

Jette Bjerre Hansen - DTU Orbit (23/01/2016)

Jette Bjerre Hansen

Organisations

PhD Student, Department of Environmental Science and Engineering

04/07/2003 → 03/09/2013 Former

jbh@imt.dtu.dk

VIP

Publications:

Complexation of Cd, Ni and Zn by DOC in polluted groundwater: A comparison of approaches using resin exchange, aquifer material sorption, and computer speciation models (WHAM and MINTEQA2)

General information

State: Published

Organisations: Department of Environmental Science and Engineering

Authors: Christensen, J. (Intern), Christensen, T. (Intern)

Pages: 3857 - 3863

Publication date: 1999

Main Research Area: Technical/natural sciences

Publication information

Journal: Environmental Science & Technology (Washington)

Volume: 33

ISSN (Print): 0013-936X

Ratings:

BFI (2015): BFI-level 2

BFI (2014): BFI-level 2

ISI indexed (2013): ISI indexed yes

BFI (2013): BFI-level 2

BFI (2012): BFI-level 2

ISI indexed (2012): ISI indexed yes

BFI (2011): BFI-level 2

ISI indexed (2011): ISI indexed yes

BFI (2010): BFI-level 2

BFI (2009): BFI-level 2

BFI (2008): BFI-level 2

Original language: English

Source: orbit

Source-ID: 172894

Publication: Research - peer-review › Journal article – Annual report year: 1999

Complexation of Cu and Pb by DOC in polluted groundwater: A comparison of experimental data and predictions by computer speciation models (WHAM and MINTEQA2)

General information

State: Published

Organisations: Department of Environmental Science and Engineering

Authors: Christensen, J. (Intern), Botma, J. (Ekstern), Christensen, T. (Intern)

Pages: 3231 - 3238

Publication date: 1999

Main Research Area: Technical/natural sciences

Publication information

Journal: Water Research
Issue number: 33
Ratings:
BFI (2015): BFI-level 2
BFI (2014): BFI-level 2
ISI indexed (2013): ISI indexed yes
BFI (2013): BFI-level 2
BFI (2012): BFI-level 2
ISI indexed (2012): ISI indexed yes
BFI (2011): BFI-level 2
ISI indexed (2011): ISI indexed yes
BFI (2010): BFI-level 2
BFI (2009): BFI-level 2
BFI (2008): BFI-level 2
Original language: English
Source: orbit
Source-ID: 172895
Publication: Research - peer-review › Journal article – Annual report year: 1999

Evaluating long term mobility of heavy metals in leachate plumes

General information

State: Published
Organisations: Department of Environmental Science and Engineering
Authors: Hansen, J. (Intern), Christensen, T. (Intern)
Publication date: 1999

Host publication information

Title of host publication: Sardinia 99 (eds.: Christensen, T.H., Cossu, R., Stegmann, R.)
Place of publication: Cagliari, Italy
Publisher: CISA, Environmental Sanitary Engineering Centre
Main Research Area: Technical/natural sciences
Conference: Seventh International Waste Management and Landfill Symposium, 4-8 October, Proceedings, Vol. IV, S. Margherita di Pula, Cagliari, Sardinia, 01/01/1999
Source: orbit
Source-ID: 172932
Publication: Research - peer-review › Article in proceedings – Annual report year: 1999

Tungmetallens (Cd, Ni, Zn, Cu og Pb) kompleksering med opløst organisk stof i perkolatforurennet grundvand. Ph.D. afhandling

General information

State: Published
Organisations: Department of Environmental Science and Engineering
Authors: Hansen, J. (Intern)
Publication date: 1999

Publication information

Place of publication: Lyngby
Publisher: Institut for Miljøteknologi, Danmarks Tekniske Universitet
Original language: Danish
Main Research Area: Technical/natural sciences
Source: orbit
Source-ID: 172703
Publication: Research - peer-review › Book – Annual report year: 1999

