

# 40 Years of Commitment to Improving Safety



1970-2010



issa

INTERNATIONAL SOCIAL SECURITY ASSOCIATION

*International Section for Chemistry*

# Contents

Greetings of the ISSA President.....	3
Greetings of the ISSA Secretary General .....	4
Motivation and Challenge .....	5
History of the ISSA Chemistry Section .....	6
International Project to Ban Asbestos.....	9
“Biotechnology and Genetic Engineering” Working Group .....	10
Focus on Nanotechnology .....	12
“Dangerous Substances” Working Group .....	13
40 Years of the ISSA Chemistry Section – 30 Years of PAAG Seminars ...	16
“Explosion Protection” Working Group.....	17
“The Section cultivates a global culture of prevention” .....	19
Organisation and Membership .....	20
Bureau of the ISSA Chemistry Section.....	21
International Symposia .....	22
Imprint .....	23



Corazon de la Paz-Bernardo  
President of the International  
Social Security Association

## Greetings of the ISSA President

On 17 June 1970, International Social Security Association (ISSA) Secretary Dr. Leo Wildmann attended the founding meeting of the International Section of the ISSA on Prevention in the Chemical Industry. The Chemistry Section was the fifth Section of the ISSA, dealing with prevention of occupational accidents and diseases. Six more Sections emerged after the founding of the Chemistry Section, all gathered under the umbrella of the ISSA Special Commission on Prevention.

ISSA had already been involved in the field of prevention since 1954. This work originated from an initiative of the ISSA members dealing with accident insurances, compensation and also rehabilitation. Following this request, ISSA started organising symposia and colloquia for its members to learn more about the benefits of prevention in specific sectors of economic activities and also collaborated in the first World Congress on Safety and Health at Work in Rome in April 1955.

Over the last 40 years, the ISSA's Special Commission on Prevention has been providing hands-on information for ISSA members, for instance valuable expert advice, along with good practices. The Interna-

tional Section of the ISSA on Prevention in the Chemical Industry has a key role to play with regards to hazardous substances, asbestos or biotechnology. As science progresses, responses to new exposures to hazards must be found to reduce accidents and exposure to health hazards and thus protect the workers and their families. This proactive approach in prevention is a genuine part of social security. By providing its experience and knowledge to ISSA member institutions, the ISSA Chemistry Section has – since its foundation – therefore contributed to ISSA's overall mandate to promote and develop social security worldwide.

I would like to congratulate the Section led by Dr. Erwin Radek, for 40 years of work in the area of occupational safety and health and thank its members for their long-term commitment to serving the goal of prevention.

*Corazon de la Paz-Bernardo*

## Greetings of the ISSA Secretary General

It is a great honour and pleasure for me to congratulate the International Section of the ISSA on Prevention in the Chemical Industry on its 40th Anniversary. I wish to congratulate the Section in particular for its long-standing and committed focus on the safety and health of hazardous substances and its continuous and demonstrated willingness to improve prevention standards and practice in the chemical industries. This is how foundations for a safer and healthier working life can be built.

The International Section of the ISSA on Prevention in the Chemical Industry has provided substantive input into prevention: It has contributed to the discussions on the Globally Harmonized System of Classification and Labelling of Chemicals (GHS). The Section has also published guidelines for the handling of biological and chemical agents and organized numerous symposia for ISSA members. Furthermore, in 2004, the Special Commission on Prevention clearly positioned itself for a worldwide ban on asbestos with the support of the Chemistry Section.

The Prevention of occupational accidents and diseases is part of ISSA's vision of a broader concept of prevention that includes all branches of social security and the risks associated with it. In the next Triennium,

ISSA will deepen these links and explore further how social security policies can foster preventative approaches across all risks of social security. One avenue is certainly the provision of good practice information, research, expert advice and platforms for members and other stakeholders to exchange their views, as already practised over decades in the Special Commission and its Sections.

The work of the Chemistry Section is an integral part of the prevention activities of the ISSA and has been appreciated by the international community and ISSA members alike. It has also added great value to ISSA's work by advocating the benefits of prevention on a global scale.

I therefore wish to express my heartfelt appreciation for the committed work carried out by the Section during the last 40 years in the service of prevention.



Hans-Horst Konkolewsky  
Secretary General of the International  
Social Security Association

# Motivation and Challenge

On 17 June 2010, the ISSA Chemistry Section is celebrating a special anniversary. For 40 years, it has been committed to the global prevention of occupational accidents and diseases in the chemical and related industries.

A large number of international congresses, workshops and symposia have been held to facilitate the exchange of knowledge and information between experts. Our brochures and publications provide companies and specialists in the chemical industry with guidance and assistance on safety at work.

These successes have only been possible with the support of our members, in particular Suva, the INRS, the BG RCI and AUVA. Our thanks go to all our colleagues who have been committed to our cause over the decades.

We consider it vital to intensify the collaboration between the 11 Sections. Particularly important in this respect is the success of the Special Commission on Prevention and close cooperation with the ISSA in Geneva.

Our 40-year success story provides us with the motivation to intensify our international activities and make continuous progress with occupational safety in the chemical industry. The objective has not changed since the Chemistry Section was founded, but there will need to be greater focus on developing countries and emerging markets. We have updated some aspects of our work as a result of industrial developments and operational requirements, and will continue to do so. At present, for example, the focus is on nanotechnology – the subject of our next international symposium in Lucerne. We turn new scientific findings into practical tools to provide an effective response to the relevant hazards.

Major challenges lie ahead. These are challenges that we are more than happy to tackle, and we will be judged on our success in doing so.

The Bureau of the ISSA Chemistry Section hopes you enjoy reading our anniversary brochure and invites you to lend your active support to our work.



