



ACHIEVING ZERO ACCIDENTS IN A PLASTERBOARD WALL FACTORY

1. Organisations involved

Saint Gobain Rigips GmbH

2. Description of the case

2.1. Introduction

Saint Gobain Rigips GmbH is the oldest manufacturer of plasterboard walls in Germany, and the company name has become synonymous with its product. Nearly 810 employees in nine factories are responsible for various plasterboard, gypsum and insulation products used in the construction industry. In 2005 Rigips became part of the Saint Gobain Group.

The Saint Gobain Rigips integrated management system (IMS) consists of a certified ISO 9001:2000 quality management system and a safety and health management system certified by the Statutory Accident Insurance for the Stone Quarry and Building Material Industry (StBG), in accordance with the OHSAS 18001 standard.

Until 1994 Rigips documented up to 53 notifiable accidents¹ at work annually (StBG, 2006). This was considered unacceptable, not only because of the risks to workers' health but also because of the effect the accidents had on productivity and annual turnover.

In 1995 Rigips decided to implement the ISO 9001:2000 quality management standard, which was later supplemented by a safety and health management system of StBG standard. Since then the IMS has been regularly re-certified.

The implementation of the IMS was accompanied by a bundle of concrete measures with the aim of reducing the number of accidents at work. These included:

- investing EUR 1.7 million in the improvement of machinery safety between 2001 and 2005;
- periodical auditing of all production processes;
- re-organisation of production and in-house transportation processes;
- training and awareness-raising of the workers;
- elaborating specific OSH programmes for each factory; and
- a coherent system of warning signs at places of elevated risk.

2.2. Aims

The aim of the activities undertaken was as simple as it was ambitious: to reduce the number of accidents leading to sick leave to zero. The question that needed to be answered was: What had to be done in order to reach this goal?

¹ Notifiable / reportable accidents = accidents that lead to three or more days of sick leave. According to German law accidents need only be reported to the accident insurer if the worker dies or suffers from injuries that lead to more than three days of sick leave, section 193 I SGB VII. See German Code on Social Law, Book 7 (SGB VII), section 193, available at: http://bundesrecht.juris.de/sgb_7/_193.html (http://bundesrecht.juris.de/sgb_7/index.html). The practice in EU Member States varies significantly: Eurostat (ed): ESAW 2001, Methodology. p. 24. Available at: http://ec.europa.eu/eurostat/ramon/statmanuals/files/ESAW_2001_EN.pdf

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There were two elements to this process. On the one hand safety and health management had to be mainstreamed into general management. On the other hand workers had to be educated and sensitised to safety and health concerns. Only with the full acceptance of all in-house stakeholders would the ambitious objective of zero accidents be realised.

Furthermore, the goal was not only to reduce accidents but to avoid near-misses. The Saint Gobain Rigips management therefore decided to invest in risk assessment and a near-miss reporting system known as 'SMAT auditing' (SMAT = Safety Management Audit System).

2.3. What was done, and how?

Computer-based risk assessment

Based on the Saint Gobain Rigips action plan, workplace risk assessment is carried out periodically: 200 workstations and individual tasks are assessed annually. As a first step the safety management representatives use a computer-based checklist for the inspection of the workstations. The results of the checklists are added to a newly developed in-house calculation tool which allows the evaluation of the risk by taking into account

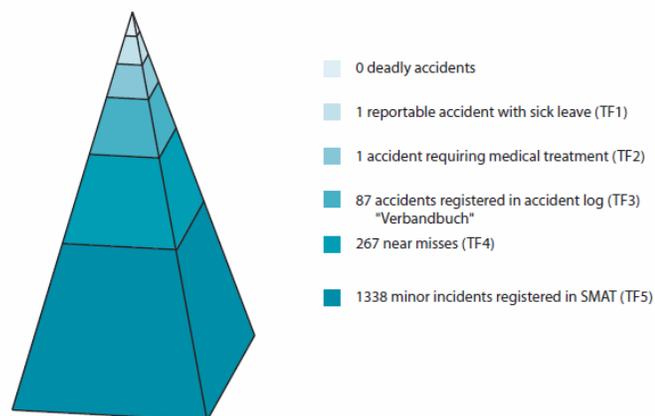
- kind of hazard
- frequency of hazardous task (daily, weekly, monthly, etc.)
- chance of realisation (unlikely, likely, very likely, etc.)
- damage outlook (what would an accident mean for the workers' health?).

