People

The internationalization process at DSM, which has been gaining strength in the last few years, will remain important in the coming years (at the end of 2005 35% of our employees were based outside Europe).

Internationalization and diversity are important to realize our Vision 2010 - Building on Strengths ambitions of innovative growth and an increased presence in emerging economies, amongst other things through strong expansion in China.

In recruiting and selecting new employees, we increasingly rely on the international labor market. The majority of the new executives recruited in 2005 are non-Dutch. The ongoing internationalization has already increased our awareness of cultural differences between the various countries and regions in which we are active. Our challenge for the coming years will be to create value out of these differences. Gaining more diversity but also creating leadership styles and behavior that understand, respect and build on the differences are therefore key issues.
Highlights and achievements
- Greater diversity and further internationalization are spearheads in the new corporate strategy
- Safety performance, excluding DSM Nutritional Products, improved compared to 2004
- Integration projects at DSM Nutritional Products and DSM NeoResins successful
- Start made on new Human Resources Strategy Document 2006-2010
- Internal Communication and Training & Development improved

See page 48 for reporting policy.
The internationalization process at DSM, which has been gaining strength in the last few years and received an extra boost with the acquisition of what is now DSM Nutritional Products, continued unabated through 2005. This is mainly reflected in DSM’s strong expansion in China; the DSM workforce in China – including all joint ventures– now numbers about 3,500 people. Between 1999 and 2005 the percentage of non-Dutch DSM employees increased from 50% to over 70%. At year-end 2005, 7,614 DSM employees were based outside Europe. The ongoing internationalization is obviously having an impact on our HR processes and systems. We have adapted our expatriation policy towards an international assignees policy, which is now being applied worldwide. At year-end 2005, 163 DSM employees had been selected for an international assignment outside their home country under this new policy.

The majority (63%) of the new executives recruited in 2005 are non-Dutch. The ongoing internationalization has also increased our awareness of cultural differences between the various countries and regions in which we are active. We paid a great deal of attention to this aspect during the integration of DSM Nutritional Products, and in 2005 we did the same in other regions and other partnerships.

Integration requires massive training
To support the integration of DSM Nutritional Products (DNP) into DSM and to improve processes and support behavioral change, a Global Training Program was set up for DSM Nutritional Products. Project teams shaped the Global Training Program as part of the Vital project. DNP employees worldwide received a total of some 14,000 days of training in 2005. Employees in production took a variety of manufacturing training courses, focused on DSM’s Manufacturing Excellence program, while the focus for the marketing and sales force was on coaching and behavioral change. On a more general basis, we introduced a mini DSM orientation course of 1.5 days to some 1,100 employees of DNP to make them more familiar with DSM, its strategy and ways of working. One of the challenges was to overcome cultural and company differences. We now have sustainable training structures in place and a team that coordinates these training activities globally. Training will continue to be an essential element to support our organization and its employees in their further development.

Progress on current Human Resources objectives
1. Implementation of DSM Values before the end of 2003
2. Development of a learning organization
3. More attractive career prospects in DSM for women
4. Internationalization of DSM recruitment from 2003
5. Introduction of web-based recruitment in Europe and the USA in 2003
6. Competence-based management development
7. Competence-based appraisals from 2003 onwards
8. Integration of DSM Nutritional Products, with particular focus on cultural aspects
9. Implementation of management performance appraisal system
10. Conducting a working climate analysis among a sample of the workforce in 2004

* ‘Completed’ also refers to those activities that will continue but not as a specific objective of Corporate Human Resources

New Human Resources objectives
2. Implementation of Corporate Human Resources Requirements before 2008
3. Further implementation of Human Resources System (SAP HR)
DSM NeoResins: integration and inspiration
The aim of the INSPIRE project is to integrate NeoResins within DSM, ensuring that the benefits of joining forces are maximized in terms of further profitable growth, savings and strategic choices for the future. NeoResins was acquired by DSM early 2005. The INSPIRE project is organized according to three time lines: the first 30 days (start), days 30–100 (wave 1) and days 100–300 (wave 2) and a possible extension, wave 3, in 2006.

