

## 化工行业二氧化碳减排潜力分析模型及应用

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## A Carbon Dioxide Reduction Potential Model for Chemical Industry

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**摘要** 化工行业是全球耗能和二氧化碳排放大户,由于其产品结构复杂,减排影响因素众多,探索其二氧化碳减排潜力和路径成为国内外研究的焦点之一。本文结合化工行业的产品结构特点构建了一套化工行业二氧化碳减排潜力综合分析模型:首先结合化工行业产品种类繁多的特点,分别从行业和产品视角构建了一种两阶段二氧化碳排放核算模型;在此基础上,综合考虑化工行业的发展规模、结构调整、技术进步等因素,建立了化工行业二氧化碳减排潜力的情景分析方法。最后以中国西部唯一的直辖市、国家首批低碳试点城市——重庆市的化工行业为例进行应用分析。结果显示,随着石油化工的引进,未来重庆化工行业二氧化碳排放总量仍将保持高速增长的态势,2020年之前难以达到拐点;而随着精细化工比例的不提高,产品能效水平的改善,未来二氧化碳排放强度下降明显。最后结合中国化工行业发展的实际提出化工行业低碳发展应坚持产品结构调整和技术进步并行的原则。

**关键词:** 化工行业 二氧化碳 两阶段核算模型 减排潜力

**Abstract:** Chemical industry is the main industry of global energy consumption and carbon emission, as the complex structure of its products, and so many influencing factors of emission reduction, the research of the carbon emission reduction potential and route become one of the research focuses. A comprehensive carbon dioxide reduction potential model is constructed in this paper for chemical industry. Firstly, combining with a wide variety of chemical industry products, a two stage accounting method based on industry level and product level respectively is established. On this basis, synthetically considered the factors of development scale, structure adjustment and technical progress of the chemical industry, a scenario analysis method is established for carbon dioxide emission reduction potential of chemical industry. Using this method, carbon emission reduction of the chemical industry in Chongqing is introduced as an application example, which is the only municipality in western China, one of the first national low-carbon pilot cities. The empirical results show that, with the development of petrochemical industry, the carbon dioxide emissions in Chongqing chemical industry will maintain rapid growth in future, the inflection point is difficult to achieve by 2020; meanwhile, with the increasing proportion of fine chemical products, and the improving of energy efficiency, the carbon dioxide emissions intensity will decrease significantly in future. Finally, the principles of product structure adjustment and technical progress are proposed to realize carbon emission reduction of chemical industry in China.

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