

## Curriculum Vitae

Ass.Prof. Dipl.-Min. Dr.rer.nat. Daniel Vollprecht,  
née Höllen  
Montanuniversität Leoben  
Chair of Waste Processing Technology and Waste Management (515)  
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since 2013	Montanuniversität Leoben, Chair of Waste Processing Technology and Waste Management, Associate Professor (since 11/2020), Assistant Professor (11/2015 - 10/2020), Research Associate (until 10/2015), Head of Working Group "Landfills, Contaminated Sites, Slags", Habilitation "Exploration, Mobilization and Fixation of Constituents of Mineral Wastes, Landfills, Contaminated Sites and Waste Waters"
2008 - 2013	Graz University of Technology, Institute of Applied Geoscience, Research Assistant, PhD thesis "Formation and Use of Amorphous Silica"
2003 - 2008	Technische Universität Bergakademie Freiberg, Student of Mineralogy, Specialization Technical Mineralogy
2007 - 2008	Aalborg University, Master Thesis "Identification and Quantification of Crystalline Phases in Thermally Treated Stone Wool"
2006	Canakkale Seramik, Can, Turkey, Trainee in R & D wall tiles
2005	Federal Institute of Earth Sciences and Resources, Hannover, Germany, Trainee in Technical Mineralogy and Sedimentology
2003	Paulsen-Gynasium, Berlin, A-Level

## Research interests

Applied Mineralogy: Environmental Mineralogy, Fate of Waste-derived Contaminants in the Environment  
Waste Management & Technology: Mineral Wastes and By-Products, Contaminated Site Remediation, Landfill Mining, Plastic Recycling, Sensor-based Sorting

## Publications

### **Analysis of different polypropylene waste bales: Evaluation of the source material for PP recycling**

Geier, J., Bredács, M., Witschnigg, A., Vollprecht, D. & Oreski, G., 6 Feb 2024, In: Waste Management and Research. 42.2024, 9, p. 767-775 9 p.

### **Mineral Carbonation of Basic Oxygen Furnace Slags**

Vollprecht, D. & Wohlmuth, D., 7 Nov 2022, In: Recycling. 7.2022, 6, 16 p., 84.

### **Evaluation of improvements in the separation of monolayer and multilayer films via measurements in transfection and application of machine learning approaches**

Koinig, G., Kuhn, N., Barretta, C., Friedrich, K. & Vollprecht, D., 20 Sept 2022, In: Polymers. 14.2022, 19, 28 p., 3926.

### **Lifecycle Assessment for Recycling Processes of Monolayer and Multilayer Films: A Comparison**

Koinig, G., Grath, E., Barretta, C., Friedrich, K., Vollprecht, D. & Oreski, G., 1 Sept 2022, In: Polymers. 14.2022, 17, 35 p., 3620.

### **Use of industrial residues for heavy metals immobilization in contaminated site remediation: a brief review**

Schlögl, S., Diendorfer, P., Baldermann, A. & Vollprecht, D., 5 May 2022, (E-pub ahead of print) In: International journal of environmental science and technology. 19.2022, 14 p.

### **Latent Recycling Potential of Multilayer Films in Austrian Waste Management**

Koinig, G., Rutrecht, B., Friedrich, K., Barretta, C. & Vollprecht, D., 11 Apr 2022, In: Polymers. 14.2022, 8, 15 p., 1553.

### **Selective delamination by milling as a first step in the recycling of photovoltaic modules**

Dobra, T., Thajer, F., Wiesinger, G., Vollprecht, D. & Pomberger, R., 11 Apr 2022, (E-pub ahead of print) In: Environmental technology. 43.2022, 22, 9 p., 2061380.

**Qualitative analysis of post-consumer and post-industrial waste via near-infrared, visual and induction identification with experimental sensor-based sorting setup**

Friedrich, K., Koinig, G., Pomberger, R. & Vollprecht, D., 2 Apr 2022, (E-pub ahead of print) In: *MethodsX*. 9.2022, 32 p., 101686.

**Influence of reflective materials, emitter intensity and foil thickness on the variability of near-infrared spectra of 2D plastic packaging materials**

Koinig, G., Friedrich, K., Rutrecht, B., Oreski, G., Barretta, C. & Vollprecht, D., 1 Apr 2022, (E-pub ahead of print) In: *Waste management*. 144.2022, 1 May, p. 543-551 9 p.

