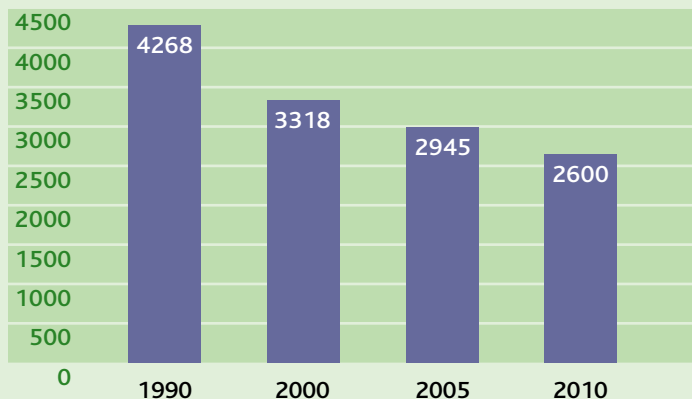


PROGRESS AND ACHIEVEMENTS IN REDUCING EMISSIONS

According to data used by the European Commission (the so called RAINS model), solvent users reduced VOC emissions by 1,3 million tonnes between 1990 and 2005 in EU15. This is a reduction of 31%. Considering that solvent use is closely linked to manufacturing output, and taking into account growth in output since 1990, this means each unit of manufacturing production on average is now emitting only half as much VOC as in 1990.

VOC emissions in Europe (EU15) from the solvents sector – kT/yr



Source: European Commission (IIASA/RAINS model)

Further reductions in emissions are expected under the existing emissions reduction legislation. This is because some of this legislation has only recently come into force and whilst new plants are already under the compliance regime, many older plants are not yet required to comply. In particular, the Solvent Emissions Directive (SED, 1999/13/EC) requirements for existing industrial installations have to be met by October 2007 at the latest and existing installations represent the majority of those affected by this directive. Likewise, many larger industrial installations are required to have Integrated Pollution Prevention and Control (IPPC) permits (which also include VOC emission reduction measures) by October 2007 at the latest. The BREF (Best Available Techniques Reference document) for solvent-using industries falling under the IPPC scope is expected to be finalised by end 2006 - early 2007 and will call for additional VOC reductions.

The EU paint directive (2004/42/EC) requires a series of paints and coatings to meet maximum VOC content in two phases, by January 2007 and by January 2010 for the most stringent part.

When one looks at the above, it is clear that industry contributions to reduction of emissions can be expected to continue and increase.



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How have the solvent using industries achieved their emission reductions?

Reducing emissions can only be achieved by investing a lot of resources. There are many different solvent uses and they are critical to a large number of manufacturing processes. Likewise the means of reducing their emissions is incredibly diverse and, to date, industry has invested in a wide range of

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SHARING YOUR VIEWS AND OPINIONS – Findings from recent ESIG survey

Capturing the views and opinions of its audiences and stakeholders is integral to the progress and direction of ESIG. This is why ESIG has recently completed its opinion formers perception survey among regulators, trade associations, distributors, users of solvents and selected media across Europe. The survey, which was conducted by an independent research company in the second half of 2005 and the first half of 2006, provides valuable feedback on the perception of ESIG and the solvents industry, and more importantly the role and effectiveness of the ESIG programme. It also tracks progress since the previous survey (last held in 2002).

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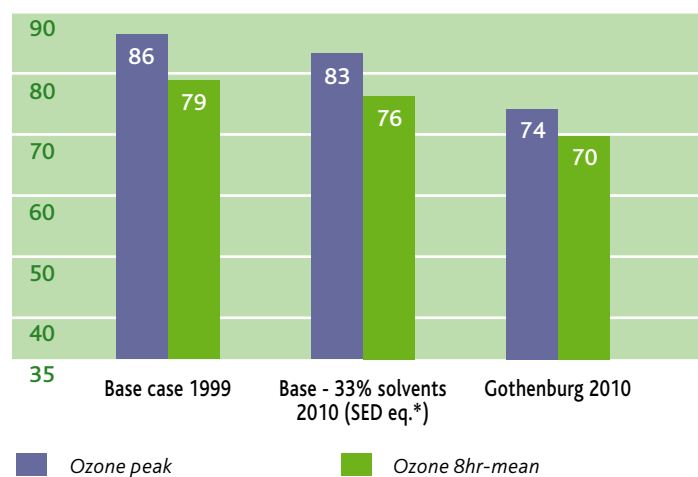
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abatement technologies. These include many innovative solutions in oxidation with new methods of energy recycling, absorbers and gas scrubbers with new possibilities for recycling solvents. Some industries have invented, produced and are now marketing thousands of new formulations in order to make more efficient use of their solvents. Across all sectors there is increased attention to train workplace staff, and solvent management plans are offering a tool to track solvent use more systematically than in the past. Much of this is work in progress – there are still many innovative ideas waiting to be tried out and investments to be made.