The project is right on track. Purchasing savings have been captured and the analyses of pockets of innovation and competences were finalized according to plan at year-end 2005. The first innovation-oriented meetings have been held to secure the input of the NeoResins and Coating Resins organizations. The acquisition of NeoResins has created a global top 5 resins house. The NeoResins business will help create a platform within DSM for profitable and fast-growing business, as the combination of resins activities has an important platform of technologies, including the technologies of the future such as UV-curing, powder and waterborne resins.

Working climate analysis integration and growth
The working climate analysis conducted in 2004 yielded valuable conclusions, for example about employees’ perception of their work and the importance of innovation for DSM’s further growth. Innovation is of crucial importance to DSM, and we will be devoting substantial resources to this goal in the coming period. We are well aware that people need a working environment in which their innovative ideas can thrive and in which management allows scope for that. We will therefore promote creativity and collaboration in all echelons of our organization and across the boundaries of professional disciplines.

There are large differences among the various business groups in the amount of follow-up they have given to the working climate analysis. (See box: follow-up to Working Climate Analysis) This and other issues will be duly taken into consideration in the next working climate analysis, scheduled for 2007/2008.

Particular attention will be given to employee perceptions on issues such as diversity and innovation.

New corporate partnership with the Rotterdam School of Management Erasmus University
Over the past 20 years, the Rotterdam School of Management (RSM) Erasmus University (the business school of the Erasmus University in Rotterdam in the Netherlands) and DSM have built a strong and long-lasting relationship, DSM has the explicit intention to develop a win-win cooperation that closes the gap between corporations and universities, with respect for the independent position of universities.

DSM and RSM Erasmus University recently decided to intensify their relationship by starting a corporate partnership. This partnership entails cooperation in the area of internships, the recruitment of new top talents, the development of the talent already on board at DSM (executive education) and the development of new knowledge that is made practically available by the stimulation of (applied) research.

Follow up to Working Climate Analysis
‘Although the instruments provided a lot of information, working on job security (which was our most important improvement topic) was hard during restructuring times (Copernicus), given follow up to the Working Climate Analysis was postponed several times. The new organization is becoming clear and trust is slowly returning. A good time to start working on follow-up.’

T. Jacobs, HR Manager
DSM Fibre Intermediates, Geleen (Netherlands)

‘DSM Pharmaceuticals, Inc. had 8 areas of improvement; a lot of work and follow up was necessary. Employee Advisory Groups (EAGs) were made up from cross-functional representatives of different levels (on a voluntary basis). They served as a liaison between employees and senior management. Recommendations and comments could be sent to the HR Employee Center, put in a drop box next to the cafeterias or given to the appropriate EAG member. Each group presented their findings to the senior management team in a round table type of discussion. Some recommendations were approved on the spot and have since been implemented.’

T. Jacobs, HR Manager
DSM Pharmaceuticals, Inc., Greenville, USA

At the career centers of RSM Erasmus University, the opportunity to promote the annual DSM (international) internships is highly valued.

Each year, several MBA and MSc students experience a challenging term in countries like China and Indonesia. Some of them turn their internship into a permanent position at DSM and stay linked to RSM as active alumni. Graduates from RSM Erasmus University work for DSM in all kinds of jobs varying from Junior Marketing Manager to Member of the Managing Board.

RSM Erasmus University and DSM also cooperate in the area of executive development of managers and professionals. DSM IMT (Industrial Marketing of Technicians) is the longest running program in RSM’s portfolio; more than 500 employees have attended the program. In 2005, the DSM Management Program was launched as part of DSM’s new portfolio of leadership programs.

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T. Jacobs, HR Manager
DSM Pharmaceuticals, Inc., Greenville, USA

Others are in process and are presented and monitored in meetings and newsletters. I want something better for DPI and look forward to making the necessary improvements that will be obvious when the next survey comes around.’

