

Annual Report for Fiscal 2014

(April 1, 2014 - March 31, 2015)

The High Pressure Gas Safety Institute of Japan (KHK)

1. Business Environment and Overview of Operations

Regarding the Japanese economy in fiscal 2014, though business confidence was unfavorable in the first half of the fiscal year partly because of the reaction against a last-minute rise in demand associated with the consumption tax hike, the government's economic policy had some effect on the positive trend toward economic recovery observed in the latter half.

Enjoying the upward momentum of the national economy, the industrial areas of high pressure gas showed a sign of recovery in the trend of equipment investment. In addition, the first commercial hydrogen station was opened in July 2014, and the release of fuel cell vehicles using hydrogen as a fuel in the market was announced in December 2014, which was a significant initial step to realize a hydrogen society.

In such circumstances, some business environment of KHK turned up with the firm business fields of Inspection and Investigation associated with the contracts of large-scale commissioned projects related to seismic design standards and technology to cover high pressure hydrogen, as well as the trend of equipment investment, though others were sluggish and the business field of Education was weak because of the dropped book sales on the rebound of a last-minute rise in demand associated with the consumption tax hike.

In the business environment as stated above, KHK took action to deal with accidents, including participation as experts on accident investigations in the investigation committee, which was organized outside KHK to investigate serious accidents at industrial complexes, and to conduct investigations and analyses of the causes of the accidents.

In the business field of Education, we developed a system in 2012 to conduct new businesses, including on-site lectures tailored to the needs of clients, brand-new seminars,

and publishing. In 2014, we conducted introductory seismic design seminars and issued the relevant text "Easy-to-understand Seismic Design." In addition, in view of the facts that the administration and authority on many matters related to high pressure gas safety have been transferred from prefectural governments to municipal governments and that inexperienced personnel in charge of high pressure gas safety administration in prefectural governments are increasing, we continued to conduct seminars for those personnel that were initiated in the previous fiscal year in order to strengthen cooperation with local governments and promote safety.

In the business field of National Examinations, since fiscal 2012, we reinforced the processes of exam preparations and verification. As a result, while the number of applicants was almost the same as in fiscal 2013 and increased by about 130 to 58,365, no problem in the examinations was found.

In the business field of ISO Certification, introductory ISO study sessions were held in six places in Japan and nine times in total, and KHK-ISO letters were issued on August 1, 2014 (No. 2); November 1, 2014 (No. 3); and January 15, 2015 (No. 4), and distributed to all registered companies for direct delivery of important information as a part of enhancement of communication with and follow-up of the registered companies.

We also implemented various commissioned projects for the high pressure gas safety, which are related to important technical issues concerning Japan's policy. Those projects included about how to secure earthquake proof performance of equipment against the damages suffered in the Great East Japan Earthquake and expected future great earthquakes, and about how to secure safety on hydrogen, which is expected to be the next-generation energy.

2. Overview of Financial Statements for Fiscal 2014

1) Balance Sheet (As of March 31, 2015)

Assets	2014	2013
	Million Yen	Million Yen
Current assets	2,016	1,914
Fixed assets	6,018	6,023
Tangible fixed assets	445	442
Intangible fixed assets	208	217
Investments	5,365	5,364
Total	8,034	7,937

Liabilities/Capital	2014	2013
	Million Yen	Million Yen
Current liabilities	1,024	916
Fixed liabilities	3,035	3,047
Reserve	3,974	4,008
Profit for the term	2	-35
Total	8,034	7,937

2) Statement of Profit and Loss

(April 1, 2014 - March 31, 2015)

Expenditure	2014	2013
	Million Yen	Million Yen
Ordinary expenditure	4,875	4,613
Operating expenditure	4,875	4,613
Extraordinary loss	-	-
Corporate taxes, etc.	-	-
Profit for the term	2	-35
Total	4,877	4,579