Characterization of the dissolved organic carbon in landfill leachate-polluted groundwater

Samples of dissolved organic carbon (DOC) were obtained from landfill leachate-polluted groundwater at Vejen Landfill, Denmark. The humic acids, fulvic acids and the hydrophilic fraction were isolated and purified. Based on DOC measurements, the fulvic acid fraction predominated, accounting for about 60% of the total amount of DOC with an apparent molecular weight of about 1800 Da. The hydrophilic fraction constituted about 30% of the total amount of DOC with an apparent molecular weight of about 2100 Da, and the humic acid fraction made up about 10% of the total amount of DOC with an apparent molecular weight of about 2600 Da. The elemental compositions of the humic acids, fulvic acids and the hydrophilic fraction were in the ranges typical for humic substances from other origins. The O/C ratios for humic acids, fulvic acids and the hydrophilic fraction were similar in the leachate-polluted groundwater. For humic acids the O/C ratios were slightly higher than reported in the literature, indicating a high content of carboxylic groups, phenolic groups or carbohydrates. Acid-base titration indicated that, in the fulvic acids and the hydrophilic fraction, carboxylic acids were the dominating functional group, representing about 6 meq g⁻¹. The weakly acidic groups in fulvic acids and the hydrophilic fraction represented about 1 and 3 meq g⁻¹, respectively. The total acidity in fulvic acids and the hydrophilic fraction accounted for 48-57% of the O/C ratio. In the humic acids, carboxylic groups made up about 3 meq g⁻¹ and the weakly acidic groups made up about 1.5 meq g⁻¹. The total acidity accounted for 29-32% of the O/C ratio. The characterization of DOC in leachate-polluted groundwater in terms of humic acids, fulvic acids and hydrophilic fraction showed that the hydrophilic fraction resembles, in many ways, humic and fulvic acids; thus, a distinction between the fractions may be related to the methods only and be of little practical value. The three fractions constituting the DOC content in a sample should all be considered when evaluating processes such as metal complexation and transport of metals and hydrophobic, organic contaminants. (C) 1998 Elsevier Science Ltd. All rights reserved.

General information

State: Published

Organisations: Department of Environmental Science and Engineering, Risø National Laboratory for Sustainable Energy

Authors: Christensen, J. B. (Intern), Jensen, D. L. (Intern), Grøn, C. (Intern), Filip, Z. (Ekstern), Christensen, T. H. (Intern)

Keywords: (DOC, leachate-polluted groundwater, humic acids, fulvic acids, the hydrophilic fraction)

Pages: 125-135

Publication date: Jan 1998

Main Research Area: Technical/natural sciences

Publication information

Journal: Water Research

Volume: 32

Issue number: 1

ISSN (Print): 0043-1354

Ratings:

BFI (2015): BFI-level 2

BFI (2014): BFI-level 2

ISI indexed (2013): ISI indexed yes

BFI (2013): BFI-level 2

BFI (2012): BFI-level 2

ISI indexed (2012): ISI indexed yes

BFI (2011): BFI-level 2

ISI indexed (2011): ISI indexed yes

BFI (2010): BFI-level 2

BFI (2009): BFI-level 2

BFI (2008): BFI-level 2

Original language: English

DOIs:

10.1016/S0043-1354(97)00202-9

Source: orbit

Source-ID: 297376

Publication: Research - peer-review › Journal article – Annual report year: 1998

Proton binding by groundwater fulvic acids of different age, origin and structure modeled with Model V and the NICA-Donnan Model

General information

State: Published

Organisations: Department of Environmental Science and Engineering

Authors: Christensen, J. (Intern), Tipping, E. (Ekstern), Kinniburgh, D. (Ekstern), Grøn, C. (Ekstern), Christensen, T. (Intern)

Pages: 3346 - 3355
Publication date: 1998
Main Research Area: Technical/natural sciences