Marilyn Rider, HR manager
DSM Pharmaceuticals, Inc., Greenville, US
Improving internal communications was an important point that emerged from the working climate analysis, and it has definitely been acted on during the past year. Increasing internationalization and the major movements in our portfolio in any case underline the importance of good internal communications. It is not just a matter of prompt distribution of information or announcing important events. Internal communication is primarily also a good means of boosting DSM employees’ pride in their work. For example, there has been a great deal of internal communication about the announcement of our new corporate strategy worldwide. This has clearly highlighted that the success of our new strategy depends less on head office than on the involvement of our 22,000 employees worldwide. A first evaluation of the introduction of the strategy within the global HR and internal communications community yielded positive results. A broader questionnaire was sent to DSM employees worldwide (at random) in January 2006 and will be evaluated by March 2006.

Competences
In 2004 and 2005 the use of competence-based HR systems became common practice at DSM. The fifteen behavioral competencies that have been defined are used in appraisal systems, recruitment, Management Development and training programs. This has resulted in a much better alignment between the HR systems.

Leadership styles
Along with the introduction of the new competences, a model has been developed to give explicit content to the various desired leadership styles. The model is built round the fifteen DSM competences and will be used to ensure that the people who are selected for certain positions or teams represent the right mix of styles and competencies. The experience and information thus gained will in turn be used in the training programs of our internal Business Academy.

Less talk, more involvement
However you define internal communication, it has a direct impact on the business. And there is always room for improvement. In 2005 we conducted a number of initiatives to structure our internal communications better. We have set up an internal communications community in which each business group and corporate staff department is represented. Its membership totals around 40 employees. They are responsible for internal communications on their site or in their department. The group stimulates the pooling of information and knowledge, seeks out opportunities for synergy, arranges workshops and training courses, and acts as a network of channels for the rapid dissemination of important information within the organization. It provides input to the Corporate Internal Communications and Corporate Human Resources departments. The group also encourages the use of a new electronic toolkit for internal communications. Our new internal communications community proved its effectiveness with the announcement and dissemination of our new corporate strategy.

The DSM Business Academy: development and learning
Development of people is an important area of management attention at DSM, as it has been for many decades in our management development system. This is strengthened by the new approach towards Executive and Management education that was agreed in 2004 and has been implemented in various new Management & Leadership programs by the DSM Business Academy. All these programs share the goal of supporting the development of people in line with new challenges in their career and in the context of their jobs. Thus people will become proficient in their roles and will be adding value to business and teams quicker and more effectively. Since 2004 the Executive Leadership Program, consisting of three modules of one week in a period of nine months, has been delivered twice. In 2006 the Management Program for newly appointed people in their second or third position was started as well. In 2006 new programs for Senior Executives, Senior Management and starting Professionals will be added.

The development and implementation of new functional programs was started in 2005 for the Finance & Control function, for Corporate Safety, Health, Environment & Manufacturing and for the Intellectual Property Department; these developments will continue over the next few years. The DSM Business Academy has also supported the Vital project by organizing a series of training programs for about 1,000 employees around the world. In 2005 some 2,400 DSM employees participated in programs of the DSM Business Academy.
DSM as a learning organization

Employee development obviously continues to be important. Besides the individual development of employees, on which on average 18 hours per employee were spent in 2005, DSM is increasingly devoting attention to structured programs to continue developing the professional competencies that are important to us. For most of these fields, the DSM Business Academy offers special programs. In addition, we frequently organize conferences to which we invite external speakers with the aim of sharing knowledge and building networks. Our global intranet plays a key role in this. Our Business Academy provided training for a total of 2,400 employees in 2005. An important part of these training courses, with almost 100 participants were held as part of the Vital integration program at DSM Nutritional Products.

