

3 Management and control over local environmental impact

Strategy

- Progressively bringing all the production plants up to the environmental performance level of the best.
- Continuing to reduce emissions into the air and into water for targeted parameters: both in total and per tonne of output.
- Reducing as much as possible the final waste products, and establishing sorting and recycling arrangements.
- Providing all relevant sites with improvement plans reviewed by the site Management, and the main aspects of which have been discussed with the Group's Health, Safety & Environment Competence Center.

There are plans in progress for improved environmental management at 80% of the sites. At 28 of those sites, these plans will result in very specific, but significant improvements effluent quality and will be implemented rapidly.

This relates, in particular, to controlling the emissions of substances that are classed as priority substances in relation to their potential environmental impact. The improvements for these substances generally have only a small visibility in the Group's overall indicators. The objective is to comply strictly with environmental quality standards for the receiving environment and of course with the environmental permits.

Consumption of drinking-quality water and of underground water have fallen significantly since 2003 (by 29% and 16% respectively). The quantities of waste products treated or put into landfill, whether or not classed as toxic, are unchanged from the 2003 level.

The performance improvements that are now in progress generally fall into one of the following five categories.

- Alignment of environmental performance with Best Available Techniques (BAT) :** these are set in accordance with the EU's IPPC framework Directive, and are the reference standards for authorization to operate within the European Union, and in some cases outside the EU. All the relevant Solvay plants worldwide are progressively aligning their performance with these BATs.
- Compliance with European producers federations commitments,** notably the Euro Chlor charter (relating to chlorine and derivatives production) and the ECVM charter (for PVC production), supplementing or going further than the BATs.
- Reducing the use of organic solvents in pharmaceutical production, and seeking synthesis routes that are more direct, involving fewer stages.** Our policy also involves making use of raw materials in a preferred list, particularly for the synthesis of new pharmaceutical compounds. However, regulatory requirements for registration sometimes make it difficult to change manufacturing processes.

- Seeking enhanced performance in new production plants, particularly the new PVC units planned for RusVinyl, which will be one of the best-performing in the world (see box), and the hydrogen peroxide plant in Belgium, to be operated in partnership with BASF and Dow. The latter will, for the first time, make use of new pre-treatment processes for effluents, allowing them subsequently to go to biological treatment plants shared by a number of urban or industrial entities.
- Restoring sites where limestone quarries were operated and those with settling ponds for mineral residues, following shut-down of those facilities: hundreds of hectares have been reforested and, in some cases, converted into nature reserves (notably in Santa Lucia in Italy, and Couillet in Belgium) ■

Outstanding performance by Solvay Flúor México

Solvay Flúor México performed outstandingly in terms of environmental compliance in 2006. It was able to complete an internal audit, without any observation. The plant had already been awarded the "Clean Industry" certification by Mexico's Federal Agency for Environmental Protection.



Best Available Techniques (BATs): European industrial reference standards in relation to the environmental performance

Dealing together with all types of pollution – of air, water and waste products – is replacing separate regulatory requirements for each environmental compartment, which was the earlier approach. The resulting BREFs (BAT reference documents) specify the Best Available Techniques from a technological and environmental perspective, and these now constitute the framework within which operating permits are granted in the EU.

Solvay has helped set some of these reference standards, notably for PVC and sodium carbonate production, two of the Group's main products.

Targets for 2012

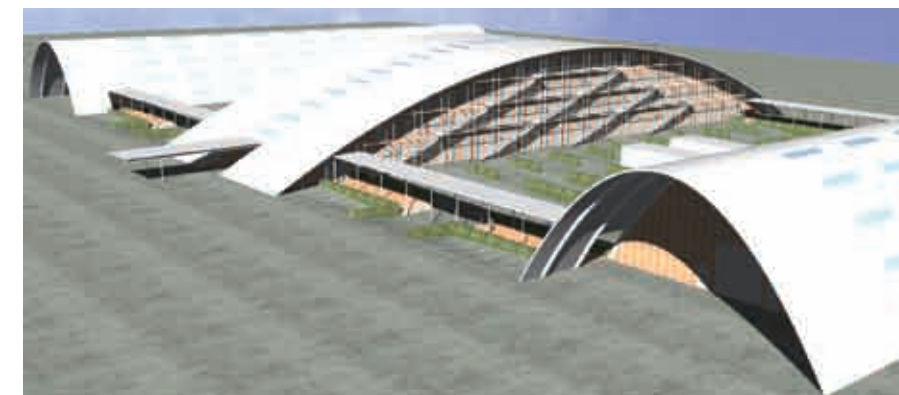
- Reducing by 20% (*) the Global Air Emission Index between 2006 and 2020.
- Reducing by 20% (*) the Global Water Emission Index between 2006 and 2020.
- Getting membrane technology for electrolysis to produce chlorine and caustic soda up to 75% of the total production capacity, and progressively converting the mercury electrolysis units.