**Evaluation of a near infrared sorting system for biobased and biodegradable plastics**

Mhaddolkar, N. & Vollprecht, D., 21 Mar 2022, p. 339-343. 4 p.

**Thermal delamination of end-of-life crystalline silicon photovoltaic modules**

Dobra, T., Vollprecht, D. & Pomberger, R., Jan 2022, In: *Waste management & research*. 40.2022, 1, p. 96-103 8 p.

**Challenges to Increase Plastic Sorting Efficiency**

Friedrich, K., Koinig, G., Tschiggerl, K., Pomberger, R. & Vollprecht, D., 8 Oct 2021, In: *International Journal on Engineering Technologies and Informatics*. 2021, Volume 2 Issue 4, p. 114-118 5 p.

**Assessment of Technological Developments in Data Analytics for Sensor-Based and Robot Sorting Plants Based on Maturity Levels to Improve Austrian Waste Sorting Plants**

Friedrich, K., Fritz, T., Koinig, G., Pomberger, R. & Vollprecht, D., 23 Aug 2021, In: *Sustainability*. 13.2021, 16, 15 p., 9472.

**Heavy metal content of *Lactuca sativa* L. grown on soils from historic mining and smelting sites in Styria (Austria) described by the Electro-Ultrafiltration (EUF) method and kinetic models**

Jelecevic, A., Sager, M., Vollprecht, D. & Liebhard, P., 24 Jun 2021, In: *Journal of elementology*. 26.2021, 3, p. 553-571 19 p.

**Partitioning of heavy metals in different particle-size fractions of soils from former mining and smelting locations in Austria**

Jelecevic, A., Sager, M., Vollprecht, D., Puschenreiter, M. & Liebhard, P., 1 Apr 2021, In: *Eurasian journal of soil science*. 10.2021, 2, p. 123-131 9 p.

**The EU Training Network for Resource Recovery through Enhanced Landfill Mining—A Review**

Vollprecht, D., Machiels, L. & Jones, P. T., 22 Feb 2021, In: *Processes : open access journal*. 9.2021, 2, p. 1-20 20 p., 394.

**Influence of material alterations and machine impairment on throughput related sensor-based sorting performance**

Küppers, B., Schlögl, S., Friedrich, K., Lederle, L., Pichler, C., Freil, J., Pomberger, R. & Vollprecht, D., 1 Jul 2020, In: *Waste management & research*. 39.2020, 1, p. 122-129 8 p.

**CASE STUDY ON ENHANCED LANDFILL MINING AT MONT-SAINT-GUIBERT LANDFILL IN BELGIUM: MECHANICAL PROCESSING, PHYSICO-CHEMICAL AND MINERALOGICAL CHARACTERISATION OF FINE FRACTIONS <4.5 MM**

Vollprecht, D., Hernández Parrodi, J. C., Lucas, H. I. & Pomberger, R., Jun 2020, In: *Detritus*. 10, June, p. 26-43 18 p.

**CASE STUDY ON ENHANCED LANDFILL MINING AT MONT-SAINT-GUIBERT LANDFILL IN BELGIUM: PHYSICO-CHEMICAL CHARACTERIZATION AND VALORIZATION POTENTIAL OF COMBUSTIBLES AND INERT FRACTIONS RECOVERED FROM FINE FRACTIONS**

Hernández Parrodi, J. C., Vollprecht, D. & Pomberger, R., Jun 2020, In: *Detritus*. 10, June, p. 44-61 18 p.

**Impact of an in-situ Cr(VI)-contaminated site remediation on the groundwater**

Sedlazeck, K. P., Vollprecht, D., Müller, P., Mischitz, R. & Gieré, R., 1 May 2020, In: *Environmental Science and Pollution Research*. 27.2020, 13, p. 14465-14475 11 p.

**Tailoring the FeO/SiO<sub>2</sub> Ratio in Electric Arc Furnace Slags to Minimize the Leaching of Vanadium and Chromium**

Neuhold, S. F., Algermissen, D., Drissen, P., Adamczyk, B., Presoly, P., Sedlazeck, K. P., Schenk, J., Raith, J., Pomberger, R. & Vollprecht, D., 1 Apr 2020, In: Applied Sciences : open access journal. 10, 7, p. 5249 17 p., 2549.

**Effects of cement addition and briquetting of rock wool on its geomechanical stability in landfills**

Sattler, T. M., Sartori, M., Galler, R., Pomberger, R., Krainz, J., Schimek, J. & Höllen, D., 1 Mar 2020, In: Waste management & research. 38.2020, 4, p. 408-414 7 p.

