

Planet

Highlights

- **Six of our environmental targets for 2010 are well on track. The other 3 targets need additional effort in order to be fully realized in 2010.**
- **Energy efficiency (energy consumption per unit of product) has improved by 4% since 2005.**
- **Emissions of greenhouse gases have been reduced as a result of the removal of dinitrogen oxide from plants of DSM Agro.**
- **The discharge of COD (oxidizable organic compounds) in wastewater was reduced by more than 50% due to improvements that were realized at DFI Nanjing (China) DFS Seclin (France).**

Did you know that ...?

- DSM provides hospitals in Zwolle (since 2004), Delft and Heerlen with advice and support in training, investigation and analyzing incidents regarding patient safety?
- Energy consumption per individual in North America is twice that in Europe, whereas the average in the world is less than half of that in Europe (source: International Energy Agency)?
- Greenhouse gas emissions per head would have to be 3.5 tons per year in order to stabilize CO₂ levels in the earth's atmosphere, which is 50% of the average of the world's population now? (Netherlands Planning Office for Nature and the Environment)





Environmental targets for 2010

The table below shows DSM's environmental reduction targets for 2010 and the progress made relative to 2005.

| Target name | Reduction realized in 2007, relative to 2005 (%) ¹ | Reduction target 2010, relative to 2005 (%) |
|---|---|---|
| Dust | 75 | 75 |
| N ₂ O | 30 | 40 |
| NO _x | 5 | 20 |
| SO ₂ | 35 | 75 |
| VOC | 20 | 50 |
| COD | 55 | 15 |
| Landfilling of non hazardous waste | 35 | 5 |
| Landfilling of hazardous waste ² | 95 | 100 |
| Energy ³ | 4 | 8 |

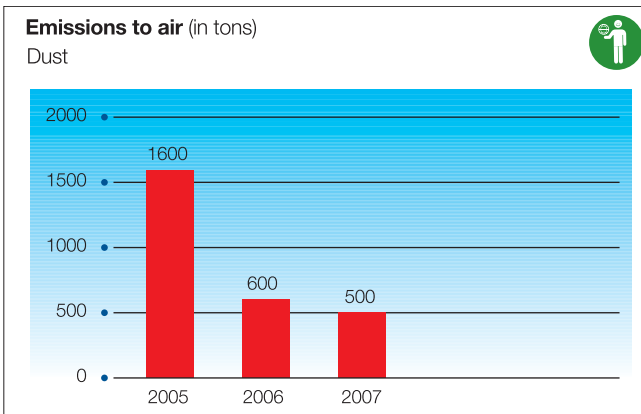
The environmental targets are based on the principle that all DSM's sites in the world should as a minimum meet the standards applied in the European Union or the United States. New plants and major plant modifications should meet this requirement right from the start, whereas existing plants should meet it within five years.

Issues for which we have already achieved the target 2010 or are on track are indicated green in the table. Issues that are considered achievable with additional effort are indicated yellow. The issues that require substantial additional effort to be realized are marked in red.

In the following paragraphs we will give the total emissions and energy consumption of DSM and comment on the progress made against the nine reduction targets for 2010.

Emissions to air

Dust



Emissions of dust were considerably reduced due to dust removal projects at DFI Nanjing in 2006 and at DAI Zhangjiakou in 2007, both in China. Both projects are successful, and their realization is fully in line with our intentions in 2005. Based on the improvements realized, we consider the target 2010 as achieved.

- 1 Assuming the same production volumes and product types as in the reference year 2005
- 2 DSM intends to ban the landfilling of hazardous waste for all situations where feasible alternatives exist, this is expressed by the 100% reduction target.
- 3 Initial target of 1% per year has been increased to 2% per year as from 2008.

Planet

N₂O

Emissions of dinitrogen oxide have decreased, partly due to reduction projects that were realized in the nitric acid plants of DSM Agro in Geleen and IJmuiden (Netherlands) at the end of 2007. Measurement of dinitrogen oxide in the plants of DFI proves to be very difficult and causes uncertainty in the reported values. Results of improved measurements in the coming years may lead to corrections, which might then also need to be applied retrospectively.