The result of the evaluation determines whether the risk can be considered to be negligible, elevated or even critical. In cases of elevated or critical risk at a certain workstation or for certain tasks the database documentation system proposes a catalogue of possible measures. The safety manager can choose the most appropriate measure from the list and define a completion date for implementation.

SMAT auditing

To reach the ambitious objective of zero accidents it was considered necessary to take into account not only major accidents but also minor incidents and near-misses that are sometimes overlooked. The 'iceberg model' (or safety pyramid) illustrates that many minor incidents in the workplace will often occur before an accident actually happens. These minor incidents are invisible, like the part of the iceberg under water. Only the accidents that are reported are visible above the water line. A holistic and effective approach to ensuring greater safety at work should include sensitising the workers for such near-misses, because each implies the risk of a potential accident. Thus a vital safety culture should include awareness of near-misses, too. 109

Figure 1. Safety pyramid Saint Gobain Rigips GmbH (2007) (839 full-time workers)



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Safety Management Audit Training (SMAT) means ensuring ongoing safety at work by regular inspection and interviews of the workers. A computer-based reservation system ensures that workplace inspections are scheduled regularly, on average four times a year.

The inspectors, who may be members of the safety management team as well as foremen of the various factory sections, do the SMAT auditing with the help of a checklist for the particular workplace. The audit is carried out by examining the workstation and asking the workers about their observations and experiences. In cases of irregularities, the findings are discussed directly with the workers of the area.

Every irregularity or near-miss is registered and will be added to the computer documentation system. The system will record whether the irregularity has already been eliminated or if further measures are required. In this case measure, time frame and date for re-inspection will be defined. SMAT auditing has had a positive effect on general safety awareness: near-misses are now reported by the workers themselves, who also suggest improvements and take responsibility for one another as well as for visitors and delivery workers.

Reporting and documentation system

All accidents and near-misses are documented in a central database. The safety representatives are responsible for documentation and evaluation of each and every incident, categorised by character, risk, and damage outlook. It also includes incidents where visitors, contract workers and delivery workers were involved:

- Serious accidents are documented and measured with the help of the Ishikawa or 'Fishbone' method.
- Minor accidents or near-misses are documented and evaluated with the help of the Toyota or 5-whymethod.

The safety management team can therefore obtain a good overview of accident 'hot spots', areas or workstations of elevated risk, and possible misbehaviour by workers. Measures can be taken to enhance ergonomics, to change work organisation or to strengthen individual, behaviour-related accident prevention.

The results of risk assessments and SMAT auditing are also documented in the database. This allows the safety representatives to check easily whether notified risks or near-misses have been eliminated successfully or if proposed measures have not yet been put in force.

Training and sensitising of management representatives and workers

The measures are reinforced by a two-year training programme that ensures safety awareness is constantly on the agenda. It is particularly crucial to sensitise management permanently to the issue, to ensure that OSH targets are taken as seriously as other business objectives. The training programme is carried out in cooperation with the Ingenieurburo Konig (consultancy).

In 2007 the target group of the training seminars was the general management of Saint Gobain Rigips: Rigips management board, plant managers, master craftsmen and foremen. Each management representative had to suggest an action plan of safety measures within their own area of responsibility. The action plans will be assessed after they have been in place for a year.

In 2008 workers were the particular focus of training. Even though SMAT auditing already showed a positive influence on general safety awareness, their knowledge of OSH and safety culture was extended. In 2009 additional courses were held for the safety and health management team in order to include everybody at Saint Gobain Rigips in safety training.

2.4. What was achieved?

The SMAT auditing contributed enormously to the safety awareness of the workers. More workers are reporting near-misses, and they are taking more care about the safety of their