**Benchmark analysis for plastic recyclates in Austrian waste management**

Friedrich, K., Möllnitz, S., Holzschuster, S., Pomberger, R., Vollprecht, D. & Sarc, R., Mar 2020, In: Detritus. 9, March, p. 105-112 8 p.

**Mineral Wool Waste in Austria, Associated Health Aspects and Recycling Options**

Sattler, T. M., Pomberger, R., Schimek, J. & Vollprecht, D., Mar 2020, In: Detritus. 9, March, p. 174-180 7 p.

**Recovery of Molybdenum, Chromium, Tungsten, Copper, Silver, and Zinc from Industrial Waste Waters Using Zero-Valent Iron and Tailored Beneficiation Processes**

Vollprecht, D., Pleschl, K., Neuhold, S. F., Kittinger, F., Öfner, W., Müller, P., Mischitz, R. & Sedlazeck, K. P., 28 Feb 2020, (E-pub ahead of print) In: Processes : open access journal. 8.2020, 3, 14 p., 279.

**Sequential chemical extraction and mineralogical bonding of metals from Styrian soils**

Vollprecht, D., Riegler, C., Ahr, F., Stuhlpfarrer, S. & Wellacher, M., 28 Feb 2020, (E-pub ahead of print) In: International journal of environmental science and technology. 17.2020, 8, p. 3663-3676 14 p.

**Influence of Throughput Rate and Input Composition on Sensor-Based Sorting Efficiency**

Küppers, B., Seidler, I., Koinig, G., Vollprecht, D. & Pomberger, R., 11 Feb 2020, In: Detritus. 9.2020, March, p. 59-67 9 p.

**X-ray fluorescence sorting of non-ferrous metal fractions from municipal solid waste incineration bottom ash processing depending on particle surface properties**

Pfandl, K., Küppers, B., Scheiber, S., Stockinger, G., Holzer, J., Pomberger, R., Antrekowitsch, H. & Höllen, D., 1 Feb 2020, In: Waste management & research. 38, 2, p. 111 - 121 11 p.

**Dense glass-ceramics by fast sinter-crystallization of mixtures of waste-derived glasses**

Rabelo Monich, P., Vollprecht, D. & Bernardo, E., 1 Jan 2020, In: International journal of applied ceramic technology. 17, 1, p. 55-63 9 p.

**CASE STUDY ON ENHANCED LANDFILL MINING AT MONT-SAINTGUIBERT LANDFILL IN BELGIUM: CHARACTERIZATION AND POTENTIAL OF FINE FRACTIONS**

Hernandez Parrodi, J. C., García Lopez, C., Küppers, B., Raulf, K., Vollprecht, D., Pretz, T. & Pomberger, R., 23 Dec 2019, In: Detritus. 8.2019, December, p. 47-61 15 p.

**CASE STUDY ON ENHANCED LANDFILL MINING AT MONT-SAINTGUIBERT LANDFILL IN BELGIUM: MECHANICAL PROCESSING OF FINE FRACTIONS FOR MATERIAL AND ENERGY RECOVERY**

Hernandez Parrodi, J. C., Raulf, K., Vollprecht, D., Pretz, T. & Pomberger, R., 23 Dec 2019, In: Detritus. 8.2019, December, p. 62-78 17 p.

**INTEGRATION OF RESOURCE RECOVERY INTO CURRENT WASTE MANAGEMENT THROUGH (ENHANCED) LANDFILL MINING**

Hernández Parrodi, J. C., Lucas, H. I., Gigantino, M., Sauve, G., Esguerra, J. L., Einhäupl, P., Vollprecht, D., Pomberger, R., Friedrich, B., van Acker, K., Krook, J., Svensson, N. & Van Passel, S., 23 Dec 2019, In: Detritus. 8.2019, p. 141-156 16 p.

**QUALITY ASSESSMENT OF NONFERROUS METALS RECOVERED BY MEANS OF LANDFILL MINING: A CASE STUDY IN BELGIUM**

Lucas, H. I., García Lopez, C., Hernández Parrodi, J. C., Vollprecht, D., Raulf, K., Pomberger, R., Pretz, T. & Friedrich, B., 23 Dec 2019, In: *Detritus*. 8.2019, December, p. 79-90 12 p.

