

BULLETIN OF MINERALOGY, PETROLOGY AND GEOCHEMISTRY
GENERAL MAIN CONTENTS 2020, Vol. 39
(End of volume)

No. 1

Geochemical Constraints on Heavy Metal Speciation and Distribution in Contaminated Soils of Mining Areas

DANG Zhi, YAO Qian, LI Xiao-fei, CHEN Kai, YI Xiao-yun, LU Gui-ning, GUO Chu-ling 1

Transformation and Stable Isotope Fractionation of Mercury in the Rice Paddy Ecosystem

MENG Bo, HU Hai-yan, LI Ping, FENG Xin-bin 12

Soil Evolution and Its Controlling Mechanisms in A Critical Zone

SONG Zhao-liang, ZHANG Hao, LUO Wei-jun, LIU Tao-ze 24

Research Progress on Biomagnification of Persistent Halogenated Compounds (PHCs) in Food Webs

ZHENG Xiao-bo, LUO Xiao-jun, MAI Bi-xian 30

Research Progress on Active Nitrogenous Species Released by Soil

ZHANG Wen-qian, GE Mao-fa, TONG Sheng-rui, JIA Chen-hui, LI Wei-ran, ZHANG Xin-ran 44

The Statistical Method of Detritus Contents in Glutiniferous Reservoirs and Its Application: A Case Study of the Upper Part of Shashi Member in the Yanjiayong'an Block in the Northern Zone of Dongying Depression

WANG Jun, QU Xi-yu, CHEN Si-rui, GUO Chang-chun, QIU Long-wei, ZHANG Xi-wu 51

Elemental Geochemical Characteristics of Soils Derived from the Lower Cambrian Black Shales in the Western Yangtze Platform, China

ZHOU Dong-xiao, PENG Bo, WANG Qin, FANG Xiao-hong, WU Si-cheng, ZHAO Ya-fang, LIU Jing, CHEN Dan-ting, WANG Xin, TAN Chang-yin, WAN Da-juan 59

Discussion on the Gas Source of Natural Gas Hydrate in the Muli Permafrost Region of Southern Qilian

MENG Kang, JIN Min-bo, XU Liang, WU Bao-xiang 72

The Application of Cd Isotopes in the Paleo-environment Reconstruction: A Case Study of the Frasnian-Famennian Mass Extinction Event in Late Devonian

WANG Wei-zhong, ZHANG Zhao-hui, WEN Han-jie, ZHU Chuan-wei, ZHANG Yu-xu 80

Research on Reliability of LA-ICPMS Analysis under Low Frequency

YAN Hai-yang, WANG Fang-yue, GE-Can 89

Research Progress in Cementation/Solidification and Possibility of Consolidated Backfilling of the Electrolytic Manganese Residue

JIN Xiu-qi, HUANG Dai-kuan, ZHAO Shu-han, LIU Qing-ling, QIN Yuan-cui 97

The Microfabrics of Phlogopite from the Mengyin Kimberlites and their Implications to the Magma Evolution

XIANG Zheng-jiao, YANG Zhi-jun, LEI Xue-ying 104

Preliminary Research on the ^{10}Be and ^{26}Al Dating Methods of Cobalt-Rich Crusts

HU Ying, DONG Ke-jun, CUI Li-feng, YANG Ye, ZHANG Xiao-long, XU Sheng, LIU Cong-qiang 116

Trace Element Characteristics and Classification of Iron Meteorites from the Grove Mountains, Antarctica

SHAO Hui-min, MIAO Bing-kui, HUANG Li-lin, XIA Zhi-peng 125

The ICP-MS Trace Element Characteristics of Sphalerites from the Mengxing Pb-Zn Deposit, Western Yunnan and their Geological Significances

LIU Jin-kang, DENG Ming-guo, LI Yu-hua, LIU Yang 133

Application of the Triangle Chart Method of Chemical Elements for Classifying Sandstone Types: A Case Study of the Yanchang Formation in the Zhenjing

Region of Southern Ordos Basin

ZENG Jian-qiang , ZHANG Xiang , TIAN Jing-chun , LI Jian , LIANG Qing-shao , WANG Su-ying , HUA Bin	144
Geological Significance of Fluid Inclusions in Modern Submarine Hydrothermal Precipitated Minerals	
YANG Zhi-feng , ZHAI Shi-kui , YU Zeng-hui	151

