RISK CONSULTING

IF'S RISK MANAGEMENT JOURNAL 2/2013

IMPROVING FIRE SAFETY

HOW TO PREVENT FIRE

FIRE IS a recurring theme in this issue of Risk Consulting. A story about Danish Crown explains how they suffered several very serious fires at the end of the last decade and what they've done since then to improve safety. You can also read about Volvo's approach to creating a Nordic security culture around hot works in China. And we highlight the need for companies to continually review their sprinkler systems, so that they really work and are adapted to the actual activities on the site.

The consequences of a fire are often dramatic. The material damages are very extensive and the event often causes critical production interruptions. Fires reappear year after year in If's top-ten list of the most expensive insurance claims.

The dramatic cause of events is rarely caused by a single factor, but is the consequence of a series of unfortunate circumstances that interact. In one of our examples, the fire insulation between different departments in a factory was insufficient. Although the fire was extinguished quickly, soot and smoke leaked out to the parts not directly hit by the fire and caused extensive damage.

After a fire, a number of improvements are almost always carried out, to ensure that the client does not have to face the same situation again. This is of course excellent.

But the big lesson is how important active loss prevention is. It's not about one-off revolutions. It's about creating a culture of safety and security that everyone in the company takes responsibility for. It's about getting a little better every day, all the time.

Here If can contribute. We are learning continuously through all the claims and incidents we deal with, getting better every day at helping our clients to prevent claims. This is one of our most important tasks. I urge you to use our expertise so that we can continue to grow together!

NICLAS WARD
HEAD OF BUSINESS AREA
INDUSTRIAL

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LEHTIKUVA

TRIPRA EXPIRES?

EARLIER THIS year legislation was introduced in the U.S. House of Representatives to extend the Terrorist Risk Insurance Program Reauthorization Act (Tripra), which expires Dec. 31, 2014.

The U.S. government sponsored terrorism reinsurance originated following the events of Sept. 11, 2001. Insurers were at the time frequently excluding terrorism exposure from coverage. Passage of the first terrorism reinsurance program required insurers to offer coverage of terrorism exposures to participate in the program, alleviating economic uncertainty in commercial property and mortgage markets.

Over the last decade, commercial property insurers have enhanced their ability to measure and model exposure to terrorism events. Net exposures are managed currently through the availability of large reinsurance limits through Tripra.

Withdrawal of Tripra reinsurance protection without readily available substitute coverage could lead insurers to exclude terrorism from property coverage to manage risk aggregations, industry commentators fear, thinking it unlikely that substantial private market capacity would arise as a substitute to Tripra coverage if the program is allowed to expire.

44% OF COUNTRIES HAVE IDENTIFIABLE TERRORISM RISK

Aon's 2013 Terrorism and Political Violence Map points to a continued threat of a terrorist attack or political violence as 44 percent of the 200 countries and territories measured.

The worst affected countries are Afghanistan, India, Iraq, Nigeria, Pakistan, Russia, Somalia, Syria, Thailand and the Yemen.

Europe has the most positive regional outlook, with 47 percent of the countries with lowered risk ratings this year. The risk for Norway and Sweden is low, according to the report, and for Denmark and Finland negligible.

68 000
THE NUMBER OF MANHATTAN BUILDINGS INSIDE THE 100-YEAR FLOOD PLAIN.

PASSWORD ON THE PILL

Everybody knows that you should have different passwords when you log on your work email, Facebook etc. Knowing is one thing though, doing quite another.

This summer, Discovery News report, a Motorola executive named Regina Dugan proposed an unexpected solution. It is a small pill that contains an electronic chip. After you swallow the pill, the stomach acts as an electrolyte in the chip's battery and powers it. Your entire body would be the authentication token.

The authentication is activated by touch, since the human body conducts electricity.

Touch your phone or laptop and you're in.

The method has been approved by the Food and Drug Administration in the US.

CYBER-ATTACKS FOR BILLIONS

Computer hacking costs companies enormous amounts. Traditional insurance is not enough. Now If is working on a cyber-insurance offering.

On Saturday 26 January 2013, If switched to a new modern IT network.

For a few hours, all IT ceased functioning.

No customer systems could be accessed. Internet sales froze. Even the telephone lines were dead.

If is completely dependent on IT. Just like almost all other businesses. Factories, nuclear power plants, hospitals; all depend on IT to stay afloat.

The target for cyber crime is enormous.

BILLIONS AND BILLIONS

The business world is highly aware of the threat of cyberattacks. An If survey from last year shows that IT problems are top of the list of concerns for Risk Managers at large Nordic companies. 35 per cent of the companies surveyed had been subject to a hacking attempt. There are no definite figures on the financial costs of these attacks.

A report from the FBI in 2012 estimated that the cyber matters under investigation in the USA corresponded to a value of USD 13 billion. German estimations suggest USD 30-70 billion in losses, and South Korean estimations suggest USD 80 billion. According to the American law firm Governo, the average cost incurred by a company after an attack is approximately USD 4.5 million.

THE ATTACK AGAINST IRAN

Computer viruses have developed into a large-scale global industry, linked to both top-level politics and criminality.

For a few years at the end of the 2000s, an advanced computer worm named Stuxnet attacked Iran's main facilities for enriching nuclear fuel. The attack knocked out almost a thousand of the five thousand centrifuges in Iran used to process uranium. It later transpired that the USA was behind the attack, possibly in collaboration with Israel.

Last summer, Saudi Aramco, one of the world's largest oil companies, was subjected to an attack where 30,000 personal computers were knocked out by a virus known as Shamoon. Shamoon deleted all company data and replaced it with an image of a burning American flag. Iran's 'cybercorp', a special unit created after the Stuxnet incident, was said to be responsible for the attack.

The attack against Saudi Aramco is one example of how the boundaries between military and financial goals are beginning to blur. In many countries, crucial social infrastructure such as energy and telecom is run by private companies. It is not evident how responsibility for defence against IT attacks should be divided between the private and public sectors.

THE CYBER MAFIA IS HERE

It is primarily companies that are subject to IT hacking and the aim in these cases is to steal business secrets and other valuable information.

In 2011, the American computer security company EMC was victim of a cyberattack. Among the information stolen were the highly classified seed values for VPN tokens used by employees to log in to their company's network from home. The hack resulted in a general loss of confidence in the tokens. 100 million VPN tokens around the world were recalled and replaced. An entire factory was forced to close temporarily.

"It's no longer about kids messing about on the internet with viruses such as Love Letters and Sasser, where the aim is to create a major epidemic that turns the hacker into a celebrity," says Mika Rintamäki from IT Security at If.

"Now criminal organisations are often behind the attacks. There's a lot of money to be made and they are incredibly professional. They have specialists that write the malicious code, others who are experts at the infringement itself, the next stage are dealers selling the information they have come across. And then there is of course ultimately other criminals exploiting the stolen material to commit new crimes."

The attacks are much more precise than what they were just a few years ago. Four key employees were the target in the EMC case. The hackers knew everything about them. The responsibilities they had. Their email addresses. Which computers they used, which operating system, which internet browser.

"The four EMC employees received an email with an Excel file titled Recruitment plan.xls." The malicious code was hidden in the files. Two of the four employees opened the document.

"That was enough for the worm to enter EMC and locate and steal a certain type of data. EMC lost their crown jewels," says Mika Rintamäki.

According to the US, China was behind the hack and the motives were both military and industrial. Lockheed Martin, the world's largest provider of defence materials, were among the EMC customers affected and were quite possibly the main target of the attack.

EACH EMPLOYEE COUNTS

If protects its own business with a kind of layered approach in which each entry point to the Internet has special safety features installed. Each month hundreds of worms, viruses, trojans and other malware are caught in the safety net.

But no safety net in the world can provide 100 per cent protection.

"The way the individual employee reacts is becoming more and more important," says Mika Rintamäki.

"The most important thing is to think twice before clicking on a link or opening an unknown email. You should always be a bit cautious! If a computer worm slips through the net, this can create enormous problems."

THE FIRST CYBER INSURANCE

Naturally, this is one threat that most companies wish to insure themselves against.

Cyber insurance has been available in the USA for a number of years. Some of the American giants also sell European variants.

If is now also developing an offer.

"Traditional insurance policies do not cover all risks in the cyber field," says Mattias Nordenberg at If.

"These include business interruption costs if the company's own network is shut down by a hacker attack, the costs for finding and neutralizing the malicious code, the costs for notyfying the affected customers and for fines."

"The legal demands on companies are constantly increasing. EU, for example, is about to introduce requirements that companies must inform all customers of an IT intrusion within 24 hours. If you don't you get extremely large fines."

"Such changes make the issue of cyber-insurance even more important for businesses," he says.

The aim is to launch If's cyber insurance at the end of 2013 or the start of 2014. ■

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AFTER THE FIRE

Following three serious fires, the world's largest pork exporter Danish Crown has worked hard to increase its fire safety.

"FOLLOWING THE three serious fires in 2007 and 2008, we had to ask ourselves what could happen next! Why were our slaughterhouses burning? We weren't high on the lists of insurance companies who were setting new, stricter requirements for us. We therefore needed to find out what we should to do to increase fire safety and what it would cost," says Klaus Møller, CEO of Danish Crown Insurance.

ALL UNITS WERE ANALYSED

Danish Crown got the engineering firm COWI to examine all 60 units in minute detail in 2007. Flemming Damholt was employed as Fire Safety Officer.

"COWI's job was to clarify how we could prevent and minimise the fires. Based on their analysis, we decided on what to do and the first thing we did was to seal all cables and establish fire doors for all technology rooms. We also focused on a seemingly small but important area: all of the many electrical items around and about the workplace – coffee machines, radios, etc., which are potentially highly flammable," relates Flemming Damholt.

REALISTIC RISK COOPERATION

In 2009, If became the lead insurer and this is where close, strategic cooperation began in order to increase safety in the long term and from the realistic point of view.

"With If, we feel that there's great responsiveness and cooperation concerning realistic solutions. If has an understanding of the financial aspect and is able to discuss various ways of securing things," says Klaus Møller.

The slaughterhouse industry has narrow profit margins, and investment in fire protection cannot be directly reflected by an increase in yield and higher production, so the challenge is to protect yourself as well as possible in a financially viable way. Danish Crown must simultaneously fulfil stringent food safety requirements and these requirements do not always tally with the fire safety requirements. There are dilemmas such as

- the fact that the production premises are best cleaned using water vapour but the vapour triggers many false fire alarms,
- the fact that sandwich panels are best at a stable temperature in frost rooms but the walls do lead to some risk of fire,
- the fact that emergency exits must lead directly out into the open air but this contravenes the hygiene requirements.