#### **RELATING MAGNETIC PROPERTIES OF MUNICIPAL SOLID WASTE CONSTITUENTS TO IRON CONTENT – IMPLICATIONS FOR ENHANCED LANDFILL MINING**

Vollprecht, D., Bobe, C., Stiegler, R., Van De Vijver, E., Wolfsberger, T., Küppers, B. & Scholger, R., 23 Dec 2019, In: *Detritus*. 8.2019, December, p. 31-46 16 p.

#### **Potential of sensor-based sorting in enhanced landfill mining**

Küppers, B., Parrodi, J. C. H., Lopez, C. G., Pomberger, R. & Vollprecht, D., Dec 2019, In: *Detritus*. 8.2019, December, p. 24-30 7 p.

#### **Investigation of Possible Leaching Control Mechanisms for Chromium and Vanadium in Electric Arc Furnace (EAF) Slags Using Combined Experimental and Modeling Approaches**

Neuhold, S. F., van Zomeren, A., Dijkstra, J. J., van der Sloot, H. A., Drissen, P., Algermissen, D., Mudersbach, D., Schüler, S., Griessacher, T., Raith, J., Pomberger, R. & Vollprecht, D., 30 Aug 2019, In: *Minerals*. 525.2019, 9, 19 p., 525.

#### **Influence of surface roughness and surface moisture of plastics on sensor-based sorting in the near infrared range**

Küppers, B., Schloegl, S., Oreski, G., Pomberger, R. & Höllen, D., 27 Aug 2019, In: *Waste management & research*. 2019, 8, p. 843-850 8 p.

#### **Mineralogy and Leachability of Natural Rocks—A Comparison to Electric Arc Furnace Slags**

Vollprecht, D., Berger, M., Altenburger-Junker, I., Neuhold, S. F., Sedlazeck, K. P., Aldrian, A., Dijkstra, J. J., van Zomeren, A. & Raith, J., 20 Aug 2019, In: *Minerals*. 9.2019, 8, 19 p., 501.

#### **Ammonium Sorption from Landfill Leachates Using Natural and Modified Zeolites: Pre-Tests for a Novel Application of the Ion Exchanger Loop Stripping Process**

Vollprecht, D., Frühauf, S., Stocker, K. & Ellersdorfer, M., 31 Jul 2019, In: *Minerals*. 9.2019, 8, 10 p., 471.

#### **Kinetics of lead release from soils at historic mining and smelting sites, determined by a modified electro-ultrafiltration**

Jelecevic, A., Horn, D., Eigner, H., Sager, M., Liebhard, P., Moder, K. & Vollprecht, D., 17 Jun 2019, In: *Plant, Soil and Environment*. 65.2019, 6, p. 298-306 9 p.

#### **Influences and Consequences of Mechanical Delabelling on PET Recycling**

Küppers, B., Chen, X., Seidler, I., Friedrich, K., Raulf, K., Pretz, T., Feil, A., Pomberger, R. & Vollprecht, D., 24 May 2019, In: *Detritus*. 2019, 6, p. 39-46 8 p.

#### **Decomposition of dissolved organic contaminants by combining a boron-doped diamond electrode, zero-valent iron and ultraviolet radiation**

Sedlazeck, K. P., Vollprecht, D., Müller, P., Mischitz, R., Gill, J., Trois, W., Maunz, I., Frate, R., Mann, O. & Wruss, K., 1 Feb 2019, In: *Chemosphere*. 217.2019, February, p. 897-904 8 p.

#### **Removal of critical metals from waste water by zero-valent iron**

Vollprecht, D., Krois, L.-M., Sedlazeck, K. P., Müller, P., Mischitz, R., Olbrich, T. & Pomberger, R., 20 Jan 2019, In: *Journal of Cleaner Production*. 208.2019, January, p. 1409-1420 12 p.

#### **Entwicklung innovativer Recyclingverfahren für Mineralwolleabfälle – Projekt RecyMin**

Sattler, T. M., Galler, R. & Höllen, D., 2019, In: *Berg- und hüttenmännische Monatshefte : BHM*. 164.2019, 12, p. 552-556 5 p.

#### **Characterization of Fine Fractions from Landfill Mining: A Review of Previous Investigations**

Hernández Parrodi, J. C., Höllen, D. & Pomberger, R., 2018, In: *Detritus*. 2, June 2018, p. 46 - 62 17 p.