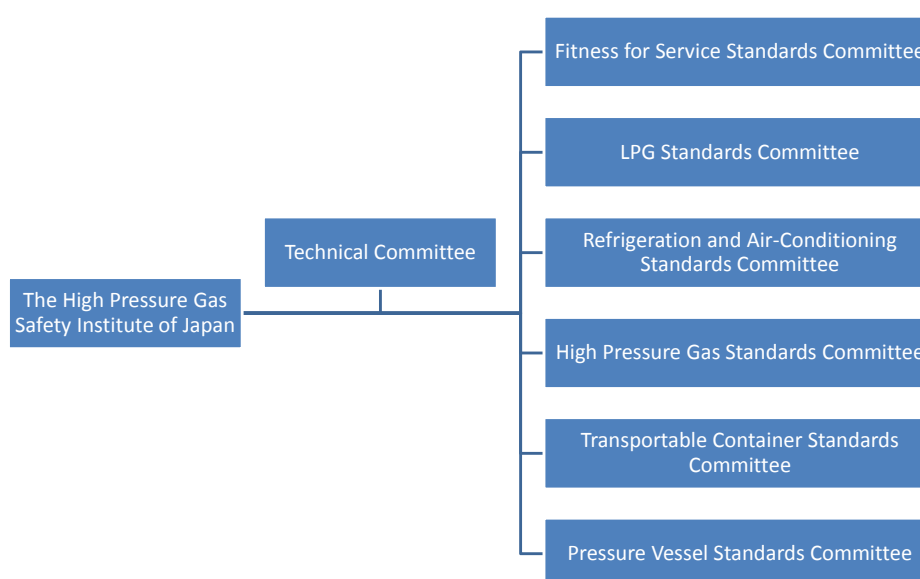
Income	2014	2013
	Million Yen	Million Yen
Ordinary income	4,875	4,578
Operating income	4,750	4,462
Non-operating income	125	116
Extraordinary income	2	2
Total	4,877	4,579

3. Overview of Each Activity

1) Development and Issue of Technical Standards

To promote safety in activities involving high pressure gas production, sale, consumption, and transportation, KHK establishes technical standards such as KHK Standards (KHKS) as well as reviews existing standards.

Committee organizations undertaking the preparation of technical standards are as follows:



Each committee consists of committee members appointed from among experts who have relevant knowledge and experience in high pressure gas or LPG safety.

In response to requests from the president of KHK, the technical committee decides basic policies for establishing the technical standards.

The technical standards are then established by each standards committee section in accordance with the basic policies, and the development and issue procedures maintain fairness and openness as the fundamental rule.

During fiscal 2014, the following standards were established or reviewed.

- ① Newly Established Technical Standards
 - Standard for Designated Equipment with Safety Factor 2.4 (KHKS 0224)
 - Technical Document on Application of the Standard for Ultra-high Pressure Gas Equipment to High Pressure Hydrogen Equipment (KHKTD 5201)
 - Technical Document on Composite Cylinders and Tubes for Compressed Hydrogen Stationary Storage (KHKTD 5202)
 - Technical Document related to Bedrock Storage Stations of Liquefied Petroleum Gas (KHK/JOGMEC TD 5800)
- ② Revised Technical Standards
 - Technical Standard for 70 MPa Compressed Hydrogen Storage Containers for Vehicle Fuel Systems (KHKS 0128)
 - High Pressure Gas Tank Trailer Re-inspection Standard (KHKS 0150)
 - Standard for Welding of Pressure Vessels for Refrigeration (KHKS 0301)
 - Facility Standard for Refrigeration and Air-conditioning Equipment [Ammonia Facility Part] (KHKS 0302-4)
 - Standard for Bulk Supply of Liquefied Petroleum Gas (KHKS 0501)
 - Standard for Installation and Handling Procedure of Liquefied Petroleum Gas Facilities (KHKS 0738)
 - Standard for Inspection of Bulk Storage

