

Annual Report for Fiscal 2013

(April 1, 2013 - March 31, 2014)

The High Pressure Gas Safety Institute of Japan (KHK)

1. Business Environment and Overview of Operations

The Japanese economy in fiscal 2013 saw improvement driven by strong domestic consumption spurred by various economic policies, and a recovery in capital investment and an improvement in employment environment were observed in some sectors owing to an increase in corporate profits. In such circumstances, however, the capital investment in the industries relating to KHK activities continued to remain at low levels as a whole, although there were moderate signs of a gradual recovery in some sectors.

The number of high pressure gas accidents has been trend in increase since 2000, and 350 accidents occurred in 2013.

In the business environment of Japan as stated above, KHK participated as experts on accident investigations in the investigation committee, which was organized outside KHK to investigate a serious accident occurred in industrial complexes and which was subject to Fire Service Act to conduct investigation and analysis 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 2013, we also conducted seminars on seismic design and statistics/analysis of accidents. 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 staff in charge of high-pressure gas safety

administration in prefectural and municipal governments are increasing, we conducted seminars for those personnel 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, despite an increase by 750 in the number of applicants in fiscal 2013 compared to fiscal 2012, no problem in the examinations was happened.

In the business field of ISO certification and registration, we successfully affiliated companies previously registered by an organization which had withdrawn from ISO certification and registration business. In addition, with respect to Food Safety Management System, we started the certification and registration business based on FSSC22000 and newly registered 3 companies as a result.

We implemented various commissioned projects for the high-pressure gas safety, which are related to important technical issues concerning to 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 a next-generation energy.

2. Overview of Financial Statements for Fiscal 2013

1) Balance Sheet (As of March 31, 2014)

Assets	2013	2012
	Million Yen	Million Yen
Current assets	1,914	2,105
Fixed assets	6,023	5,800
Tangible fixed assets	442	446
Intangible fixed assets	217	243
Investments	5,364	5,110
Total	7,937	7,906

Liabilities/Capital	2013	2012
	Million Yen	Million Yen
Current liabilities	916	822
Fixed liabilities	3,047	3,076
Reserve	4,008	4,039
Profit for the term	-35	-30
Total	7,937	7,906

2) Statement of Profit and Loss (April 1, 2013 - March 31, 2014)

Expenditure	2013	2012
	Million Yen	Million Yen
Ordinary expenditure	4,613	4,617
Operating expenditure	4,613	4,617
Extraordinary loss	-	-
Corporate taxes, etc.	-	-
Profit for the term	-35	-30
Total	4,579	4,587

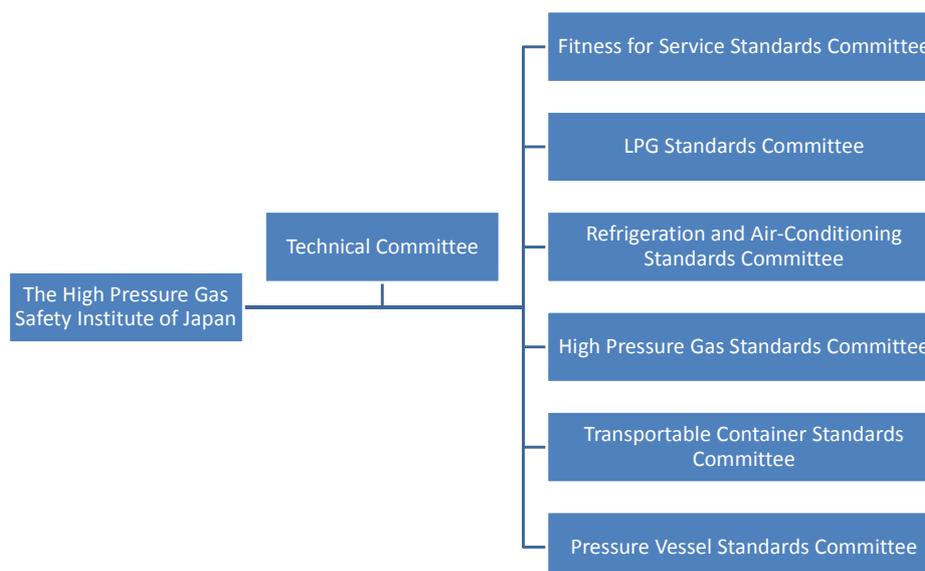
Income	2013	2012
	Million Yen	Million Yen
Ordinary income	4,578	4,557
Operating income	4,462	4,428
Non-operating income	116	128
Extraordinary income	2	30
Total	4,579	4,587

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 2013, the following standards were established or reviewed.