No. 2

A Study on Mineralogical Characteristics and Controllable Modification Technology of the Shangtianti Bentonite in Xinyang, Henan Province	
PENG Tong-jiang , SUN Hong-juan , LUO Li-ming , YANG Meng-na	173
The Rational Construction and Catalytic Performance of the Clay Mineral-Based Enzyme Complex System	
LV Rui , SUN Shi-yong , DONG Fa-qin , TAN Dao-yong	180
A Study on the Adsorption of Cationic and Anionic Dyes by Halloysite	
LI Yan , ZHANG Zheng , SUN Yu , BAI Huai-zhong , TAN Dao-yong	187
Preparation of Various Sourced Anthocyanin-Attapulgite Hybrid Pigments and Study on Their Properties	
LI Shu-e , MU Bin , WANG Xiao-wen , WANG Ai-qin	193
Study on the Long-term Retardation Effect of Bentonite-based Integrated Buffer Material on Uranium	
WANG Zhe , YI Fa-cheng , LIU Yan , LIU Yan	200
Preparation of Expanded Vermiculite with High Expansion Rate by Utilization of Vermiculite from the Yuli Vermiculite Mine in Xinjiang Using the Intercalation-Microwave Expansion Method	
XIE Yan-yan , SUN Hong-juan , PENG Tong-jiang , LUO Li-ming	209
Petrology and Mineralogy of the Meteorite GRV020022 Collected in Grove Mountains, Antarctica	
PENG Hao , LIU Shen , LI Shi-jie	216
The Ore-Forming Age and Fluid Inclusion Characteristics of the Mahuaping Tungsten-Beryllium Deposit in Yunnan Province	
MA Jun , TAO Yan , HE De-feng , XIONG Feng	223
Geochemical Characteristics of the Sandstone of the Kalazhierjia Formation in the Aheqi Area of Xinjiang and Their Tectonic Significances	
YAN Kun , MA Wei , LI Lu-lu	233
Elemental Geochemical Characteristics of the Altered and Mineralized Rocks in the Changpingzi Pb-Zn Deposit, Northwestern Guizhou and Their Geological Significances	
WANG Zi-yong , HAN Run-sheng , WU Hai-zhi	241
Petrogenesis and Tectonic Significances of the Late Paleozoic Mafic Dykes in the Beishan Area in Gansu Province	
PENG Ren , ZHANG Gui-shan , QIU Hong-xin , LIU Tao-tao , FAN Xin-xiang , ZHAO Ji-chang	254
Mineral Chemical Characteristics of Biotites from the Jintan Granites in Jiangxi Province and the Implication for Uranium Enrichment	
TAO Ji-hua , LIN Qiu-ling , LI Xin-hao , CAO Jun , WANG An-dong , XU Zhi-tian	267
The Improved Method for Measuring Thermoelectric Property of Pyrite and Its Implication for Exploring Gold Resources —A Case Study of the Wulong Gold Deposit in Liaoning Province	
WU Jin-chao , SHEN Jun-feng , LI Guo-wu , LI Sheng-rong , HE Ze-yu , DU Bai-song , XU Ke-xin , QIU Hai-cheng , LI Jian-ping	283
The Fibrous Crystal Growth Driven by Force of Crystallization: Petrographic Evidence of Antitaxial Fibrous Gypsum Veins in the Qingshuiying Formation of the Ningnan Basin	
ZHAO Bang-sheng , LI Rong-xi , WU Xiao-li , QIN Xiao-li , ZHAO Di , LIU Qi , Ahmed Khaled	293
Geochemical Characteristics and their Significances of the Paleogene–Neogene Sedimentary Rocks in the Tongxin Area, Ningxia, China	
LI Ming-tao , LI Li-ming , LIANG Zhi-rong	304
LA-MC-ICPMS U-Pb Geochronology of Cassiterite from the Daxigou Tin Deposit in the Taishanmiao Area, Henan Province,	

and its Geological Significance

HE Yu-liang, LI Kai-wen, DU Bao-feng, WANG Xiao-juan, LI Xiao-long, Fang Huai-bin 319

Characteristics of CO Changes before and after the Yutian Ms7.3 Earthquake in Xinjiang Based on AIRS Data

