EUROPEAN SOLVENTS INDUSTRY GROUP

cefic sector group

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Key lessons learned from European Air Quality legislation

The EU air quality legislation dates from the 1980s. ESIG, the European Solvent Industry Group, which represents the producers of oxygenated and hydrocarbon solvents in Europe[1], has been actively engaged since its formation in 1996 in furthering the scientific and technical understanding on solvents and air quality. In this paper ESIG draws on its experience with air quality legislation in Europe to share some of the key lessons learnt.

Air quality should be tackled at the international level

It is important that regional and national air quality policies are developed in coherence with air quality legislation adopted at the international level. Air quality is a global issue and the transboundary movement of air pollutants across regions cannot be addressed by individual countries alone. ESIG believes that the air quality legislation adopted by the Gothenburg Protocol under the UNECE Convention on Long-range Transboundary Air Pollution (CLRTAP) is appropriate, given the air quality challenges faced both locally and regionally. Regional policy frameworks should be in line with the UNECE targets so that air quality is improved while maintaining a level playing field for industry competitiveness across countries.

A science-based approach is essential for addressing atmospheric pollution

While there needs to be some adaptation of legislative measures to regional and national circumstances, the science underpinning these measures should be global.

ESIG recommends to use a model which has been successfully employed to develop air quality and climate change policy at the UN level (such as the Gothenburg Protocol under the UNECE Convention on Long-range Transboundary Air Pollution and the UN Framework Convention on Climate Change) and which has been also used to determine air quality legislation in Europe for over 20 years: the GAINS model[2] It has been established as a well-founded, scientifically-sound tool for determining the most cost-effective way to reduce emissions in each country or region.

GAINS, developed by the International Institute for Applied Systems Analysis (IIASA)[3], helps assess the multiple health and environmental impacts of air pollutants and greenhouse gases (i.e. threats to human health by fine particles and ground-level ozone and threats to ecosystems from acidification,

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[1] [1] Arkema - BASF - Borealis - Celanese Chemicals - CEPSA - Clariant - DHC Solvent Chemie - Domo Caproleuna - Dow Europe -Eastman - ExxonMobil Chemical Europe - Galp - Haltermann Carless - Hellenic Petroleum S.A - Ineos Oxide - Ineos Phenol - Ineos Solvents - Lyondell Basell Europe - Neste Oil - Novacap - Oxea Chemicals - Oxochimie - Sasol - Sekab - Shell Chemicals - Total Fluides - Versalis

[2] GAINS (Global Air-ocean IN-sity System)

[3] http://gains.iiasa.ac.at/

eutrophication, and elevated ozone levels), while also calculating the emission reduction potential and relative costs of different emission control strategies. It thus helps legislators determine the most cost effective measures to minimise the negative effects of air pollution and global warming on human health, ecosystems and climate change.

Any air quality modelling should be based on accurate inventories of air pollutant emissions. Several models exists and in Europe the following approach has been proven to be successful: for major point sources as well as mobile sources emissions can be calculated using a specific formula[4]

The detailed breakdown of emissions for each sector will provide a means of monitoring emissions in each sector and as stated provide detailed emission data for Air Quality Modelling. In this regard, ESIG has voluntarily developed VOC emissions inventories, based on industry sales data, to support EU member states in meeting their individual regulatory requirements (including the reporting on emissions per industry sector and enforcing emission reductions to meet the national targets). The ESIG inventories have been welcomed by leading European experts in Air Quality and atmospheric science. ESIG concluded an update of the inventory with information on emissions from 2008, 2009 and 2013[5] and is currently working on finalising the inventory on emissions from 2015. ESIG would be happy to share its experience in developing these inventories with other regions of the world.

Air Quality legislation should address emissions from installations, rather than products

Our experience in the EU has shown that air pollution control measures are most effective when addressing emissions from industrial plant installations, rather than products.

The EU adopted legislation in 1999 which tackles emissions from installations (the VOC Solvents Emissions Directive which was replaced in 2010 by the Industrial Emissions Directive[6]). The legislation applied targets for reducing emissions from plants and installations for a number of air pollutants and set a specific target of reducing VOCs emitted due to the use of solvents by 67% by 2008. The solvents industry, in conjunction with its downstream user sectors, has taken a series of measures to reduce emissions from solvents in industrial plants and installations. While the target was achieved, more importantly these measures led to a significant reduction of ground-level ozone (by 7.9ppb between 2000-2010) and the improvement of air quality[7]. By contrast, in 2004 the EU adopted legislation targeting VOC emissions from paint products (known as the EU Paints Directive[8]). This legislation has

[4] Emissions = emission factor x activity level x control factor

[5] http://www.esig.org/layout/uploads/2016/09/voc-inventory-esvoc-position-paper-2015.pdf

[6] Directive 2010/75/EU on Industrial emissions http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32010L0075

[7] ESIG & ESVOC-CG. 'The ozone challenge'. February 2009 http://www.esig.org/layout/uploads/2016/09/ozone-challenge-esvoc-position-paper-2009.pdf

[8] http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32004L0042

proved to be less efficient in tackling emissions as it has led to only minimal reductions in ground level ozone (by 0.9 ppb between 1990-2005)[9].

A harmonised VOC definition linked to the EU Industrial Emissions Directive

ESIG recommends the use of a uniform definition of VOCs across all legislation, as the use of different definitions can lead to confusion and can increase the costs of compliance for industry. The definition for VOCs from the Solvent Emissions Directive 1999 and handled under the EU Industrial Emissions Directive provides clarity and a scientifically sound basis for regulating emissions from solvents. The definition states that: "*A Volatile Organic Compound means any organic compound as well as the fraction of creosote, having at 293,15 K a vapour pressure of 0,01 kPa or more, or having a corresponding volatility under the particular conditions of use*".

ESIG encourages other regions to adopt this as a harmonised definition.

Conclusion

ESIG welcomes an open exchange with all stakeholders. One of the strengths of the European legislative approach is its iterative process of dialogue and cooperation between regulators, the scientific community and industry. ESIG, in close cooperation with downstream users, has been actively contributing to discussions with the EU institutions and member states to improve air quality and find common solutions that benefit the environment while preserving the competitiveness of the European solvents industry and is committed to continuing such engagement.

[9] ESVOC calculation following http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32004L0042

European Chemical Industry Council - Cefic aisbl
Avenue E. van Nieuwenhuyse 4 B-1160 Brussels Belgium
Tel. +32.2.676.72.11 mail@cefic.be www.cefic.org