Have ozone levels been reduced?

According to modelling work done by ESIG, compliance with the Gothenburg Protocol and the implementation of the NEC directive could, compared to 1999 levels, lead to a total improvement in peak ozone levels of 12 parts per billion (from NO_x and VOC). Efforts by the solvent using industries would contribute to one quarter of this total. In other words a 3 ppb ozone reduction is now expected to be achieved by 2010 as a direct result of the solvent industry meeting its VOC commitments under the SED.

Ozone concentration modelled (ppb)



Source: John Pearson and Richard Derwent, O.B.E. (using the MCM trajectory model).

*equivalent to Solvent Emissions Directive 1999/13/EC implemented

Is new legislation realistic and feasible?

Current air emissions legislation is up for review, both at EU and international levels. Both the National Emission Ceilings Directive (NEC) and the Gothenburg Protocol on transboundary air pollution are expected to be revised during the next two years. (See Newsletter 15 for details on the NEC review). Member States' achievements will come under scrutiny and emissions will be re-calculated to see if Europe is on target to reach the emission reductions and limits set for 2010. If the conclusion is that this is not the case then regulators will probably want to tighten the limits set in the current agreements. Furthermore, the EU Thematic Strategy on Air Pollution (COM(2005) 446) calls for additional emission cuts in the period up to 2020 to further reduce the health and environmental burden of particulate matter and ozone.

These developments are likely to further lower the VOC emissions target levels and lead to even more pressure on solvent users.



However, looking at the figures, the solvent using industries have already contributed significantly with substantial capital investment and innovation. Furthermore, their contribution is expected to increase over the next years, when SED and IPPC compliance dates apply for all industrial installations.

Research on the direct effects of VOCs on the formation of ground-level ozone is progressing and this research is critically important for the policy insights it gives. Big questions remain about the role of natural VOC emissions and even how much natural VOCs are emitted. The research also shows that VOCs are not all equal in their impact on air quality. This means that as we progress to lower man made emissions, it becomes increasingly important for policymakers to take account of the other VOC sources, and also to be alert to the opportunities of carefully targeted measures. Given the uncertainty in air quality modelling results it seems clear that further research on ground-level ozone formation and its health risks is required before a further round of stringent legislation is issued.

The transboundary nature of air pollution is also becoming increasingly important with industrial activity expanding in, for example, Asia. Any effort made at EU level could therefore be strongly affected by such global trends.

The main focus for industry, through to 2010, will be to achieve full compliance with existing legislation. Reduction beyond those levels would generally require next generation technologies to be developed which of course takes time and money.

Since the simpler and the lower cost measures will have been taken by 2010 any next round could be challenging if product performance and cost competitiveness is to be maintained. As the revision of the NEC is debated, ESIG believes it is essential that consideration is given to the effects on the European economy and competitiveness.

For more information please contact the ESIG secretariat.

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The following are just some key results of the survey:

Knowledge & Perception

- Awareness of ESIG and its products has increased over the years. Regulators in particular have increased their knowledge of ESIG and generally trust its role in providing information on solvents.
- ESIG is seen as an open and credible organisation among all respondent communities. In particular, there has been a significant increase (in terms of credibility) in how regulators perceive ESIG.
- Solvent producers are recognised as responsible however there are some concerns about the level of responsibility among users in small companies.
- The knowledge of the uses of solvents is limited to certain applications.

Communications and the role of ESIG

- ESIG plays a key role in exchanging knowledge and keeping audiences informed about environmental, health & safety information and legislation in particular.
- The ESIG newsletter is the best known communications tool (followed by the website).
- A large majority of respondents perceive ESIG's messages as clear and understandable.