PRIMARY RISK AREAS

"When we changed to If as lead insurer, we drew up a contract concerning which focus areas would form the basis of our cooperation - a short, concrete, 3-page document," says Flemming Damholt. The contract generally speaking concerns these focus areas:

- Electrical installations, circuit breaker panels and technology room
- Separate room for the charging of trucks and floor pressure washers
- Design and fire risk of sandwich walls
- Positioning of pallets and waste at a good distance from buildings
- Fire cell division principles

REMOVE ALL RISKS

Cooperation with If clarified the fundamental fire prevention principles: protecting production by removing all fire risks from the production premises and placing them in separate, fire-safe rooms with smoke detectors. If, for example, a fire occurs in a packaging warehouse or a truck charger, this will not affect the production premises - a strategy that is currently being introduced into all of the Danish Crown Group's production plants and that is intended for all new projects.

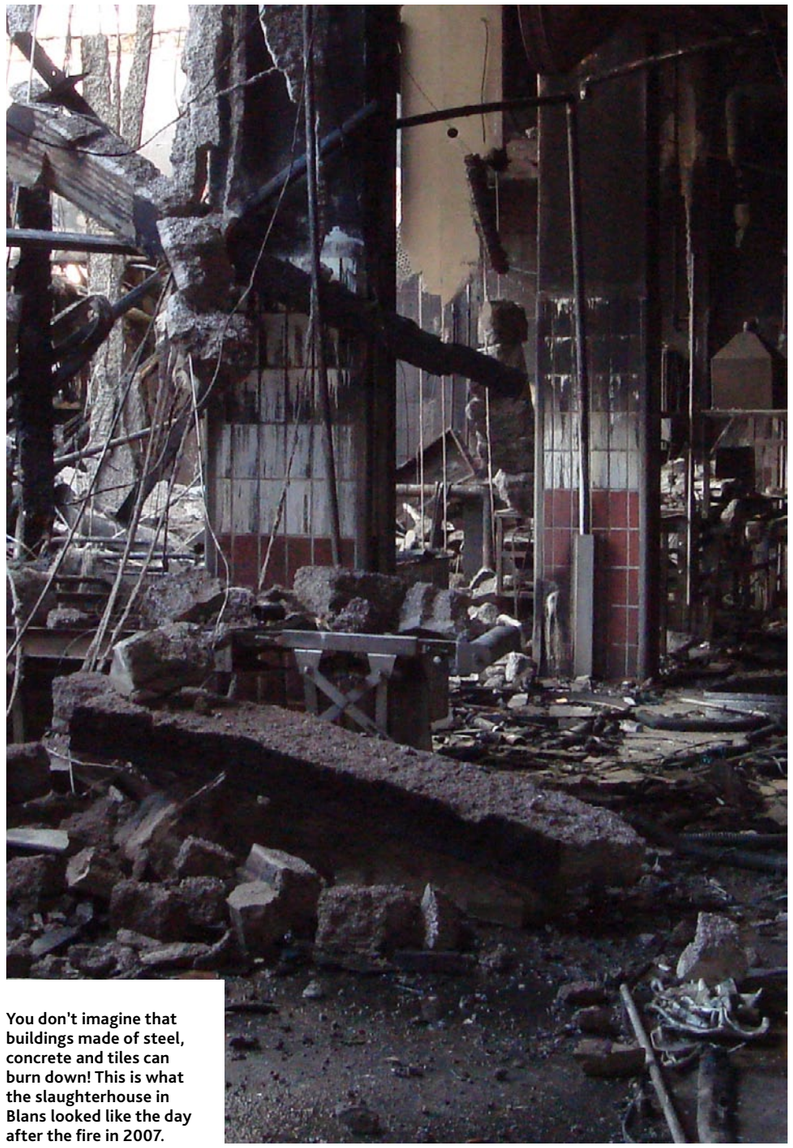
"Production must not be affected in any way. We therefore identify all ignition sources and move them away from production to secured premises. These may be circuit breaker panels, flammable materials and charging stations. We've also introduced a monthly fire check round that we use as a control tool," explains Flemming Damholt. He mentions a concrete example of a typical safety routine whereby when the day's production is complete, all unused packaging is removed from the packing line and into the packaging warehouse.

THREE MAJOR FIRES

16 April 2007 – Fire in the slaughterhouse in Blans, Denmark
10 000 m² totally destroyed, total price DKK 900 million

16 July 2007 - Fire in the slaughterhouse in Skive, Denmark
6 000 m² totally destroyed, total compensation: DKK 425 million
The slaughterhouse was not rebuilt

23 May 2008, Fire in the slaughterhouse in Oldenburg, Germany
5 000 m² totally destroyed, total compensation DKK 330 million



You don't imagine that buildings made of steel, concrete and tiles can burn down! This is what the slaughterhouse in Blans looked like the day after the fire in 2007.

SAFETY LEVEL NOW INCREASED

Danish Crown uses a great deal of electricity and water for its production – a combination that in itself constitutes a potential fire hazard. From 2007 to 2013, the level of safety increased substantially and Danish Crown is getting to grips with its risks. Events do still occur but they are nipped in the bud before they develop.

"We have fewer events compared to previously so we can definitely see that our efforts over the past six years have increased fire safety – and, should an event occur, production will be rapidly restored," relates Flemming Damholt.

One example is a fire that occurred on 10 December 2011 when around 300 m2 of roofs and a freezer facility were burned out. In spite of the scope of the damage, production resumed on 27 December.

ENORMOUS CONSEQUENCES

But why does a fire have such major consequences? That's because even a short time stoppage can be catastrophic for the business. You quickly start to sense this on a trip around the slaughterhouse in Blans with operations manager Kim S. Petersen. Around 13 000 pigs are slaughtered, cut up and processed by around 600 workers on a daily basis. There are hygiene sluices, and production has an impressive flow that is enough to im-

As the world's largest pork exporter, good risk management is an important part of being an attractive and stable buyer and supplier. Flemming Damholt, Fire Safety Officer, Kim S. Petersen operations manager and Klaus Møller, CEO of Danish Crown Insurance outside the the slaughterhouse in Blans, Denmark

press any LEAN expert. A fire will therefore rapidly have widespread consequences not only for Danish Crown, but also for suppliers and customers.

STEEL AND TILES CANNOT BURN

Kim S. Petersen clearly recalls the fire in 2007: "It resembled a war zone. You don't imagine that buildings made almost exclusively of steel, concrete and tiles can burn so viciously," he recalls while showing pictures of the fire. "10 000 m2 were totally destroyed – cutting, boning and packing. Stalls, slaughter lines and equalisation chilling rooms suffered smoke and water damage to a limited extent. Only the administration building, the freezers and the energy centre escaped," relates Kim S. Petersen.

During the night, the just over 10 000 pigs bound for slaughter were redirected to other slaughterhousesand extensive loss prevention activities were immediately initiated. Not until October 2008 was the slaughterhouse finally ready for business again. The fire was probably started in a floor pressure washer during charging and, since there was no alarm in that area, the fire was able to develop in the plastic insulation material in walls and ceilings.

Three months after the fire in Blans, the slaughterhouse in Skive burned down. This meant that Danish Crown lost 20 % of its capacity so the other plants had to be utilised flat out. It meant that slaughtering also took place on Saturdays and Sundays for a long time. Under no circumstances did Danish Crown want to cancel the agreements with its shareholders. Reliability in the eyes of customers and suppliers is a key issue.

FOCUS ON SANDWICH PANELS

Danish Crown has placed particular emphasis on the fire safety requirements for walls made of sandwich panels. Sandwich panels insulated with mineral wool are relatively unproblematic so Danish Crown therefore uses these wall panels in areas that are subject to temperatures above 0°C. However, in frost rooms, it is necessary to use sandwich panels with plastic foam due to hygiene requirements. But the panels are very dangerous in the event of fire since the insulating foam material is extremely flammable. Foam panels must therefore be used only in areas that are subject to temperatures of below 0°C, and a decision has been made to use only sandwich panels containing PIR foam insulation because this type of insulation is the least flammable of foam insulations. Generally speaking in the production areas, all walls containing flammable insulation are labelled with conspicuous, red warning dots to make people aware of the fire safety during hot work, for example.

EMPLOYEES' RESPONSIBILITY

Risk Management also applies to the employees. The slaughterhouse in Skive was not rebuilt so the employees are in no doubt as to how a fire could cost them their job. It is therefore definitely in their interests to be vigilant where all aspects of fire safety are concerned. But how do you communicate fire safety to 23 000 employees of 50 different nationalities?

"We involve the employees and we use clear and often humorous messages on placards and in brochures. And we've placed emphasis in a number of articles in the employees' magazine on what the employees themselves can do to increase the fire safety at their workplace. But it takes a long time to build up risk awareness. Cultures are different – in some countries, the employees are not used to being able to ask questions and take responsibility themselves," relates Klaus Møller.

GOOD RISK MANAGEMENT

For all new building projects, the construction materials must live up to Danish Crown's fire safety requirements, which can often make them more expensive. Klaus Møller and Flemming Damholt are therefore not always entirely popular. However, they do insist on the fire safety requirements because they can see the necessity to do so in the claims statistics, because they can see it reflected in the fire insurance premiums – and because reliability in the eyes of suppliers and customers is a competitive parameter.

"As the world's largest pork exporter, good risk management is an important part of being an attractive and stable buyer and supplier. Fire safety must therefore permeate the whole business. So, although our motto is "It's all about food", it's also most definitely a matter of a secure supply and thereby risk management. We're therefore constantly working to ensure that it does permeate the whole business," emphasises Klaus Møller. ■

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THE DANISH CROWN GROUP

- Turnover around DKK 56.5 billion
- Employees: 23 500
- Shareholders: 9 000
- Pig slaughterhouses: 6
- Subsidiaries: Tulip Food Company, ESS-FOOD, Plumrose USA, KLS Ugglarps, Friland, Dat-Schaub, etc.
- Annual deliveries: approx. 21,8 million pigs and sows per year and approx. 0.6 million cattle

THE WORLD'S LARGEST PORK EXPORTER

It all began in 1887 when Denmark's first cooperative slaughterhouse was established in Horsens. The export of bacon to the UK formed the basis for one of Denmark's biggest commercial success stories. Today, Danish Crown is the largest pork exporter in the world.