- ① Newly Established Technical Standards
 - Standard for Inspection of Bulk Storage Tank (KHKS 0745)
 - Standard for Inspection of Accessories(KHKS 0746)
 - Standard for Work prior to Inspection of Bulk storage Tank and Accessories(KHKS 0841)
- ② Revised Technical Standards
 - Standard for Design and Manufacturing of High-Pressure Gas Container Valve (KHKS 0124)
 - Standard for Safety Valve of Acetylene Container (KHKS 0125)
 - Standard for Design and Manufacturing of Liquefied Petroleum Gas Container Valve (KHKS 0126)
 - Standard for Earthquake-Proof Automatic Gas Shut-Off Device for Liquefied Petroleum Gas (KHKS 0714)
 - Standard for Metal Flexible Hose (including Fittings) (KHKS 0715)
 - Standard for Hose Bands (KHKS 0716)
 - Standard for Low Pressure Rubber Hose for indoor use with Quick Joint at Both Ends for Liquefied Petroleum Gas (KHKS 0717)
 - Standard for Installation of Gas Leakage Alarm for Liquefied Petroleum Gas (KHKS 0718)

- Standard for Gas Discharge Arrestor for Liquefied Petroleum Gas (KHKS 0719)
- Standard for Installation of Earthquake-Proof Automatic Gas Shut-Off Device for Liquefied Petroleum Gas (KHKS 0720)
- Standard for Safety Adapter for Liquefied Petroleum Gas (KHKS 0722)
- Standard for Gas Leakage Alarm and Shut-Off Device for Liquefied Petroleum Gas (KHKS 0723)
- Standard for Automatic Gas Shut-Off Device (II-Type) Based on Microcomputer-based Flow Rate Detection for Liquefied Petroleum Gas (KHKS 0726)
- Standard for Flexible Pipe (including Flexible Pipe Joint) for Liquefied Petroleum Gas Piping (KHKS 0727)
- Standard for Automatic Gas Shut-Off Device (L-Type) based on Microcomputer-based Flow Rate Detection for Liquefied Petroleum Gas (KHKS 0728)
- Standard for Root Valve with Reverse Flow Check Mechanism for Liquefied Petroleum Gas (KHKS 0731)
- Standard for Check Valve Adapter for Liquefied Petroleum Gas (KHKS 0732)
- Standard for Flow Rate-Based Switchable Leakage Detection Device for Liquefied Petroleum Gas (KHKS 0734)
- Standard for Work for Filling Liquefied Petroleum Gas into Bulk Storage Tank (KHKS 0744)

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.

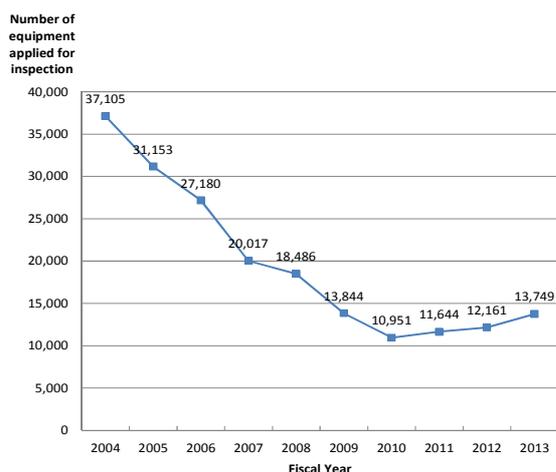
In addition, for preventing explosions or other accidents, the act defines "equipment for high pressure gas production (including storage tanks)" which particularly requires

“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.

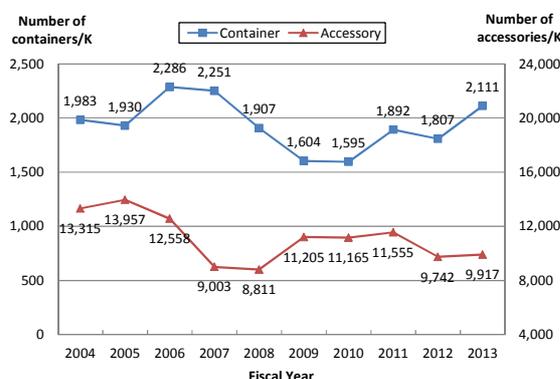
KHK undertakes technical assessments in advance to obtain Ministerial special approval, and also offers services for certification and examination as a part of its optional activities.