Dr. Erwin Radek



Dr. Ulrich Fricker



Stéphane Pimbert



Thomas Köhler



Dr. Erwin Radek  
President



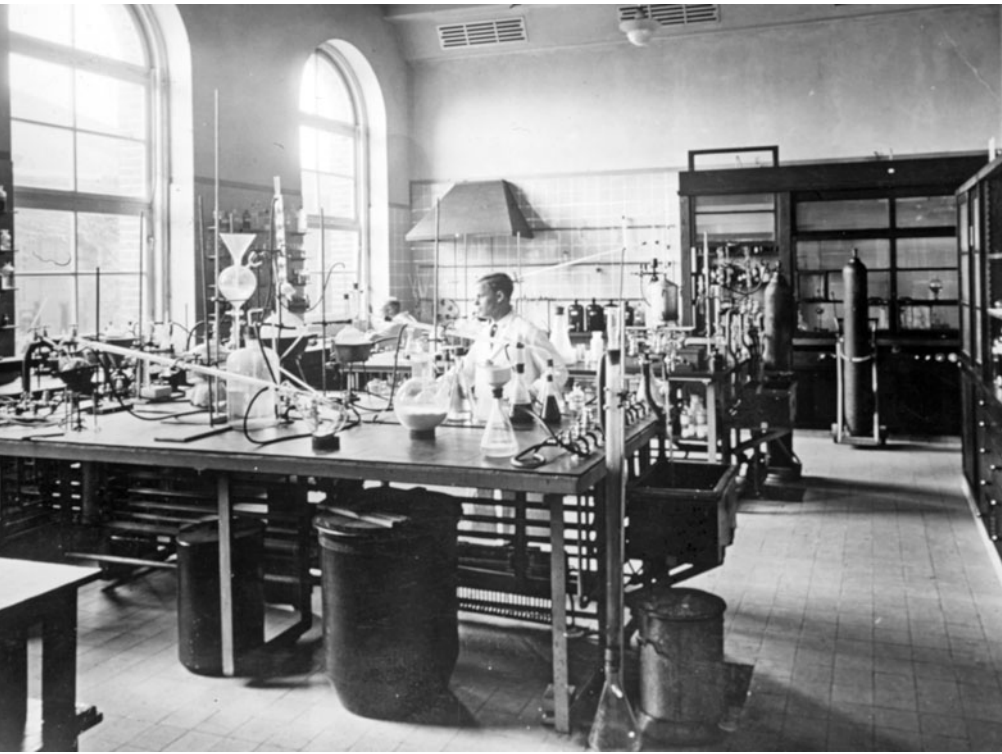
Dr. Ulrich Fricker  
Vice President



Stéphane Pimbert  
Vice President



Thomas Köhler  
Secretary General



## History of the ISSA Chemistry Section

**The roots of our commitment to the prevention of occupational accidents and diseases date back to the industrialisation of the 19th century.**

At the end of the 19th century and in particular following the First World War, social insurance schemes developed rapidly in a large number of countries and social protection was included on the agendas of the newly established international organisations. In May 1927, for the first time, representatives of mutual benefit societies and sickness funds were included among the national delegations at the 10th International Labour Conference in Geneva. Items on the agenda included the introduction of international regulations for the economic and health protection of workers by means of social insurance schemes. A group of delegates decided to form an international association with the

aim of developing and strengthening sickness insurance throughout the world.

The International Conference of National Unions of Mutual Benefit Societies and Sickness Insurance Funds was launched in Brussels in October 1927. Delegates from 17 organisations came together, representing some 20 million insured persons in Austria, Belgium, Czechoslovakia, France, Germany, Luxembourg, Poland, Switzerland and the United Kingdom. A Secretariat was established in Geneva.

In 1947, the organisation's 8th General Assembly ratified a new Constitution and a new name was adopted

– the International Social Security Association (ISSA). The ISSA has now expanded into a truly global Association, bringing together over 330 organisations in 145 countries.

The key players in the prevention of accidents and work-related health risks are the 11 International Sections of the ISSA. Their activities cover the following sectors: agriculture, the construction industry, electricity, the chemical industry, mining, machine and system safety, the iron and metal industry, health services, information, research and education/training.

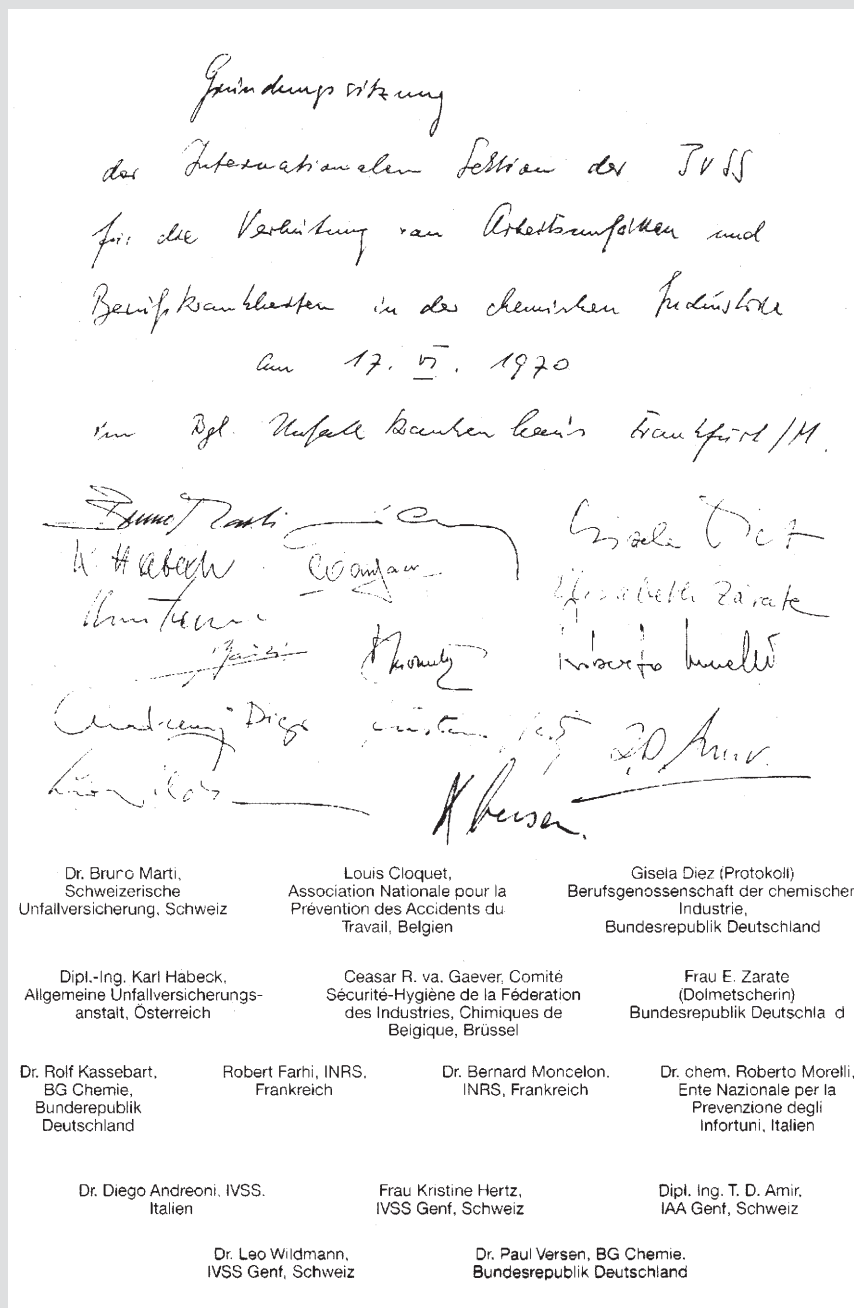
The Chemistry Section was established on 17 June 1970 at the Accident Insurance Institution's Emergency Hospital in Frankfurt am Main. This was largely achieved thanks to the enormous commitment of three people – Dr. Leo Wildmann, Secretary General of the ISSA in Geneva, Dr. Paul Versen, Executive Director of the Accident Insurance Institution for the Chemical Industry (BG Chemie), and Dr. Bruno Marti from the Swiss National Accident Insurance Fund (Suva).

