

Paper for CPSC/OGP Workshop on
Standardization of Petroleum and Petrochemical Equipment



Strengthen Research and Application of Metrology and Conformity Assessment

To Implement Petroleum Equipment Standardization

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石油勘探开发研究院

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ABSTRACT

1. The important role of standardization, metrology and conformity assessment in the process of global economic integration
2. Standardization, metrology and conformity assessment of Petroleum Equipment in China
3. The developing requirement and corresponding measures for standardization, metrology and conformity assessment under new background
4. Strengthen research and application of metrology and conformity assessment to implement petroleum equipments standardization strategy



1. The important role of standardization, metrology and conformity assessment in the process of global economic integration

The world has entered economic globalization epoch. The rapid development of science and technology promotes the world economic becoming more infiltrative and more interdependent.

The Global Village has reflected the process of the world economic integration.





1. The important role of standardization, metrology and conformity assessment in the process of global economic integration

The World Trade Organization (WTO) multilateral agreement of “*Agreement on Technical Barriers to Trade*” (*TBT agreement*) and “*Agreement on the Application of Sanitary and Phytosanitary Measures*” (*SPS agreement*) have become an important rule which impacts the global economic, science and technology development.

Metrology, standardization and conformity assessment constitute the three technical basis for promoting global trade and for constructing fair market under the process of the global economic integration.



1. The important role of standardization, metrology and conformity assessment in the process of global economic integration

TBT Agreement: Recognizing the important contribution that international standards and conformity assessment systems can make in this regard by improving efficiency of production and facilitating the conduct of international trade.

Desiring therefore to encourage the development of such international standards and conformity assessment systems.



1. The important role of standardization, metrology and conformity assessment in the process of global economic integration

With respect to their central government bodies: Where technical regulations are required and relevant international standards exist or their completion is imminent, Members shall use them, or the relevant parts of them, as a basis for their technical regulations except when such international standards or relevant parts would be an ineffective or inappropriate means for the fulfilment of the legitimate objectives pursued, for instance because of fundamental climatic or geographical factors or fundamental technological problems.



1. The important role of standardization, metrology and conformity assessment in the process of global economic integration

Standard, an important technical system to guide economy and society development, is the basic factor for a nation's or an enterprise's key competition ability.

The essence of standard is unification. The purpose of standardization is to maximize profits by building proper order.

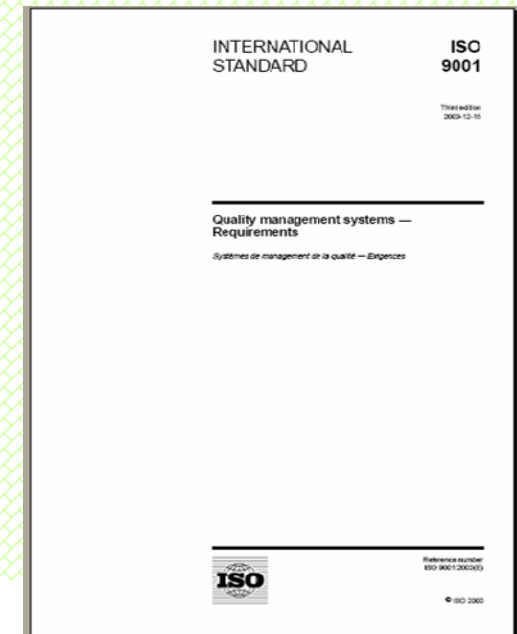
The mission of ISO/TC67: To establish standards that can increase value for global petroleum and natural gas industry.



1. The important role of standardization, metrology and conformity assessment in the process of global economic integration

International standards plays a more and more important role in eliminating technical barriers to international trade, in improving technology and product quality, and in promoting international economic and technology exchange and cooperation, etc.

The Purpose of ISO/TC67: Establish international standards, eliminate trading Barriers, raise operating efficiency, strengthen safety protection and environmental protection standards.