Tank (KHKS 0745)

- Standard for Inspection of Accessories (KHKS 0746)
- Standard for Inspection of Flexible Tubes (KHKS 0803)
- Standard for Work prior to Inspection of Bulk Storage Tank and Accessories (KHKS 0841)
- Standard for Specifying the Time of Next Inspection of Pressure Resistance and Strength based on Service Suitability Evaluation of High Pressure Facilities (KHK/PAJ/JPCAS 0851)
- Regular Voluntary Inspection Guideline (for LNG Receiving Stations) (KHK/CLK S 1850-7)

2) Inspection, Examination and Accreditation

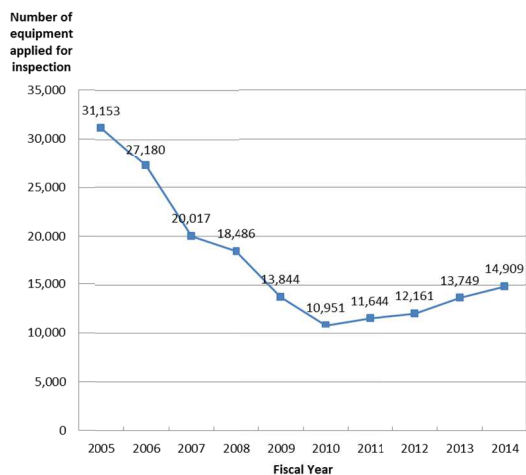
① Inspections for Pressure Equipment

The High Pressure Gas Safety Act stipulates that the person who has manufactured/imported a container or accessory shall apply for the Container/Accessory Inspection. We at KHK conduct these inspections.

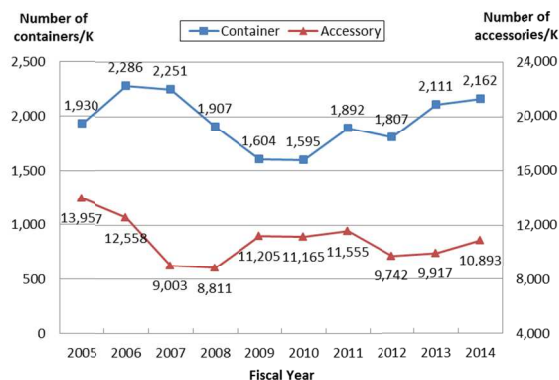
In addition, for preventing explosions or other accidents, the act defines "equipment for high pressure gas production (including storage tanks)" which particularly requires "inspections of its design, material quality, and the process of its manufacturing", as "Designated Equipment." KHK undertakes mandatory inspections of such Designated Equipment at each manufacturing process.

KHK undertakes technical assessments in advance to obtain Ministerial special approval, and also offers services for certification and examination as a part of its optional activities.

In fiscal 2014, the number of application for inspection of containers increased by 2.4% and that of accessory equipment increased by 9.8% compared to the previous fiscal year respectively. And the number of application for inspection of designated equipment increased by 8.4%, while the number of application for high pressure gas equipment test decreased by 4.8%, compared to the previous fiscal year respectively.



Number of Designated Equipment Inspections



Number of Container/Accessory inspections

② Pre-Assessment of Accredited

Completion/ Safety Inspection Executor

This pre-assessment undertaken by KHK is part of the statutory service related to the Ministerial approval of accredited completion inspection executor and safety inspection executor.

Class 1 high pressure gas producers who obtained Ministerial approval as a result of this pre-assessment can replace completion inspections or safety inspections that are conducted by prefectural or municipal governments with self-inspections by the approved producers themselves. When the self-inspections are conducted, the results shall be submitted to jurisdictional prefectural or municipal governments.