The very next day – 18 June 1970 – the first International Symposium began. It focused on the topics of planning and construction at chemical companies, with particular emphasis on occupational safety, and accidents resulting from unexpected chemical reactions.

Dr. Paul Versen was elected the first President of the ISSA Chemistry Section, Dr. Bruno Marti the Vice President and Dr. Rolf Kassebart, Head Technical Inspector of BG Chemie, the Section's first Secretary General.



The inaugural meeting of the Section on 17 June 1970 under the direction of Dr. Leo Wildmann (2nd from left), Secretary General of the IVSS in Geneva.



An extract from the documentation from the founding meeting.

From the outset, the Bureau's work was dominated by complex technical discussions. One particular objective was to establish a work programme for the Chemistry Section. In subsequent years, the specialist work was transferred to specific working groups, with participants drawn mainly from institutions that were members of the Section and from the chemical industry.

In 1978, the "Explosion Protection" and "Protective Measures for Substances with Delayed Health Effects" (now: "Dangerous Substances") working groups were established. The "Requirements Relating to Safety Officers and their Deployment" working group successfully completed its work in 1983.

The initial regular bulletins with general information were replaced by specialist brochures, which are still being published today. The first two brochures were "Safe and Healthy" (1972) and "Safety Audits" (1974).

The Chemistry Section currently has two active working groups – "Explosion Protection" and "Dangerous Substances". In addition to providing an informal platform for sharing experiences, they prepare brochures and organise workshops/symposia that attract considerable international interest.

The Section's objective is to promote prevention in the chemical industry worldwide. It is active around the world in fields that help prevent occupational accidents and diseases in its area of responsibility, in particular in the plastics, rubber, biotechnology, pharmaceutical, paint/coatings, explosives and mineral oil industries.

The Section helps employers and employees in these industries accept their responsibility for the health and safety of staff and take the necessary preventive measures. Safeguarding human health is a basic humanitarian principle and, as such, one of the fundamental goals of social security. The aim of prevention, a strategy employed within the framework of social policy, is to protect the health of individuals and ensure their safety in all areas of their lives.

The Chemistry Section's activities are based on its Standing Orders and guided by the decisions of the Members' Meeting and the Bureau. The Section's members represent the "Legislature". All key issues are discussed at the triennial Members' Meetings. The President and the two

Vice Presidents of the Section are elected at least every six years at this Meeting.

The Bureau of the Section comprises a President, two Vice Presidents, the Secretary General of the ISSA in Geneva (ex officio) and the Secretary General of the Chemistry Section. Bureau meetings normally take place twice a year. The General Secretariat is responsible for all organisational issues regarding the Section.

The Section's working languages are German, French and English. The international symposia are also trilingual – often in addition to the language of the country where they are held. Brochures are published in three or more languages, too.

## Involvement in the Special Commission

The Section's involvement in the ISSA Special Commission on Prevention is particularly important. This Commission includes the Presidents and Secretary Generals of all 11 Sections, enabling progress to be made on cross-sectional prevention-related topics (such as demography). As part of the ISSA agenda, the Special Commission initiates, coordinates and carries out international activities in the field of prevention, in particular to prevent occupational accidents and diseases. In addition, the Special Commission adopts a stance on key prevention-related issues.

The President of the Chemistry Section, Dr. Erwin Radek, was on the Organising Committee for the World Congresses on Safety and Health at Work in 1999 in Sao Paulo, 2002 in Vienna, 2005 in Orlando and 2008 in Seoul. The Secretary General at the time, Dr. Klaus Bartels, was on the Programme Committee for the same Congresses. From 2000 until 2008, Dr. Radek was also Vice President of the Special Commission. ■

## The 1970 work programme

1. **Technical accident prevention** in the chemical industry through safety requirements relating to
  - 1.1. plant and equipment
  - 1.2. appliances and means of transport
  - 1.3. use of hazardous agents
2. **Psychological accident prevention** in the chemical industry through
  - 2.1. information and training for employees
  - 2.2. advertising on the prevention of occupational accidents and diseases
3. **Research into the causes of accidents** in the chemical industry
  - 3.1. establishing the causes of accidents
  - 3.2. increasing the amount of documentation on accidents
4. **Preventing damage to health through**
  - 4.1. preventive measures to identify health risks
  - 4.2. information on hazardous agents
  - 4.3. medical check-ups prior to and during employment





## International Project to Ban Asbestos

One of the first cross-sectional projects of the ISSA Special Commission on Prevention, an initiative for a worldwide ban on asbestos, started in 2002. Dr. Klaus Bartels, who had already spent many years working hard to get asbestos banned in Germany and Europe, was in charge of the relevant working group.

At that time, the issue of asbestos worldwide was far from easy. Although the carcinogenic effect of fine asbestos dust has been recognised for decades and asbestos is now responsible for hundreds of thousands of deaths worldwide, 2.5 million tons of asbestos continue to be mined and processed each year.

In September 2004, at the General Assembly of the ISSA in Beijing, the Special Commission adopted a declaration prepared by the project group and calling on all countries to

ban the production, trading and use of all types of asbestos.

China still produces significant amounts of asbestos. No Chinese delegate was present when the “Declaration on Asbestos” was made.

The change of heart at a Chinese-German symposium for accident prevention in Nanchang in 2006 with delegates from virtually all Chinese provinces and the Deputy Minister of Social Affairs from Beijing was therefore all the more encouraging. In their lectures, Dr. Erwin Radek and Dr. Klaus Bartels underlined the health risks of asbestos. During the subsequent discussions, it became clear that the Chinese participants were no longer denying that a problem existed.

The same cannot be said of the Russian delegates at the General

The brochure entitled “Asbestos: towards a worldwide ban” is available in Chinese, Russian, Arabic, German, English, French, Spanish and Portuguese from:

ISSA Publications

Case Postale 1

1211 Geneva 22

Switzerland

Fax: +41 (0)22 799 85 09

E-mail: [issa@ilo.org](mailto:issa@ilo.org)

The brochures are also available in pdf format to download at: [www.issa.int](http://www.issa.int) (search for: “asbestos ban”).

Assembly of the ISSA in Moscow in 2007. They accused speakers who were critical of asbestos of lying and adopted the same stance at the XVIII World Congress on Safety and Health at Work in Seoul in 2008. Dr. Klaus Bartels was in charge of the ISSA symposium on asbestos, with high-profile international

asbestos experts who unanimously called for a global ban on asbestos for ethical and economic reasons. Only the Russian speaker and the delegate from the “Chrysotile Trade Union Alliance” rejected this call. They made vicious verbal attacks on the moderator and the speakers, culminating in the distribution of a brochure entitled “Chrysotile Asbestos Saves Lives”. These delegates gained no support whatsoever at the Congress. South Korea made an important gesture following the World Congress by deciding to ban asbestos.

