Research on Chinese Materials Environmental burden

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Under the framework of the ISO 14040 series, a common understanding of the goals, structure, and procedural issues has been achieved, but the compatibility of the and environmental impact indicator would be paid attention, which usually leads to different results because of levels of spatial and temporal differentiation or productivity level of different countries.

Modified Characterizing Model of Mineral Resource Consumption

Scientifically comprehending and evaluating the impact of mineral resource exhaustion is not only important to envirmental information research and its actualization, but the basis of exploiting, conserving and utilizing resources rationally. But an internationally accepted standard to express the resources consumption has not been found, and there are some disputes about the essence and characterizing methods for mineral resource consumption. The modified characterization model of resource consumption was used to calculate the characterization factors of 42 kinds of metal such as Fe, Al, Cu, Zn, and Ti, and 58 sorts of nonmetal such as raw coal, crude oil, natural gas, phosphorus, boron, and arsenic. Further, the normalization reference of mineral resource consumption for China was gotten. The overall supply status of 30 kinds of resource such as Fe, Al, Cu, raw coal, crude oil and gypsum in China were studied.

Life Cycle Inventory Analysis of Electricity Industry in China

The comparison result between the LCI data of China's electricity industry and that of Japan showed that most emission intensities of China's electricity industry were higher than that of Japan except for NMVOC. Compared with emission intensities of the electricity industry in Japan, the emission intensities of CO2 and Ni in China were about double; the emission intensities of NOx, Cd, CO, Cr, Hg and SO2 in China were more than 10 times that of Japan; and the emission intensities of CH4, V, Pb, Zn, As and dust were more than 20 times. The reasons for such disparities were also analyzed.

Materials Environmental Loading Assessment and Database Development

The changeable trend of input and output of non-ferrous metals industry from 1993 to 2003 in China were analyzed. The direct and indirect economic value of pollution and ecological rucksack reducing due to the recycling rate were also assessed. Also, this paper introduces the related work for building Chinese national database, SINOCENTER, of materials life cycle assessment (MLCA) and developing the environmental burden dataset of materials. So far, the database contains about fifty-thousand records of the main materials industries, and also includes the primary LCI data of fossil fuels and electricity grid in China. And obtained some heavy metal impact factors in water. Based on the database, the iron and steel dataset has been developed with the data quality analysis, and also some environmental burden data could be queried in our website, www.cnmlca.com in the future.

Conclusion

According to the framework of the ISO 14040 series standards, the Chinese LCA evaluation system is developed to support materials and products environmental information analysis in China.