Publication information

Journal: Environmental Science & Technology (Washington)
Volume: 32
ISSN (Print): 0013-936X
Ratings:
BFI (2015): BFI-level 2
BFI (2014): BFI-level 2
ISI indexed (2013): ISI indexed yes
BFI (2013): BFI-level 2
BFI (2012): BFI-level 2
ISI indexed (2012): ISI indexed yes
BFI (2011): BFI-level 2
ISI indexed (2011): ISI indexed yes
BFI (2010): BFI-level 2
BFI (2009): BFI-level 2
BFI (2008): BFI-level 2
Original language: English
Source: orbit
Source-ID: 171444
Publication: Research - peer-review › Journal article – Annual report year: 1998

Distributionskoefficienter for tungmetaller i sandede grundvandsmagasiner

General information

State: Published
Organisations: Department of Environmental Science and Engineering
Authors: Christensen, T. (Intern), Redemann, S. (Ekstern), Boddum, J. (Intern), Astrup, T. (Intern), Hansen, B. (Ekstern), Holm, P. (Intern), Christensen, J. (Intern)
Publication date: 1997

Host publication information

Title of host publication: Distributionskoefficienter for tungmetaller i sandede grundvandsmagasiner
Place of publication: Lyngby
Publisher: Akademiet for de Tekniske Videnskaber, ATV
Main Research Area: Technical/natural sciences
Conference: Tungmetalforurenedede grunde, ATV møde 30. september, Schæffergården, 01/01/1997
Source: orbit
Source-ID: 169728
Publication: Research › Article in proceedings – Annual report year: 1997

Kompleksring af tungmetaller med opløst organisk stof

General information

State: Published
Organisations: Department of Environmental Science and Engineering
Authors: Christensen, J. (Intern), Christensen, T. (Intern)
Publication date: 1997

Host publication information

Title of host publication: Kompleksring af tungmetaller med opløst organisk stof
Place of publication: Lyngby
Publisher: Akademiet for de Tekniske Videnskaber, ATV
Main Research Area: Technical/natural sciences
Conference: Tungmetalforurenedede grunde, ATV møde 30. september, Schæffergården, 01/01/1997
Source: orbit

Source-ID: 169727

Publication: Research › Article in proceedings – Annual report year: 1997

Effect of dissolved organic carbon on the mobility of cadmium, nickel and zinc in leachate polluted groundwater

General information

State: Published

Organisations: Department of Environmental Science and Engineering

Authors: Christensen, J. (Intern), Jensen, D. (Intern), Christensen, T. (Intern)

Pages: 3037 - 3049

Publication date: 1996

Main Research Area: Technical/natural sciences

Publication information

Journal: Water Research

Volume: 30

Issue number: 12

ISSN (Print): 0043-1354

Ratings:

BFI (2015): BFI-level 2

BFI (2014): BFI-level 2

ISI indexed (2013): ISI indexed yes

BFI (2013): BFI-level 2

BFI (2012): BFI-level 2

ISI indexed (2012): ISI indexed yes

BFI (2011): BFI-level 2

ISI indexed (2011): ISI indexed yes

BFI (2010): BFI-level 2

BFI (2009): BFI-level 2

BFI (2008): BFI-level 2

Original language: English

Source: orbit

Source-ID: 169458

Publication: Research - peer-review › Journal article – Annual report year: 1996

Projects:

Complexation of Cd, Ni, Zn, Pb and Cu by dissolved organic carbon from landfills

The complexation of heavy metals by dissolved organic carbon from a leachate plume has been measured by means of ion exchange resin techniques. The dissolved organic carbon was studied in its original matrix in order to avoid artifacts by purification and loss of non-purifiable carbon (in some cases up to 30% is lost). Conditional stability constants have been estimated showing much higher complexation for Cu and Pb than for Cd, Ni and Zn. Experiments using aquifer material instead of resin gave comparable results but showed that even in the presence of the dissolved organic carbon, the distribution coefficients for the metal sorption onto the aquifer material still were high indicating limited mobility also in the presence of dissolved organic carbon. Traditional purification of the dissolved organic carbon showed that 60% was fulvic-acid-like, 10% was humic-acid-like and 30% belonged to a hydrophilic group somewhat related to fulvic acids. The characteristics of the separated fractions are being studied and complexation modeled by Model V/WHAM and NICA-Donnan/Ecosat.