Diversity and flexibility

The development of a culture based on diversity is part and parcel of DSM’s HR policy. In the Netherlands targets have been set in relation to the recruitment, appointment and promotion of women. 28% of employees recruited in the Netherlands are female (compared to around 20% in the past).

At the end of 2005 DSM had 14 female executives (14 in 2004 and 8 in 2003) and 4 executives working part-time (3 in 2004 and 2003). The percentage of women in management positions increased towards 13% (2004: 11%). Despite a gradual increase in the number of women at senior management and executive levels, the targets were not met.

A questionnaire was sent out to the diversity and flexibility target group and top management to evaluate the program. The support for Diversity was experienced as high (75% favorable). The Work Family culture was experienced as moderately positive (Score 3.1 and 3.2 on a scale of 5). The evaluation of the program over the period 2002-2005 has led to a number of recommendations for the period 2006-2010. These include the reconfirmation that diversity remains important, requiring more nationalities to be included, and that flex working should be facilitated on an ongoing basis.

Building cooperative HR practices

In 2004 and 2005, some 120 HR managers were closely involved in the so-called Network Project, aimed at setting up a standard and global set of HR requirements. A core team has collected examples of best practice from around the world and has analyzed and checked them for international compatibility. Based on these, standard, worldwide HR requirements have been drawn up.

Compliance and, more specifically, what to do in the event of non-compliance, was the main issue that was addressed in the context of the new regulations. DSM Desotech in Elgin, USA was one of the first companies to introduce the new guidelines. These include management regulations and measures that can be taken in cases involving theft, sabotage, alcohol or drug abuse, sexual intimidation or other forms of unacceptable conduct.

Lisa Kirby from DSM Fibre Intermediates in the USA took part in the project: ‘The policies and practices developed by the Network Project have provided a solid basis for implementation of the Corporate Human Resource Requirements. This process worked well because it engaged HR professionals in various countries and business groups to develop the HR Requirements, ensuring that the requirements would meet the needs of the international community. The Network Project also saved an immense amount of manpower and reduced confusion that would have resulted from each group or unit developing practices on their own.’

People Award

In 2002 DSM inaugurated the annual People Award, a prize awarded in the Netherlands to recognize examples of best practice in the field of human resources management and to stimulate innovative solutions. DSM has formulated fourteen HRM principles which serve as guidelines for human resources policy within the organization. The People Award is presented to an employee or group of employees who have shown exceptional ability to put these principles into practice.

In 2004 the People Award went to the DSM Engineering Plastics Specialty Compounds unit in Genk (Belgium) for its success in implementing a series of changes and starting new training and retraining programs. The 2005 People Award will be handed out in 2006. In 2006 we will explore the option to integrate the People award into a more integrated Triple P award.

Operational Excellence

Like other disciplines, our HR organization is working hard to achieve operational excellence. An important precondition for achieving operational excellence in HR is the development and implementation of SAP HR, aimed at standardizing HR related processes. At the end of 2005, hard work by a group of HR professionals from around the world resulted in a global HR model. This model has been ‘localized’ at three sites in Switzerland, the USA and the Netherlands and will become operational in 2006. The model provides a standardized format for obtaining information from one common database about HR developments at a particular site, including absenteeism, training facilities, etc., so that the HR organization will be better able to respond to these developments, or anticipate them, in an effective way. Furthermore, Shared Service Centers are being set up to support SAP HR and, from 2006 onwards, to offer HR services at a regional level.
**DSM Values**

Over the last few years we have devoted a great deal of attention to disseminating the DSM Values and making them come alive. In 2005 the DSM Values were made more explicit with new guidelines and recommendations for the Human Resources field. These relate to leadership, organizational development, performance development, remuneration policy and the continuity and quality of the HR discipline. In 2005 DSM developed several standards and practices in close collaboration with local HR managers in a project called Network (see box Building cooperative HR practices page 26).

