

ICS 83.140
CCS G 31



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 45441-2025

**Greenhouse gases - Quantification methods and requirements
of carbon footprint of products - Plastic products**

温室气体 产品碳足迹量化方法与要求 塑料制品

Issued on: February 28, 2025

Implemented on: September 1, 2025

**Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC**

Table of Contents

Preface	III
1 Scope	1
2 Normative references	1
3 Terms and Definitions	1
4 Quantitative principles	3
5 Purpose and scope determination	4
6 Life Cycle Inventory Analysis	6
7 Quantifying the Carbon Footprint of Plastic Products	8
8 Interpretation of Life Cycle Results	9
9 Plastic Product Carbon Footprint Report Contents	9
Appendix A (Informative) GWP Reference Value	11
Appendix B (Informative) Quantification of Carbon Footprint of Plastic Products (Example)	12
Appendix C (Informative) Processing technology and greenhouse gas emissions of common plastic products	13
Appendix D (Informative) Plastic Product Carbon Footprint Quantification Report Template	18
Reference	22

Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents.

This document was jointly proposed by the Ministry of Ecology and Environment of the People's Republic of China and the China Light Industry Federation.

This document was jointly issued by the National Technical Committee on Standardization of Plastic Products (SAC/TC48) and the National Technical Committee on Standardization of Carbon Emission Management (SAC/TC548) jointly managed.

This document was drafted by: China Plastics Processing Industry Association, Shenzhen 863 New Materials Technology Co., Ltd., Shuangma Plastics Co., Ltd.

Company, Xiamen Changsu Industrial Co., Ltd., Tingran New Materials (Liaoning) Co., Ltd., Zhuzhou Hongda Polymer Materials Co., Ltd., Zhejiang Yuyue New Materials Materials Co., Ltd., Hebei Yisu Pipe Manufacturing Co., Ltd., Sichuan Yibin Plus Packaging Materials Co., Ltd., Wenzhou Qiangrun New Materials Materials Technology Co., Ltd., Jiangsu Shuangxing Color Plastic New Materials Co., Ltd., Taizhou Ruikang Daily Necessities Technology Co., Ltd., Zhejiang Zhongcai Pipeline Technology Co., Ltd., Ningbo Lishi Daily Necessities Co., Ltd., Beijing Technology and Business University, Shandong Lvsen Plastic Wood Composite Materials Co., Ltd., Tianjin Hua Hengxin Materials Co., Ltd., Oubaolan Environmental Protection Technology (Qingdao) Co., Ltd., Shanxi Zhongde Pipe Industry Co., Ltd., Cangzhou Dongsheng Plastic Co., Ltd.

Company, Beijing Yiqing Product Quality Inspection Co., Ltd., Cangzhou Mingzhu Plastic Co., Ltd., Rifeng Enterprise (Foshan) Co., Ltd., Zhejiang Xin Hengtai New Materials Co., Ltd., Essel (Guangzhou) Packaging Co., Ltd., Ruichang Ronglian Environmental Protection Technology Co., Ltd., Zhejiang Geely Digital Technology Co., Ltd.

Technology Co., Ltd., Shenzhen Green Ring Renewable Resources Development Co., Ltd., Shanghai Kangshi Food Technology Co., Ltd., Shanghai Energy Conservation and Emission Reduction Center Ltd., Guangzhou CESI Certification Center Service Co., Ltd., Light Industry Plastic Processing Application Research Institute, Beijing Academy of Science and Technology Resources and Environmental Protection Institute of Environmental Science and Technology, Sichuan University, Solid Waste and Chemical Management Technology Center of the Ministry of Ecology and Environment, Donghua University, Dalian Institute of Chemical Physics, Chinese Academy of Sciences Institute, Beijing University of Technology, International Cooperation and Exchange Center of the Ministry of Ecology and Environment, and Fujian Normal University.

The main drafters of this document are: Tian Hui, Wang Xin, Yang Wenjun, Yin Fang, Li Fangyuan, Zeng Weichou, Sun Wenxun, Wang Maofeng, Gao Lingqiang, Yi Yongdong, Wu Peifu, Zhao Yongjian, Wang Baiti, Cai Ying, Wang Zhanjie, Wang Xiangdong, Wu Mingming, Liu Xiang, Wang Wenbin, Zhang Mingting, Zhou Guojun, Xing Lingyan, Zhao Qiang, Lü Ailong, Wang Zhen, Liu Weijun, Wu Hairong, Xu Jing, Wu Yang, Zhou Zeye, Jin Ying, Chen Jufang, Huang Zhigang, Xu Bo, Hu Jing, Sun Hui, Wang Hongtao, Zhao Zikang, Li Bin, Wang Yanqing, Gong Xianzheng, Wang Haoyang, Chen Xiaochuan.

Greenhouse gas product carbon footprint quantification method and Request plastic products

1 Scope

This document specifies the principles, purpose and scope of carbon footprint quantification of plastic products, life cycle inventory analysis, interpretation of life cycle results and plastic Preparation of carbon footprint report for materials and products, etc.

This document is applicable to the quantification of the carbon footprint of plastic products.

2 Normative references

GB/T 2035

GB/T 4754

GB/T 16288

GB/T 24044

GB/T 24067

3 Terms and definitions

The terms and definitions defined in GB/T 2035, GB/T 4754, GB/T 16288, GB/T 24044, GB/T 24067 and the following terms and definitions apply For use in this document.

3.1 Plastic products

With synthetic resin (polymer compound) as the main raw material, it adopts extrusion, injection molding, blow molding, calendaring, lamination, rotational molding, foaming, casting, suction Various products formed by plastic, weaving and other processes.

Note 1.For the types of base polymers (polymer compounds) of plastic products, see GB/T 16288.

Note 2.Derived from the description of Class 292 in Table 1 of GB/T 4754-2017.

3.2 Carbon footprint of plastic products life cycle

The sum of greenhouse gas emissions during the life cycle of plastic products (expressed in carbon dioxide equivalent).

3.3 partial carbon footprint of plastic products

The sum of greenhouse gas emissions (in carbon dioxide equivalent) from one or more selected stages or processes in the life cycle of a plastic product express).

3.4 Quantification of the carbon footprint of plastic products

Activities to determine the life cycle and partial carbon footprint of plastic products.