In fiscal 2013, the number of application for inspection of containers increased by 16.9% and that of accessory equipment increased by 1.8% compared to the previous fiscal year respectively.

In addition, the number of application for inspection of designated equipment increased by 13.1%, while the number of application for high pressure gas equipment test decreased by 3.7%, 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

	2013	2012
Accredited completion inspection executor	9	20
Accredited safety inspection executor	9	22

③ Safety Inspections of Refrigeration and Air-Conditioning Facilities

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

	2013	2012
Completion inspection of refrigeration and air-conditioning facilities	64	66
Safety inspection of refrigeration and air-conditioning facilities	1,925	2,202
Approval of specified equipment (refrigeration equipment)	185	201
Transfer of specified equipment (refrigeration equipment)	1	2
Testing of refrigeration apparatus	292	281
Design strength verification test, etc.	101	177

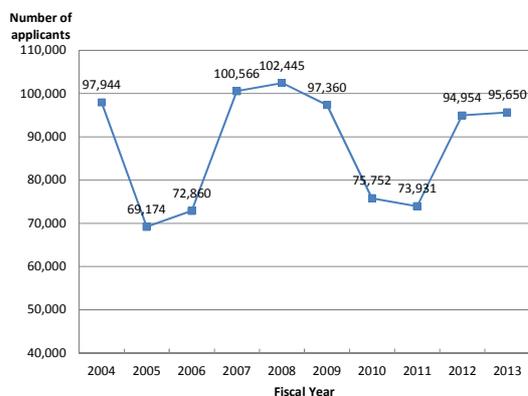
3) Education

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 44,828 in fiscal 2012 to 44,316, the number of applicants for the re-training (compulsory training) increased from 50,126 to 51,334 in fiscal 2013 and the total number of applicants of the statutory training also increased from 94,954 to 95,650. The number of statutory training applicants are cyclically increased and decreased as shown in the figure above, and that of the fiscal 2013 corresponded to the greatest year.

② Other Trainings

During fiscal 2013, KHK held periodical seminars including basic lectures on high pressure gas safety (8 types at 28 locations), and organized 15 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 2013, KHK published 125 types of books, accounting for a total of 198,999.

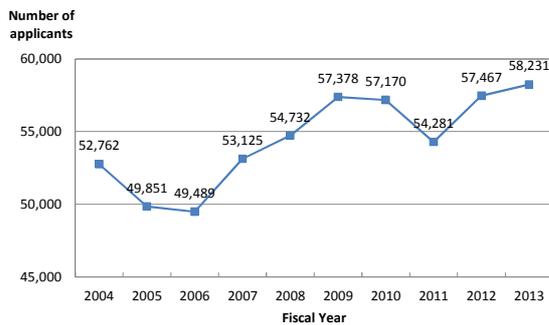
4) Qualifying Examination

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 was 58,231, an increase of 1.3% compared to 57,467 from the previous fiscal year.

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 2013.

- **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 2013, the following examination activities were undertaken.

Examination activities

	2013	2012
LPG leak alarm examination	2,802,656	2,669,956
LPG incomplete combustion alarm examination	23,400	21,730
LPG sensor examination	2,470	2,630

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 2013 includes the following:

- **Grand Conference of National Association of General High Pressure**

Gas Safety Organizations (Tokyo, July 2013)

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 Safety Management Technology for Industrial Complexes (Tokyo and Osaka, August 2013)**

The seminar is organized annually and intended to provide a point of information provision, information exchange and discussions related to high pressure gas producing equipment, their operations, and safety management activities, and is aimed at the personnel of three management divisions (equipment, operation, and safety), including those at headquarters management level, of high pressure gas producers at industrial complexes.

- **KHK Seminar on Voluntary Safety Activity (Tokyo and Osaka, August 2013)**

High-pressure gas producers, which actually caused accidents, explained their experience and post-accident efforts on safety measures so that seminar participants could take advantage for their voluntary safety activities.

- **National Conference of High Pressure Gas Safety (Tokyo, October 2013)**

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, November 2013)**

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 2013)

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

- 50th Anniversary celebration of the establishment of KHK (Tokyo, February 2014)

KHK marked the 50th anniversary since its establishment. A ceremony to celebrate the 50th anniversary was held and the book on "History of the High Pressure Gas Safety Regulations" was issued and distributed on the occasion.

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 2013, it operates registration in 30 out of 39 class JAB accredited (class 1-39).