### Stepping up the pressure

Forty countries around the world have now banned asbestos, but Brazil, Canada, China, Kazakhstan, Russia and Zimbabwe are still major producers.

The asbestos campaign initiated by the Special Commission has had the additional effect of provoking renewed debate on closing Canada’s two remaining asbestos mines.

This initiative of the ISSA Special Commission is stepping up the pressure on all asbestos-producing countries to ban the mining and processing of this substance as soon as possible – not only on humanitarian grounds, but also for economic reasons, because the treatment and compensation costs for asbestos victims are considerable. ■



Biotechnology: agrobacteria are used to transfer selected genes from other plants to unripe rice seeds.

## “Biotechnology and Genetic Engineering” Working Group

**At the beginning of the 1990s, the ISSA Chemistry Section set up an international working group on biotechnology and genetic engineering. It included recognised science and industry specialists and experts from the French, Dutch, Austrian, Swiss, British and German occupational safety agencies. The working group was initially chaired by Dr. Siegfried Adelman and then by Dr. Hans-Josef Riegel – both from BG Chemie.**

Prior to this, the EC “Contained Use” directive on the use of genetically modified organisms in closed systems and the EC directive on protecting employees against biological agents had been adopted and the member states had started implementing them in national law. This made occupational safety an integral part of biological safety. The working group’s task was thus to provide employers, users and interested parties with clear and comprehensible information on

how to overcome the relevant risks through technical, organisational, biological and personal protective measures.

Under the title “Control of Risks in Work with Biological Agents – Biotechnology, Genetic Engineering”, the working group prepared the three ISSA brochures “Principles”, “Laboratory Work” and “Production”.

The “Principles” brochure provides an insight into the world of micro-

organisms (biological agents such as bacteria, parasites, fungi, viruses and cell cultures) and their use in the production of food, pharmaceuticals and vaccines. It describes the metabolism and reproduction of biological agents, provides details on carriers of genetic information such as DNA and RNA and their function in the organism, and explains the mechanism of protein biosynthesis (from DNA to protein).

### Occupational safety, environmental protection and product protection

The chapter on the principles of genetic engineering explains how recombinant DNA works. Genetic engineering enables the properties of an organism to be transferred between species. For example, the ability of a higher organism to produce insulin can be transferred to a strain of bacteria, which can then be multiplied to produce insulin on an industrial scale.

The “Laboratory Work” brochure describes occupational safety, environmental protection and product protection concepts. These concepts are based on a hazard assessment of the biological agents. In addition to having properties that are harmless to humans, these agents can also cause serious infectious diseases. In order to ensure the use of infectious agents, seed viruses and reassortants is made as safe as possible, there is a graduated, modular safety concept that aims to prevent the transmission of infectious agents and thus minimise the impact on people performing experiments, the population and the environment.

This brochure gives laboratory supervisors and staff an overview of all the coordinated safety measures and effective preventive measures

and treatments. These range from basic hygiene measures and the rules of Good Microbiological Practice to the enclosure of areas and equipment, including aseptic work on microbiological safety workbenches.

The brochure also looks at typical aspects of work involving biotechnology and genetic engineering such as use of hazardous substances and radionuclides, and avoiding contamination (biocontrol programme). In addition to legally compliant operation, it provides details on measures to take in the event of an emergency, first aid, and occupational medical care.

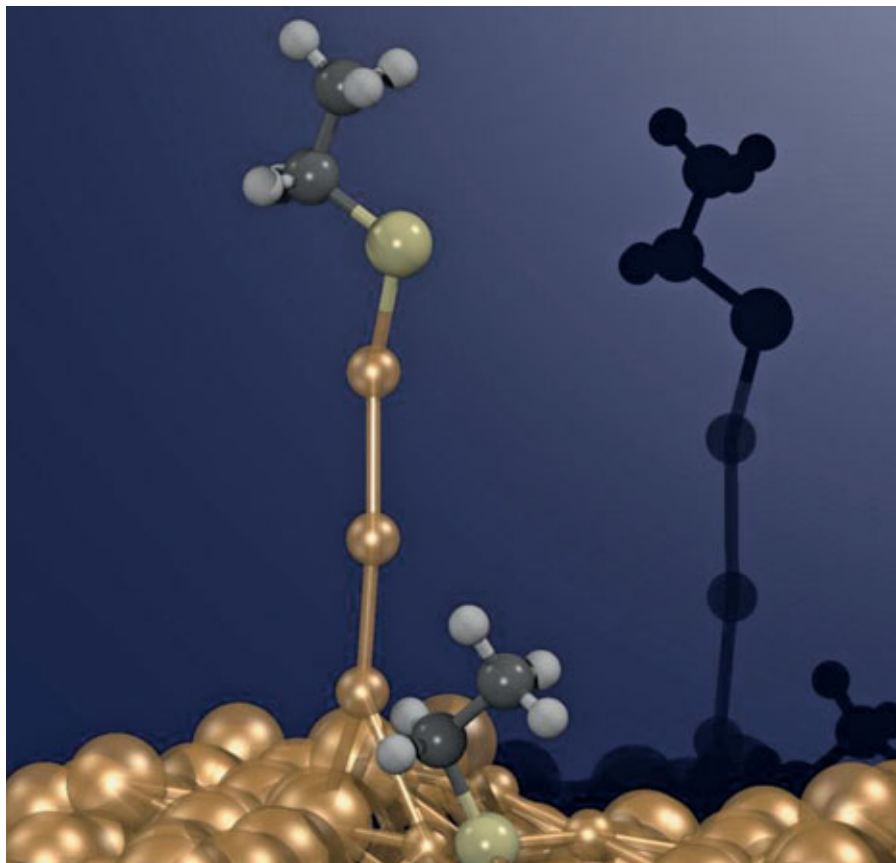
The third brochure in the series – “Production” – deals with typical occupational safety measures in production, in particular during submerged fermentation. Experts from the working group describe the safety requirements relating to equipment and explain the features of hygienic design, low-contamination processing techniques and work under sterile conditions.

The working group has created a seminal work that has contributed to meaningful debate over the past decade and is helping to ensure that work in the fields of biotechnology and genetic engineering is both safe and humane. Today, almost twenty years after work in these fields started, biotechnology and genetic engineering are regarded as safe technologies.

The principles and basic rules defined by the ISSA for occupational health and safety in biotechnology and genetic engineering can, to a significant extent, also be applied to the latest developments in nanotechnology and “synthetic biology” and developed accordingly. ■



The “Control of Risks in Work with Biological Agents” brochures are available in English, French and German.