LIU Hai-bo, XIN Cun-lin, CUI Yue-ju 327

Progress in Geochemical Research and Monitoring of Volcanic Gases

LIU Dong-yang, FAN Yu-hong, ZHANG Yu, LI Ting, ZHONG Guang-pei, LIU Guo-ming 336

No. 3

Properties and Effects of Supercritical Geofluids

NI Huai-wei 443

Supercritical Fluid Records in Natural Rocks

XIAO Yi-lin, CHEN Ren-xu, CHEN Yi-xiang, LI Ji-lei, WANG Yang-yang, GUO Shun, XIA Chun-peng 448

Fluid Characteristics of Granite-Related Ore Forming Systems

WANG Guo-guang, NI Pei, PAN Jun-yi 463

Forming Conditions of Supercritical Geofluids

NI Huai-wei, WANG Qin-xia, ZHANG Li, GUO Xuan, LI Wan-cai, GAO Xiao-ying 472

The Physical Properties of Supercritical Geofluids

GAO Chun-xiao, MAO Zhu, WU Zhong-qing 479

Molecular Simulation of Melts and Fluids in the Earth's Interior: An Overview and Outlook

SUN Yi-cheng, WANG Tian-hua, LIU Xian-dong, ZHANG Zhi-gang, WU Zhong-qing 490

Element Migration of Supercritical Fluids in Subduction Zones: Progress and Problems of Experimental Researches

XIONG Xiao-lin, NI Huai-wei, CHEN Wei, RUAN Meng-fei, WANG Jin-tuan, LIU Xing-cheng, LI Li 502

Research on Mineral Sedimentary Characteristics of the Salt Crust in the Wuyongbulake Salt Lake of Xinjiang

SONG Jian-guo, MA Xue-hai, CHENG Huai-de, HAI Qing-yu, LI Jun 509

Release Characteristics of Nutrients at the Sediment-Water Interface of the Pearl River Estuary

SHI Yu-zhen, CHEN Shu-hong, ZHAO Hui, ZHANG Ji-biao, DUAN Mei-na, LIN Jia-ci 517

Genesis of the Uranium Mineralization in the Habilig Area in Inner Mongolia: REE Geochemical Evidences

HUANG Zhi-xin, LI Hui-hui, ZHU Bin 525

Formation Mechanism of Authigenic Laumontites In Tight Sandstone of Member 1 of the Middle Jurassic Shaximiao Formation in the Northeastern Central Sichuan Basin

QING Yuan-hua, LYU Zheng-xiang, ZHAO Fu, YANG Jia-jing, LI Sheng 536

The Effect on the Fractal Characteristics of Shale Pores by Mineral Compositions of Marine and Marine-Continental Transitional Shales

HUANG Yu-qi, ZHANG Peng, ZHANG Jin-chuan, YANG Jun-wei 548

Mineralogical Compositions of Heavy-metal Contaminated Bed Sediments from Lower Reaches of the Xiangjiang River, Hunan Province of China

WANG Qin, PENG Bo, FANG Xiao-hong, ZHOU Dong-xiao, QIN Zhi-lian, WU Si-cheng, ZHAO Ya-fang, LIU Jing,

CHEN Dan-ting, WANG Xin, TAN Chang-ying, WAN Da-juan 558

Geochemical Characteristics and Provenance of Epidote Grains in Sediments in Estuaries of the Yellow River and Yangtze River

ZHANG Wei, JIN Bing-fu, YUE Wei, WANG Meng-yao 576

Organic Geochemical Characteristics of the Hujiache No. 4 Coal in the Binchang Mining Area, Shaanxi Province

ZHANG Ke, ZHANG Shao-wei, WANG Zhen-zhen, LI Jin-xiao, LI Hong-dou, ZUO Gui-bin, LIU Bang-jun, ZHAO Cun-liang 587

Petrogenesis and Geological Implications of the Early Permian Yakou Bimodal Volcanic Rocks in the Bogda Belt, Chinese Northern Tianshan