On the basis of the projects at DSM Agro, which will become fully effective during 2008, we will achieve the target for 2010. DFI will start technological investigations into the possibilities for reducing its N₂O emissions as well. Measures as a result of these investigations will be implemented as soon as possible, but will not be effective before 2010.

SO₂

Emissions of SO₂ have decreased significantly since 2005, mainly due to the desulphurization project that was realized at DNP in Wuxi (China) in 2006. No significant changes were realized in 2007. Due to limited sampling of the coal used at DFI in Nanjing (China) some uncertainty exists regarding the accuracy of the absolute SO₂ data. Anticipated reduction measures, particularly at DFI in Nanjing (China) and several sites of DAI should result in realization of the target of 75% reduction in 2010.

NO_x

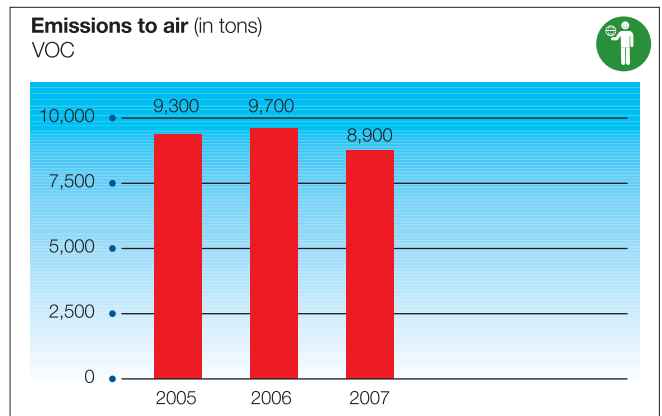
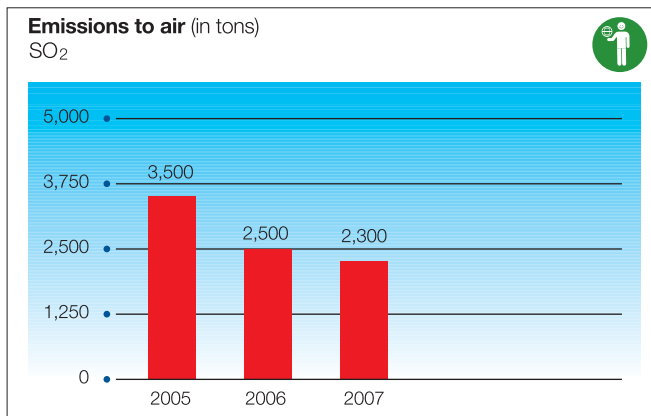
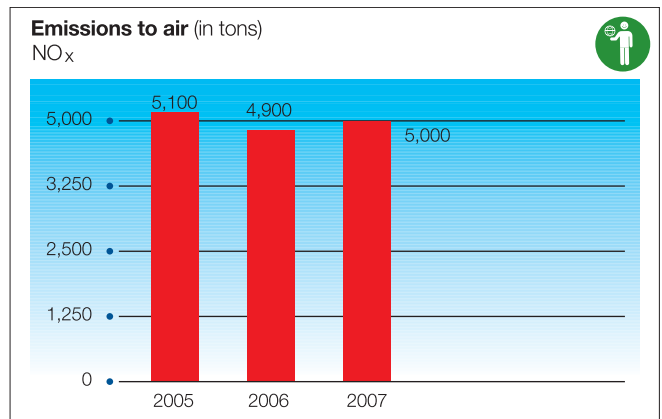
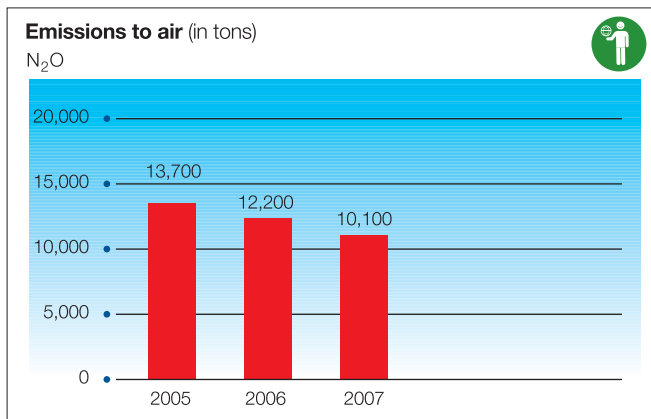
No significant changes have occurred in the emissions of NO_x. Reduction projects, particularly at the sites of DFI in Nanjing and DNP in Wuxi (China) are needed in order to realize the target of 20% reduction in 2010.