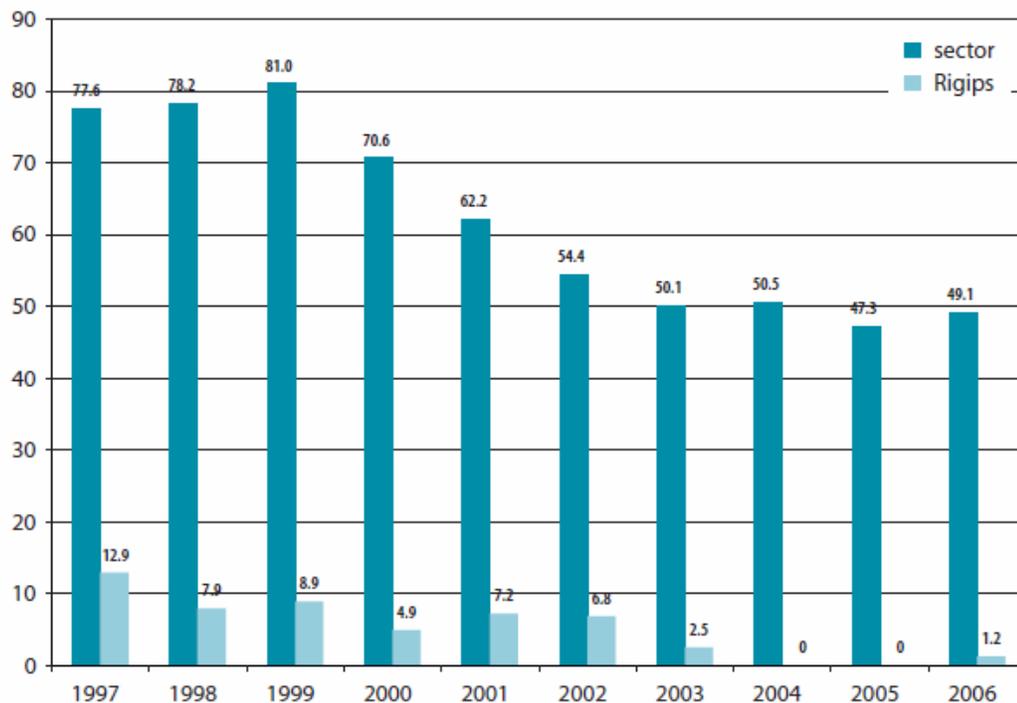
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workstations, their colleagues and third parties. In cases of misbehaviour people are challenged directly and motivated to change their ways.

The computer-based risk assessment and accident documentation system allows the safety and health management to work effectively and precisely. Results of risk assessment, SMAT auditing and measures taken can be monitored and analysed.

In 2003/2004 the zero-accident objective was fulfilled for the first time. In the three years up to 2006 not a single accident at work was reported. In 2006/2007 Saint Gobain Rigips managed to reduce the number of reportable accidents to zero once again. Figure 2 contains details of accident statistics at the company and in the sector as a whole from 1997 to 2006.

Figure 2. Accidents at Saint Gobain Rigips in comparison to the entire quarry and stone sector in Germany (per 1000 full time workers 1997-2006, sectoral numbers taken from StGB, 2007)



In 2005 Saint Gobain Rigips was certified by StBG 'Gutesiegel' for its OSH management system, according to OHSAS 18001 standards. The integrated management system at Rigips was re-certified in 2009. Since 2003 Saint Gobain Rigips has received four awards from StGB for going a whole year without an accident.

Problems faced

A major problem that needed to be overcome was that of gaining the full support of all levels of non-OSH management at the company. OSH targets have to compete with other business objectives in the day-to-day running of the business. The OSH management therefore felt it was a priority to sensitise and to involve all management representatives in order to create a real and dynamic safety culture. If the management demonstrates their belief in safety and health it will be easier to mainstream the issue at all levels of the company. Motivation and awareness have to be communicated from the top to the bottom.

Another problem was to keep OSH management and improvement measures as simple as possible: a good balance had to be found between comprehensive and comprehensible OSH



management. The message must be clear and understandable for all stakeholders in the company, for the management as well as for the workers.

2.5. Success factors

One key success factor of the Rigips activities can be seen in the combination of collective prevention measures on the one hand and individual training and motivation on the other. Safety will be most effectively realised when the safety culture among the management can be strengthened in parallel with the safety culture of the workers.

It is important to note that accident prevention, successful safety management and awareness-raising have to be done on a long-term basis. It took a long time for this project to achieve the goal of zero accidents, and the commitment of management to the project had to be relentless.

2.6. Further information

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2.7. Transferability

The certification of OSH management system offered by StBG is a cost-efficient option compared with commercial alternatives. It can also be carried out by smaller companies in the stone quarry and building material industry.

The example of Saint Gobain Rigips also shows that concrete measures such as SMAT auditing can contribute to building safety awareness among workers by taking even minor incidents and near-misses seriously. Being aware of dangers arising from near-misses helps ensure they do not contribute to more serious accidents.

Risk assessment which is carried out frequently and well documented can contribute to improving working conditions and avoiding accidents. Data based documentation also helps keep the process transparent and transferable.

3. References, resources:

Sources and further information:

Statutory Accident Insurance for the Quarrying Sector (StBG 2006): *Gütesiegel „Sicher mit System“ zum 200. Mal verliehen*. In: Die Industrie der Steine und Erden, No. 2 / 2006. Available at: <http://www.steine-und-erden.net/se206/rigips.htm>

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