ZHU Jin-jin, XIE Wei, SONG Xie-yan	597
Geochemical Characteristics and Origin of Geothermal Water in Southeastern Guizhou	
LI Chao, CHEN Zheng-shan, WANG Gan-lu, JIN Ting-fu, LI Yong-kang, LUO Teng, MAO Tie	614
Characteristics of the Middle Triassic Mung Beans Rock in the Mount Emei Area and their Implications for Sedimentary Environment	
LU Yun-fei, MENG Wan-bin, FENG Ming-shi, ZHANG Chun-guang, WANG Jun, WANG Xiao, ZHANG Ye	626
LA-ICP-MS U-Pb Age of Columbite from the Daping Granite Porphyry-type Rare Metal Deposit in Fujian Province and Its Geological Significance	
WANG Jin-rong, LYU Zheng-hang, LYU Xin-biao, LIN Pei-jun	637
Genesis of the Jianzhupo Pb-Zn-Sb Polymetallic Deposit in the Wuxu Ore Field, Guangxi Province: Constraints from Sulfur Isotopes of Sulfides and Trace Elements Compositions of Sphalerites	
LIU Tao-tao, ZHU Chuan-wei, WANG Da-peng, ZHANG Shou-gang, ZHANG Qi-bing, CHEN Chuan-ying, WANG Guang-hui	646
Research Advance on Microstructures of the Organic-Clay Composite in Mud Shale	
LI Xiao-xia, GU Yuan-tao, WAN Quan, YANG Shu-guang	663
No. 4	
Studies on Volcanology and Chemistry of the Earth's Interior in China: Progresses and Perspectives (2011–2020)	
XU Yi-gang, GUO Zheng-fu, LIU Jia-qi	683
Progresses in Researches on Mineral Structure and Mineral Physics (2011–2020)	
HE Hong-ping, ZHU Jian-xi, CHEN Meng, TAO Qi, TAN Da-yong, LIANG Xiao-liang, XIAN Hai-yang	697
Rapid Development of the Mineral Materials Research in China—Progress in the Past Decade (2011–2020)	
LYU Guo-cheng, LIAO Li-bing, LI Yu-xin, TIAN Lin-tao, LIU Hao	714
Petrogenesis of the Jiangjunmiao Granitic Pluton in Hunan Province: Constraints from Petrochemistry, Zircon U-Pb Dating, and Sr-Nd-Hf Isotopes	
LI Xiang-yu, YI Li-wen, CHEN Di, WEN Chun-hua, TANG Fen-pei, ZHANG Xiao-yang, AN Jiang-hua, DENG Lei	726
Study on the Relationship between Process of Critical Zone and Natural Ecological Restoration in the Qilian Mountains	
LEI Chuan-yang, LI Wei, YIN Xian-ke, YUAN Hua-yun, WU Jian-liang	741
Geochemical Characteristics of Primary Halos of the Huxingshan Tungsten Deposit, Linxiang, Hunan Province and their Application for Prospecting Mineral Resources in Depth	
WEN Xiong-liang, HU Bin, LIU Zhi	754
Soil Geochemical Characteristics and Prospecting Potential Analysis of the Shilongshan Au-polymetallic Prospecting Area, Luoning County, Henan Province	
ZHAO Xin-yi, LUO Xian-rong, YANG Xiao-xiao, LIU Gang, LIU Pan-feng, TANG Guo-dong, DU Xin	768
Source and Ore-forming Process of the Qixiashan Lead-zinc Ore Deposit, Jiangsu Province: Evidences from S-C-O Isotopes	
GONG Hao-tian, QI You-qiang, GAO Jian-feng, LYU Chuan, MIN Kang	779
Magmatic Oxygen Fugacity of the Cenozoic Mantle-derived Potassic-ultrapotassic Rocks in the Western Margin of the Yangtze Craton and its Implication for the Intracontinental Porphyry Mineralization	
MA Rui, HUANG Ming-liang, XU Lei-luo, BI Xian-wu, LIU Gong	794
Geochronological and Geochemical Characteristics of the Claystone (Mung Bean Rock) at the Bottom of the Leikou Formation in the Emeishan Area, Sichuan Basin, China	
LI Chen, LANG Xing-hai, DENG Yu-lin, WANG Xu-hui, LI Zhuang, YANG Zong-yao	810
Petrological and Mineralogical Characteristics and the Subtype Classification of 9 Pieces of the HED Meteorite from Northwestern Africa	