FOUR FIRE SAFETY TIPS FROM DANISH CROWN'S FIRE SAFETY OFFICER

- Identify and control your risks before something happens
- Sort out what to do where there are risks
- Isolate the risk. Adapt your business so that if something happens you won't lose everything
- Divide the production up into delimited sections so you can continue partial production if some sections are taken out of the equation.

FIRES CAUSED BY HOT WORK

After a substantial decline in the number of fires caused by hot work during the last 25 years, there are now worrying signs that fires caused by hot work are on the rise again.

TOWARDS THE end of the 1980s, the insurance industry in Finland and Sweden took vigorous actions to reduce the number of fires caused by hot work, such as welding, cutting and various kinds of roofing works. Soon also Denmark and Norway followed suit.

The insurers designed safety regulations which included stipulations that those who perform hot work should be trained and certified to be allowed to do so.

The hot work regulations also stated that there should be named responsible persons to assign the hot work permits in companies and that fire watch should be present during hot work.

Both the permit issuers, the hot worker and the fire watch as well must be specially trained and must have experience of fire protection.

These standards, which are essentially uniform across the Nordic countries, had dramatically positive effects.

In Sweden, for example, the number of fires caused by hot work fell by 85 per cent from the mid-1980s to 2011.

OVER THE past five years, the Nordic fire prevention associations have trained around 870,000 people involved in hot work.

Despite these great efforts, there are indications of a growing carelessness with hot work.

Three of Ifs four most expensive insurance claims in 2012 were fires caused by hot work.

In addition, there have been a number of smaller but no less dramatic claims.

In many cases, the fires have been caused by almost embarrassingly simple mistakes.

For example, during a re-roofing operation in a North American warehouse, the material installed to protect the underside of the roof decking from dripping tar was combustible. In addition, the combustible shielding was installed above the sprinkler system.

Unsurprisingly, the combustible shielding caught fire.

As a result, 28,000 square feet of the warehouse were affected by the fire.

Cost: USD 30 million (EUR 23m, SEK 200m)

A LARGE fire is a severe strain on the affected company, says Matti Koskenkari, risk engineer at If.

"It is obviously hugely frustrating when it could have been prevented if the normal rules of the game had been followed."

The regulations for hot work are basically a codification of common sense.

A special form, which covers the critical points to keep in mind, is to be completed by the hot works permit issuer before the work can begin.

The form covers points such as:

- Before issuing a hot work permit to start a hot work project, the hot work and the place where the work will take place must be risk assessed. Are any special measures to avoid a fire called for, such as shifting any combustible material or protecting machinery that you cannot move?
- A fire watch should normally be in place when the job is done. The hot worker is of course focused on the task at hand and cannot have enough overview of the work. Someone else must make sure that there is no fire.
- Extinguishing equipment must be readily available for use.
- One has to be able to alert the fire department immediately if something happens.
- It is very important to remember to turn on the fire alarms and sprinklers when the job is done. Ideally, there should be written and formal routines implemented for this.
- The same accuracy is required each day and for each piece of hot work.

The routine should be understood just as carefully, whether the job is done by internal staff or by a contractor or a subcontractor.

WHEN SOMETHING goes wrong, it is often caused by carelessness with some of the tasks in the regulation, says Janina Helenius-Bylander, risk engineer at If.

"Someone might have attempted to take a shortcut to save time or money. Perhaps it is unclear whether it is the contractor or the company that should provide a fire warden and so it is ignored. Or maybe the hot work permit issuer is signing the hot work form in his or her office, without actually visiting the place where the hot work is going to take place and thus without making an active risk assessment."

"The simple truth is that you have to take the hot work seriously. The consequences are dire when things go wrong," says Janina Helenius-Bylander. ■

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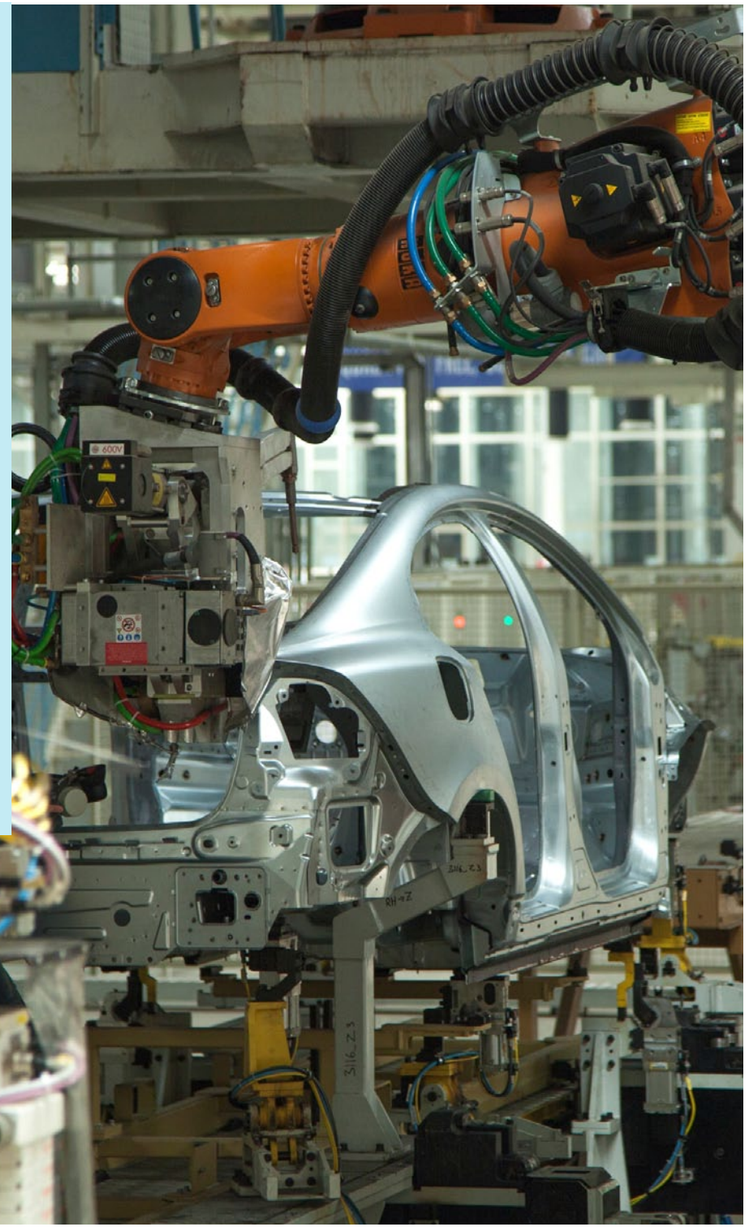
THE GOLDEN RULES OF TEMPORARY HOT WORK

1. Permission for all hot work projects must be given by a nominated permit issuer.
2. The permission is only valid for one day at a time.
3. Certificated hot work performers.
4. The workplace: clean and watered.
5. Combustible material must be removed or shielded, and heat conducting structures and hidden combustible building elements must be protected.
6. Supervision by a fire watch as long as fire hazard exists + 1 hour after the hot work has been completed
7. Operational firefighting equipment.
8. Ready to alert the fire brigade.
9. Post mortem check.
10. Fire alarms and sprinklers must be turned on when the job is done.



HOT WORKS A CHALLENGE FOR VOLVO IN CHINA

For companies on the global stage, the risks of hot works at non-European plants can be a challenge. Safety protocols are not consistent across the globe.

Volvo Cars works systematically and consciously with these issues. The aim is to attain a common, risk-aware approach to hot works throughout the company group.

One example is Chengdu, China, where Volvo is building a new assembly plant.

Once finished, the plant will cover more than 240,000 square metres. The plant will employ over 2,500 people. 120,000 cars will roll out of the plant each year. Patrik Höglund, a fire safety coordinator at Volvo Cars, works on creating safe procedures for hot works in Chengdu.

"Two things are fundamental. One is local rules and regulations. The other is Volvo's guidelines and policies. Within this framework, we have made adaptations to fit the day-to-day work in Chengdu, to allow our employees who are not used to our strict requirements to act correctly", says Patrik Höglund.

"Hot works require written permits throughout Volvo's operations. An example of an adaptation that we have made at Chengdu is that decisions must be cleared not only with the person in charge of permits for the building in question, the hot worker and the fire safety officer, but also with the plant's overall safety officer."

"But the most important part of our work is about creating an understanding and shared vision regarding the risks involved in hot works, and promoting joint responsibility for ensuring that the work is carried out as safely as possible."

TEXT ODDMUND BLEIE / PHOTO BRANNVERNSAMARBEIDET MUR OG BETONG, 123RF

KEY LEARNINGS FROM FIRES

Fires should be analyzed. By taking action on the findings future risks can be reduced.

NO COMPANY that has experienced a fire wants to do so again.

In order to reduce the risk of ending up in the same situation again, the loss should be analysed carefully. Such an examination often provides a good illustration of which safety barriers have failed and what can be done to prevent losses in the future.

It is our experience that our customers are particularly concerned with risk management following a loss. In this way, it is not unusual for something good to have emerged from having experienced a loss. The businesses are often safer afterwards, since a number of improvements have been made in order to avoid ending up in the same situation once again.

Let us have a look at an example where a relatively small fault has led to a significant loss and a difficult situation for our customer. Let us also see how the customer acted after the loss in order to restrict the risk of new loss incidents.

1 One of our customers had recently built and commissioned a large smelting furnace for silicone. During maintenance work, the furnace had to be operated for shorter intervals while the maintenance was conducted. During the breaks, tools and parts/components were left on the furnace. Due to vibrations on starting up, a flashover occurred between the furnace's anode and the tool. The light arc also destroyed a hydraulic hose, since this hose was also made of conductive materials. The hydraulic hose, which was otherwise under pressure, broke and oil with a relatively low flash point escaped from the pipe and was atomised as a result of the pressure. A modest amount of oil was released for about one minute.

All emergency systems worked as they should. The furnace closed down automatically and as planned. The local fire brigade together with the company's own industrial safety unit quickly gained control of the situation. Nevertheless, this was a very serious event with significant financial loss for the business. It took months to repair the damage, which also involved a significant loss of income for the company. Even though both property damage and loss of profit were covered by the insurance, this was a highly undesirable situation for the business.

