Data in Brief 21 (2018) 36–49

Contents lists available at ScienceDirect

Data in Brief

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Data Article

Regulatory performance dataset constructed from U.S. soil jurisdictions based on the top 100 concerned pollutants

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ARTICLE INFO

Article history:
Received 7 August 2018
Received in revised form
21 August 2018
Accepted 19 September 2018

ABSTRACT

The regulatory performance dataset based on the standard-value-based comparison tool was summarized in this Data in Brief. The dataset includes the identified top 100 concerned soil pollutants, the computed C_2–C_5 regulatory performance scores for each state soil jurisdiction, and the reference sources of the soil regulatory guidance values (RGVs). A total of 20 elements, seven cyanides, five halogenated methanes, seven chloroethanes and choroethenes, 12 benzenes, eight phenols, eight carcinogenic PAHs, eight non-carcinogenic PAHs, nine historically used pesticides, 12 currently used pesticides, and nine miscellaneous pollutants were selected as the top 100 concerned pollutants. Four comparison scores simulated from state soil regulations can be directly applied and compared with the U.S. Environmental Protection Agency to quantify the regulatory performance.

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DOI of original article: https://doi.org/10.1016/j.scitotenv.2018.08.001
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https://doi.org/10.1016/j.dib.2018.09.049
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Specifications table

Subject area	*Environmental Science*
More specific subject area	*Environmental Policy*
Type of data	*Table and text file*
How data was acquired	*Computational Simulation*
Data format	*Analyzed*
Experimental factors	*Not applicable*
Experimental features	*The standard-value-based comparison tool*
Data source location	*Not applicable*
Data accessibility	*The data are available with this article*
Related research article	*Li, W., Li, Z. and Jennings, A., 2018. A standard-value-based comparison tool to analyze US soil regulations for the top 100 concerned pollutants. The Science of the total environment, 647, pp. 663–675.*

Value of the data

- Top 100 concerned soil pollutants were selected based on the environmental occurrence, abundance, and human health effects.
- Regulatory performance scores C_2–C_5 were computed and summarized for each state soil regulation.
- Comparison of state regulation scores with the U.S. EPA could help measure and quantify regulatory risks.

1. Data

The major chemical classes identified in this study, including 20 elements, seven cyanides, five halogenated methanes, seven chloroethanes and choroethenes, 12 benzenes, eight phenols, eight carcinogenic PAHs, eight noncarcinogenic PAHs, nine historically used pesticides, 12 currently used pesticides, and nine miscellaneous pollutants, were summarized in Table S1 (One hundred contaminants and their CAS number), which were selected based on the environmental occurance, health concerns, and regulatory frequency [1–20]. The computed regulatory scores based on the top 100 concerned soil pollutants for each U.S. state soil jurisdiction were listed in the Section 3 (C_2–C_5 score values and top-concerned pollutant soil RGVs for individual state jurisdictions), which can be directly applied and compared to quantify the performance of state soil regulations.

2. Experimental design, materials and methods

The top 100 concerned soil pollutants (Table S1) were selected based upon their use, toxicity, environmental occurrence, abundance, and human effects. All of them can cause cancer or non-cancer adverse health effect via chronic soil exposure route. Therefore, it's necessary to evaluate whether state regulatory jurisdictions have provided sufficient and safe soil RGVs to protect public health or not. The regulatory performance scores C_2–C_5 were derived based on the developed comparison tool, which integrating the median and geometric mean of the worldwide soil RGVs. These scores can be directly used to quantify the performance of each state's soil regulation, or compared with the U.S. EPA score associated with human health risk uncertainty bounds to assess the regulatory risks.

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