(*) assuming comparable activity perimeter

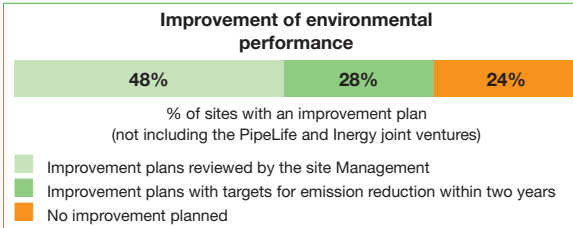
The large PVC plant in Russia will be wholly compliant with EU BAT standards

The PVC plant now being designed will have an annual capacity of 330,000 tonnes and be among the best performing in the world, complying fully with the EU's Best Available Techniques (BAT) standards. A unit is scheduled to treat all of the chlorinated organic by-product residues, recycling them into hydrochloric acid. Performance will be particularly high in terms of recycling salts (chlorides).

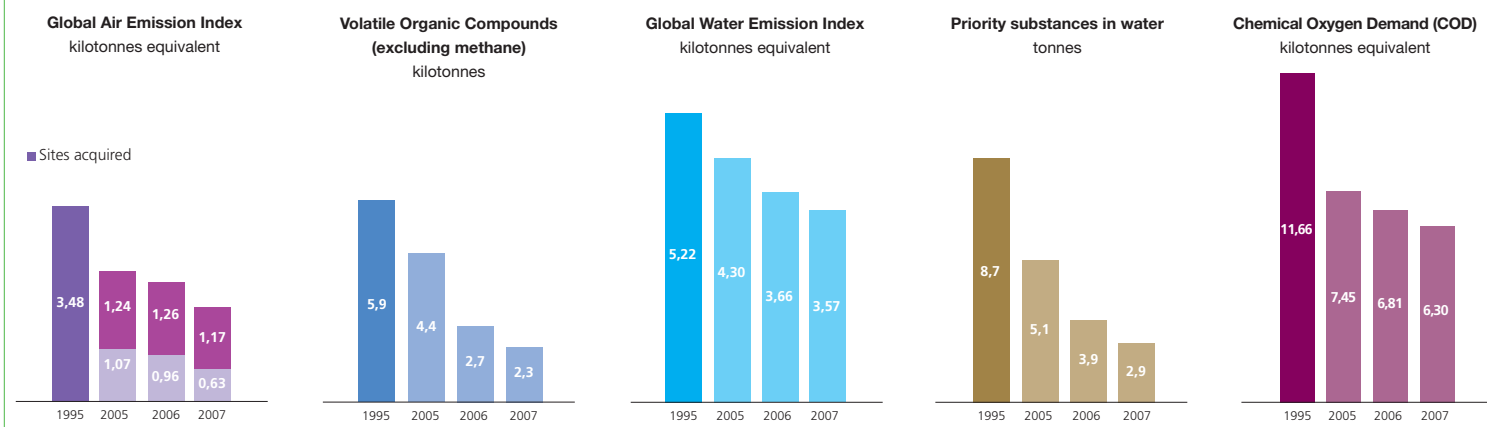
Moreover, all the PVC production plants worldwide comply with the terms in the charter adopted in 1995 by the European Council of Vinyl Manufacturers (ECVM), particularly the strict limits on emissions into the atmosphere and releases into water from units producing either suspension PVC (85% of output) or emulsion PVC. The limits are in line with those resulting from the international OSPAR Convention on protection of the north-east Atlantic.



Rusvinyl : project for the new PVC manufacturing plant in Nizhny Novgorod.



Significant progress has been made since 2004, notably in relation to releases of priority toxic substances (especially heavy metals) into water. The indicator for global emission into water and air have fallen significantly. Relative to the Group's volume of business (+37% as indicated by the sales value), the changes since 1995 in global indicators for releases into the air (-45%) and into water (-32%) amount to reductions of -64% and -52% respectively.



Data on emissions related to energy production are presented in the "Society" chapter page 34. Reporting of comprehensive environmental data, with yearly updates, see solvaysustainable.com

The program to introduce new production units for chlorine and caustic soda, moving from electrolysis using mercury to membrane technology, is continuing. The new unit at Rosignano (Italy) was inaugurated in late 2007, bringing the proportion of our installed capacity using this technology up to 45%. The new units have environmental advantages, other than just getting rid of mercury: up to 18% saving in electricity usage when compared to the old process. On the other hand, all our mercury units still operating comply with the most strict environmental regulations in place.

Changing production technology for chlorine and caustic soda

% of Solvay's total production capacity