1. The important role of standardization, metrology and conformity assessment in the process of global economic integration

Metrology is the science that deals with measurement to ensure the unified unit of measurement and accuracy of measured value. It is the foundation of standardization and Conformity assessment.

To achieve equivalence between different countries forms the base for the use of international standards consistently and efficiently.

ISO/TC67 take standards of appraise consistency to its fields of petroleum industrial standards to be urgent established.



1. The important role of standardization, metrology and conformity assessment in the process of global economic integration

“Conformity assessment procedures” ensures the products to satisfy legal regulations and standards and has become an effective way to normalize market behavior, to promote the economic trade development, and to protect consumer’s legal rights and interests.

Conformity assessment is to ensure the application of standards and is the extension of standardization.

The Purpose of ISO/TC67: The standards of ISO/TC67 provide technical basis for accreditation and conformity assessment, get recognition of the global petroleum equipment market.....

ISO/TC67 take the series standards of conformity assessment and appraise to its fields of petroleum industrial standards to be urgent established.



1. The important role of standardization, metrology and conformity assessment in the process of global economic integration

Metrology and standards provide ways and bases for conformity assessment. Conformity assessments displayed and extended standards' value and role. Standards provide ways and assurance to implement accurate measurement and reliable measured result.

Metrology, standardization and conformity assessment constitute the three technical basis for promoting global trade and for constructing fair market under the process of the global economic integration.



2. Standardization, metrology and conformity assessment of petroleum equipment in china

China petroleum equipment committee, SAC was set up in October 1987, and reestablished by CNPC, SINOPEC, CNOOC and China petroleum and petrochemical equipment industrial association in 2002 with approve by SAC. Its code is SAC/TC96. Its task is as follows: under the lead of SAC, organize standardization activities of petroleum drilling and development equipment, take the relative responsibility of technical management of petroleum equipment national standards and profession standards. And undertake the standardization work under the charge of the ISO committee of ISO/TC67 and American petroleum institute (API).



2. Standardization, metrology and conformity assessment of petroleum equipment in china

By years of developing, perfect petroleum equipment standard system for land and offshore petroleum exploration has been formed.

As mechanism reform and innovation, it is formed that the network structural management pattern of specialized standardization work department. Six work department established, and the 7th will established shortly.



2. Standardization, metrology and conformity assessment of petroleum equipment in china

By the end of November 2007, SAC/TC96 is in charge of 205 items of petroleum equipment standards management, Including 29 items of national standards, 176 items of profession petroleum standards, 10 items of ISO/TC67 standards and 50 items of API have been adopted. There is total 121 items standards can be adopted from ISO/TC67 and API, adopt rate is 49.6%.

Objectives: by the end of 11th five-year plan or the initial of 12th five-year plan , national standards rate reach 50%, international standards adopt reach 90%.



2. Standardization, metrology and conformity assessment of petroleum equipment in china

The system of metrology laws and regulations, measurement trace, and the mechanism of mutual reorganization in the world were formed. The National Institute of Metrology of P.R. China maintained 302 items of national standards. China has signed mutual recognize agreement with BIPM. China takes part in key comparison and regional comparison organized by International Council on Weights and Measures (CIPM) and Bureau international des poids et mesures (BIPM).



2. Standardization, metrology and conformity assessment of petroleum equipment in china

China government has set up national supervision and management committee for certification and accreditation in 2001, and set up China National Accreditation Board for Certifiers (CNAB), China National Accreditation Board for Laboratories (CNAL) and China National Auditor and Training Accreditation Board (CNAT) in 2002. The establishment of the China National Accreditation Service for Conformity Assessment (CNAS) in March 2006 marked the establishment of the concentrated and unified certification and accreditation system in China.



3. The Developing Requirement and Corresponding measures for standardization, metrology and conformity assessment under new background

China government made the commitment in documents for joining WTO as follows: China should take the technical regulations, standards and conformity assessment programs in accordance with “The Agreement on Technical Barriers to Trade (TBT Agreement)” since China joined the WTO.