Department of Environmental Science and Engineering

Department of Environmental Engineering

RISØ

Verein für Wasser-, Boden- und Lufthygiene e.V.

Fresh Water Institute

British Geological Survey

Period: 01/06/1995 → 28/02/1999

Number of participants: 6

Project participant:

Hansen, Jette Bjerre (Intern)

Grøn, C. (Ekstern)

Filip, Z. (Ekstern)

Tipping, E. (Ekstern)

Kinninburgh, D. (Ekstern)

Project Manager, organisational:

Christensen, Thomas Højlund (Intern)

Financing sources

Source: Unknown

Name of research programme: Ukendt

Amount: 400,000.00 Danish Krone

Source: Unknown

Name of research programme: Ukendt

Amount: 0.00 Danish Krone

Project

Complexation of Cd, Ni, Zn, Pb and Cu by dissolved organic carbon from landfills

The complexation of heavy metals by dissolved organic carbon from a leachate plume has been measured by means of ion exchange resin techniques. The dissolved organic carbon was studied in its original matrix in order to avoid artifacts by purification and loss of non-purifiable carbon (in some cases up to 30% is lost). Conditional stability constants have been estimated showing much higher complexation for Cu and Pb than for Cd, Ni and Zn. Experiments using aquifer material instead of resin gave comparable results but showed that even in the presence of dissolved organic carbon, the distribution coefficients for the metal sorption onto the aquifer material still was high indicating limited mobility also in the presence of dissolved organic carbon. Traditional purification of the dissolved organic carbon showed that 60% was fulvic-acid-like, 10% was humic-acid-like and 30% belonged to a hydrophilic group somewhat related to fulvic acids. The characteristics of the separated fractions are being studied and complexation modeled by Model V/WHAM and NICA-Donnan/Ecosat.

Department of Environmental Science and Engineering

Risø National Laboratory for Sustainable Energy

Department of Environmental Engineering

Fresh Water Institute

British Geological Survey

Period: 01/06/1995 → 28/02/1999

Number of participants: 6

Project participant:

Hansen, Jette Bjerre (Intern)

Grøn, Christian (Intern)

Tipping, E. (Ekstern)

Kinninburgh, D. (Ekstern)

Wabolu, Dr. Z. Filip (Ekstern)

Project Manager, organisational:

Christensen, Thomas Højlund (Intern)

Financing sources

Source: Unknown

Name of research programme: Ukendt

Amount: 400,000.00 Danish Krone

Source: Unknown

Name of research programme: Ukendt

Amount: 0.00 Danish Krone

Heavy metal species in solid waste leachates.

The complexation of heavy metals by dissolved organic carbon from a leachate plume has been measured by means of ion exchange resin techniques. The dissolved organic carbon was studied in its original matrix in order to avoid artifacts by purification and loss of non-purifiable carbon (in some cases up to 30% is lost). Conditional stability constants have been estimated showing much higher complexation for Cu and Pb than for Cd, Ni and Zn. Experiments using aquifer material instead of resin gave comparable results but showed that even in the presence of dissolved organic carbon, the distribution coefficients for the metal sorption onto the aquifer material still was high indicating limited mobility also in the presence of dissolved organic carbon. Traditional purification of the dissolved organic carbon showed that 60% was fulvic-acid-like, 10% was humic-acid-like and 30% belonged to a hydrophilic group somewhat related to fulvic acids. The characteristics of the separated fractions are being studied and complexation modeled by Model V/WHAM and NICA-Donnan/Ecosat.