Number of pre-assessments

	2014	2013
Accredited completion inspection executor	18	9
Accredited safety inspection executor	20	9

③ Safety Inspections of Refrigeration and Air-Conditioning Facilities

The number of inspections of refrigeration and air-conditioning facilities undertaken by KHK

	2014	2013
Completion inspection of refrigeration and air-conditioning facilities	57	64
Safety inspection of refrigeration and air-conditioning facilities	1,877	1,925
Approval of specified equipment (refrigeration equipment)	150	185
Transfer of specified equipment (refrigeration equipment)	1	1
Testing of refrigeration apparatus	274	292
Design strength verification test, etc.	233	101

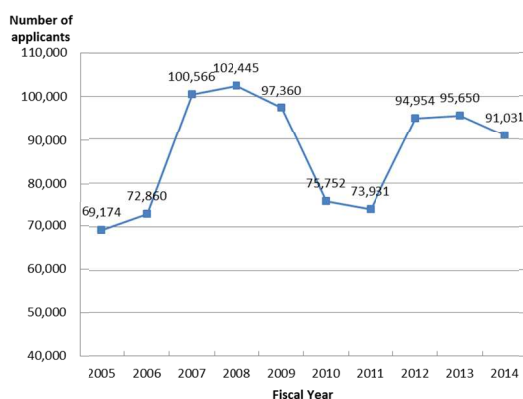
3) Education

① Statutory Training

By the High Pressure Gas Safety Act, high pressure gas producers are required to establish a safety management team consisting of members with a designated high pressure gas production safety management certificate, depending on the type and scale of processing equipment and the type and volume of gas produced. To train certified personnel, KHK offers lectures on each certificate type, and retraining for existing members of safety management teams.

In addition, KHK also provides training courses for the following certificates: high pressure gas sales safety chiefs required at specified high pressure gas dealers, transportation supervisors required for transportation of specified amount of specified high pressure gas, and specific high pressure gas operation safety chiefs required for storage and consumption of specified high pressure gas beyond the designated capacity.

As for the LPG Law-related activities, KHK offers the following courses: training and retraining of LPG installation engineers for LPG piping facilities used for general consumption, retraining of retail operation chiefs, training and retraining of LPG filling operators, as well as training of safety operators and inspectors of facilities designed to consume LPG.



Number of applicants for statutory training

Among the statutory training, while there was a decrease in the number of the

qualification training from 44,316 in fiscal 2013 to 43,554, the number of applicants for the re-training (compulsory training) decreased from 51,334 to 47,477 in fiscal 2014 and the total number of applicants of the statutory training also decreased from 95,650 to 91,031.

② Other Trainings

During fiscal 2014, KHK held periodical seminars including basic lectures on high pressure gas safety (15 types at 47 locations), and organized 12 on-site lectures on voluntary safety activities depending on the needs of each business facility.

③ Publications

KHK publishes books related to high pressure gas safety such as high pressure gas safety act, technical standards, and textbooks for training. During fiscal 2014, KHK published 138 types of books, accounting for a total of 147,675.

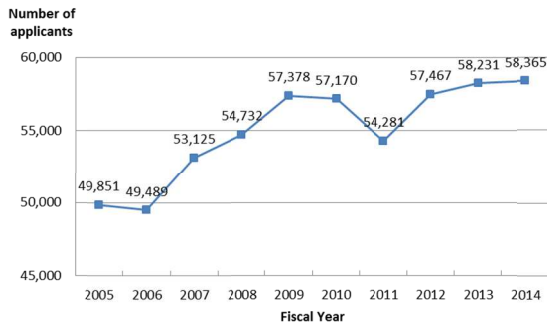
4) Qualifying Examination

The High Pressure Gas Safety Act and LPG Law stipulates that the Minister of Economy, Trade and Industry or prefectural governors must be responsible for conducting the high pressure gas production safety management examination, the high pressure gas sales safety chief examination, and the LPG installation engineer examination, depending on the classification of examinations.

However, the actual implementation of such examinations was transferred to KHK from the Minister of Economy, Trade and Industry and prefectural governors.