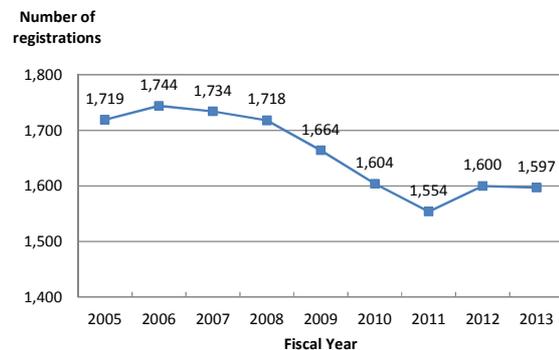
As of the end of fiscal 2013, the accumulated

registered number (including 777 registration withdrawals) stands at 1,757. The number of registrations stands at 980 in fiscal 2013. Incidentally, there were a total of 43 transfers of registrations from another organization that withdrew from ISO registration operation.

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 2013, it operates registration screenings in 34 out of 39 JAB-accredited classes (class 1-39).

As of the end of fiscal 2013, the accumulated registered number (including 341 registration withdrawals) stands at 958. The number of registrations stands at 617 in fiscal 2013. Incidentally, there were a total of 51 transfers of registrations from the organization that withdrew from ISO registration operation.



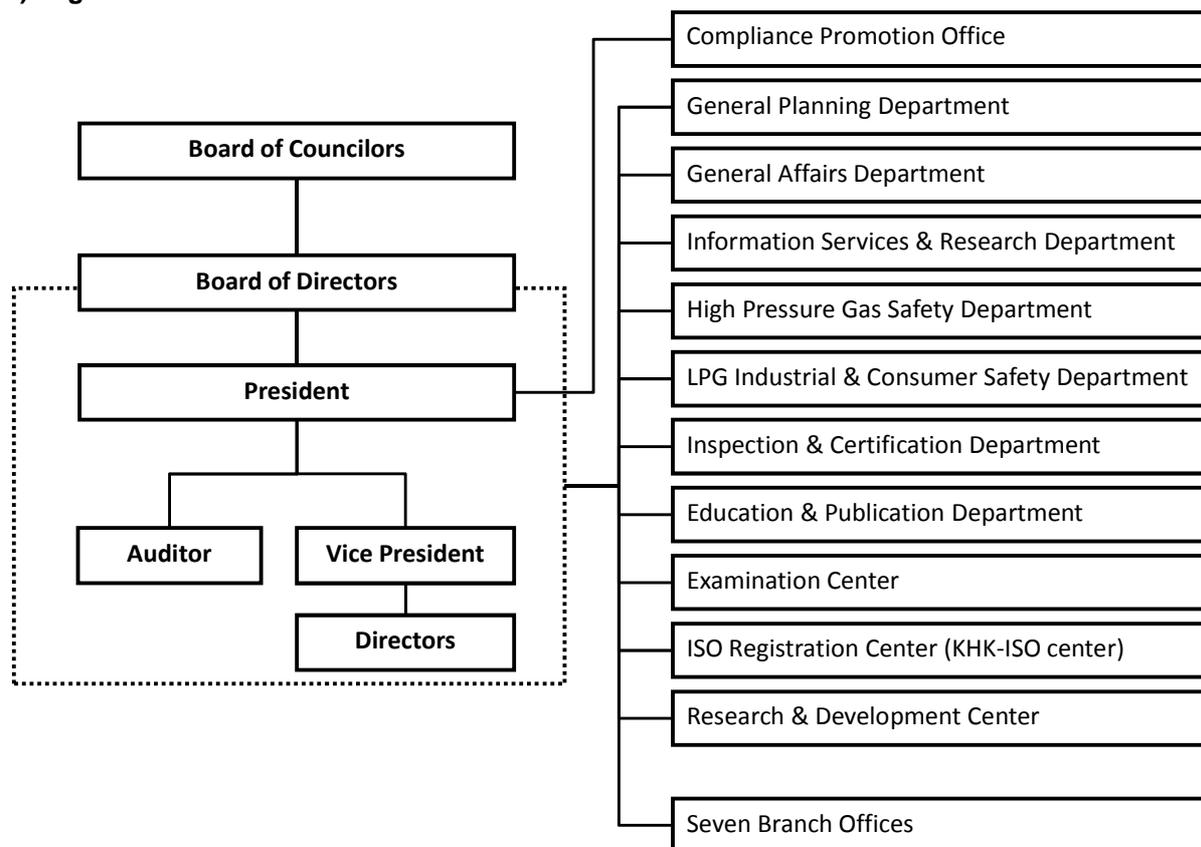
Change in the total number of registrations (Quality and Environment)

③ Other Assessment and Registration

As of the end of fiscal 2013, the total number of occupational health and safety management system (OHSMS) registrations was 40 (including 10 withdrawals). In addition, the total number of food safety management system (ISO22000) registrations was four, and the total number of FSSC22000 series was three.