ONE OF the crucial factors was that the oil hose was made of conductive materials, whereby it could easily sustain damage as a result of flashover. The company was aware of this situation, for which they had also initiated measures to remedy. All hoses of this type had previously been replaced with non-conductive hoses. However, one hose had been overlooked and it was precisely this one that was damaged. This clearly shows that such work needs to be planned and carried out thoroughly and carefully so that one can be certain that all hoses are replaced. It is self-evident to point out possible procedural mistakes and possible carelessness as reasons why the hose in question was not replaced, but this was done by an external supplier and therefore cannot be attributed to the customer.

Damage of this type is rarely a consequence of one single factor, but usually a result of a set of causes which interact with each other. In this instance, the handling of tools and equipment on the furnace during short start-ups could have been altered whereby the danger of flashover would have been reduced. There was also pressure on the oil hoses during the maintenance work and the flashpoint for the hydraulic oil was relatively low. We see that there are several barriers that could have been improved whereby the damage could have been avoided or the consequences reduced.

Even if the built-in technical emergency systems worked as intended and the industrial safety unit and fire brigade's response was excellent and rapid, it was not sufficient to avoid a serious situation.

The company immediately conducted an analysis of the incident and uncovered several areas where safety could be improved. The knowledge obtained as a result of the damage was used for improvements to technical solutions, improved surveillance systems and revised maintenance procedures. The business is thus now better equipped to avoid undesirable incidents.

2 Let us take a look at another example where technical design, choice of materials and deficient sealing against fire, combined with staff not following procedures exactly, led to a significant loss with major consequences for the company in question which was involved in industrial foodstuffs production.

Because of the foodstuffs production and the need for efficient cleanliness, large parts of the production plant were constructed with walls of plastic panelling and Isopore insulation.

As part of maintenance and repair of some cooling elements, there was a need to carry out welding work at a point that was difficult to access as it was narrow and dark where the welding had to take place. The fact that this part of the cooling element would probably have to be maintained in such a manner at a given point in time was anticipated and there are grounds for questioning the design when the working conditions were as demanding as in this case. Unfortunately, the welding work ignites surrounding plastic components.

Yet again, a set of circumstances and actions impact on, and influence, how the fire develops and how the extent of damage spreads. The person carrying out the welding work was not sufficiently careful and did not maintain the necessary watch, as should be done when hot work is carried out. When the fire was first discovered, it had already managed to be so big that it was difficult to extinguish. Due to the presence of much plastic in the area, the development of the fire was very rapid.

Since the fire brigade was quickly on the scene, the actual fire was restricted to a relatively small part of the plant. However, the smoke and soot development had been considerable and the fire-sealing between different parts of the production plant had not been optimal. Several changes of cable conduits and pipe ducts had made holes in originally fire-sealed cells and soot and smoke had been able to spread throughout almost the entire plant. Soot and smoke from plastic materials contain significant volumes of chlorides and caused extensive corrosion damage, even though damage-limiting clearing work was immediately initiated. The damage covered a very extensive area as a result of this.

After the fire, a range of measures was carried out, for example, routines connected with hot work (such as welding), were tightened up significantly. In addi-

tion, fire-sealing and the use of fire doors/fire separators were examined and greatly improved. Questions were raised about whether it was possible to alter the design of the cooling components in order to avoid the need for repair through welding in highly inaccessible and poorly arranged places. The possibility of using alternative construction components instead of plastic and Isopore materials in walls was assessed. In the short term, it is, of course, essential to improve the latter two conditions.

In addition to the above, it was revealed that the company's business continuity plan had to be improved and worked through far more carefully to enable it to function as an actual aid should an accident occur in the future.

3 Here is a good example of relatively basic and quite obvious measures being able to have a crucial importance:

The example is taken from a company with a large storage premises built together with the company's offices and operations wing. Between the storage and office/operations wing, there was a well-designed and, by no means least, well-maintained fire wall.

A fire started in the storage part of the building and very rapidly spread due, among other things, to the fact that large volumes of relatively easily combustible and flammable material (stearine) had been stored. The storage wing had no sprinkler system. The storage part of the building burned to the ground and the damage was so extensive that it was not possible to ascertain what the cause of the damage had been.

More happily, however, the fire wall held and this very powerful fire was not able to spread to the rest of the company's premises. The day after the fire we were able to sit down with the customer in the office wing and work out how the matter could best be resolved. What was absolutely crucial was the fact that the fire wall was sealed and correctly designed. The company had been convinced that the ducts and changes to pipes and cables had not led to any weakening of the fire wall. Therefore, neither heat, smoke nor soot inflicted any damage on the neighbouring wing worth mentioning.

Even though the physical barrier functioned excellently, this company also analysed the incident and initiated further measures aimed at reducing risk. For example, the electrical plant was thermophotographed in order to reveal possible weak points. Routines associated with fire-sealing and fire doors were tightened up further. Routines for the handling and storage of particularly flammable materials were improved.

All in all, we see that businesses that have experienced loss are particularly preoccupied with risk management work. This is, of course, very good and highly understandable. Nobody – however good the insurance provisions are that are in place – wants major losses. The optimal solution will, of course, be for the measures and the same awareness to have been carried out, and to have been equally prominent, before damage occurs. That way, one achieves maximum effect from the risk management work which is invested in the companies.

A fundamental question will be whether your company has satisfactory control? ■

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WELL FITTED SPRINKLERS IMPROVE FIRE SAFETY

Old sprinkler systems are ready for an upgrade and replacement. Good long-term risk management and financial planning are highlighted by If Industrial's experts in loss prevention and fire safety.

The sprinkler system was the height of innovation in the 1970s – and still provides benefit.

Maybe. Or maybe not. Only a real fire will give us the correct answer.

Risk engineers at If Industrial often find that maintenance and adjustment of sprinkler systems is given a low priority far too often. "Installation of sprinkler systems is an investment in safety, but it is not a one-off investment," emphasises Anders Rørvik Ellingbø, risk engineer at If.

"Follow-up is crucial in determining how good the protection provided by the system actually is. Inspecting, maintaining and upgrading of sprinkler systems makes good financial sense. Controlling the fire risk is such a strategically important area that it should naturally fall to the executive management group and be part of the investment budget. Fortunately, we see that companies with a good risk management program often have plans and systems to keep their sprinkler systems in good condition and carry out the necessary upgrades. In these cases we often see that long lasting business interruption subsequent to a major fire loss is defined as critical for the survival of the company," explains Ellingbø.

"Unfortunately, we also see a number of businesses where this understanding is missing, and sprinkler systems are considered merely as an item of expenditure rather than an important tool of business continuity ," he continues.

Risk engineer Ari Santavuori at If points out that switching to modern sprinkler heads makes older sprinkler systems more effective.

"Upgrading the sprinkler system is a useful investment which improves safety," he states.

"A number of sprinkler systems are undersized, and not designed properly for the building layout they are put in and the occupancy they are intended to protect. A continuous risk assessment, ensuring that the necessary changes are highlighted – contributes to improved fire safety, regardless of whether this relates to a hotel, retail premises, production hall or warehouse," Santavuori comments.

There are no statistical data showing the age of installed sprinkler systems in the Nordic region and Europe in general, but we do find systems that are 50 or 60 years old. Some are even older.

"Inspections in accordance with the sprinkler design standards, such as EN

12845 or NFPA 13 are obviously important, in addition to the statutory controls carried out by sprinkler inspectors on behalf of the authorities. Inspection of the inside of pipes and heads every 25 years is highly recommended for older systems, as deposits and corrosion in the water pipes and sprinkler heads result in a considerable reduction in the efficacy of the system. Water supply must also be tested with a flow-test every year," adds Anders Rørvik Ellingbø.

PILING GOODS TOO HIGH

Change of the occupancy in buildings, other than what they were originally designed and approved for, offers challenges. Renovation, redecoration and introducing new categories of storage might affect the efficiency of the sprinklers.

When the premises are used for such new activities, the efficiency of the sprinkler system can change dramatically, e.g. if production premises are converted for storage, the fire load increases significantly and the sprinkler system will be overloaded. Another example of buildings being used for new business activities could be a steel warehouse being converted into storage for vehicle tyres totally changing the fire risk.

If's risk engineers often see storage piled up too high and packed too closely together which might prevent the sprinkler system to work adequately. In addition, the goods may provide a higher fire load than the products for which the sprinkler system was originally designed. A good example of this is the storage of furniture. Furniture used to be stored as a complete, free-standing product. Today, they are transported and stored in heavy cardboard boxes filled with polystyrene padding, all wrapped in plastic.

"In this case, the polystyrene and shrinkwrap must be considered in the design of the water supply and sprinkler layout, not just the products inside the boxes," explains Anders Rørvik Ellingbø.

Effective use of the storage capacity makes good financial sense for the customer. However, it can result in a considerable reduction of the fire safety if the goods are stacked too close to the sprinkler heads. High-level storage can interfere with the spray pattern. Installations in commercial and office occupancies should allow a distance of at least 50 centimetres from the sprinklers to the top of the highest stored items. For warehouses and industrial premises, the clearance should be a minimum of 100 centimetres.

TYPICAL SPRINKLER FAULTS

- The sprinkler system is old, and not upgraded to be kept up-to-date
- The sprinkler system is not adequately designed or too small
- The building is used for a different occupancy than what it originally was designed for, without corresponding modification or upgrade of the sprinkler system
- Stored goods are piled too high and too close to sprinkler heads, which destroys the sprinkler pattern
- The fire load of the goods is too high for the actual storage layout.
- Valves are closed
- No systematically completed logbook for pressure reading
- The water supply is unreliable and not tested adequately
- Sprinkler pumps, where they exist, are not tested as required

Smoke ventilation is another important area, which must not be forgotten. The air current created by activation of smoke ventilation might draw the hot smoke away from the seat of the fire, activating sprinkler heads where not needed. The sprinklers above the actual fire may not even be activated.

INCREASING THE KNOWLEDGE

The level of expertise and commitment regarding sprinklers varies significantly from business to business. One of the most important assignments for If's risk engineers is to communicate adequate loss prevention strategies to the client management. This also involves a layout of the possibilities and required investments for reducing the risk of large losses.

It's important for key personnel to obtain the necessary knowledge through courses and updates.

"Unfortunately we also come across a number of new sprinkler systems incorrectly designed or with inadequate capacity," says Ari Ahonen, risk engineer at If.

Sprinkler systems should always be supplied with a programme for testing, servicing and maintenance.