The commitment put forward the requirement to satisfy the related agreement of WTO, to open to members of WTO in technical regulations, standards and conformity assessment programs, give them accorded treatment no less favourable than that accorded to national origin.



3. The Developing Requirement and Corresponding measures for standardization, metrology and conformity assessment under new background

In “The compendium of national long-term science and technology developing programming (2006-2020 years)”, the establishment of technical standards was an important goal of national science and technology plan, the construction of national standards, metrology and test technique system was an important basic condition platform construction of science and technology.



4. Strengthen Research and Application of Metrology and Conformity Assessment to Implement Petroleum Equipments Standardization Strategy

The petroleum equipment industry takes account of Chinese equipment industry for about 25%. Petroleum equipment standardization plays an important role to support the development of petroleum equipment technology and industry.



4. Strengthen Research and Application of Metrology and Conformity Assessment to Implement Petroleum Equipments Standardization Strategy

4.1 The existing problems in standardization of China's petroleum equipment manufacturing industry

- ◆ The standard market adaptability is poor.
- ◆ The disjointing standard with market cannot satisfy market effectively.
- ◆ The proportion of using international standards and foreign advanced standards, and the standardization level of new product development is low.
- ◆ The standards on production are more than required, while the standards on product trading are too few.
- ◆ The description on production standards are excessively detailed and concrete, which lack of option for users and of technology adaptability.



4. Strengthen Research and Application of Metrology and Conformity Assessment to Implement Petroleum Equipments Standardization Strategy

- ◆ Standard technology contents are low.
- ◆ Large amount of technique data and index in Chinese equipment manufacturing industry standards, which originate from foreign standards or product sample, do not have the support from scientific and technique research, special technique, and the intellectual property right.
- ◆ The standard does not have support from scientific research.
- ◆ The pre-study for standard establishment is insufficient.
- ◆ There are short of the driving force and mechanism of using up-to-date scientific research.
- ◆ Management level for standardization and application is low.



4. Strengthen Research and Application of Metrology and Conformity Assessment to Implement Petroleum Equipments Standardization Strategy

4.2 Strengthen the construction of petroleum equipment standardization and improve the level of China's petroleum equipment standardization

4.2.1 Construct standard system in agreement with the international conventions and having special characteristics and predominance, improve the proportion of using international standard and foreign advanced standard, and optimize standard structure to improve international competition.



4. Strengthen Research and Application of Metrology and Conformity Assessment to Implement Petroleum Equipments Standardization Strategy

The national standardization development goal proposed as follows: international standard project proposed by China reaches 500; the rate of using international standards exceeds 80% to 2010, and reaches 90% to 2015. By the end of “National 11th Project” or at the start of “National 12th Project”, the rate of using international standards for petroleum drilling and production equipment reaches over 90%.



4. Strengthen Research and Application of Metrology and Conformity Assessment to Implement Petroleum Equipments Standardization Strategy

4.2.2 Improve adaptability of standard market and satisfy market demands effectively

Plan standard system reasonably and adjust product standard establishment method. Using product function, specification and quality requirement for basis. Improve the containing capacity and market adaptability of standard technology for betting using international trade regulation, convention and TBT byelaw.



4. Strengthen Research and Application of Metrology and Conformity Assessment to Implement Petroleum Equipments Standardization Strategy

4.2.3 Reinforce science and technology innovation to promote standardization development and to improve standards

- Reinforce prior study of standardization and strengthen science and technology basic study.

- Convert innovative and dominate technology into standards promptly.

Improve standard technique level and construct petroleum equipment technical standards platform.

- Combine scientific research with standardization organically.

- Accelerate pace of standard establishment, application, and feed-back and revision and control standard establishment and revision period and standard age.