The total number of applicants for such examinations in fiscal 2014 was 58,365 and remained almost the same as the previous fiscal year of 58,231.

Furthermore, we maintained the system of verification procedures to check exam reinforced significantly in fiscal 2012.



Number of applicants for qualifying examinations

5) Research and Development

The Research and Development Center at KHK owns testing machines such as tensile/fatigue tests of materials, as well as hydraulic fatigue/explosion tests of pressure equipment including transportable containers, undertaking research and development to enhance high pressure gas safety. In addition, KHK are working on researches commissioned by the government and incorporated administrative agencies.

In fiscal 2013, KHK conducted four researches commissioned by the Ministry of Economy, Trade and Industry as well as by the New Energy and Industrial Technology Development Organization (NEDO). The following is the overview of the research commissioned by NEDO.

“Investigation and Research on Fuel Cell Vehicles and the Optimization of Domestic Regulations and International Harmonization and Standardization of Hydrogen Supply Infrastructure”

- ① Research and Development on the Diversification of the Types of Metal Materials for Hydrogen Fueling Stations

In preparation for the advent of the hydrogen society, it is intended to build up an environment, which will allow the selection of reasonable, easy and convenient materials at temperatures and pressures desired for the construction of a hydrogen station, and gain

experience by practice. It is also aimed to study and determine the criteria to evaluate availability of materials in hydrogen stations, including test types, conditions, evaluation methods and the like, and standardize these techniques and widen the range of usable materials.

- ② Research and Development on the Standardization of Composite Cylinders and Tubes for Stationary Storage

In the testing of composite cylinders and tubes which are used in hydrogen stations, there is a big gap between an ambient temperature pressure cycling test, one of the evaluation methods, and actual use conditions. A further sophistication of the evaluation methods, including the fatigue design of composite cylinders and tubes, is desired. Under the circumstances, it is aimed to improve and sophisticate (1) the evaluation techniques of Composite Cylinders and Tubes for Stationary Storage, (2) the evaluation techniques of CFRP, (3) the fatigue design methods of Composite Cylinders and Tubes for Stationary Storage and (4) the safety inspection techniques of composite cylinders and tubes, in order to contribute to the research and development for the standardization of composite cylinders and tubes for hydrogen stations.

6) Measures to Promote LPG Consumer Safety

- ① Liquefied Petroleum Gas Safety Commission

The commission operates with contributions from 17 LPG-related organizations and KHK. In partnership with the Gas Safety Office at METI Commerce, Distribution and Industrial Safety Policy Group, the commission performed the following safety campaigns during fiscal 2014.

- LPG Consumer Safety Campaign Prepared and distributed LPG safety guides

and posters, and advertised in magazines, while provided assistance to safety activities undertaken by prefectural LPG associations.

- LPG Consumer Safety Promotion Conference

At the event, the commission offered commendations for LPG retailers and related operators (including individuals) with the 'METI Minister's Secretariat, Director-General for Commerce, Distribution and Industrial Safety Policy Award,' 'KHK President's Award,' and 'Liquefied Petroleum Gas Safety Commission President's Award,' respectively.

② Examination

During fiscal 2014, the following examination activities were undertaken.

Examination activities

	2014	2013
LPG leak alarm examination	2,826,648	2,802,656
LPG incomplete combustion alarm examination	28,510	23,400
LPG sensor examination	2,130	2,470

7) Collection and Offering of Information, Technical Exchanges

① Collection of Accident Information

Acting on a commission by METI, KHK compiles a database of high pressure gas and LPG-related accidents and conduct a statistical analysis. See reference at the end of this brochure.

② Organization of Various Conferences and Conventions

The notable conferences and conventions KHK organized during fiscal 2014 includes the following:

- Grand Conference of National Association of General High Pressure Gas Safety Organizations (Tokyo, July 2014)

The conference was organized for the purpose

of fostering cooperation and discussions among general high pressure gas safety organizations established in prefectures. KHK acted as the administrative department for the conference.