The national requirements demanding sprinkler systems varies from country to country, but the standards EN12845 and NFPA 13 are often used for designing the systems. The level and frequency of inspections also varies with national regulations. Some countries have official inspectors, while others entrust the inspections to private enterprises.

In addition to the official controls, the insurance companies send out their own risk engineers to carry out regular inspections and assessments of the systems.

LOCAL WATER CONFLICTS

Water supply for sprinkler systems varies from country to country across Europe. In many countries, it is usual for warehouses and industries to use individual water tanks and pumps, while in the Nordic region it is more common to be connected to the public grid.

In Norway, for example, most sprinkler systems are connected to the municipal drinking water supply. This brings along certain challenges. The public grid may not provide sufficient pressure or hold enough water. The grid might have automatic or manual pipe burst valves which shuts off the water supply if large quantities of water are discharged, typical to a pipe rupture but also an activated sprinkler system. The valves are designed to stop uncontrolled drainage during large water leakages in the pipe network. The worst case scenario is that when sprinklers are activated, using large amounts of water, the valves may close automatically.

Sprinkler standards and the national regulations relating to the drinking water supply may also be in conflict with one another.

"Our goal is for more industries to improve the reliability of the water supply by installing water tanks and sprinkler pumps. Many clients believes that the public grid will manage to supply enough water for the sprinkler system, although we often see that the capacity is insufficient to control or put out a fire. The required testing of the water supply is often difficult to execute being refused by the water supplier. National regulations for drinking water do not allow full testing at the expense of access to clean and safe drinking water for its residents," says Ellingbø.

REMEMBER THE BACKUP!

"When using water tanks and sprinkler pumps, a back-up pump is advisable. For example, for a requirement of 8,000 litres of water per minute, it is advisable to install three identical pumps, each with a capacity of 4,000 litres a minute, connected in parallel so that two are working simultaneously and the third is held as a backup in case one of the others fail to work," explains Ellingbø.

Diesel pumps are considerably less vulnerable than electric pumps. They continue to work independently of the local and regional power supply network. In the case of fire, the fire brigade would want to cut the power supply, and this naturally could affect the power supply to an electric pump. In addition, the fire itself may cause a short circuit, which means that electric pumps stop working if they are not connected to an external power circuit. ■

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 TEXT SOFIA FORNELL / PHOTO 123RF

RISK MANAGEMENT IN CHINA

China is on everyone's lips. With a population of more than 1.3 billion, China is the world's largest country. Over the last decade, consumption in China has increased by nine per cent a year. China has become one of the world's largest investors. Many businesses are jumping on the bandwagon, as China grows in importance as an international market. Today, around 1,200 companies in China have Nordic roots. If also has a presence in China, enabling it to serve its Nordic clients.

TEXT HARRY NORDQVIST / PHOTO CP KELCO

TOUGHER THAN THE REST

CP Kelco is working hard to having Chinese risks assessed as well as the Nordic ones.

CP KELCO, an international company in the chemical industry owned by the American J.M. Huber Corporation, is a customer of If. The head of safety and risk management as well as insurance issues at CP Kelco's factories in Asia, Timo Liimatainen, worked with the local authorities in China for many years. "Using If's experts we enjoyed great success, for example, with the work concerning fire protection at the factory in Taixing."

The City of Taixing presented an award to CP Kelco for the high quality and exemplary fire protection at the factory. The city has also used the factory as a showcase for the other chemical companies on the industrial park, which total more than a hundred.

The production facility located in the City of Taixing produces CMC, i.e. carboxymethylcellulose. This involves the use of flammable liquids and hazardous chemicals.

Timo Liimatainen has a long working relationship with Industrials' risk engineers Ari Santavuori, Matti Koskenkari and property underwriter Maarit Lehtinen.

"If's Ari Santavuori was already involved in the planning and the procurement of equipment for the factory in Taixing, and also supervised the inspection of the fire protection equipment," says a pleased Timo Liimatainen.

IN CHINA, the quality of the equipment is such that it doesn't always comply with the international standards to which CP Kelco adheres to. "As an example, when purchasing pumps, valves, and fire alarm systems for fire protection, it is necessary to use equipment approved by an internationally recognised and widely accepted fire laboratory. These include VdS, LPCB and FM", says Ari Santavuori. "The insulation material and electrical installations in the buildings may also have significant safety breaches that need to be addressed."

"During the construction of the factory in Taixing in October 2008, there was a chlorine leakage in the neighbouring company outside CP Kelco's area. As a consequence, CP Kelco evacuated 450 people. Fortunately, due to CP Kelco's quick action, there were no fatalities."

Timo Liimatainen has been working on a range of work tasks in process engineering and risk management for over thirty years – from 1995 he was head of safety and risk management.

With his almost thirty years of experience, Liimatainen has the following leading thought: "Giving clear instructions, making sure that the instructions are understood and setting a good example, are the cornerstones of my job."

CP Kelco has set out very detailed criteria for how risk management is to be handled. "My task is to ensure that things work according to instructions, even in real life."

China's economy is the fastest growing in the world and new companies are constantly attracted to the country, which includes If's Nordic customers.

Major accidents also occur in China, if not every day then at least every week. One reason for that is of course the huge population. One-fifth of the world's people live in China.

THE PROPENSITY for accidents can also be explained by the high pace at which China is changing. In the country with the quickest growth rate, production facilities are running at full tilt.

"Previously, health and safety and environmental protection have been in the background, but laws are now being changed all the time. For example, the environmental protection law has really strict rules, even from a Nordic perspective, for foreign-owned companies," says Timo Liimatainen.

According to Liimatainen, China has a critical shortage of expertise in the areas of process safety and risk management.

"Hiring competent employees in these areas can be challenging because the safety culture that CP Kelco requires does not exist in some companies. Additional safety training of new employees is required. On the other hand, when the foreign company has trained employees, they become more valuable and tend to move on to other companies. Middle managers switch employers at intervals of 2–4 years, i.e. precisely when they have started to embrace the company's procedures and practices.

"The change of workplace is often due to people moving back to their home towns and families. Another reason is of course salary. Wages rise by some 20 to 30 per cent when changing jobs, and sometimes substantially more," says Timo Liimatainen.

"An increasing number of people are always being trained in risk management in China, but it will take some time before risks are assessed as well as they are in the Nordic countries."

"Those who have worked for as long as I have on this have understood the importance of having highly detailed documentation for all agreements. Nevertheless, sometimes you have to sit down at the negotiating table and discuss what the content of the agreement actually means."

"In order to achieve consensus, it helps if you succeed in creating a trusting relationship with the authorities. The permit culture is very bureaucratic compared to Nordic practices, for example."

Timo Liimatainen would like to emphasise one more thing:

"In the practical work of risk management, you need to clarify the issues for all staff thoroughly and ensure that the content of the message is understood. If a Chinese employee nods or says "yes", this does not necessarily mean that he has understood – it might mean that he only heard what has been said. The long-term cooperation with If's experts has been very helpful in this communication work." ■

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LEADERS IN HYDROCOLLOID APPLICATION, TECHNOLOGY AND MANUFACTURING

CP Kelco is the innovation leader in the production of polysaccharides by microbial fermentation, extraction from land and sea plants, and modification of cellulose-based raw materials.

CP Kelco's goal is to be the preferred partner for providing innovative products and solutions through the use of nature-based chemistry. CP Kelco's products are derived from natural, renewable raw materials, and are provided with minimal modification. The company has over 200 years of experience in the manufacturing of multiple hydrocolloids.

CP Kelco employs over 2000 people worldwide and has nine production facilities, two of which are located in China. The Chinese-based manufacturing units produce CMC (CarboxyMethyl Cellulose) in Taixing and biogums in Shandong. The total number of employees in China is about 420.

CP Kelco is part of the family-owned and US-based J.M. Huber Corporation.

 TEXT SOFIA FORNELL / PHOTO 123RF AND IF

IF IN CHINA

LOCAL EXPERTISE HELPING NORDIC BUSINESSES

If has been providing insurance services in China through its partners since 1996. Due to the growing interest and investments by Nordic companies If has over the last few years reviewed its activities to give the best service to clients in this region.

"WE HAVE entered into an exciting phase of development. Many products bear the "Made in China" label. It's become something of a standard inscription. In the near future it really ought to say "Developed, Made and Sold in China" instead," says Thomas Clarstedt, who is head of If's international operations for the Industrial business area.

As more and more companies move their production, sales and development units to China, new risks arise and there is an increased risk profile in general.

Thomas Clarstedt goes on to explain, "If takes its Best-in-risk work very seriously and we want to manage risks together with our client. It was therefore natural for us to carefully review how we could best provide our clients in China with higher level of service".

The Chinese insurance sector is undergoing major changes, just like China itself. After a long break due to new regulation foreign insurance companies have been active in China since 1992. Today there are 60 or so operators in the country, around 20 of which are foreign.

One of the leading trends seen is the explosion in the sale of car insurance. The written premium for the motor segment currently takes 70 per cent of the whole P&C insurance market, which is attributed to the increasing number of private cars being purchased in China.

IF OPERATES in the commercial market and has been working in partnership with two Chinese companies, Ping An and China Pacific, for some time now. The companies are stable insurers who hold the second and third positions respectively in the P&C insurance market. Both represent the modern insurance company that competes with the more traditional People's Insurance Company of China (PICC), which has a strong foothold in rural areas.

In 2007, Shelley Gao-Kyllönen joined If after working for China Pacific. Shelley was born and brought up in China and has a background in the insurance sector. She is a key member of the team that takes care of Ifs clients.

"If has a very good relationship with our Chinese partners. We have decided to work with two companies because they are strong in different parts of the country. It is also good to be able to offer our clients more than one option," says Shelley Gao-Kyllönen.

Based at If's office in Helsinki, Shelley is the Regional Manager of If's International Partner Network with responsibility for China, Malaysia, Indonesia and parts of Europe.

There are several areas in which the business cultures of China and Nordic countries differ. It's essential for a company to have the right contacts and access to different networks if it wants to do business in China.

ANOTHER IMPORTANT person in If's team is Håkan Edoff, a risk engineer working for the Industrial business area, who has been located in Shanghai since August 2012. His work involves assisting and supporting our clients by providing consultation services in connection with the establishment of factories, for example, and other damage prevention activities.

Thomas Clarstedt says, "If already has a strong platform with our Partner Network and can now offer local risk management services with a "Nordic touch".