Simulation of a nanotechnology operation on a mainframe computer. A "soft" organic molecule pulls a nanothread from a "hard" metal surface.

## Focus on Nanotechnology

**According to international standards, nanomaterials are one-dimensional, two-dimensional or three-dimensional material portions with structures sized between 1 nanometer and 100 nanometer. There has always been nanomaterial of natural origin: volcanos are spewing great amounts of nanoparticles, also contained in flames.**

**Nanotechnology has being used for many centuries. Potters in Mesopotamia created pots with special glittering effect by means of copper and silver nanoparticles, whereas in the Middle Ages glassworkers created ruby glass by melting with gold particles.**

Towards the end of the 20th century, nanotechnology emerged in its own right, and the number of new substances and materials has grown exponentially. There are known to be more than 800 products incorporating nanotechnology on the market, and around ten new ones are added every month.

Nanotechnology is exerting a growing influence over the consumer sector, the manufacturing and processing industries, health and safety, and environmental protection. Nanomaterials that need to be handled with particular care are increasingly common at the workplace. German laboratory guidelines thus

stipulate that nanomaterials should be treated in the same way as new substances – taking into account appropriate protective measures – if their specific properties have not already been adequately investigated. Given the multidisciplinary nature of nanotechnology – encompassing natural sciences, engineering and medicine – virtually all sectors will be affected. The rapid development of nanotechnology also has health and safety implications.

Our knowledge of this technology is insufficient to enable a sound risk assessment. Human and environmental toxicology results show that further highly vigilant investigation is required into the effects and that preventive protection measures must be implemented. The impact on fire and explosion behaviour also needs to be taken into account.

Nanotechnology will be a key area of activity for the ISSA over the coming years. All over the world, it is important to learn much more about the properties and effects, and to discover more about exposure levels at the workplace.

Further tasks include raising awareness at companies and offering these companies practical assistance in effectively combating possible hazards. As far as we know, the protective measures already available are effective. We simply need to apply them wherever nanotechnology is used.

The opportunities and risks of nanotechnology and its significance for occupational health and safety are the subject of a symposium of the ISSA Chemistry Section on 4 and 5 October 2010 in Lucerne, Switzerland. To register, go to: [www.issa.int/prevention-chemistry](http://www.issa.int/prevention-chemistry). ■



Dr. Erwin Radek, Dr. Henning Uhlenhaut and Dr. Klaus Bartels (left to right) at the opening of the “Risk” symposium held in October 2005 in the Austrian town of Tobelbad, near Graz.

## “Dangerous Substances” Working Group

In 1978, the Section set up the permanent working group “Protective Measures for Substances with Delayed Health Effects”. It was renamed the “Dangerous Substances” working group in 1987. Headed initially by Dr. Henning Uhlenhaut and currently by Antje Ermer (both from the BG RCI), the working group includes high-ranking international experts from the chemical industry, institutions involved in occupational safety and accident insurance institutions.

Over the past five years, the group has focused on the subject of risk and the associated international political/administrative initiatives on the use of chemicals (REACH and GHS).

### “Risk” International Symposium

At the “Risk” International Symposium on 6 and 7 October 2005 in the Austrian town of Tobelbad, near Graz, experts from Austria, France, Germany, Switzerland and the United Kingdom discussed issues relating to the definition and psychology of risk, including risk perception, risk assessment and risk

acceptance. The way in which these fundamental issues play out in practice was demonstrated by lectures and discussions on topics such as

- Risk assessment of hazardous substances at the workplace
- Risk management of hazardous substances
- Maximum concentrations in the air in work areas.

Following the lectures and plenary sessions, two working groups

- Occupational Safety and
- Environmental and Consumer Protection

were formed to find practicable solutions.

The Occupational Safety working group observed that small and medium-sized businesses (SMBs) find it particularly difficult to identify and assess the hazards – i.e. the risk – of chemicals because there are no workplace limits for most chemicals. SMBs need concrete, practical assistance in monitoring chemicals. Occupational health and safety organisations should therefore develop new strategies and methods to meet this need.

The Environmental and Consumer Protection working group identified similar difficulties. In order to improve the assessment of risks (hazards), more information is required on the substances, their uses and exposure levels. Risk reduction strategies need to be developed based on a standardised definition of the term risk.

The lectures, presentations and results of the symposium are available in pdf format at [www.issa.int](http://www.issa.int) (search for: “tobelbad”).



During the ISSA REACH symposium on the occasion of the ACHEMA 2006 in Frankfurt an international group of experts with representatives of companies, trade unions and governmental organisations discussed the effects of the planned EU regulation on the use of chemicals in industry, trade and commerce.

### International REACH symposium

The results and findings of the “Risk” symposium came in useful in May 2006 at ACHEMA in Frankfurt am Main during a two-day symposium of the ISSA Chemistry Section, which took a critical look at the planned European directive on the registration, evaluation and authorisation of chemicals (REACH). The symposium was chaired by Dr. Klaus Bartels, Secretary General of the ISSA Chemistry Section, and Professor Christian Jochum, Chairman of the Commission for Plant Safety advising the German Federal Government. More than 100 international representatives of industry, politics and official bodies discussed the planned EU regulation and its impact on businesses. Björn Hansen from the European Commission's Directorate-General for the Environment presented the draft regulation and commented on the state of play in the European Parliament.

REACH is intended to establish a uniform legal framework in the EU for evaluating existing and new substances and to optimise the flow of information on substances being used. This could improve occupational safety, environmental protection and consumer protection, and make product development and production processes more cost-effective.

Symposium participants appealed for bureaucracy to be kept to a minimum by concentrating on the key points so as not to jeopardise the European chemical industry's international competitiveness. They suggested registering substance groups, accepting existing data and standardising the information on substances required for the safety data sheet. They also expressly welcomed the European Parliament's proposed introduction of exposure categories.

The REACH regulation came into force on 1 June 2007. It applies in all member states of the European Union and affects an estimated 30,000 substances, each with an annual production of over one ton.

The lectures, presentations and results of this symposium are available in pdf format at [www.issa.int](http://www.issa.int) (search for: “reach achema”).



## “GHS – A Challenge!” international symposium

Following the introduction of the EU REACH directive, the Dangerous Substances working group focused on the Globally Harmonised System (GHS) for the classification and labelling of chemicals developed by the United Nations (UN). In June 2007, a draft EU regulation was submitted to the responsible committees for discussion.

Experts from 16 countries attended a symposium entitled “GHS – A Challenge!” in the French city of Marseille on 25 and 26 February 2008. This symposium was organised by the ISSA Chemistry Section in cooperation with the Research Section. Speakers included recognised experts from the UN, the European Commission (Directorate General for Enterprise and Industry), the French Environment Ministry, the German Federal Ministry for Labour and Social Affairs, French, Canadian and German occupational safety and environmental protection institutions, the European Trade Union Confederation and international chemical companies. They reported on the status of the regulatory procedure, the classification criteria, the practical impact on international transport and occupational safety, and the interlinking of REACH and GHS.