<i>HUANG Li-lin, MIAO Bing-kui, CHEN Hong-yi, CHEN Guo-zhu</i>	826
The Origin and Significance of Framboidal Magnetite in the Murchison Meteorite	
<i>REN Xu, TANG Hong, WU Yan-xue, LI Yang, LI Shi-jie, LI Xiong-yao</i>	836
Effect of Atmospheric Freshwater Leaching on Carbonate Reservoirs during the Early Diagenetic Stage	
—A Case Study of Carbonates in the Shunnan Area, Tarim Basin	
<i>YANG Lei-lei, CHEN Dong-hua, YU Lin-jiao, LIU Jian-liang</i>	843
Laboratory Simulation of the Space Weathering Effects on Reflectance Spectra of Near-Earth Asteroids	
<i>ZHANG Peng-fei, ZHANG Jiang, LI Shi-jie, LIU Chang-qing, WEN Yuan-yun, SUN Hao, LI Yang</i>	853
Pollution Characteristics and Source Analysis of Heavy Metals in Soils of Typical Lead-zinc Mining Areas in Northwest Guizhou, China	
<i>FENG Qian-wei, WANG Bing, MA Xian-jie, JIANG Zong-hong, CHEN Miao</i>	863
No. 5	
Research Progress of Environmental Mineralogy (2011–2020)	
<i>LU An-huai, WANG Chang-qiu, LI Yan</i>	881
Progresses and Tendencies of Granite Researches in Last Decade: A Review	
<i>XU Xi-sheng, WANG Xiao-lei, ZHAO Kai, DU De-hong</i>	899
The Research Progress of Clumped Isotope Geochemistry during the Past Decade in China	
<i>DENG Wen-feng, GUO Yang-rui, WEI Gang-jian</i>	912
Research Progress of Applied Geochemistry during the Decade of 2011 to 2020 in China	
<i>GONG Qing-jie, XIA Xue-qi, LIU Ning-qiang</i>	927
Geochemical Characteristics of Carbon and Oxygen Isotopes and Trace Elements of the Dahongshan Cu-Fe Deposit in Yunnan and Their Metallogenetic Significances	
<i>YANG Guang-shu, MAO Zhi-bo, QIN Long-jiang, LI Yungang, YE Zi-feng, WANG Kai, ZHOU Yan</i>	945
The Zircon U-Pb Chronology and Geochemical Characteristics of Granodiorite Porphyry in the Gangjiang Porphyry Cu-Mo Deposit, Tibet, China	
<i>JIANG Hua, LI Wen-chang, ZHANG Xiong, YANG Fan</i>	961
Lithogeochemistry Characterization Based on the in-Situ pXRF Analyses of Rocks in Depth of the Caosiya Molybdenum Deposit, Inner Mongolia, China	
<i>YUAN Zhao-xian, ZHOU Shu-bin, CHANG Hao, DING Jun-zhao, ZHANG Sheng-yuan, WANG Hai-cheng</i>	973
Petrogenesis and Tectonic Significances of the Heimo Granitic Pluton in the Western Margin of Yangtze Plate: Constraints from SIMS Zircon U-Pb Geochronology and Petrogeochemistry	
<i>ZHANG Yu-shun, WU Yu, PAN Jia-yong, WANG Feng-gang, YAO Jian, HAN Wen-wen, ZHONG Fu-jun</i>	983
On the Relationship between Chemical Weathering of Carbonate Rocks and the Missing Carbon Sinks: A Case Study on the Watershed of the Hongfeng Reservoir, Guizhou Province, Southwest China	
<i>JING Zhi-ping, TAO Fa-xiang</i>	999
The Difference Analysis and Geological Significance of Geochemical Characteristics of Organic-rich Shales from the Longmaxi Formation in the Periphery of Sichuan Basin	
<i>HE Yi-ping, CHEN Zhen-lin, ZHANG Yue</i>	1014
Geochemical Characteristics of Black-Shale Soils in Guizhou Province, China	
<i>YANG Lian-sheng, ZHOU Ming-zhong, XIONG Kang-ning, YANG Hua, ZHANG Di, YAO Cheng-bin, ZHANG Xian-rong</i>	1023
Variations of Water-Soluble Heavy Metals in Atmospheric Depositions at the Shihua Cave in Beijing, China	
<i>MI Xiao-jian, PENG Xiao-tao, DENG Xiao-min, LIU Yue-feng, LI Han-jie, XIE Yu, CHEN Qiong, ZHOU Hou-yun</i>	1038
Inductively Coupled Plasma Mass Spectrometry for the Determination of Elemental Composition in Ternary Cathode Materials	
<i>HUANG Yan, HU Jing, ZHOU Bo</i>	1044