**Better training at lower cost**

Around 350 people work at the DSM Manufacturing Center (DMC) in Geleen, the Netherlands. In 2005 widespread training programs were conducted here, to enable each employee to work even more safely and efficiently. The plan was implemented by means of individual training plans, listing all courses and training of relevance to a given job or role. Training Compass, a database containing information about all employees, was used as a tool in this comprehensive training program. It is accessible via the Intranet and enables everyone to see what courses are planned for whom and when. PC-based online courses, tests and exams are also possible. This approach leads to definite quality improvements over the full range — from the quality of training plans to evaluations and programs to enhance the efficiency of work processes. The approach adopted also has a clear financial advantage. The training courses are purchased centrally. This ‘leveraged purchasing’ roughly halves training costs.

**Leadership Development: Working with IMD**

Over the past three years the DSM Business Academy (DBA) has developed leadership programs that support individual managers and executives in their transition to the next leadership level and site management teams in meeting today’s business challenges. The DBA has collaborated extensively with IMD (the International Institute for Management Development in Lausanne, Switzerland; www.imd.ch) in the development and execution of these programs. The collaboration has focused on the integration of DSM Nutritional Products (the former Vitamins and Fine Chemicals division of Roche) into the DSM organization, a one-week leadership development program for senior managers, a three-module program for executives and a team-training program for site managers within the DNP organization. This collaboration enables the participants to benefit from the program design and the teaching experience and knowledge of IMD while ensuring that the topics and materials have relevance for them within the DSM context. One way in which the DSM context is brought into the programs is through the participation of senior DSM executives. A new way of bringing the context of DSM to bear on the core issues of the course has been developed on the basis of DSM-specific cases. Examples are the leadership issues involved in the development of a BSD, a case on developing the APA business and cases that build on significant leadership events in executives’ careers. Through this intensive collaboration with IMD, participants get a good mix of external and internal learning opportunities relevant to their development needs.

**People Matter(s)**

The major changes that DSM has implemented in the Human Resources field over the past few years are based on the strategy outlined in the internal strategy plan People Matter(s). We are on the whole satisfied with the progress made, and we have realized most of the ambitions outlined in the plan. The follow-up activities in the HR field to be undertaken in the coming period will be outlined in a new strategy plan. The new strategy will cover topics such as leadership styles and ways to increase diversity, as well as several other themes that are all essentially intended to contribute to the success of the new corporate strategy, Vision 2010 - Building on Strengths. In our report for 2006 we will extensively report on our strategic HR approach for the next few years, and the objectives and targets set for 2010.

**Safety**

**Safety performance**

The frequency index of all recordable incidents involving both DSM employees and contractor employees (FI rc), excluding DSM Nutritional Products, decreased from 0.88 in 2004 to 0.74 in 2005 (a 16% reduction). The frequency index of lost workday cases involving DSM employees (FI lw), excluding DSM Nutritional Products, improved by 23% from 0.22 in 2004 to 0.17 in 2005.

At DSM Nutritional Products both indicators increased, from 1.47 to 1.49 (FI rc) and from 0.52 to 0.73 (FI lw), mainly because of improved reporting. As from 2005, DSM Nutritional Products has been officially consolidated in the safety performance data of DSM. The frequency indices (FI rc and FI lw) for 2005, including DSM Nutritional Products, are 0.95 and 0.33 respectively. This will be the starting point for comparison for the next few years.
Over the past four years, DSM has reduced the frequency index of all recordable incidents on average by 17% per year. Further reduction will be increasingly difficult and will require longer lasting efforts, which will be mainly focused on behavior. In line with Vision 2010 and the environmental target set, DSM has decided to set as a corporate target a 50% reduction for all recordable incidents involving DSM and contractor employees (Flrc) in 2010 relative to 2005.

DSM regrets having to report the death of a contractor employee due to a traffic accident in June 2005 in Belgium.