- Seminar on Lessons from Accidents and Safety Management Technology (Tokyo and Osaka, July and August 2014)

< Part of Safety Management Technology >
This seminar is for the accredited completion and safety inspection executors and the personnel of three management divisions (equipment, operation, and safety), including those at headquarters management level, of high pressure gas producers at industrial complexes, and it is organized to provide a place of information provision, information exchange, and discussions related to high pressure gas producing equipment, their operations, and safety management activities.

< Part of Lessons from Accidents and Safety Measures >

The high pressure gas producers that actually caused accidents explained their experience and post-accident efforts on safety measures so that seminar participants could make use of the information that would be helpful for their future voluntary safety activities, including lessons from accidents and preventive measures.

- National Conference of High Pressure Gas Safety (Tokyo, October 2014)

The conference, which takes place every October, is organized as a part of the annual high pressure gas safety promotion week, hosted by METI in conjunction with KHK. Each year, top-rated plants of safety, persons who have rendered distinguished safety service and excellent production safety managers are awarded in honor of their continuing hard work, support, and resulting outcomes in preventing high pressure gas-related accidents.

- High Pressure Gas Equipment Manager Meeting (Tokyo, October 2014)

The meeting is organized annually for the purpose of informing high pressure gas equipment personnel (applicants for Designated Equipment Inspection) of question

and answers about material, design, welding, and structure-related issues in order to achieve consistent applications across varying issues.

- General Research Presentation (Tokyo, November 2014)

The presentation is hosted annually to disseminate information on the findings from the investigative research undertaken by the Research and Development Center at KHK.

③ International Technical Exchange

KHK sends a delegate to the boiler and pressure vessel standards committee and the post-construction standards committee of the American Society of Mechanical Engineers (ASME), and also has established good relations with Korea Gas Safety Corporation and Industrial Safety and Health Association of the R.O.C.

8) Assessment and Registration System

① Assessment and Registration of Quality Management Systems

Since being accredited by the Japan Accreditation Board (JAB) as a quality management system certification body in 1994, KHK ISO Registration Center (KHK-ISO Center) handles registration of quality management systems for operators in accordance with the ISO9000 series standards, and manages registration and publication of registered organizations. As of the end of fiscal 2014, it operates registration in 30 out of 39 class JAB accredited (class 1-39).

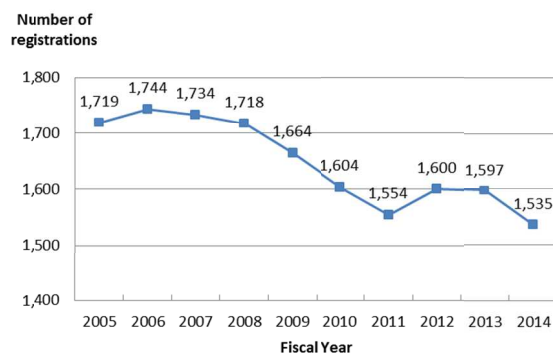
As of the end of fiscal 2014, the accumulated registered number (including 834 registration

withdrawals) stands at 1,779. The number of registrations stands at 945 in fiscal 2014.

② Assessment and Registration of Environmental Management Systems

For assessment and registration of environmental management systems (ISO14001), the center became a JAB-accredited certification body in 1996, and as of the end of fiscal 2014, it operates registration screenings in 34 out of 39 JAB-accredited classes (class 1-39).

As of the end of fiscal 2014, the accumulated registered number (including 367 registration withdrawals) stands at 957. The number of registrations stands at 590 in fiscal 2014.