Legislative environment and solvents

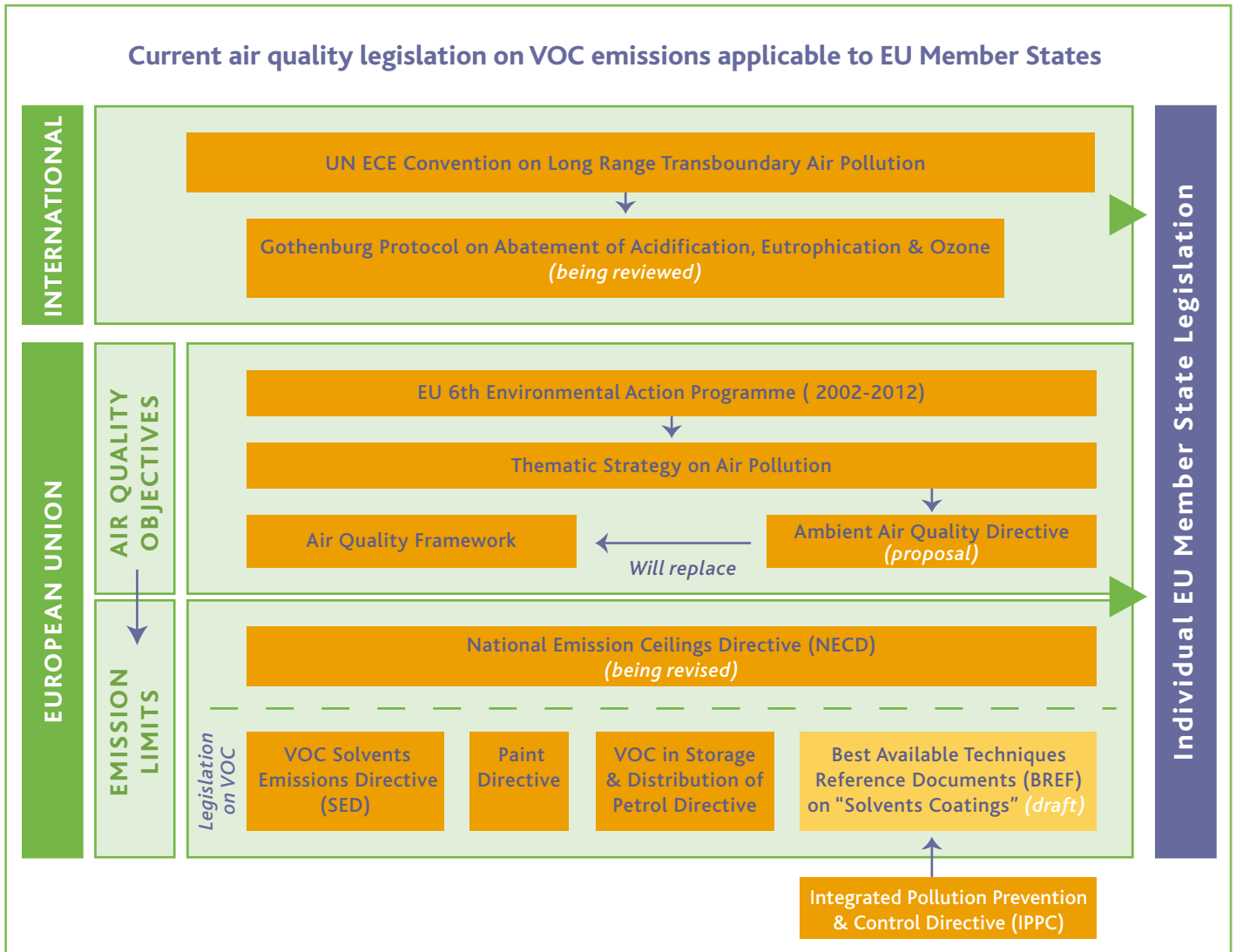
- Solvent issues will remain important in the near future, with the focus being essentially on the environment (emissions) and REACH.



- Legislation: overall, 83% are aware of pending legislation that might impact the solvents industry compared to only 26% in 2002 – a considerable shift.
- About 50% of the sample (twice as many as 2002) felt that ESIG has been constructive in addressing regulatory developments.
- Most customers felt that ESIG provided good support. Some would welcome additional support.
- 60% of customer respondents expect to use solvents in the future to the same extent as today.