When the GHS Regulation came into force on 20 January 2009, it put into practice the “Agenda 21” system discussed at UN level since the 1992 Earth Summit in Rio. This new regulation in European chemical legislation also resulted in changes to many aspects of the REACH directive of 2007, which was adapted to the new classification and labelling system.



The new pictograms (right-hand column) have created a global system for labelling and classifying substances.

The lectures, presentations and results of this symposium are available in pdf format at [www.issa.int](http://www.issa.int) (search for: “GHS Marseille”).

The introduction of the GHS meant there were no longer different national systems and regulations for transporting hazardous goods and handling hazardous substances. The most striking feature of the standardised system that has now gained

international acceptance is the new set of hazard symbols.

# 40 Years of the ISSA Chemistry Section – 30 Years of PAAG Seminars

It was Dr. Heinz Hofmann from BG Chemie's Technical Inspectorate who publicised the Hazard and Operability (HAZOP) process developed at UK company ICI in German-speaking countries and published it in an ISSA Chemistry Section brochure for the first time in 1978, calling it the "PAAG method":

**P**rognose von Störungen  
(fault prognosis)

**A**uffinden der Ursachen  
(cause identification)

**A**bschätzen der Auswirkungen  
(impact assessment)

**G**egenmaßnahmen  
(remedial action)

PAAG is a systematic way of identifying non-obvious sources of hazards in all kinds of systems. It is based on methodical brainstorming according to fixed rules with a multidisciplinary group of experts.

## Successful seminar concept

20 May 1980 marked the start of the first PAAG seminar co-initiated by the ISSA on systematic hazard determination for complex plants and processes at BG Chemie. It was entitled "PAAG Method: Management Appreciation Course" and was initially held in English under the direction of HAZOP "inventor" Ellis Knowlton. Since then, around 2,800

people have attended the seminar, which is still offered three times a year by the "Safe Plants" unit.

A lot of things have changed over the past 30 years and the seminar has therefore had to be adapted on an ongoing basis to meet participants' expectations.

The 1970s and 1980s brought the introduction of systematic safety work at companies (especially in process engineering plants), interdisciplinary teamwork and a special methodology for directing a team of specialists.

Most seminar participants had no experience whatsoever in the application of such methods. Companies and, consequently, seminar participants initially regarded them with scepticism and in some cases rejected them out of hand. To start with, there was also a shortage of tutors with practical experience.

At the same time, however, the introduction in Germany of the Major Hazard Control Act for the prevention and control of serious chemical accidents meant that in 1982 many companies were faced with the task of complying with the requirements of the Act's "safety report". The responsible licensing authorities were very impressed with the transparent and straightforward PAAG system,



The brochure "PAAG method" is available at the ISSA chemistry section.  
fax: +49 (0) 6221 523 593  
e-mail: niels.schurreit@bgrci.de

which led to it being cited as the method of choice in the first Administrative Regulation on Accidents (1. Störfallverwaltungsverfahren).

PAAG has now become a key standard risk analysis method for planned and existing chemical plants – both in German-speaking countries and internationally – ensuring the safety and availability of systems, occupational safety, environmental protection and product quality.

Users modify PAAG according to the relevant circumstances to find the best possible balance between input and benefit. For example, the "original" PAAG is often used for new plants, while a simplified version is applied to existing plants for which a considerable amount of information and experience already exists.



## PAAG seminars and PAAG brochure

How can companies optimise systematic safety work? BG RCI experts Dr. Gerd Uhlmann and Dr. Joachim Sommer are following developments closely. They work with a group of experts on developing the seminars and documentation in line with the current operational requirements in practice, based on feedback from seminars and discussions with PAAG users. The large number of experienced tutors now available from different companies also helps matters.

The content and structure of the PAAG brochure published by the ISSA Chemistry Section also takes the changing requirements into account. Dr. Klaus Bartels was in charge of the 2nd edition, published in 1990, which constituted a major revision of the original publication. The 3rd edition from 2000 (with editorial changes in the 4th edition from 2006) took into account all the recent developments with a significantly modified concept and layout, but the basic statements remained the same. ■



To coincide with the "Explosion Protection" symposium at AICHEM 2009 in Frankfurt, BG Chemie provided an impressive demonstration of the risks of explosion at its stand.

## "Explosion Protection" Working Group

**The Explosion Protection working group has a long tradition within the ISSA Chemistry Section. Its activities and the internationally publicised results of its work have made the industrial use of explosive substances safer the world over. These results have also been incorporated in national standards and training documentation, and in international regulations such as the EU's non-binding guideline on Directive 1999/92/EC (ATEX).**

The working group has published eight ISSA brochures on the following subjects:

- Gas Explosions
- Safety of Liquefied Gas Installations
- Static Electricity
- Dust Explosion Protection
- Dust Explosion Incidents
- Dust Explosion Prevention and Protection for Machines and Equipment

- Determination of the Combustion and Explosion Characteristics of Dusts
- Practical Assistance for the Preparation of an Explosion Protection Document

The brochures have been updated and extended as new information



International recognised experts were discussing and reporting on the topic "explosion protection".

On the podium (left to right) Dr. Bernd Broeckmann (Germany), Dipl.-Ing. Gerhard Nied (Germany), IR. Ake Harmanny (Belgium), Fabio Pera (Italy), Dipl.-Ing. Richard Siwek (Switzerland), Ing. Emmanuel Leprette (France)



became available, and this process will continue. Most brochures are available in German, English, French, Spanish and Italian. For information on where to obtain the various "Technical Guidelines" on the subject of explosions, go to [www.issa.int](http://www.issa.int) (search for: "explosion").

The Explosion Protection working groups of the ISSA Chemistry Section and the Machine and System Safety Section merged in 2008 to unlock synergies and improve efficiency. This new working group is

currently headed by Dr. Martin Gschwind (Suva) and includes members from Austria, Belgium, France, Germany, Italy, the Netherlands, Slovenia, Switzerland and the United Kingdom. The first joint meeting took place in Paris in September 2008.

In cooperation with Suva (the Swiss National Accident Insurance Fund), the INRS (French National Research and Safety Institute for the prevention of occupational accidents and diseases), BG Chemie (German Accident Insurance Institution for the Chemical Sector) and the ISSA Section for Machine and System Safety, an international symposium on explosion protection was held at ACHEMA 2009 in Frankfurt under the aegis of the ISSA Chemistry Section. The event focused on

- The prevention of and protection against explosions
- The assessment of the potential risk of explosion
- The duty to coordinate
- Risk assessment
- How the latest research results are put into practice.