Risk prevention is not as obvious a part of the insurance business in China as it is in the Nordic countries. The majority of companies do not include risk management services in their product portfolios.

It is therefore an advantageous in Ifs contact with both partners and clients to have a presence in China supported by the right expertise and experience.

"To our knowledge, none of our competitors have a Nordic risk engineer in China. Our presence has been an important and sometimes decisive factor for clients when making decisions about insurance companies and policies", says Thomas Clarstedt and continues:

"Traditionally, when a company has opened a manufacturing plant etc. in China, the production manager has been European. That person may need support and who better to give it than Håkan Edoff, who is right there and ready to act as a sounding board and consultant".

There is no doubt that China is striding forward. An American report, published by the National Intelligence Council (NIC) in December 2012, says that Asia will outstrip Europe and North America together in terms of GDP, size of population, military expenditure and investment in technology by 2030.

China's economic growth is expected to slow down slightly but remain strong.

Thomas Clarstedt shares his thoughts on what the business situation will look like in China in five years' time.

"The turnover and the size of the operations in China of our Nordic clients will have increased. The trend of setting up development and sales units in China will continue." ■

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IF'S MAN IN SHANGHAI

He is the face of If in China, approximately 7,700 kilometres from his home town of Stockholm. Meet Håkan Edoff, Risk Engineer working in the metropolis Shanghai.

SINCE AUGUST 2012, Håkan Edoff has represented If on location in China.

"I have If's coolest job", he says.

"Being a Risk Engineer, you get to work with your client's risks and risks we share with them. You work together to find an improvement that will hopefully mean that future damage is avoided".

One of the more important projects that Håkan and other team members are working on is the construction of a large factory in Southern China. An investment worth around SEK 14 billion, for which If provides project insurance.

HÅKAN EDOFF'S TOP FIVE RISK MANAGEMENT TIPS

1. Control of reported values: make sure that the values reported represent the replacement cost. For reasons of tradition, balance values are sometimes booked. (Risk of underinsurance).

2. Automatic water sprinkler systems and fire detection systems should be annually reviewed by a certified third-party company. Automatic water sprinkler systems in China often markedly deviate from the required standard, or are non-existent.

3. Control of contractors: ensure that contractors working on site have the required liability insurance cover.

4. Lack of knowledge of hot work routines can be a problem.

5. Thermographic camera for scanning of electrical installations: an IR camera will improve the maintenance of onsite control equipment (mechanical and electrical). E.g. if the temperature of a bearing suddenly rises, this often indicates that a mechanical breakdown is imminent. Using an IR camera, the replacement of defective parts can be planned, thereby avoiding halts in production caused by unpredictable breakdowns.

TEXT HARRY NORDQVIST, ILKKA KALPIO / PHOTO ILKKA KALPIO, IF

IMPROVING LOAD HANDLING SAFETY

By proactively meeting the customer's close to zero tolerance to cargo damage, port operator Steveco is gaining competitive edge.

Steveco Oy, a Finnish port operator, performs most of the load handling and storage work done in the Port of Kotka, as well as handling much of the container and unit traffic passing through Helsinki's Vuosaari port. Through its subsidiary, Sterm Oy, and associated company Joensuun Laivaus Oy, Steveco provides port operator services for inland waterway transport in ports in the Saimaa region and Hamina, Finland.

Handling millions of tonnes, Steveco Oy is known for its good safety culture, which has been developed together with If experts. The small number of accidents in the company's working environment also bears testimony to the overall quality of its operations.

STRICTER QUALITY CRITERIA

Heavy transport and project cargo always present port load handlers with a challenge.

"The heftier and heavier the cargo, the more expertise and equipment is needed to handle it," says Ilkka Kalpio, a transport risk expert at If Industrial. "In light of the number of tonnes handled and loaded in ports every day, the accident frequency has remained low. On the other hand, we have seen quality criteria become stricter down the line. The end customer of the transport chain no longer accepts almost any defect in cargo."

"An increasing number of cargo recipients are showing zero tolerance towards possible accidents in the transport chain. While this puts additional quality improvement pressure on port operators, offering higher service quality is another way of gaining a competitive edge. Steveco Oy has scored highly in port operator comparisons," Kalpio adds.

The terrorist attacks in the US on 11 September 2001 had a significant impact on port safety. According to Ilpo Gunnar, who heads development at Steveco, 9/11 quickly led to a new port security code, ISPS – The International Ship and Port Facility Security Code. The code's basic principles include anti-terrorism measures, rescue-related issues and general port safety. Gunnar also states that ISPS requirements have solved a number of structural problems. All ports are fenced off and have effective access control, for example.

"Compliance with requirements is internationally monitored and is the responsibility of the highest authorities in each country. We are required to organise regular training for our staff, at least once a year," Gunnar adds.

AEO (Authorised Economic Operator) status also improves safety: doors are locked and cargo information is kept secret more effectively than before, which is mainly reflected in the way documents are handled. Customs authorities monitor compliance with AEO status, by regularly and thoroughly auditing different stages of operation.

Port safety is under continuous development. There have been no major accidents in the Vuosaari port area during its four years of operation; for example, walking in the area is completely prohibited.

Port operators and their subcontractors are in charge of the cargo and of moving it.

This low number of accidents is no mean achievement, considering how many people, vehicles and machines frequent the port. Vuosaari port employs some 1,500 people, and incoming and outgoing heavy trucks generate some 3,000–4,000 gate-in/gate-out reports each day. Straddle carriers, forklifts and other work machines also create their share of traffic.

Ilkka Kalpio is thoroughly familiar with the sector and its risk areas. Carefully fastening cargo in the right way is an essential part of the transport chain.

"In addition to containers, goods are also loaded on wall-less cargo platforms, carriages and cassettes. The goods are fastened with ropes or belts and must stay tightly bound. There is no room for error or neglect, and nothing can be allowed to work loose when the cargo is transported by sea," Ilkka Kalpio comments.

Kalpio and Gunnar underline the importance of training and a directional environment. In cooperation between If and Steveco, the most important assets are close collaboration, continuous training and jointly performed safety audits.

Steveco's staff are constantly provided with high-quality safety training. "Safety training is a continuous process, progressing upwards one step at a time. Having all parties interested in safety is the best way of improving it further. As the saying goes, a job well done is its own reward," Kalpio states.

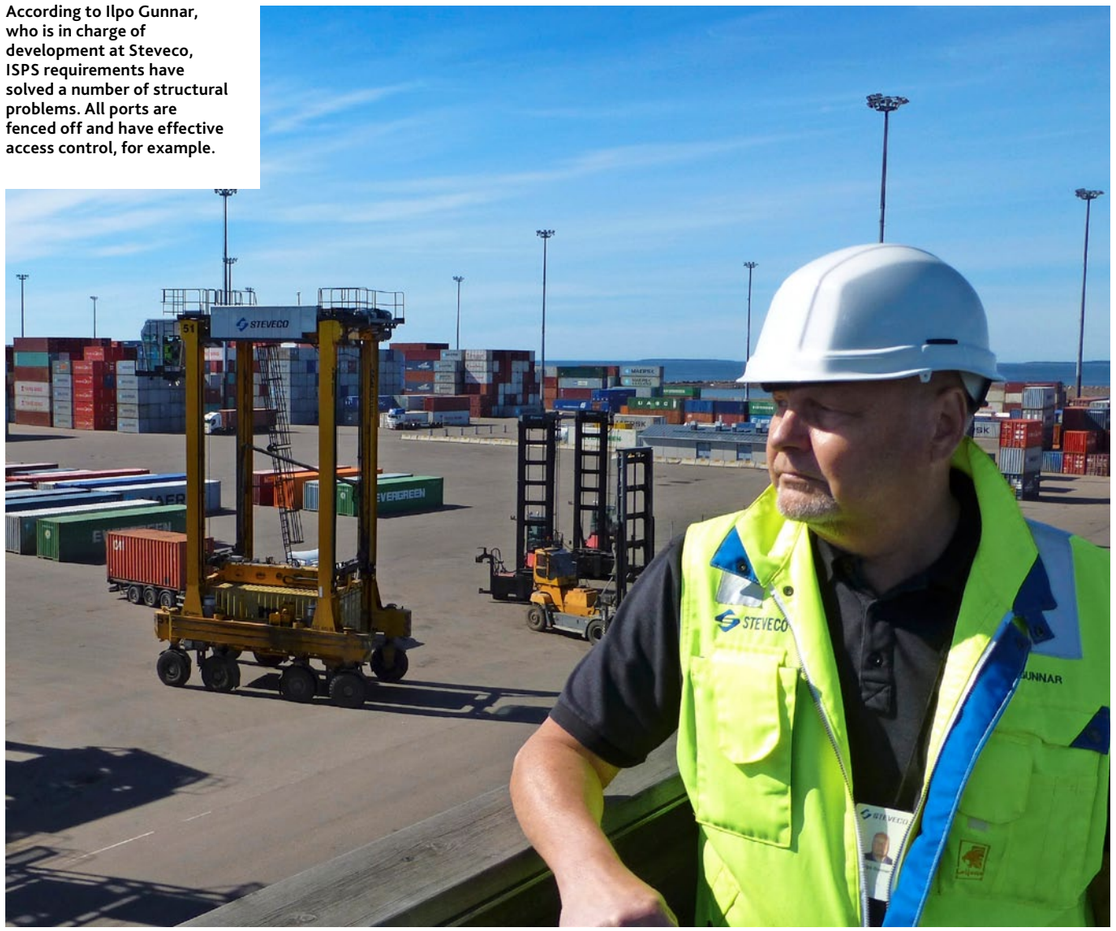
"Solving safety problems is mainly a question of attitude rather than money."

PROPER GUIDANCE

In addition to safety training and its quality, ports should pay more attention to the operating environment, Kalpio points out.

"Does the environment encourage people to operate correctly? Safe operations may not be possible if the operating environment is difficult or not supportive of the correct behaviour. In other words, it may lack marked routes, sufficient operating room or lighting in warehouses, and unambiguous signs. It may also have dangerous corners and blind spots. In my opinion, the importance of having a directional environment should be given greater emphasis."

This also applies to large inland logistics centres. It is essential that all markings are correct, and intuitive from the workers' viewpoint.



According to Ilpo Gunnar, who is in charge of development at Steveco, ISPS requirements have solved a number of structural problems. All ports are fenced off and have effective access control, for example.

Numbering of warehouses and sections helps rescue teams to find their way if a fire breaks out, for example. The operating environment must be designed so that certain places can be found quickly.