A Process Mineralogical Study on Ores from Oxidized Zone of the Mashiba Copper Deposit in the Luanshya Area, Zambia

NIU Cong-cong, XIA Yu, XIE Shi-ye, FANG Ke, LUO Xing 1050

No. 6

Assessing the Effects of Aperture and Depth of Hole Ablated by Laser Beam on the Accuracy of Zircon U-Pb Dating

HOU Zhen-hui 1067

Isotopic and Elemental Microanalyses of Monazite and its Geological Application

WU Li-Guang, LI Xian-Hua 1077

Application of the Raman Imaging and Scanning Electron Microscopy System in Earth Sciences

HU Xin-meng, SU Wen, YUAN Jiang-yan, WU Wang-hua 1095

An Introduction to Principle of Atom Probe and its Applications in Earth Sciences

WANG Bi-Wen, LI Qiu-Li 1108

The Focused Ion Beam(FIB) Technology and its Applications for Earth and Planetary Sciences

GU Li-Xin, LI Jin-Hua 1119

Confocal Laser Scanning Microscopy and its Application in Geobiology

HAO Li-kai, GUO Yuan, JIANG Na, LI Yang, LIU Cheng-shuai 1141

Time-of-Flight Secondary Ion Mass Spectrometry

LI Zhan-ping 1173

Petrogenesis and Geological Implications of the Daoter Intrusive Complex in the Southern Xing'an Block

LI Meng-xing, ZHANG Rui, SUN Hua 1191

Characteristics of Cell Parameters and Thermoelectricity of the Pyrite in the Sanshandao North Offshore Gold Deposit, Shandong Province, China

GAO Jian-wei, SHEN Jun-feng, LI Guo-wu, WANG Lai-ming, SUN Ning-yue, LIU Han-dong, CHI Lei, ZHANG Hua-feng, DU Bai-song 1205

Mineralogical Study of Pyrites in the Miaoliang Gold Deposit, Shanyang County, Shaanxi Province and its Metallogenetic Significance

CHEN Yong-kang, LIANG Ting, DING Liang, LI Shang, QIANG Ya-qin, LI Cong, CEN Ju-biao, ZHANG San-long, WANG Shu-qin 1215

Lead Isotopes for Tracing Metallogenetic Metal Sources of the Xihuashan Tungsten Deposit in the Southern Jiangxi, China

XIANG Yun-yan, YAN Bing, WEI Wen-feng, LIANG Wei-an 1232

The Compositional Inversion and Evaluation of Melting Conditions for Primary Melt of the Emeishan Picrites

YU Song-yue, LAN Jiang-bo, CHEN Qi 1240

A Preliminary Study on the Possible Mechanism of Enrichment and Occurrence State of Nb-Ga-REE in the Emeishan Basalts from the Diandong-Qianxi Region

CHEN Qi, YU Song-yue, WEN Han-jie, LAN Jiang-bo, LUO Chong-guang 1256

In-situ LA-ICP-MS U-Pb Dating and Trace Element Analyses of Wolframites from the Xinguokeng Tungsten Deposit in Fujian Province, China

ZHANG Qing-qing, GAO Jian-feng, TANG Yan-wen, MIN Kang 1278

Petrogenesis of the Mesoarchean Granodioritic-tonalitic Gneisses in the Kaiyuan Area, Northern Liaoning: Elemental and Zircon U-Pb-Hf Isotopic Geochemical Constraints

LI Zhuang, ZHANG Wei, YANG Fan, LIU Jin, GONG Ming-yue, WANG Jun-hui 1292

Genesis of the Lilaozhuang Iron-Magnesite Deposit in the Huoqiu Area of Anhui Province: Indicative Significance of Carbon and Oxygen Isotopes

HUANG Hua, ZHANG Lian-chang 1312

Characteristics of Lead Isotopic Compositions of Sulfides from the Uragen Pb-Zn Deposit in Xinjiang, China

LI Pi-you, HU Yu-zhao, DONG Chuan-qi, REN Tao, GUAN Shen-jin 1325