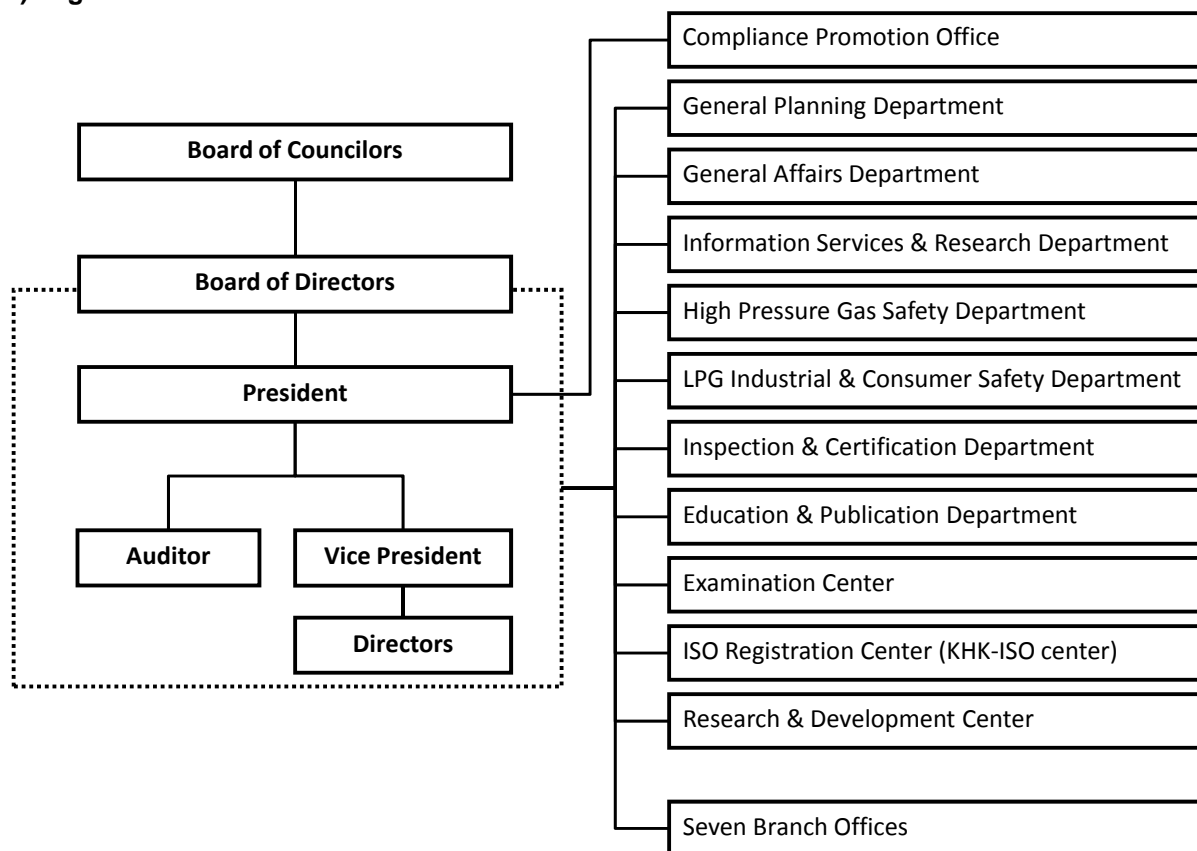
Change in the total number of registrations (Quality and Environment)

③ Other Assessment and Registration

As of the end of fiscal 2014, the total number of occupational health and safety management system (OHSMS) registrations was 41 (including 12 withdrawals). And the total number of food safety management system (ISO22000) registrations was six (including 2 registration withdrawals), the total number of FSSC22000 series was five.