Summaries of the lectures and presentations in English and German are available in pdf format at [www.issa.int](http://www.issa.int) (search for: "Explosionsschutz"). Searching for "Explosion Protection" will find other ISSA publications on this subject.

### Explosion protection documents

A particular task of the Explosion Protection working group is to update the collection of examples in the "Dust Explosion Prevention and Protection for Machines and Equipment" brochure. These examples are an important basis for preparing explosion protection documents leading on from the ISSA's 2006 workshop in Munich entitled "Practical Assistance for the Preparation of an Explosion Protection Document".

A further current project of the working group is preparing a new ISSA brochure on avoiding effective ignition sources. ■



## “The Section cultivates a global culture of prevention”

When I was asked to join the ISSA Chemistry Section's “Dangerous Substances” working group 20 years ago, I was only too happy to oblige. At the time, Canada's Responsible Care® (RC) initiative was enjoying a positive response from the European chemical industry's companies, associations and unions. Today, Responsible Care® is institutionalised in more than 50 countries. In Germany, the VCI (Chemical Industry Association) has been in charge of the Responsible Care® programme since 1991.

RC networks companies and organisations across borders and continents – in a similar way to the ISSA Chemistry Section in the field of occupational safety. RC and the ISSA share similar goals in terms of health and safety and environmental protection. Rather than looking at accident prevention and occupational safety in isolation, both RC and the ISSA regard them as being part of a global system of plant, production and product safety. This makes the ISSA's activities the ideal complement to the tasks of a global chemical company that acts responsibly in line with the Responsible Care® initiative and sees health and safety, environmental protection and cost-effectiveness as equally important objectives.

Improvements in health and safety at the workplace have a positive impact on productivity and, consequently, on a company's socio-economic development. High safety standards go hand in hand with business success.

Quite apart from humanitarian considerations, it is thus also in the economic interests of international companies to bring their technical and expert knowledge to bear in the opinion-forming process before political decisions are made.

The ISSA Chemistry Section's workshops and symposia bring together social security institutions and organisations, employer and employee representatives, political decision-makers, senior state officials, recognised scientists and experienced practitioners from all over the world. New scientific knowledge and the latest experience is shared, discussed and passed on to the relevant companies, organisations and institutions. The Section uses the latest communications channels to push international transfer and to encourage a global culture of prevention in the chemical industry as a basis for specific measures in the fields of health and safety and environmental protection. Thanks to the work of the Chemistry Section, the high industrial safety standards (best practice) in the Western world are enjoying increasing popularity and application worldwide.

For 40 years, the Section has been a vigilant monitor of the chemical industry and an attentive advocate of its employees with a view to manufacturing ever better products under the best possible humanitarian conditions.



Professor Herbert Bender has been a member of the ISSA Chemistry Section's Dangerous Substances working group for 20 years. He is in charge of safety, hazard prevention and the management of hazardous substances at BASF. In his article marking the 40th anniversary of the ISSA Chemistry Section, he praises the Section's work from the perspective of a global chemical group.

# Organisation and Membership

The ISSA Chemistry Section consists of a small number of highly committed ordinary members:

- Allgemeine Unfallversicherungsanstalt – AUVA, Vienna, Austria
- Asociación para la Prevención de Accidentes – APA, San Sebastian, Spain
- Berufsgenossenschaft Rohstoffe und chemische Industrie – BG RCI, Heidelberg, Germany
- Berufsgenossenschaft für Nahrungsmittel und Gaststätten – BGN, Mannheim, Germany
- DECHEMA e.V. – Frankfurt, Germany
- IDICT – Portugal
- National Safety Council – NSC, USA
- D.D.B. Fundacentro, Sao Paulo, Brazil
- Institut National de Recherche et de Sécurité – INRS, Paris, France
- Schweizerische Unfallversicherungsanstalt – Suva, Lucerne, Switzerland
- ISMAI – Portugal
- Korea Occupational Safety and Health Agency – KOSHA, Korea
- Consejo Nacional de Seguridad de Chile – Chile

The ISSA Chemistry Section welcomes new members interested in supporting a non-profit-making organisation (on a voluntary basis) which is committed to improving safety and health protection.

Membership offers the following advantages:

- You can help shape the work of the Section and introduce your experience directly.
- You can take part in the Section's working groups and profit from

the very latest practical know-how

- Members of the Section will help you directly with technical or specialist issues .
- You can take part in the Section's symposia at reduced rates.
- You obtain a free copy of all of the Chemistry Section's publications

Non-members can participate in the Section's symposia and can order brochures directly from the Section.

## Types of membership

The Chemistry Section has two types of membership:

### Full members

Non-profit-making organisations and members of the International Social Security Association, Geneva, who are involved in the Section's operations or wish to promote these.

### Associate members

- Profit-making organisations and companies involved in the Section's operations or wanting to promote these.
- Experts in the form of individuals involved in the Section's operations.

Associate members have an advisory function at the Members' Meetings.

Interested individuals and organizations are invited to apply for membership: [www.issa.int/prevention-chemistry](http://www.issa.int/prevention-chemistry) (“Membership”)

## Members' Meeting

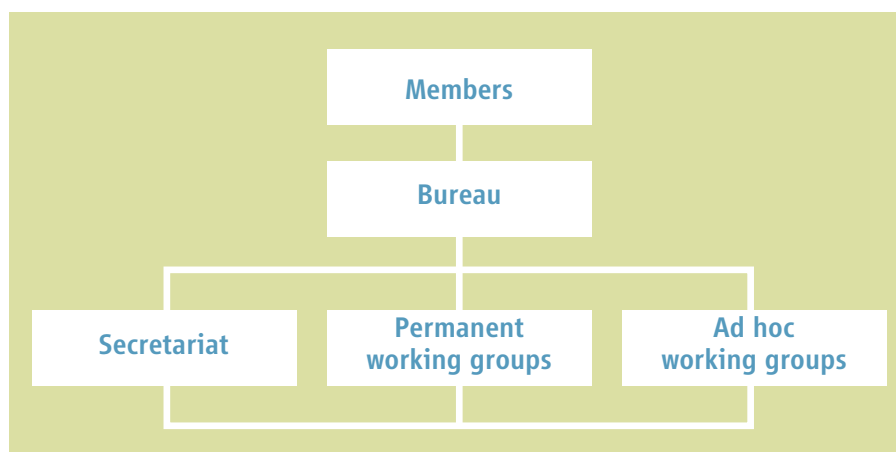
A Members' Meeting is held at least every three years, generally in conjunction with an International Symposium of the Chemistry Section. The Members' Meeting discusses and rules on questions relating to work programmes, objectives and standing orders and elects the President and the two Vice Presidents of the Chemistry Section at least every six years.

## Working groups

There are currently two permanent working groups:

- Dangerous Substances
- Explosion Protection

The list of members of these groups is shown at [www.issa.int/prevention-chemistry](http://www.issa.int/prevention-chemistry) (“About”).