4. Strengthen Research and Application of Metrology and Conformity Assessment to Implement Petroleum Equipments Standardization Strategy

4.2.4 Pay attention to cultivating standardization talents and reinforce international standardization exchanges and cooperation.

Pay close attention to train superior and refined talents in this field with the strategy sight to undertake standard establishment and revision and to carry out international standardization exchange and cooperation effectively.



4. Strengthen Research and Application of Metrology and Conformity Assessment to Implement Petroleum Equipments Standardization Strategy

4.3 Strengthen research and application of metrology and conformity assessment to support petroleum equipment standardizing application

The reinforcement of research and application of metrology and conformity assessment plays an important role to support standardization development.



4. Strengthen Research and Application of Metrology and Conformity Assessment to Implement Petroleum Equipments Standardization Strategy

4.3.1 Strengthen research and application of petroleum metrology

Enhance the research on basic, prospective and comprehensive metrology technique to construct bases for international mutual recognition. The consistent or equivalent of measurement reference standards is important basis for international mutual recognition.



4. Strengthen Research and Application of Metrology and Conformity Assessment to Implement Petroleum Equipments Standardization Strategy

4.3.2 Strengthen laboratory construction and achieve mutual recognition of conformity assessment through laboratory accreditation system

China has built national laboratory accreditation system according to ISO/IEC 17011 and signed mutual recognize agreement (MRA) with APLAC and ILAC.

Domestic petroleum equipment enterprises paid attention to the construction and accreditation of laboratories. According to statistics, Twenty two petroleum equipment testing laboratories and 7 petroleum calibration laboratories obtained accreditation conferred by CNAS till now.



4. Strengthen Research and Application of Metrology and Conformity Assessment to Implement Petroleum Equipments Standardization Strategy

It is necessary to strengthen the building of high level petroleum equipment testing laboratories, to operate effectively according to ISO/IEC17025, to search for accreditation of authority organization such as CNAS, to provide society with impartial, accurate, and reliable testing data and result, to realize mutual recognition of conformity assessment results based on international standards, measuring technology and conformity assessment methods, and to realize “one report, acceptable all over the globe”.



4. Strengthen Research and Application of Metrology and Conformity Assessment to Implement Petroleum Equipments Standardization Strategy

4.3.3 Implement petroleum equipment standardization strategy and promote science and technology and economic trading development

■ Establish national standard system which agrees international rules with our own characteristics and advantages, combine standard, technical regulations and conformity assessment program organically, improve the development of science, technology and economy effectively, extend international trade, enhance international competition ability.



4. Strengthen Research and Application of Metrology and Conformity Assessment to Implement Petroleum Equipments Standardization Strategy

- Combine standardization with technology development and patent strategy, follow the way of “technique patentization, patent standardization, and standard internationalization”, promote the transformation of new technology to standards, improve the technology content and competition ability of standard, and occupy the height-controlled point of market.
- Participate in international standardization activities actively, participate in and undertake the work of ISO secretariat, establish international standards, encourage and support Chinese enterprises to participate in international standardization activities.



4. Strengthen Research and Application of Metrology and Conformity Assessment to Implement Petroleum Equipments Standardization Strategy

■ Use TBT regulation reasonably. While enjoying WTO member treatment for petroleum equipment product exports, establish more strict technical regulations and standards in our innovative and dominate technology to protect domestic market and national interest. Utilize preferential measures for developing countries in the transfer of technology from developed to developing countries, and in the formulation and application of technical regulations and standards and procedures for assessment of conformity etc. to search for concessional terms and preferential treatment.



4. Strengthen Research and Application of Metrology and Conformity Assessment to Implement Petroleum Equipments Standardization Strategy

■ Reinforce the construction of supporting platform for standardization, accelerate the process of “Standardization Law” amendment, strengthen the construction of standardization information system to provide the platform for society consulting service, increase fund for standard research, establishment and application, and guide enterprise to increase fund for standards.



THANK YOU!