We would like to thank everyone who contributed to this survey!

A more detailed summary of the results can be found on the ESIG website www.esig.org



PREPARING FOR "ATEX" – An overview

By June 2006, every solvent consuming industrial plant should have drawn up a fire protection document which determines and assesses explosion risks. The plant may need to be classified into explosion zones and in these zones adequate measures must be taken to prevent explosions. However, for an explosion to occur you need air that contain solvent vapours in a concentration over the lower explosion limit as well as an ignition source. If either of these is missing, there is no explosion risk and ATEX becomes irrelevant.

High risk?

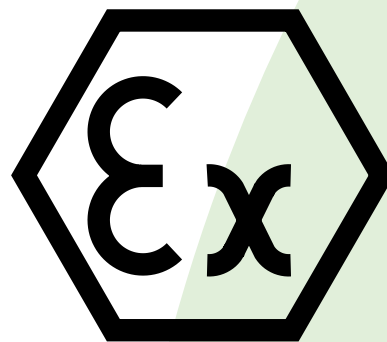
It should always be kept in mind that the higher the volatility of a solvent (or the lower its flash point), the higher the flammability risk. For example, at room temperature, low flammability solvents (flashpoint above 55°C) do not generate enough vapours to present an explosion risk (although, by heating these solvents or dispersion as an aerosol you may change that dramatically!). On the other hand high flammability solvents have high vapour pressures, evaporate quickly and are much more likely to form explosive atmospheres. Very often, local mechanical ventilation that is adequate from a workers health point of view also reduces to a great extent the risk of a fire. The solvent concentrations in healthy factory air will be below the Occupational Exposure Limit, and that limit is always much lower than the lower explosion limit.

Implementing safety measures

Still, wherever solvents are used, explosion risks may exist and these must be determined and assessed. These risks can, for instance, be found inside dryers and enclosed machinery or close to open containers. Also, since solvent vapours are heavier than air, high concentrations may be found close to the floor. Where these risks occur, safety measures need to be taken and the explosive atmosphere itself or the possible ignition sources must be addressed. Adequate ventilation will either do away with the explosion risk completely or limit it to small specific areas of the factory. For these areas classification in 'zones' is necessary. The zones are categorised as follows: category 1 - *Where explosive atmospheres are present continuously or for lengthy periods*, category 2 - *Where explosive atmospheres are likely to occur*, category 3 - *Where explosive atmospheres are likely to occur infrequently and be of short duration*. The machinery requirements are of course strictest in the first case.

What is ATEX?

ATEX stands for 'ATmosphères EXplosives' and is the acronym used for two different EU directives: "ATEX 95" (Directive 94/9/EC) which covers the requirements for machinery used in explosive atmospheres and "ATEX 137" (Directive 1999/92/EC) which covers the protection of workers at risk from explosive atmospheres. For almost every industrial plant using solvents, the second of the two directives is directly relevant. This directive was accompanied in 2003 by a 'Communication from the Commission' which included a good practice guide for implementing the directive. It contains a checklist and a format for an explosion protection document. In some Member States additional precision has been introduced through national legislation or national standards. The implementation of the directive on the protection of workers at risk from explosive atmospheres will therefore vary from country to country.



The ATEX Directive introduces a special logo to show that the equipment is suitable for use in a flammable atmosphere.

For more information on ATEX please contact the ESIG secretariat.

Disclaimer: The content of this newsletter is based on simplified scientific information and it is not claimed to be exhaustive. ESIG has compiled this information very carefully and offers it in utmost good faith. This information is believed to be correct. Nevertheless, ESIG makes no representations or warranties as to the completeness or accuracy of any of this information. ESIG will in no event be responsible for damages of any nature whatsoever resulting from the use or reliance to the information contained in this newsletter.

CALENDAR

Ongoing 2006

NECD review work in NECPI and CAFE Steering Group

May – December 2006

Review work on the Gothenburg Protocol to the CLRTAP – meetings of the Strategic Review committee

July – December 2006

Finnish Presidency of the European Union

August – December 2006

SED implementation review by European Commission consultants

November 2006

Publication of final version of IPPC BREF on Surface Treatment using solvents

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