Vuosaari port is an example of a safe working environment. Its unambiguous traffic signals and road markings direct people to the correct place. Easily discernible main channels guide people in the right direction. The port also has traffic lights and level crossings with gates.

In Kalpio's opinion, at ports and logistics centres people all too easily assume that "everyone already knows, so there's no point in using signs to make it obvious".

FEWER AND FEWER MISTAKES

The safety status of ports and logistics centres has clearly seen continuous improvement. This is partly due to safety criteria introduced by foreign operators.

Use of helmets, safety vests, goggles and other safety gear is neglected less and less often.

It has also been observed that, although they may sound draconian, sanctions have a major impact on safety and showing respect to others. "If you block a crossing by stopping inside the white box markings, you might receive an earnings-based fine rather than a petty one.

It would also be unfortunate if the importance of safety were only noticed after a severe accident serves as a wake-up call.

"In personal and cargo safety, quality does not mean fixing one thing and neglecting the rest. Everything must be in order, because safety is a coherent whole," Ilkka Kalpio emphasises.

"Large units of goods are on the move in ports. Even when only moved a few metres, cargo must always be fastened. If this is neglected, the risk of accidents increases. Safety routines must not be compromised."

Kalpio wants to highlight the importance of comprehensive safety thinking: "This approach must be constantly developed and maintained in the working environment. Inviting workers to submit safety initiatives is a great way to promote it, for example." ■

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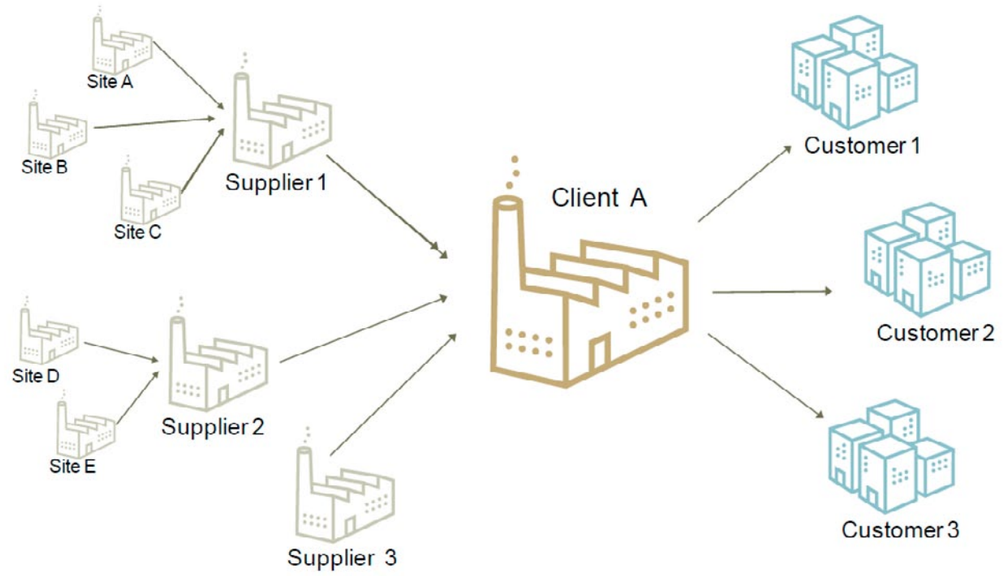
BUSINESS CONTINUITY MANAGEMENT IN AN INTERDEPENDENT WORLD



As a result of the natural catastrophes, 2011 was one of the costliest year in history in terms of insured losses.

THE LARGEST events were the earthquake in Japan ($35bn), the earthquake in New Zealand ($12bn) and the floods in Thailand (also $12bn). In particular, the Thailand claims were an unpleasant surprise for the insurance industry as the size and amount of industrial parks was commonly underestimated and the risk of flooding was regarded as minor. Flooding is an almost annual occurrence in Thailand, but the extent this time was unprecedented; roughly half of the insured losses in Japan and Thailand came from business interruption dependencies. Ifs portfolio was hit just like other international players and our international exposure was emphasized by the earthquakes in Chile and Italy and Hurricane Sandy on the east coast of the US.

In autumn 2011, Munich Re reacted by publicly announcing that as from 2013 they will demand more detailed information, stricter limitations and even exclusions regarding business interruption dependencies. A challenge for both the insurance company and the insured is that it is difficult to control and affect the physical risk of the supply chain. However, it is important to conduct a proper risk evaluation in order to develop a good basis when setting the sums insured. When insurance cover is also required for unknown exposures such as unnamed suppliers or customers, the sums insured are generally lower for the unnamed ones due to greater uncertainty about the risk.

Increasing complex loss scenarios lead to unrest in the insurance and the reinsurance world.

MunichRe launched their Complex Accumulation Risk Explorer (CARE) in an effort to prevent surprises.

They want to provide a framework for the analyses and structured discussion of dependencies and indirect consequences of critical events for insurance business. For them it is a new approach to analyze dependencies between different events and consequential accumulation risks. This results in enhanced data requests from clients.

Of course, it is worth noting that though more information frequently leads to a decrease in uncertainty, it does not necessarily change the probability of an event. For example, though frequent inspections of a critical component may reduce the uncertainty regarding the probability of the component failing within a certain period, the inspections do not reduce the probability of the component failing unless action is taken to remedy the situation.

In addition, several white papers on Contingent Business Interruption and how to assess supply chain risks were published. All these things signal the more complex world we now operate in, as is nicely summed up in the World Economic Forum's Global Risks 2012, Insight Report (available on the web).

This Insight Report gives a nice graphical example of Business and Operational Risks and their domino effects in a special report on the Great East Japan Earthquake in March 2011. The quake's magnitude surprised even a country with a long history of earthquakes. Japan was not, however, prepared for a tsunami of such an unprecedented scale. The graph depicts how unforeseen consequences rippled through complex global systems.

The recent publication of the ISO 22301 norm reflects the need for guidance on this complex subject. Its official title is "Societal Security – Business Continuity Management Systems (BCMS) – Requirements". As the name implies, it is a standard for implementing a business continuity management system and continuously improving business continuity capabilities based on management priorities and feedback. The purpose and intent of this standard is to plan, establish, implement, operate, monitor, review, maintain and continually improve a documented management system to protect against, reduce the likelihood and occurrence of, prepare for, respond to and recover from a disruptive incident when it arises. It is based on the well-known Plan-Do-Check-Act cycle.

The core of the BCMS is based on the following components;

1. Business Impact Analyses (BIA)
2. Business Continuity Strategy and Procedures
3. Exercises and Training
4. Recovery

These components should be part of an overall Risk Management system to make sure organizations are well prepared for the unexpected.

An older example is the British Code of Practice (BS 25999-1:2006)

– Business Continuity Management (BCM) is a holistic management process that :

– identifies potential threats to an organization and the impacts to business operations that those threats, if realized, might cause, and

– which provides a framework for building organizational resilience with the capability for an effective response that safeguards the interest of its key stakeholders, reputation, brand and value-creating activities

– The Business Continuity lan (BCP) is a documented collection of procedures and information that is developed, compiled and maintained in readiness for use in an incident to enable an organization to continue to deliver its critical activities at an acceptable predefined level

WHAT DID IF DO?

A group of If specialists performed a study on 'External Dependencies in Business Interruption', which showed there is a clear need for If to broaden our scope on information gathering.

The working group's opinion is that business interruption risks including dependencies should be evaluated in the same depth as the property risks. The understanding of the clients' business structure, material flow, cash flow and data flow combined with their profit and loss statement should be improved.

Issues, problems and some solutions around the dependencies can be presented as follows:

The danger now is that such events like the one in Japan or Thailand can be quickly forgotten as companies revert to the principles of lean business models, which imply that building redundancy and excess inventory into supply chains can be seen as a waste of resources.

IF'S ANSWER

The awareness level for these kinds of business interruption exposures must be raised both internally and externally. For this purpose, we developed our Business Interruption Navigator tool that allows us to ask the right questions and start the necessary discussions to address this sensitive risk.

Businesses need to apply risk management to their whole supply chain. Risks of partners and sub-contractors should be considered to reduce their vulnerability to supply chain ruptures. Avoiding single points of failure ('bottlenecks') is one of the most important targets of risk and business continuity management.

In short, we should promote flexibility and resilience in the organizations we insure. In other words, companies should not overdo optimization (do not put all your eggs in one basket) and learn to appreciate redundancy again.

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TEXT JAANA SALO / PHOTO VAASAN

HEALTH AND SAFETY LOSS DRIVERS IN THE FOOD INDUSTRY

The food industry is facing a diverse set of occupational risks. Active safety work is reducing the number of accidents.

The food and drink industry represents the largest manufacturing sector in the EU, whether measured in net sales, added value or the number of employees. In 2012, the sector's net sales in the EU surpassed EUR 1,000 billion, and it employed 4.25 million people. Production in this stable sector has seen a steady upward trend, in spite of economic fluctuations.

Surpassed only by the metal and forestry sectors, the food industry is Finland's third largest sector, when measured by the number of workers. It employs more than 32,000 people in over 1,800 places of business. A total of 64% of these are small companies, employing fewer than 5 persons, but there are large food groups among the industrial sector, operating in several countries and employing thousands of people.

The food industry refines raw materials into human food and animal fodder. It includes several lines of business. Measured by the number of workers, the largest among these are animal slaughtering and meat processing, the bakery industry and the manufacture of dairy products. These are considerably different lines of business, involving diverse work and risks. For example, meat is primarily cut by hand and involves a major risk of accidents, while the drink industry is mainly automated, thus involving smaller occupational risks.

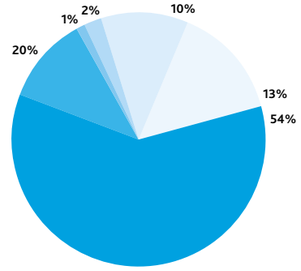
OCCUPATIONAL SAFETY

Stress factors in the food industry include noise, coldness, draught, heat, repetitive work, lifting heavy items manually, static working positions such as crouching or raised arms, and hurry. Although the industry's occupational safety and health risks are well known, means of reducing risk are often difficult to identify or very expensive. For example, slaughtering and meat cutting remain primarily manual tasks, with no type of automation having appeared which could replace manual work.

The food industry experiences high numbers of occupational accidents. It also involves the risk of occupational diseases, caused by musculoskeletal disorders and allergies, for example. Food industry workers also suffer from auditory traumas.