Department of Environmental Engineering

Period: 01/05/1995 → 31/12/1997

Number of participants: 2

Acronym: 92

Project participant:

Hansen, Jette Bjerre (Intern)

Project Manager, organisational:

Christensen, Thomas Højlund (Intern)

Financing sources

Source: Unknown

Name of research programme: Ukendt

Amount: 0.00 Danish Krone

Project

Distribution coefficients for metals in soils and aquifer materials

Distribution coefficients are useful parameters to describe trace metal distribution between solid phase and solute phase at low trace metal concentration provided that sorption is the controlling process. The database on distribution coefficient determined at low environmentally relevant concentration levels is still very limited and few regression equations are available for predicting distribution coefficients from soil and aquifer characteristics. We conduct batch experiments to measure distribution coefficients on soils and aquifer material. Most studies are done on samples from our library of soil and aquifer material. In general the distribution coefficients are lower in aquifer materials than in soil, but for both materials pH seems to be the dominating parameter for all the metals studied. Studies have been collected for Cd, Ni, Zn and Cu.

Department of Environmental Science and Engineering

Period: 01/01/1995 → 31/12/1999

Number of participants: 2

Project participant:

Hansen, Jette Bjerre (Intern)

Project Manager, organisational:

Christensen, Thomas Højlund (Intern)

Project

Distribution coefficients for metals in soils and aquifer materials

Distribution coefficients are useful parameters to describe trace metal distribution between solid phase and solute phase at low trace metal concentration provided that sorption is the controlling process. The database on distribution coefficient determined at low environmentally relevant concentration levels is still very limited and few regression equations are available for predicting distribution coefficients from soil and aquifer characteristics. We conduct Batch experiments to measure distribution coefficients on soils and aquifer materials. Most studies are done on samples from our library of soil and aquifer material. In general the distribution coefficients are lower in aquifer materials than in soil, but for both materials pH seems to be the dominating parameter for all the metals studied.

Department of Environmental Engineering

Period: 01/01/1995 → 31/12/1999

Number of participants: 2

Acronym: 9

Project participant:

Hansen, Jette Bjerre (Intern)

Project Manager, organisational:

Christensen, Thomas Højlund (Intern)

Project

Complexation of Cd, Ni, Zn, Pb and Cu by dissolved organic carbon from landfills

The complexation of heavy metals by dissolved organic carbon from a leachate plume has been measured by means of ion exchange resin techniques. The dissolved organic carbon was studied in its original matrix in order to avoid artifacts by purification and loss of non-purifiable carbon (in some cases up to 30% is lost). Conditional stability constants have been estimated showing much higher complexation for Cu and Pb than for Cd, Ni and Zn. Experiments using aquifer material instead of resin gave comparable results but showed that even in the presence of the dissolved organic carbon, the distribution coefficients for the metal sorption onto the aquifer material still was high indicating limited mobility also in the presence of dissolved organic carbon. Traditional purification of the dissolved organic carbon showed that 60% was fulvic-acid-like, 10% was humic-acid-like and 30% belonged to a hydrophilic group somewhat related to fulvic acids. The characteristics of the separated fractions are being studied and complexation modeled by Model V/WHAM and NICA-Donnan/Ecosat.

Department of Environmental Engineering

Period: 01/02/1994 → 31/03/1999

Number of participants: 2

Acronym: 8

Project participant:

Hansen, Jette Bjerre (Intern)

Project Manager, organisational:

Christensen, Thomas Højlund (Intern)

Project

Tungmetalkomplekser betydning i miljøet

Department of Environmental Engineering

Period: 01/02/1994 → 25/10/1999

Number of participants: 4

Phd Student:

Hansen, Jette Bjerre (Intern)

Main Supervisor:

Christensen, Thomas Højlund (Intern)

Examiner:

Hansen, Hans Chr. B. (Ekstern)

Bjerg, Poul Løgstrup (Intern)

Financing sources

Source: Internal funding (public)

Name of research programme: DTU-Su Stipendium, Eksperiment

Project: PhD