In our reporting system we pay increasing attention to potentially serious incidents, because of their learning potential. A potential fatality occurred at the DSM Composite Resins site at Schoonebeek (The Netherlands). Due to malfunctioning of a lifting device a construction part weighing 350 kg fell down from a height of two meters close to two contractor employees. They were not injured, but the incident was close to two contractor employees. They were not injured, but the incident was treated as if they were, to fully exploit the learning points.

SHE compliance project
Following a major revision of the DSM SHE requirements in 2003 and, in the same year, a very serious accident at the melamine plant in Geleen (Netherlands), DSM started a concerted and worldwide action in 2004 to identify any deviations between the requirements and actual practice in all plants. The inventory resulted in a number of actions that have been put into a program per business group, taking into account priorities, technical constraints and available resources. Among the actions to be taken were additional risk assessments, improving plant documentation, reviewing and improving the safeguarding of installations, better instructions, improving installations, etc. The execution of all these actions has been closely monitored per business group and at corporate level. At the end of 2005, five business groups had completed all their activities. The other business groups will finalize their programs in 2006, with the exception of a limited number of plants, which will finalize the program in 2007.

Meanwhile the organization and management systems that have to assure sustainable compliance have been put into place. This includes a new training matrix with courses that are compulsory for manufacturing and SHE professionals, concerning both requirements and practices and behavior related issues.

Safe behavior
In order to further reduce the number of accidents DSM is focusing on compliance and on safe behavior. In the DSM SHE Leadership course behavioral safety is a dominant issue. All managers are obliged to follow this course once every five years. In 2005 550 managers attended this in-house course.

Another tool that was used for addressing behavioral aspects of safety is the ‘Safety Culture Maturity Assessments’, developed by the British Keil Centre. This assessment was applied at various sites in 2005. The actual safety culture, both on the shop floor and at management level, is measured by assigning scores for ten crucial elements. The outcome of the rating is made the subject of group discussions with all employees. Based on this assessment concrete actions are taken including dedicated safety, health and environmental programs geared to the actual situation. Both management and shop floor level personnel participate in these programs.

Accountability and control
Line management is accountable for SHE performance. At regular intervals, in most cases once every three years, Corporate audits are performed to check whether the requirements are being implemented in an effective way. During audits the applied practices are assessed and recommendations are given for improvements. Any serious non-compliance is acted upon immediately and within three months an action plan, based on the findings in the audit, is presented to the Managing Board. In 2005 a consequence management framework was developed that serves as a uniform basis for acting upon non-compliant behavior in our units all over the world.

SHE and acquisitions
For DSM Nutritional Products (acquired at the end of 2003) as well as for the recently acquired NeoResins a so-called ‘zero SHE assessment’ has been carried out. In this assessment the gap between the actual situation and the DSM standard with regard to SHE is determined. On the basis of this a plan is made to become compliant within three years. The actions include SHE Leadership training courses. It should be mentioned that integration is a mutual process: DSM has learned from the strong SHE points of both acquired companies as well.

SHE Award 2005
To stimulate and reward good SHE performance in DSM each year a SHE Award is granted to the best performing site in the corporation. Out of five nominees DEP Stanyl Geleen was selected as winner of the Award for 2005. DEP Stanyl Geleen has won this Award for the second time.

In addition to the SHE Award, last year DSM instituted the SHE Improvement Award. This Award recognizes sites that are rapidly improving their SHE performance. DSM Capua SpA has won the 2004 DSM SHE Improvement Award. The jury was impressed by the speed with which this site has implemented improvements in the area of health and environmental management, and especially by its efforts in the area of reputation management.
**Health**

**Implementation of corporate policy**

The policy of “preventing all work-related disabilities or health problems” applies to all DSM activities worldwide. Effective practices should result in the prevention of occupational illness, an adequate response to complaints about working conditions and low sickness absenteeism. In addition, an active approach should stimulate employees to take good care of their own health, e.g. by not smoking, taking ample exercise and avoiding overweight. However, due to the differences in cultures, facilities, developments and legal systems, practices in this field vary for the different countries and regions.