4. Organization

1) Organization Chart



2) Board of Directors (As of March 31, 2014)

President:	Eiji Sakuta
Vice President:	Mitsuo Ohashi
Auditor:	Junichi Izumi
Managing Director:	Yoshinori Suzuki
Managing Director:	Shinichi Yasuda
Managing Director:	Kazuo Kurihara
Managing Director:	Toru Kato
Director:	Yuji Endo
Director:	Yasuyuki Watanabe
Director:	Masahiro Toyoda
Director:	Sakugoro Matsuda
Director:	Masafumi Katsuta

3) Membership Status

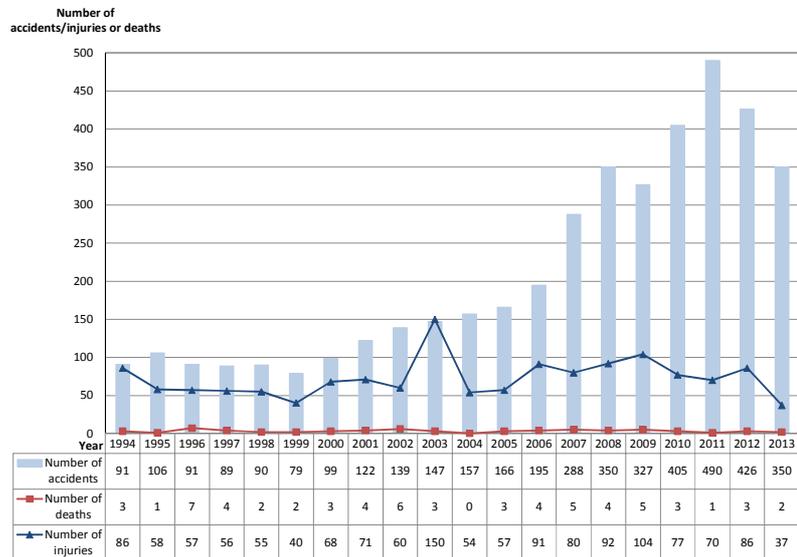
Types	March 31, 2014	March 31, 2013
Companies	912	925
Organizations	192	192
Individuals	93	104
Supporters	31	33

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 2012, the number of accidents in 2013 has still remained relatively high. Particularly, major accidents involving explosions at industrial complexes have occurred in recent years, and further

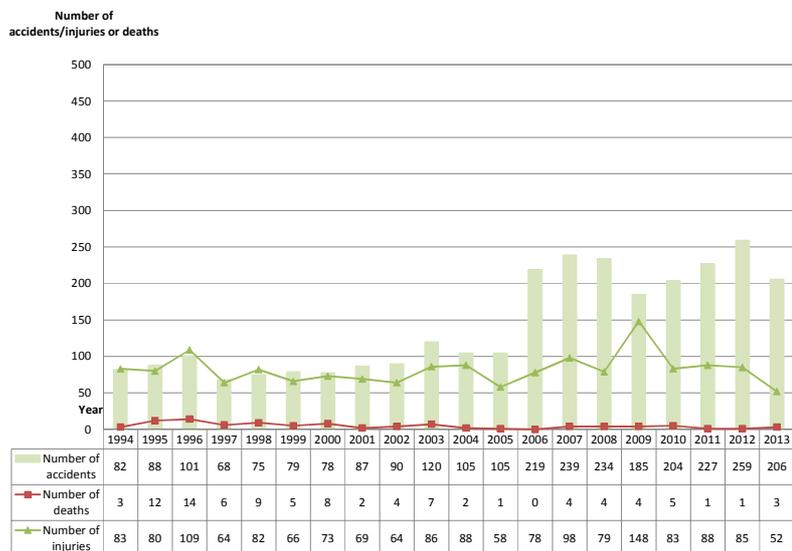
strengthening and revisions of operations are demanded in our aim of eliminating high pressure gas-related accidents.



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>

The High Pressure Gas Safety Institute of Japan (KHK)



Information Services & Research Department

International Affairs Office

4-3-13 Toranomom, Minato-ku, Tokyo 105-8447

TEL: +81-3-3436-2201 FAX: +81-3-3438-4163

Web: <http://www.khk.or.jp/english/index.html>

MAIL: oversea@khk.or.jp