Structure of the ISSA Chemistry Section

## Publications

A list of available brochures and technical guidelines of the ISSA Chemistry Section is provided at [www.issa.int/prevention-chemistry](http://www.issa.int/prevention-chemistry) (“Resources”).

## The Bureau

The President and two Vice Presidents are elected from the ordinary members – or the existing appointments are confirmed – at a Members' Meeting at least every six years. The following are automatically appointed to the Bureau: Ex officio the Secretary General of the ISSA, Geneva, who can appoint a representative, and the Secretary General of the Chemistry Section who is appointed by the newly elected Bureau and must come from the organisation which provides the Secretariat of the Chemistry Section. The Bureau meets two to four times every year and, on the basis of the decisions taken by the Members' Meeting, makes decisions on the programme, sets up working groups, appoints members to these groups and decides on the inclusion of new members.

## Members of the Bureau

**President:** Dr. Erwin Radek, former Executive Director of the Berufsgenossenschaft der Chemischen Industrie (BG Chemie) and Executive Director of the Accident Insurance Institution's Emergency Hospitals in Ludwigshafen and Tübingen, Germany.

**Vice President:** Dr. Ulrich Fricker, Director of the Board of the Schweizerische Unfallversicherungsanstalt – Suva (Swiss National Insurance Fund), Switzerland

**Vice President:** Stéphane Pimbert, Directeur Général et Directeur du Centre de Lorraine, INRS (Institut National de Recherche et de Sécurité), France

**Secretary General:** Thomas Köhler, Spokesman of the Management Board of the BG RCI (Berufsgenossenschaft Rohstoffe und chemische Industrie), Germany.

## Former members of the Bureau

as elected or confirmed by the Members' Meeting

### 1970 and 1973

**President:** Dr. Paul Versen  
BG Chemie, Germany

**Vice President:** Dr. Bruno Marti,  
Suva, Switzerland

**Secretary General:** Dr. Rolf Kassebart, BG Chemie, Germany

### 1976 and 1979

**President:** Dr. Paul Versen  
BG Chemie, Germany

**Vice President:** Dr. Bruno Marti,  
Suva, Switzerland

**Vice President:** John Gardner  
CIA, United Kingdom

**Secretary General:** Dr. Friedrich-W. Schierwater, BG Chemie, Germany

### 1982 and 1985

**President:** Hanswerner Lauer  
BG Chemie, Germany

**Vice President:** Dr. Dominik Galliker, Suva, Switzerland

**Vice President:** Dr. Jean Verrier  
INRS, France

**Secretary General:** Hans Friedl  
BG Chemie, Germany

### 1988 and 1991

**President:** Hanswerner Lauer  
BG Chemie, Germany

**Vice President:** Dr. Dominik Galliker, Suva, Switzerland

**Vice President:** Dr. Bernard Moncelon, INRS, France

**Secretary General:** Hans Friedl  
BG Chemie, Germany

### 1994

**President:** Hanswerner Lauer  
BG Chemie, Germany

**Vice President:** Dr. Dominik Galliker, Suva, Switzerland

**Vice President:** Dr. Bernard Moncelon, INRS, France

**Secretary General:** Dr. Erwin Radek  
BG Chemie, Germany

### 1997

**President:** Dr. Erwin Radek  
BG Chemie, Germany

**Vice President:** Dr. Dominik Galliker, Suva, Switzerland

**Vice President:** Dr. Bernard Moncelon, INRS, France

**Secretary General:** Dr. Klaus Bartels  
BG Chemie, Germany

### 2000, 2003, 2006

**President:** Dr. Erwin Radek  
BG Chemie, Germany

**Vice President:** Dr. Ulrich Fricker  
Suva, Switzerland

**Vice President:** Dr. Bernard Moncelon, INRS, France

**Secretary General:** Dr. Klaus Bartels  
BG Chemie, Germany

# International symposia organised by the Section

## 1st International Symposium, 1970, Frankfurt

- Planning and construction in chemical firms with special regard to occupational safety
- Accidents due to unexpected chemical reactions

## 2nd International Symposium, 1972, Karlovy Vary

- Dust explosion risks in mines and industry – methods of defining the characteristics of combustible dust relevant to safety

## 3rd International Symposium, 1973, Frankfurt

- Protection against explosions in the chemical industry
- Information of immediate interest on accidents and occupational diseases in the chemical industry

## 4th International Symposium, 1976, Frankfurt

- Problems of the secure direction of chemical reactions
- Current information on prevention of accidents and occupational diseases in the chemical industry

## 5th International Symposium, 1977, Bucharest

- Safety problems concerning processing machinery in the chemical industry
- Present information on prevention of accidents and occupational diseases in the chemical industry

## 6th International Symposium, 1979, Frankfurt

- Transformation of toxicological findings in the chemical plant
- Current information on accidents and occupational diseases in the chemical industry and measures for prevention

## 7th International Symposium, 1981, Salzburg

- Teaching methods for training in industrial safety at plant level
- The economic effects of occupational accidents
- Influencing of human behavioural patterns of plant level

## 8th International Symposium, 1982, Frankfurt

- Methods and strategies for monitoring of working areas by measurement techniques
- Current information on accidents and occupational diseases in the chemical industry and measures for prevention

## 9th International Symposium, 1984, Lucerne

- Safety against explosions

## 10th International Symposium, 1985, Frankfurt

- Recent developments in chemical apparatus and plant engineering

## 11th International Symposium, 1987, Annecy

- Safety in handling gases

## 12th International Symposium, 1988, Frankfurt

- Biotechnology and genetic engineering
- Protection from substances hazardous to health

## 13th International Symposium, 1989, Budapest

- Limiting risks in chemistry (occupational safety, environmental protection)

## 14th International Symposium, 1991, Frankfurt

- Hazardous substances: Safety in transport and warehousing

## 15th International Symposium, 1993, Lugano

- Safety pays! Safety in interaction with quality, productivity and economy

## 16th International Symposium, 1994, Frankfurt

- Machinery in the chemical, plastics and rubber industries – safe design and safe use

## 17th International Symposium, 1997, Frankfurt

- Plant safety in the chemical industry

## 18th International Symposium, 2000, Frankfurt

- Safe handling of biological agents

## 19th International Symposium, 2001, Toulouse

- Dusts, fumes and mists in the workplace

## 20th International Symposium, 2003, Frankfurt

- Man – safety – technology

## 21st International Symposium, 2006, Nice

- Design process and human factors integration

## 22nd International Symposium, 2008, Marseille

- GHS: A challenge!

## 23rd International Symposium, 2009, Frankfurt

- Explosion protection

## 24th International Symposium, 2010, Lucerne

- Nanotechnology – opportunities and risks  
New challenges for prevention

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INTERNATIONAL SOCIAL SECURITY ASSOCIATION

*International Section for Chemistry*



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