

**National Standard of the People's Republic of China**

# **立式圆筒形钢制焊接油罐设计规范**

**Code for design of vertical cylindrical welded steel oil tanks**

**GB 50341-2003**

Editing department in chief: China National Petroleum Corporation

Approval department: Ministry of Construction of the People's Republic of China

Implementation date: December 1, 2003

China Planning Press  
Beijing 2003

**Public notice of the Ministry of Construction of the People's Republic of China**

**No. 186**

**Public notice of the Ministry of Construction about issuing the national standard Code for design of vertical cylindrical welded steel oil tanks**

This notice is hereby given that the Code for Design of Vertical Cylindrical Welded Steel Oil Tanks has been approved to be a national standard, with the number of GB 50341-2003, and will be put into operation from Dec 1, 2003. In this standard, articles 3.0.2, 3.0.5, 4.2.2, 4.2.5, 5.1.1, 5.1.2, 6.3.1, 6.3.2, 6.3.3, 6.4.1, 6.4.6, 6.4.7, 6.4.8, 6.5.2, 6.5.3, 6.5.4, 6.5.6, 7.1.2, 7.1.6, 8.1.5, 8.1.6, 8.2.3 and 8.3.1 are mandatory provisions, which must be strictly observed.

This code was issued by China Plan Publishing House under the organization of Research Institute of Standards & Norms, the Ministry of Construction.

**Ministry of Construction of the People's Republic of China**  
**October 8, 2003**

## Foreword

This code was compiled jointly by China Petroleum Pipeline Engineering Corporation (the former China Petroleum Pipeline Reconnaissance Designing Institute) and Petro-china Plan & Design Institute according to the requirement of the Notice about Printing and Distributing the “1995-1996 Plan for Constitution of National Standard for Engineering Construction” issued in the (1996) No. 4 document of the Ministry of Construction.

This code was compiled and finalized referring to relevant specifications at home and abroad such as API 650, based on in-depth investigation and research and frequent communication with scientific research, design and construction departments as well as the users, adopting the mature experiences in oil tank design accumulated in the last decades at home and abroad, combining the actual condition of engineering of China on the current stage, and through comprehensively asking for opinions, repeated discussion and careful modification.

There are altogether eleven chapters and five appendixes in this code, covering the main contents of the design of vertical cylindrical welded steel oil tanks and part of the requirements for construction and acceptance. It mainly includes material selection, tank bottom design, tank wall design, fixed roof design, external floating roof design, internal floating roof design, oil tank accessory, the additional requirements for the design of micro-internal pressure oil tank and high temperature oil tank, ribbed vault calculation, anti-vibration calculation and the basic requirements of oil tank for the groundwork and foundation.

In this code, the provisions indicated with boldface are mandatory provisions, which must be strictly observed. The Ministry of Construction is responsible for the administration of this code and explanation of the mandatory provisions. China Petroleum Pipeline Engineering Corporation is responsible for the explanation of the detailed technical contents. The organizations concerned are requested to send the opinions and suggestions of modification and supplementation obtained from the engineering practices and experiences to China Petroleum Pipeline Engineering Corporation (address: No. 22 Jinguang Road, Langfang, Hebei Province; postal code: 065000). The editing organization in chief, the organizations participated in the compilation and the main drafters of this code:

The editing organization in chief: China Petroleum Pipeline Engineering Corporation

The organizations participated in compilation: Petrochina Plan & Design Institute

The main drafters: Wang Fuan, Jin Weiang, Sun Zhengguo, Xiang Zhongquan, Xing Yansheng, Liu Yalan, Cheng Hui, Du Baojun, Fu Weiqing, Wang Ying, Wang Yuqing, Wang Binghuai, Wang Baoxia, Wang Guoli, Wang Gengwu, Fan Xin, Yin Yeyi, Sun Weili, Xu Jie, Chen Feng, Dong Xu, Li Zhengyu, Li Jinguo, Qu Yinghua, Meng Qingpeng, Xia Wei, Duan Jinyan, Cai Hangping

## **1 General**

**1.0.1** This code was constituted to standardize the design of vertical cylindrical welded steel oil tanks, improve the design level and provide technologically advanced, economically reasonable, quality ensured, secure and applicable designs.

**1.0.2** This code only applies to the design of normal pressure (including micro-internal pressure) vertical cylindrical welding steel oil tanks (hereinafter referred to as oil tanks) used for storage of petroleum, petrochemical and other similar liquids.

Buried tanks or the tanks for storage of extremely and highly hazardous mediums and artificial refrigeration liquid do not apply to this code.

**1.0.3** In addition to this code, the design of oil tank shall also conform to the provisions of the relevant existing national standards and specifications.



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