VOC

Total emissions of Volatile Organic Compounds (VOCs) were reduced. A significant reduction was realized at DAI Toansa (India). Reduction projects are in progress at the Dyneema® sites in Heerlen (Netherlands) and Greenville (USA).

Furthermore, the production volume at several sites of DAI increased at constant or even decreased VOC emissions. These changes are relative improvements, which also contribute to realization of the reduction target.

In order to achieve the target for 2010, several additional reduction projects must be realized, particularly at the sites of DE in Triunfo (Brazil), DFI in Augusta (USA) and several DAI-sites in India, Mexico and China.





Emissions to water

COD

The discharge of waste water (measured as COD, a measure for the amount of oxidizable organic compounds) was reduced very strongly. The largest contribution to this major improvement is the reduction that was achieved at DFI in Nanjing (China) in 2007. Other major contributions are from the waste water treatment at DFS in Seclin (France) which has come fully on stream in 2007, and improvements at DAI in Zhangjiakou (China) in 2006. As a result of these improvements the target for 2010 has already been achieved and is in fact greatly surpassed. On top of that, a new waste water treatment plant at DAI in Zhangjiakou will result in a further reduction.

Waste

Non-hazardous waste

The landfilling of non-hazardous waste was reduced significantly. As already indicated in our previous report, this was mainly caused by the closure of DNP's vitamin C plant in Belvidere (USA) and reductions at DFI Nanjing (China) and DPP Linz (Austria).

As a result of these reductions the target for 2010 has already been amply achieved.

DSM aims to further reduce the total amount of waste it generates. To measure the progress, we use the amount that is being landfilled as indicator. Other outlets than landfilling, such as land farming, incineration (with or without heat recovery) or recovery are generally more attractive, and the borderline between waste and by-products is somewhat ambiguous for these outlets.

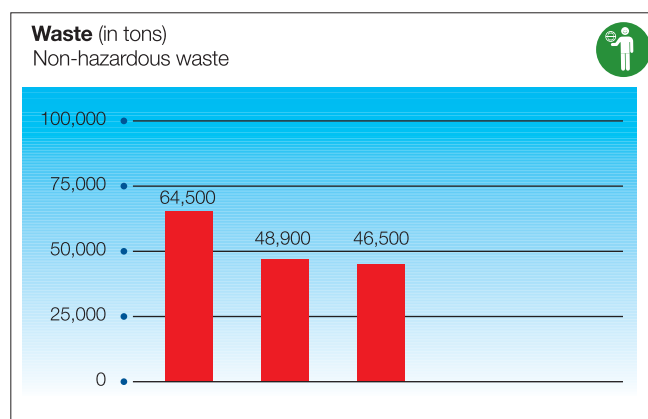
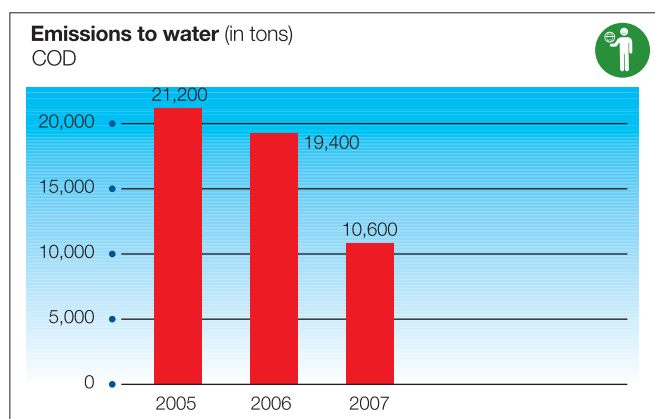
Hazardous waste

DSM intends to ban the landfilling of hazardous waste for all situations where feasible alternatives exist, which has been expressed via the 100% reduction target. Landfilling is only accepted within DSM if there are no technical or legally allowed alternatives.

