

# Report: CO<sub>2</sub> Emissions and Bunker Fuel Consumption in Spain

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This report examines the CO<sub>2</sub> emissions and bunker fuel consumption in Spain from 1751 to 2014. The analysis focuses on Spain's position in the top 10 countries with the highest CO<sub>2</sub> emissions and its significant contribution to bunker fuel consumption. The data used for this report includes the following columns: ['Year', 'Country', 'Total', 'Solid Fuel', 'Liquid Fuel', 'Gas Fuel', 'Cement', 'Gas Flaring', 'Per Capita', 'Bunker Fuel'].

According to the data, the top 10 countries with the largest CO<sub>2</sub> emissions from 1751-2014 are as follows:

United States of America - 1,560,803 tons  
Singapore - 725,998 tons  
Netherlands - 596,990 tons  
Japan - 531,140 tons  
United Kingdom - 458,581 tons  
Saudi Arabia - 332,248 tons  
Spain - 304,730 tons  
France (including Monaco) - 289,481 tons  
Italy (including San Marino) - 276,055 tons  
United Arab Emirates - 265,451 tons

It is interesting to note that Spain ranks 7th in terms of CO<sub>2</sub> emissions, which indicates significant carbon dioxide output. The countries listed above have high shipping traffic, which leads to increased CO<sub>2</sub> emissions during the bunkering process. Spain's position among these countries highlights its substantial contribution to global CO<sub>2</sub> emissions.

Further analysis specifically focusing on Spain reveals that the major source of CO<sub>2</sub> emissions is a liquid fuel, with a total of 1,808,072 tons. However, Spain is not among the top 10 countries in terms of CO<sub>2</sub> emissions from liquid fuel. Surprisingly, the contribution from bunker fuel, which amounts to 304,730 tons, is relatively smaller than that from liquid fuel. Nevertheless, Spain's significance in the global bunkering process is evident, considering its inclusion in the top 10 CO<sub>2</sub>-emitting countries.

To visualize the bunker fuel consumption in Spain over time, a bar plot was created. The plot displays the annual bunker fuel consumption from 1981 onwards. The data indicates a fluctuating trend in bunker fuel consumption in Spain throughout the years, with values ranging from 0 to around 10,000 tons per year.

The findings suggest that Spain's significant contribution to CO<sub>2</sub> emissions can be attributed to its extensive bunker fuel consumption, despite not being among the top 10 countries in terms of CO<sub>2</sub> emissions from liquid fuel. This highlights the importance of monitoring and addressing the environmental impact of the shipping industry and bunker fuel consumption in Spain.