#### **Mineralogy and leachability of V, Cr, Cu, Mo, Ni and F from natural rocks: six examples from Austria**

Berger, M., Neuhold, S. F., Vollprecht, D., Sedlazeck, K. P. & Raith, J., 2018, p. 175. 1 p.

**Porous glass-ceramics from alkali activation and sinter-crystallization of mixtures of waste glass and residues from plasma processing of municipal solid waste**

Rabelo Monich, P., Rincón Romero, A., Höllen, D. & Bernardo, E., 2018, In: Journal of Cleaner Production. 188, p. 871-878 p.

**Potential and main technological challenges for material and energy recovery from fine fractions of landfill mining: A critical review**

Hernandez Parrodi, J. C., Höllen, D. & Pomberger, R., 2018, In: Detritus. 3, september 2018, p. 19-29 10 p.

**Stepwise treatment of ashes and slags by dissolution, precipitation of iron phases and carbonate precipitation for production of raw materials for industrial applications**

Höllén, D., Berneder, I., Capo Tous, F., Stöllner, M., Sedlazeck, K. P., Schwarz, T., Aldrian, A. & Lehner, M., 2018, In: Waste management. 78, p. 750 - 762

**Mineralogical and geochemical characterization of a chromium contamination in an aquifer: A combined analytical and modeling approach**

Sedlazeck, K. P., Höllen, D., Müller, P., Mischitz, R. & Gieré, R., 9 Nov 2017, In: Applied Geochemistry. 87.2017, December, p. 44-56 13 p.

**Synthesis of hierarchically structured materials: microporous diatoms and nanoporous hydroxyaluminosilicate**

Höllén, D., Klammer, D., Letofsky-Papst, I., Raab, G. & Dietzel, M., 2016, In: Nanotechnology for Environmental Engineering. 1, 9, p. 1-12 p.

**Influence of chromium containing spinels in an electric arc furnace slag on the leaching behaviour**

Aldrian, A., Raith, J., Höllen, D. & Pomberger, R., Dec 2015, In: The Journal of Solid Waste Technology and Management. 41, 4, p. 357-365

**Landfill mining: Development of a theoretical method for a preliminary estimate of the raw material potential of landfill sites**

Wolfsberger, T., Nispel, J., Sarc, R., Aldrian, A., Hermann, R., Höllen, D., Pomberger, R., Budischowsky, A. & Ragossnig, A., 16 Jul 2015, In: Waste management & research. 33, 7, p. 671-680 10 p.

**Landfill mining: Resource potential of Austrian landfills – Evaluation and quality assessment of recovered municipal solid waste by chemical analyses**

Wolfsberger, T., Aldrian, A., Sarc, R., Hermann, R., Höllen, D., Budischowsky, A., Zöschner, A., Ragossnig, A. & Pomberger, R., 2015, In: Waste management & research. DOI: 10.1177/0734242X15600051, 13 p.

**The effect of Al on Si isotope fractionation investigated by silica precipitation experiments**

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**Research Studio Austria "CarboResources"**

Treimer, R., Niesenbacher, I. & Höllen, D., 2014.

**Si stable isotope fractionation during adsorption and the competition between kinetic and equilibrium isotope fractionation: Implications for weathering systems**

Oelze, M., von Blanckenburg, F., Höllen, D., Dietzel, M. & Bouchez, J., 2014, In: Chemical geology. 380, p. 161-171

**Umwelttechnische Aspekte des Einsatzes von Schlacken als Versatz im Bergbau.**

Höllén, D., Galler, R., Eisenberger, M. & Pomberger, R., 2014, In: Mining Report. 150, p. 137-141

**Zur Fragestellung des Einsatzes von Schlacken als Versatz im Bergbau**

Höllén, D., Pomberger, R., Eisenberger, M. & Galler, R., 2014, In: Berg- und hüttenmännische Monatshefte : BHM. 159, p. 465-469

**Mineralogy and leachability of iron and steel work slags**

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**Tailoring of a Hierarchically Structured Material from Diatomite**

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**Tailoring of a Hierarchically Structured Material from Diatomite**

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**Hydrothermal Alteration of Diatomite for Removal of Aqueous Cu<sup>2+</sup>, Pb<sup>2+</sup> and Zn<sup>2+</sup>**

Hölln, D., Klammer, D., Letofsky-Papst, I. & Dietzel, M., 2012, In: Materials science and engineering B (Solid-state materials for advanced technology). 10, p. 523-533