A large number of food industry companies have not yet implemented a certified management system for occupational health and safety, which would be in compliance with the OHSAS 18001 or other, corresponding standards. Management systems for quality and the environment are more common. Lately, such systems have helped to improve occupational health and safety. ▶

FIGURE 1: BODY PARTS INJURED IN OCCUPATIONAL ACCIDENTS IN THE FOOD INDUSTRY (2007–2011, N=12772)



The statistics show that, in Finland, one occupational accident proved fatal in 2007–2011. Causes of fatalities in the food sector have been researched in the United Kingdom, whose food and drink manufacturers suffered a total of 53 fatalities in twelve years. These fatalities involved machinery/plant (38%), workplace transport (25%), falls from heights (15%), confined spaces/asphyxiation (11%), being struck by an object (8%), animals (2%) and electrocution (2%).
Source: www.hse.gov.uk.

VAASAN: BIG DROP IN ACCIDENTS

The Vaasan Group is an international bakery industry company operating in Finland, Sweden, Estonia, Latvia and Lithuania. It employs a total of 2,800 persons. Half of the Group's net sales are generated in Finland, and 20% in Sweden. In Finland, the Group has bakery operations in 11 locations.

Vaasan Group has defined its quality, safety and environmental principles. These require that personnel are trained and their skills developed, and that occupational safety and well-being are promoted in the workplace.

At Vaasan Oy, the number of occupational accidents has fallen significantly, thanks to active occupational safety work.

Last year, Vaasan Oy still had an accident frequency of 40, the average level of the Finnish food industry. The current estimate (situation at the turn of May and June) of the year's final accident frequency is 10. Last year, Vaasan Oy experienced 82 occupational accidents, but up to June of this year there were only seven.

The key means of active safety work are active recording of near misses and the performance of corrective actions. During the last three years, over 2,600 near misses have been reported in Finland, with the necessary corrective actions being taken in over 90% of cases. All staff actively participate in safety work, such as meetings where reports are considered and corrective actions are decided. Performance of such measures is frequently monitored, with the aim of exceeding the 90% success rate once again.

Another feature of the Fresh Bakery Products business area is Total Productive Maintenance (TPM), launched in the Vantaa bakery in 2009 and subsequently adopted in all locations. Bakeries hold weekly TPM line meetings, which have already resulted in over 5,100 proposals from the staff for better operations and working environment.

A total of 4,246 proposals have already been realised, which means a realisation rate of 83.5%.

TPM activity and close-call reports have yielded a total of 15,000 proposals in the last three years. These have been handled and most have resulted in corrective measures. Active safety work is beginning to bear fruit. But these are not the only safety improvement measures taken by Vaasan Oy. Risk assessments are also actively performed; the company's Finnish operations aim to conduct more than 90 assessments this year. If has contributed to Vaasan Oy's safety work.

FIGURE 2: ACCIDENT FREQUENCY IN DIFFERENT INDUSTRIES IN FINLAND

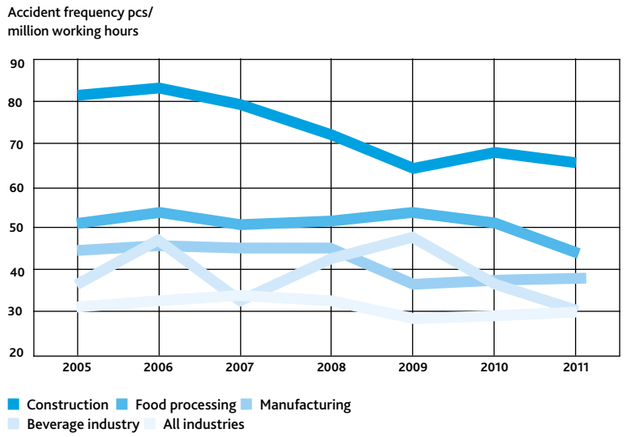


FIGURE 3

TYPICAL OCCUPATIONAL ACCIDENTS IN THE FOOD INDUSTRY	TYPICAL OCCUPATIONAL DISEASES IN THE FOOD INDUSTRY
Wounds caused by sharp objects	Strain disorders
Unexpected start-up by a machine, fault repairs while a machine is running	Auditory traumas
Falling down, slipping	Skin diseases
Sudden physical strain (when lifting, for example)	Respiratory allergies
Impacts with moving or fixed objects	Asbestos diseases

The largest units in the industry have significantly improved in terms of cleanliness and a well-ordered workplace, which has had a positive effect on accident figures.

In several sectors, client companies require that their suppliers take account of occupational safety. The food industry, meanwhile, sells most of its products to consumers who are unable to take the occupational safety of food manufacturers into consideration when choosing between products.

Occupational rehabilitation, sometimes known as sickness absence and return to work, has become more and more important in the food industry. Some companies have succeeded in significantly reducing their absence rates by means of active health promotion programmes.

OCCUPATIONAL ACCIDENTS

The food industry has a greater than average risk of occupational accidents, compared to other industries. The risk of occupational accidents is often depicted as accident frequency, or the number of accidents per million working hours. In 2011, the accident frequency in the Finnish food industry was 44, while the average frequency in manufacturing industry was 39, and 31 in all industries. The food industry is a labour-intensive field, which partly explains its greater risk of accidents.

Most occupational accidents involve hand and finger injuries in particular. Since the industry requires strict hygiene, hand accidents lead to rather long periods of sick leave, because workers may not return to work before their wounds have fully healed. The second largest group of occupational accidents involves injuries to the legs. Such injuries are often caused by falling over and slipping, and often result in long periods of sick leave. Body injuries form the third largest group. These often involve sprains or strains which occur when heavy items are lifted or moved.

OCCUPATIONAL DISEASES

The food industry includes plenty of manual work, although many machines and much equipment are used with the intention of reducing the need for manual labour. Such work involves repetitive actions, which increases the risk of repetitive strain injury (RSI). Food industry workers face an almost sixfold risk of RSI compared to the combined RSI risk for all industries. In particular, workers are placed under strain by repetitive work, manual lifting and movement. Such strain is often intensified by a cold working environment, which exposes workers to musculoskeletal disorders. Typical RSIs in the food industry include epicondylitis, tendonitis and tenosynovitis.

Auditory traumas remain common, although most people currently suffering from these were exposed to noise in the 1980s or earlier. The number of auditory traumas has steadily decreased. Respiratory allergies and occupational skin diseases are also common in food industry professions. Allergising substances include flour dust and spices. Work in wet conditions may cause skin diseases.

MACHINE SAFETY

Serious occupational accidents in the food industry often involve machines. Durable machines are used in the industry, which means that the machine stock may be rather old, and may not comply with modern occupational safety standards in every case. Demands for high levels of hygiene and easy cleaning make it difficult to insert safety equipment and safeguards. Machine safety is not paid sufficient attention in every case. The risks involved in industrial machines and equipment are completely different from those involved in home cooking. Because this fact is sometimes forgotten, mixers may be kept running while raw material is added and conveyor lines are kept running during fault repairs. Most occupational accidents occur during disruptions and emergency situations, when faults are repaired manually while the machines are running.

The food industry still includes plenty of manual processing stages. A great deal of work, for example various kinds of packing, is performed on a machine line. The pace of work is often dictated by a machine. Product batches may be small or otherwise difficult to handle, which prevents their automation. For this reason, manual work is set to continue into the future. ■

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OVERHAUL TO IMPROVE IF LOGIN

A major overhaul is ongoing with If Login, If's web-based risk management and insurance folder for large enterprises and brokers.

The long term ambition is to reach a whole new level of usability, both in terms of content, functionalities and layout. The objective is to provide a folder service that matches the global and local challenges the clients confront daily in managing their insurance portfolio.

The work is done with step-by-step approach. A string of updates will take place during the forthcoming months and years.

Earlier this summer the policy overview was for example renewed so that among other things the search for the policy lists now is much faster and more easy to use. Smaller, but important improvements to the claims report were also made. You can now for example choose to run the report on the claims payment day, the loss occurrence date or the reporting date. Just to mention a few of the updates.

In October some important functional and technical enhancements was implemented.

And much more to come next year.

If Login is a free of charge service to all Industrial clients and brokers.

Benefits for your company

- Easy access to documents means less time on administrative routines and more time on discussing insurance solutions
- Always up-to-date and consistent information
- User-friendly online manual, no time-consuming training
- Readily available forms enable faster responses
- Information from all If's operating countries in one place, accessible around the clock from any Internet connected computer in the world
- You can still use our other channels whenever necessary
- Tailored profiles ensure users see exactly the information they need

What can you do in If Login?

- Review your insurances online, as easily as online banking
- Access your documents as they are stored in If's systems
- Review policies and obtain policy overviews
- Report a new claim and obtain claim reports
- Read the latest Risk Survey Reports
- View insurance Terms and Conditions

APPOINTMENTS

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KEN HENNINGSON,
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MALIN FORSSÉN
Head of Property Claims,
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MIKA VILKKI,
Nordic Head of property underwriting,
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NANO MATERIALS – GOOD OR EVIL?

In the middle of September some of the world's foremost experts and scientists on nanomaterials and their possible adverse health effects gathered in Oslo, Norway, for an extensive workshop. If P&C Insurance initiated and hosted the think tank. The experts came from the United States, Switzerland, Germany and the Nordic countries. They represented well-known research institutions, regulatory authorities and the nanotechnology industry, among others professor David C. Christiani from Harvard School of Public Health and professor James Bonner from North Carolina State University.

For some years, there has been a growing concern that some nanomaterials may cause adverse health effects in humans and also harm the environment. Numerous research programs have been initiated to clarify possible links between nanomaterials and such negative effects. As the largest P&C insurance company in the Nordic region, If P&C Insurance has for many years been very concerned on follow up on emerging risks. An important part of our policy is to develop and maintain a leading position in risk knowledge and risk management.

A large number of engineered nanomaterials have been developed during the last decades. These materials are used in a large variety of products like cosmetics, sports gear, building materials, textiles, paint and others. Nanomaterials are also increasingly being used in medicine, both in diagnostics and in treatment.

Read about the experts' conclusions on nanomaterials and possible adverse health effect in the next issue of Risk Consulting Magazine.

"It resembled a war zone. You don't imagine that buildings made almost exclusively of steel, concrete and tiles can burn so viciously."

Kim S. Petersen,
Danish Crown