In 2003 and 2004 based on a questionnaire DSM executed a Self Assessment of practices used for health care and health promotion worldwide. In 2005, based on the findings, the framework for practices on Occupational Health was reviewed and further elaborated. The framework includes practices for risk inventory and evaluation, health monitoring and health promotion. It acts as a basis for exchange of experiences between sites and as a reference for the regular SHE audits.

In 2005 a Risk Inventory and Prioritization Tool was developed. This is a web based software tool that can be used by all DSM sites for inventorying hazardous substances on site and assessing exposure when handling these substances. The tool enables sites to identify gaps in their knowledge about substances they use and to set priorities. It has been successfully piloted at a number of sites and will be rolled out for wider use.

In order to increase the expertise and alignment on Occupational Health a training module has been developed and executed for European SHE officers and SHE officers of one of the business groups, DSM Resins. In addition, networks for practitioners in the field of Occupational Health and Industrial Hygiene are being developed. These activities, training and networking, will be further extended in the next few years.

**Personalized nutrition and ethics**

DSM is convinced that personalized nutrition can become an important tool for consumers to enable them to take informed decisions, and for society at large to reduce healthcare costs since prevention is better than cure. DSM will only be involved in accessing and providing information for which the company can offer a solution to reduce the negative impact of a specific health problem through dietary or lifestyle intervention.

Knowledge of gene variants, lifestyle and eating habits and biomarker levels (such as cholesterol levels in the blood) can all be very helpful to consumers who want to stay healthy as long as possible. In the USA, for example, the majority of consumers are interested in obtaining this information and are prepared to take preventive measures.

Personalized nutrition, especially if it is based on an individual’s genetic profile, could create ethical and legal challenges if employers and insurers were to use this information to the unfair disadvantage of the individual. It is therefore extremely important that this information should be treated as confidential, and it must not be communicated to others without the individual’s explicit consent.

In this context it may also be an ethical dilemma to apply new technologies such as nutrigenomics to children. After all they may benefit from early dietary intervention, but they also have a right not to know or may be too young to decide for themselves.

DSM is committed to meeting the highest ethical standards and will work with relevant third parties to establish regulations and codes of practice for personalized nutrition.

**Lifestyle and nutrition**

Besides people’s genetic profiles, their lifestyle and nutrition are important factors influencing health. Significant progress in molecular biology has brought a new dimension to nutritional research and health, making it possible to shed new light on the mechanism by which nutrients can benefit human health.

The interaction of nutrients with the genome is the domain of Nutrigenomics. This approach helps to identify both the innovative compounds which can improve human nutrition and new functions of established products which are already on the market, such as vitamins. Moreover, a person’s genomic profile will also provide opportunities to tailor nutritional advice to his or her individual needs. We believe that the nutrigenomics approach will contribute to the development of new, health beneficial food ingredients – which is why this new domain has become an integral part of our research and business activities.

**Exposure to diacetyl**

In 2004 DSM became aware of the occurrence of a rare and serious lung condition, Bronchiolitis Obliterans. The natural butter flavoring diacetyl has emerged as a possible suspect for causing this disease, although a causal relationship could not be scientifically established.

A plant in Delft (Netherlands), which was closed in 2003 and demolished in 2004, produced the flavoring diacetyl for several decades. Therefore a team has investigated whether workers in this plant might also have developed Bronchiolitis Obliterans.

At DSM’s request, the Netherlands Expertise Centre for Occupational Respiratory Disorders (Nederlands Kenniscentrum voor Arbeid en Longaandoeningen, NKAL) has carried out an investigation into the lung function of 175 (former) employees of the diacetyl plant. For three of them it was established that they had developed Bronchiolitis Obliterans. All three had been process operators in the plant for a relatively long period.

Although the causal relationship between exposure to diacetyl and the observe deffects could not be scientifically established, DSM has provided extensive support, including compensation for the three (former) employees concerned.