In 2007 a total amount of approximately 600 tons of hazardous waste was landfilled. More than 95% concerned materials or situations for which it has been shown that no technical or legally allowed alternatives existed. For the remaining part, it will be investigated whether feasible alternatives exist or landfilling is really inevitable.

Most of the amount (475 tons) was realized at DAI in Toansa (India) and comprises waste that had previously been stored on site. All waste originating from chemical or pharmaceutical industry is classified by definition as hazardous in India, regardless of its composition and properties. Alternatives to landfilling have been examined, but were not possible. The landfill is fully equipped and compliant with applicable laws. Another significant amount (54 tons) stems from DNP in Sisseln (Switzerland) and comprises cinders from combustion processes. This type of waste is also classified as hazardous by definition and there is no technical alternative to landfilling.

The remaining part consists of relatively minor amounts, mainly asbestos-containing materials (from asbestos remediation or demolition projects) for which no technical alternatives exist.



Climate Change (energy and greenhouse gases)

Due to higher production volumes of relatively energy-intensive products, the total energy consumption has increased slightly. The energy efficiency improved by approximately 4% relative to 2005. In the course of 2007, DSM strengthened the energy efficiency target (energy consumption per ton of product) from 1% per year in 2006 and 2007 to 2% per year for the period 2008-2010.

The most important changes contributing to the improved efficiency were improvements at DAI (2%, due to a shift of production to more efficient technologies), and process improvements at the Rotterdam site (1%). A further 2% reduction was due to several small improvements and a net shift within several business groups to products/sites with lower specific energy consumption, including the closure of the Vitamin C plant in Belvidere (USA) in 2006. On the downside, technical problems in the utilities plants at the site Geleen (Netherlands) caused an increase of 1%.

The total emission of greenhouse gases decreased. This is the result of a significant reduction of N₂O emissions and an increase in the emissions of CO₂, which increased in proportion to the increase energy consumption. The absolute value of the CO₂ emissions is about half a million ton/year higher than reported previously because of emissions from utilities plants in Geleen that were not included in the reports in previous years.

In 2008 we expect a further reduction in greenhouse gas emissions, mainly due to the N₂O removal at the plants of DSM Agro in Geleen and IJmuiden (Netherlands) that was realized end of 2007 and further improvements of the energy efficiency in our plants.

In 2008 we will review our climate strategy targets and new ambitious long term (2008-2020) targets will be set for the reduction of greenhouse gas emissions.

Environmental complaints

The total number of registered environmental complaints was 96, which is about the same as in 2006 (92), but significantly lower than in 2005 (122). Just like previous years, most complaints were about odor (64) and noise (25).

The sites that received the most complaints were DFS Seclin (35, of which 20 odor and 11 noise), DNP Dalry (21, of which 14 odor and 7 noise) and DFS/DAI Delft (15, of which 14 odor and 1 noise).

