed by latestage silica- and water-rich differentiates from quartz- and feldsparrich intrusive rocks (granite, granodiorite, monzonite).

There are about twenty known tungsten minerals. Scheelite, $CaWO_4$, and wolframite, $(Fe,Mn)WO_4$, are the most important tungsten ores.

Scheelite and wolframite are relatively insoluble under the pH conditions of most natural waters. They have a high specific gravity and are readily concentrated as heavy minerals in stream sediments.

Elevated tungsten values were encountered primarily in the crystalline basement areas of the Odenwald, Black Forest, Fichtelgebirge, Upper Palatinate Forest and the Bavarian Forest. Only small areas of tungsten mineralization are known, for example those near Mackenheim in the Odenwald, near Nordrach, Untermünstertal, Eisenbach in the Black Forest, and near Pleystein in the Upper Palatinate Forest. None of these deposits has been mined.

Apart from the above areas, there are a few anomalies with over 16 ppm W, namely between Wuppertal and Remscheid, on the River Lahn west of Wetzlar, north of Darmstadt, southeast of Rothenburg and in the foothills of the Harz.

The tungsten analyses carried out within the framework of the geochemical survey proved to be a most successful means of prospecting. Follow-up work carried out in some areas where elevated tungsten concentrations were found in stream sediments demonstrated zones prospective for tungsten.