4. Organization

1) Organization Chart



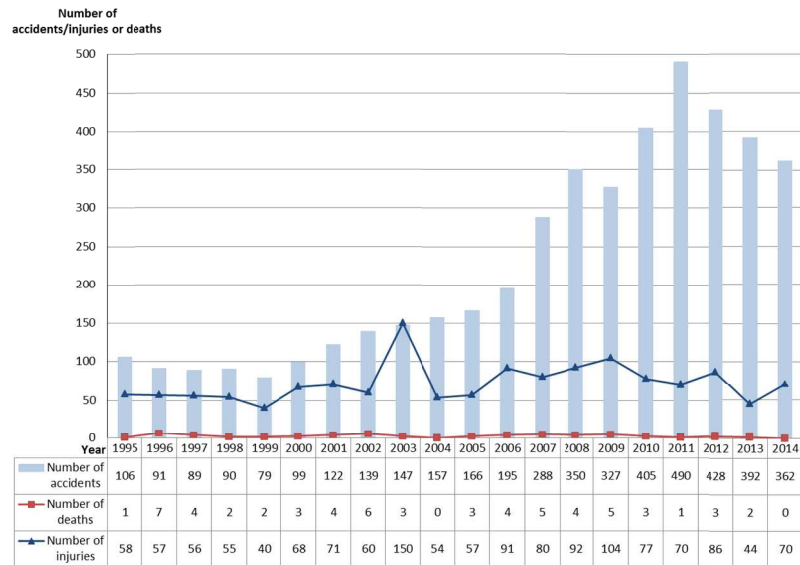
2) Membership Status

Types	March 31, 2015	March 31, 2014
Companies	900	912
Organizations	192	192
Individuals	91	93
Supporters	31	31

Reference: Overview of Accidents in Recent Years

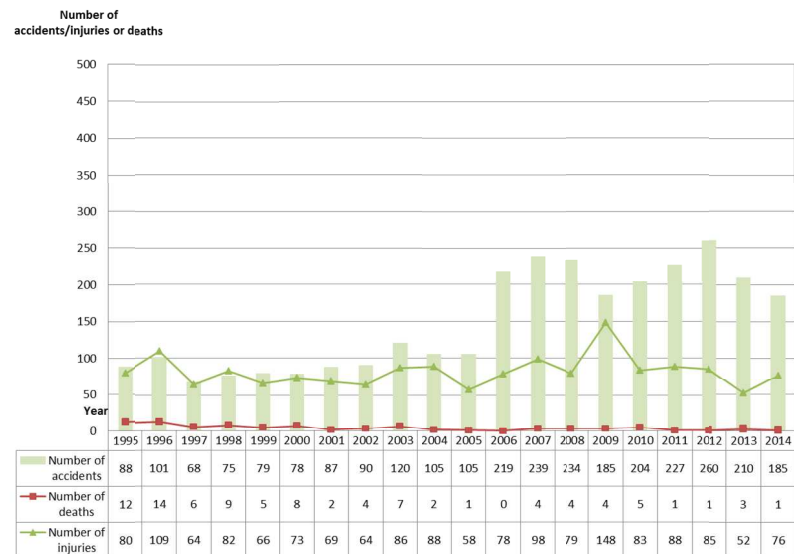
Under the commission of METI, KHK records statistics of high pressure gas- and LPG-related accidents, based on the number of reports submitted in accordance with the regulatory requirements of the High Pressure Gas Safety Act and the LPG Law.

The number of high pressure gas-related accidents has been increasing in recent years, and 2011 in particular saw a sharp rise in the number as a result of the Great East Japan Earthquake. Although decreased in comparison to 2013, the number of accidents in 2014 has still remained relatively high. Particularly, major accidents involving explosions at industrial complexes have occurred in recent years, and further strengthening and revisions of operations are demanded in our aim of eliminating high pressure gas-related accidents.



Number of high pressure gas-related accidents

Similarly, the number of LPG-related accidents has also remained high in recent years, at around 200 per year. Particularly, accidents involving commercial kitchen equipment are showing an increasing trend, and a rise in the number of accidents caused by deterioration due to corrosion or CO poisoning has also been recorded. In order to prevent such accidents from occurring, it is increasingly essential to provide effective information to LPG users, facility owners and possessors.



Number of LPG-related accidents

<Contact for inquiries related to this document>

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