Non-compliances and penalties

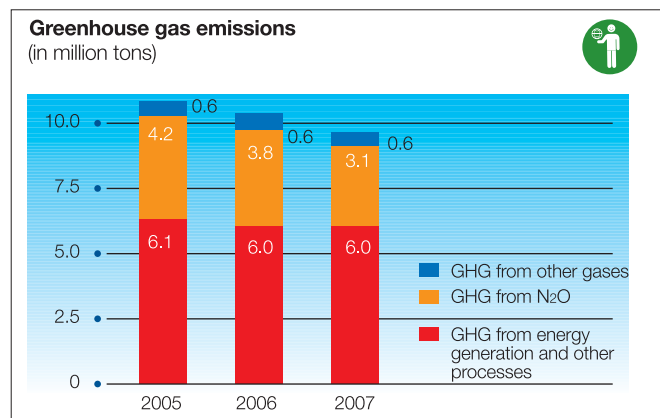
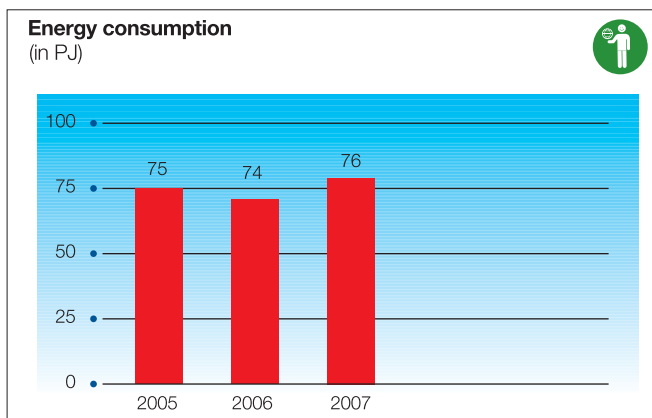
In 2007 11 DSM sites were given environmental penalties by the competent authorities. Five of these 11 were fined.

The total amount paid in fines amounted to approximately €185,000, compared to €160,000 in 2006.

The main fines were imposed on DAI Zhangjiakou (€110,000, for exceeding the standards for waste water discharge), DPP Greenville (€32,000, for not meeting air emission standards) and DFI Nanjing (€28,000, for a violation of the procedure for transportation of a certain waste stream and exceeding the standards for waste water discharge).

Environmental incidents

The total number of reported incidents in 2007 was 540, compared to 530 in 2006 and 648 in 2005. Three of these incidents were rated as serious (see chapter 'what still went wrong'). This category of incidents comprises all 'non safety' incidents that have had, or could have had, an adverse impact on the environment or acceptance by the community.





DSM meets its responsibilities by pumping groundwater

Ever since 1916, the DSM Gist site in Delft has pumped groundwater up from the ground. This was originally required for the production processes at the site. A formal permit for this procedure was issued by the Province of Zuid-Holland in 1987. In December 2004 DSM Gist announced its intention to decrease pumping, or cease it altogether, by June 2005 in view of the fact that the introduction of new production processes had obviated the need to derive water from the ground. The Province of Zuid-Holland, however, is of the opinion that DSM Gist – in view of its lengthy enjoyment of the official permit – not only has permission but also has a social responsibility to continue pumping the water until alternative measures can be put in place. The authorities wish DSM Gist to continue the pumping for at least 10 years at the company's own costs, including taxes and levies for the release of the water.

Termination of the pumping of groundwater out of the ground and into the canal system would quickly lead to flooding in the Delft region. While DSM understands the necessity of pumping in order to control groundwater levels, and appreciates that an alternative system is not yet available, we are of the opinion that this activity, which no longer forms part of DSM's legitimate commercial operations, falls under the responsibility of the Province of Zuid-Holland, which should fund it until a new solution can be found. In view of the fundamental difference of opinion involved, both parties sought an independent judgment from the Civil Court.

On 20 June 2007, the Court gave its verdict, confirming DSM's view that the legal permission to pump does not imply a legal obligation to pump. Groundwater control is primarily the responsibility of government. The Court also ruled that DSM may terminate its use of the permit at will, and thus cease pumping altogether.

The authorities appealed the verdict of the Court on 18 September, 2007. In the same month, the Province of Zuid-Holland on its own initiative decided to change the permit – pending the appeal – with retrospective effect. This change means that DSM is still obliged to continue pumping groundwater for a longer term and at its own expense. DSM has protested this move and will if necessary put the matter before the Council of State. In the meantime, we will continue to pump the groundwater at our own cost in view of our understanding of our social responsibility in this currently unresolved case.

SHE Leadership Courses

All DSM managers above first-line supervision level have to participate in a mandatory SHE Leadership training course once every five years. This course aims to ensure that all participants fully understand the principles of SHE leadership at DSM.

