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Data Article

Data on greenhouse gases emission in condensate separation unit of a petrochemical company in Iran

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ABSTRACT

Since global warming due to greenhouse gas emissions is no respecter of geographical boundaries of countries, concerted mitigation activities such as Clean Development Mechanism (CDM), are suitable. In this mechanism, some developed countries can gain certified emission reduction credits from emission reduction actions undertaken in developing countries. Thus, the data of greenhouse gas emissions in developing countries would be informative for implementing of CDM. Herein, the data of greenhouse gas emissions of Bandar Imam Petrochemical Complex, one of the biggest petrochemical companies in the Middle East region is presented. The data was acquired using emission factor method and self-presented raw information of the Bandar Imam Petrochemical Complex. Overall, the data will be interesting for environmentalists, non-governmental organization (NGO), and developed countries to perform CDM.

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Specifications Table

Subject area	*Environmental Engineering*
More specific subject area	*Air Pollution*
Type of data	*Table and image*
How data was acquired	Collect raw data of greenhouse gas emission from an Iranian petrochemical company. Use emission factor to calculate greenhouse gases
Data format	*Processed, raw*
Experimental factors	*Processing of greenhouse gas emission data*
Experimental features	*Contribution of condensate separation unit of a Petrochemical Plant in Iran in greenhouse gas emission*
Data source location	*Mahshahr, Iran, 30°33′32″N 49°11′53″E*
Data accessibility	*Data is available with the article*

Value of the data

- This data set generally answered the question of "what is the situation of the implementation of Kyoto protocol legislations to prevent/reduce greenhouse gas emissions in companies in developing countries such as Bandar Imam Petrochemical Complex (BIPC)?"
- The data will be attractive for whom with concern about global warming such as non-governmental organization (NGO).
- The data of greenhouse gases estimation by emission factor in this article implicitly proposes that Bandar Imam Petrochemical Complex is good place for carbon trade and Clean Development Mechanism (CDM) implementation.

1. Data

Data presented here describe the greenhouse gases especially CH_4 and CO_2 emission from a petrochemical plant with condensate separation unit in Mahshahr, Iran. Two Tables and one figure are presented. Fig. 1 is depicts the geographical position of the Bandar Imam Petrochemical Complex (study zone). Table 1 shows emission of CH_4 and CO_2 and Table 2 contains the emission factors presented by different references.

2. Experimental design, materials and methods

The data of this article was obtained from Bandar Imam Petrochemical Complex (BIPC), with an area of 270 ha, which is located in the North West coast of the Persian Gulf. This petrochemical company is situated in Khuzestan province, Iran with 105 km southeast of Ahvaz city and 84 km East of Abadan and Mahshahr cities (see Fig. 1).

The estimation process of greenhouse gases emission involved three stages: In the first stage, a site survey with process flow diagram (PFD) study was done in September 2015 for analyzing components attributed in greenhouse gases emission in unit of separating gas condensate of Bandar imam petrochemical company. In the second stage, the emission factors provided by various organizations, which have been listed in Table 1, emissions for each sources was calculated by using Eq. (1):

$$E = A \times \mathrm{EF} \times \left[1 - (\mathrm{ER}/100)\right] \quad (1)$$