The results of the investigation became available mid-January 2006 and have been communicated to all the people involved in the investigation and all DSM employees at the site in Delft.
Avian Flu
In the course of 2005 bird-flu deaths occurred especially in China and Turkey. It is considered a serious risk that the specific virus might develop into a human-to-human transmittable form causing a pandemic. DSM is preparing itself for a possible avian flu pandemic, taking into account all information and guidelines of the World Health Organization (WHO). In addition to the standard emergency procedures a special task force at corporate level has been established to prepare contingency plans both for health and business risks.

Local activities
A wide variety of local health-related activities are taking place at the various sites. Some examples of these are mentioned below.

Computer-related health problems
In Kaiseraugst and Sisseln (Switzerland, both DSM Nutritional Products), and at the sites of DSM Composite Resins, initiatives have been taken to identify and prevent health problems that arise from intensive use of personal computers (CANS).

Supplier information essential
It became known in October 2005 that staff of DSM Special Products in Rotterdam (The Netherlands) could have been exposed to ceramic fibers in the past. These fibers had been used for the cladding of a furnace – a so-called KEU unit – and are listed as carcinogenic substances. During maintenance personnel therefore need to wear personal protective equipment. The supplier of the furnace did not mention the presence of these fibers in the documentation.

DSM launched an investigation in order to determine whether exposure above the acceptable level might have occurred. It was shown that for the actual maintenance operations this had not been the case. The persons concerned as well as the Labor Inspectorate were notified of the results of the investigation. DSM will examine how information that suppliers fail to provide can be traced at the earliest possible opportunity.

Smoking
A smoke free workplace for employees is a requirement for all sites. Many sites actively promote non-smoking and offer their employees support to quit smoking.

Promoting Health
In Almeria (Spain) site management stimulated participation in Weight Watchers programs. The Delft (The Netherlands) site stimulates fitness in an on-site fitness center. Many sites offer physical examination for employees. In Geleen (The Netherlands) the participation of employees in local sport activities is sponsored by DSM. Sites of DSM Anti-Infectives in Mexico, India and Egypt campaign for promotion of general hygiene.

Combating cardiovascular disease using biomaterials.
The University of Maastricht (UM) and Maastricht University Hospital (AZM) have concluded a collaboration agreement for joint research and development projects. The first of these projects, Bioterials, focuses on new treatments for cardiovascular disease, using biomaterials. Biomaterials are materials that are introduced into the body in order to restore and support bodily functions. Applications for biomaterials include biopolymers, tissue engineering and orthopedic implants. Research is currently underway in three specific fields. The first research project focuses on the development of a new implant. The implant is “loaded” with a drug and once implanted, the drug is emitted into the muscles of the heart, enabling the heart rhythm of the patient to be controlled precisely. The implant functions in such a way as to reduce the side-effects of the medicines, thereby increasing their effectiveness. The second project involves the controlled emission of a substance that stimulates the formation of new blood vessels. The aim of the study is to find out whether this will improve blood circulation to the limbs. This is of particular relevance to patients suffering from diabetes.

People

Occupational illness cases
In 2005, 19 occupational illness cases were reported, whereas 20 cases had been reported in 2004. As mentioned in earlier reports we are not sure that all occupational illness cases are being classified and reported correctly. For that reason in 2005 a task force started to analyze the situation and came up with a proposal for an accurate Occupational Health reporting system based on standardized definitions.

Sickness absenteeism
The total percentage of sickness absenteeism slightly increased (2.7% in 2005 and 2.6% in 2004). The value of this figure is difficult to determine, because of regional and cultural differences in the definition of sickness. If we look at trends from the last few years, we do not see any structural shifts in geographical patterns or in the rates as such.

Health

Promoting health and business preparedness
For the management of illness and injury DSM has established contingency plans both for health and business risks. In addition to the standard emergency procedures a special task force at corporate level has been established to prepare contingency plans both for health and business risks.