In line with DSM's SHE policies, the course takes a balanced approach to Safety, Health and Environment, and also gives considerable attention to compliance and SHE behavior. Key areas of focus include the role of the manager as a SHE leader, the organization of SHE management, observation techniques, principles of incident investigation, and personal commitment to safety management. A DSM SHE Leadership course lasts for two days and caters for 25 – 30 participants. In 2007, a total of 15 such courses were held, providing training for a total of 400 participants. Courses were provided in the Netherlands, Belgium, the USA, China, and Brazil. Feedback from participants gave the SHE Leadership courses an average score of 4.1 out of 5.

SHE Award 2007

Each year the best performing DSM site receives the DSM SHE Award. In 2007 DSM Desotech in Elgin (USA) won. It is the first unit to have won this award twice. The DNP site in Lalden (Switzerland) was the winner of the SHE Improvement Award for the site that showed the best progress SHE performance in the preceding 2 years.

Improved waste management system in Brazil

During 2007 the DSM Nutritional Products premix site in São Paulo, Brazil, conducted a project to improve its waste management procedures. The local SHE team reviewed the current situation, which involved using a specified area for the temporary segregation of waste prior to final disposal, evaluated the potential environmental impacts of this system, and presented a set of recommendations for improvements to the directors of DNP Brazil. As a result, a new waste disposal area was constructed which provides adequate segregation of dangerous waste according to destination, improved segregation of recyclable waste (thereby decreasing the total amount of material destined for landfill or incineration), replacement of several small waste disposal areas by a single dedicated area, and strictly controlled access to the new facility.

Product quality and process safety in the food sector

New European legislation entitled 'Commission Regulation (EC) No. 2023/2006 on good manufacturing practice for materials and articles intended to come into contact with food' (the 'GMP Regulation'), came into force on 18 January 2007. This Regulation will apply from 1 August 2008 and is directly applicable in all Member States. There is a general requirement that all materials and articles falling within the scope of that Regulation have to be manufactured in compliance with 'good manufacturing practice' (GMP). However, the term has not been further elaborated until now. The new GMP Regulation now does this and establishes the principles to be observed, proportionately, by businesses.

We apply industry-appropriate Good Manufacturing Practice to our production operations worldwide. This means that every part of the process – from sourcing through production, quality assurance and storage to delivery – is managed so as to ensure the highest levels of process safety and product quality.

Process design and product specifications are one aspect of our quality philosophy, but there are many others. We provide clear statements concerning, for example, GMO ingredients, BSE/TSE, residual solvent limits, and the absence of allergenic potentials. In many cases, we also offer 'Kosher' and 'Halal' certificates issued by highly reputed international organizations. The Kosher certificates are based on regular inspections of our manufacturing processes and sites by rabbis.

These efforts are complemented by strict change-control procedures, worldwide ISO 9001 certification for our entire business, GMP certificates (FAMI-QS) for feed additives manufactured at our main production sites, and HACCP concepts for dietary supplements and food additives. DSM produces vitamins for use as active pharmaceutical ingredients, operating here in compliance with the worldwide accepted GMP standard ICHQ7. We also provide CEPs (certificates of suitability according to the European Pharmacopoeia) for our full-range vitamin portfolio. These are issued by the EDQM (European Directorate for the Quality of Medicines & Health Care).

DSM prepares for new REACH legislation

REACH, the new European legislation for the Registration, Evaluation, Authorization and Restriction of Chemicals, became effective as of June 2007. Applicable to all manufacturers and importers of substances in the European Union, REACH calls not only for registration of chemical substances but also for a detailed account of the potential hazards they pose, including descriptions of their intended use and the degree to which human beings and the environment are exposed to them.

DSM commenced work on the implementation of REACH early in 2007 so as to ensure that all substances in our products, intermediates and raw materials are pre-registered as required before the end of 2008, and that they will subsequently be fully registered during the period 2008 – 2018. In October 2007 DSM Sourcing initiated a survey of the registration policy of 700 of our suppliers worldwide. The findings of this survey will be available early 2008. Meanwhile communication to customers and suppliers are in preparation. DSM has also completed a full inventory of all substances that we ourselves manufacture or import.

This comprises some 600 substances which we will register ourselves. We see REACH as an opportunity to create greater trust in the chemicals industry at large and to achieve competitive advantage for our company by the proactive use of non-hazardous substances wherever possible.

Animal studies

As a highly innovative company, DSM develops new products at a high pace. By law we are required to assess the beneficial properties of our new as well our established products – for instance, the nutritional benefits as well as the safety and the environmental compatibility of our vitamins, carotenoids, enzymes, health ingredients and extracts. These assessments often necessitate the use of live animals, either in feeding trials (which are performed with farm animals under conditions comparable to those at animal farms) or by testing safety aspects and studying efficacy in order to gain insight into product safety and mode of action.

We only conduct animal tests if this is absolutely required and only if no alternative methods are available. If animal studies are unavoidable, we ensure that studies are performed responsibly, caring about the animals by providing the best housing for them, practicing responsible care and using state-of-the-art techniques. By employing non-invasive techniques and repeated measurement, for example, we minimize the number of animals involved and the distress caused to them. DSM is committed to reduce, refine and replace animal studies as much as possible. We call this our 3R policy, and we constantly and systematically seek opportunities to improve our performance in this area. We have installed a discovery process for new and health-beneficial ingredients from sources derived from natural sources (preferably sources which are part of the food chain), and we use *in silico* (computer modeling) and *in vitro* techniques (for instance, cell arrays) to identify the best candidate and study the candidate's profile. By doing this, we ensure that any further animal tests are carried out only for the most promising candidates. This approach differs from earlier practice, which required animal studies for the identification and evaluation of all candidates. By adopting this new approach, we have significantly reduced the number of animals and studies required per compound put on the market.

We co-operate actively in external networks and with academic partners in developing and promoting alternative testing methods – for instance in the ICCA Long-range Research Initiative (LRI) and the European Partnership for Alternatives to Animal testing (EPAA). Furthermore we have set up research programs to explore alternative approaches to animal testing.

The Ten Principles of the United Nations Global Compact

DSM supports the ten principles of the United Nations Global Compact – the world's largest corporate citizenship initiative, with 3,800 business participants and other stakeholders located in more than 100 countries. At the heart of the Global Compact is a conviction that business practices, which are rooted in universal principles help the global marketplace to be more socially and economically inclusive, thus advancing collective goals of international cooperation, peace and development. The Global Compact asks participating companies to pursue two complementary goals: (1) incorporate the ten principles within the company's strategies, policies and operations and (2) undertake projects to advance the broader development goals of the United Nations.

Covering the areas of human rights, labor, the environment and anti-corruption, the ten principles of the United Nations Global Compact enjoy universal consensus. They are derived from:

- The Universal Declaration of Human Rights
- The International Labor Organization's Declaration on Fundamental Principles and Rights at Work
- The Rio Declaration on Environment and Development
- The United Nations Convention Against Corruption.

The Global Compact asks companies to embrace, support and enact, within their sphere of influence, a set of core values in the areas of human rights, labor standards, the environment, and anti-corruption:

Human Rights

- **Principle 1:** Businesses should support and respect the protection of internationally proclaimed human rights; and
- **Principle 2:** make sure that they are not accomplice in human rights abuses.

Labor Standards

- **Principle 3:** Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;
- **Principle 4:** the elimination of all forms of forced and compulsory labor;
- **Principle 5:** the effective abolition of child labor; and
- **Principle 6:** the elimination of discrimination in respect of employment and occupation.

Environment

- **Principle 7:** Businesses should support a precautionary approach to environmental challenges;
- **Principle 8:** undertake initiatives to promote greater environmental responsibility; and
- **Principle 9:** encourage the development and diffusion of environmentally friendly technologies.

Anti-Corruption

Principle 10: Businesses should work against corruption in all its forms, including extortion and bribery.