AIR & SOLVENTS

Many everyday products contain solvents, for instance paints, varnishes, deodorants and nail polish. When produced, used or disposed such products release volatile organic compounds (VOCs) into the environment. VOCs react to form ground level ozone which is harmful to human health vegetation and crops. Ozone also contributes to climate change (see Air & Climate factsheet). In indoor environments VOCs can lead to higher rates of allergies and asthma in children.

Solvents and products are the major cause of VOC emissions which lead to a variety of health problems through ozone formation.

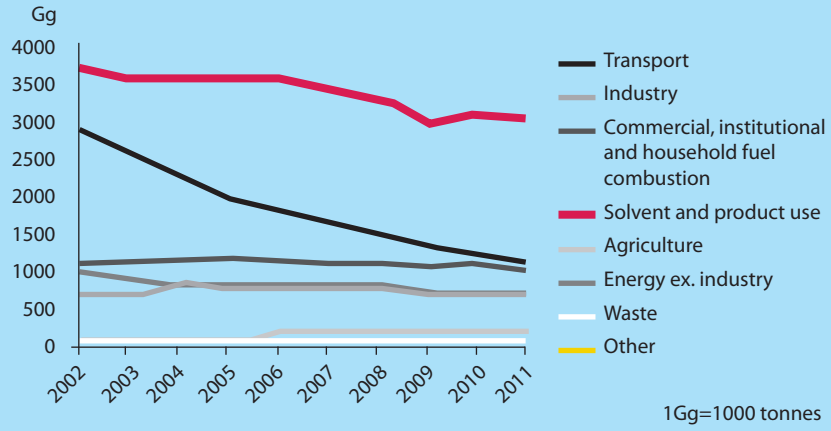
EU legislation

- The EU regulates VOC emissions from industrial activities under the Industrial Emissions Directive (see Air & Industry factsheet). This includes dry cleaning, shoe making, advertisement and magazine printing, surface cleaning, vehicle coating, and certain pharmaceutical production. Above a certain amount of solvent use, such activities have to comply with specific emission limits at their site [1].
- The EU also addresses VOC emissions from products such as paints and varnishes in order to limit their negative effects on human health and the environment. The EU's Paints Directive 2004/42/EC obliges producers to gradually reduce the amount of solvents in certain paints and varnishes [2].
- Other products such as coatings for corrosion protection, road markings, hairsprays and deodorants are not covered by EU legislation despite their contribution to VOC emissions.
- The overall VOC emissions of each EU Member State are also limited via the National Emissions Ceilings (NEC) Directive. The NEC Directive is a critical instrument to reduce overall levels of air pollution – including VOCs - and to limit the effects of transboundary air pollution [3].

FACTS AND FIGURES

Solvents and products are the major cause of VOC emissions in the EU [3]

Source: EEA, 2013



1Gg=1000 tonnes

When using products containing **VOCs**, people can expose themselves and others to very high pollutant levels. Elevated concentrations can persist in the air long after the activity is completed.

In the presence of sunlight, VOCs react with nitrogen oxides to create ground level ozone. Ground level ozone triggers a variety of health problems and can lead to more frequent hospital admissions and even increased deaths from heart and respiratory diseases.

There is currently not enough data at EU level showing the share of VOC emissions from household products and cosmetics.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PROMOTING ALTERNATIVES TO VOC-BASED PRODUCTS

Air quality can be improved by reducing the use of solvents in products and promoting the use of bio-based solvents that are VOC free. For many products, alternatives exist and are being developed.

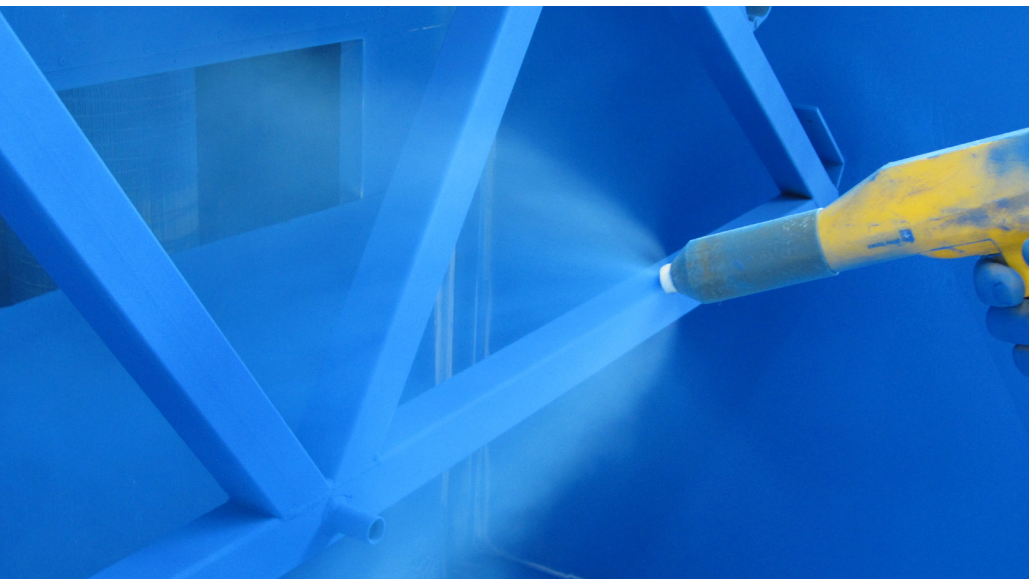
For instance:

- Hairsprays containing 95% VOCs can be replaced by hairsprays using CO_2 pressure;
- VOC-based deodorants can be replaced by VOC-free solid ones and rollers;
- Water-based paints and varnishes are already on the market and are appreciated for their odourless and environmental characteristics.

Some public authorities actively promote the use of such alternatives through public procurement, for instance by commissioning water-based road markings for motorways [4].

ALTERNATIVES TO VOC-BASED PRODUCTION PROCESSES

Air quality can be improved by reducing the use of solvents in production processes. Companies can either use end of pipe abatement techniques or modify the actual industrial processes, for instance by using coatings based on powder or water. Some industries already use low-VOC corrosive products, electrostatic application techniques, or powder coating (instead of conventional spraying) to reduce their VOC emissions.



For footnotes, please refer to separate reference sheet and to the EEB website.

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RECOMMENDATIONS

- Set ambitious VOC emission reduction commitments under the revision of the NEC Directive. Ceilings must go beyond the Gothenburg Protocol and aim to achieve the health and environmental objectives of the EU's 6th and 7th Environment Action Programmes by 2030.
- Extend the scope of the Paints Directive to corrosion protection coatings, road markings and households' products such as hairsprays and deodorants.
- Ensure adequate information for consumers by extending labelling requirements regarding VOC solvent content to all everyday products placed on the EU market.
- Improve information about emissions from household products (nail polish, deodorants, hairsprays, cleaning agents, etc.).
- Set ambitious Best Available Techniques (BATs) and Best Available Techniques associated emission levels (BATAELs) for relevant production processes including refineries (REF BREF), large volume organic chemicals (LVOC BREF) and surface treatments using solvents (STS BREF).

More information:

- Summary of the (old) VOC Solvents Emissions Directive and (existing) Paints Directive: http://europa.eu/legislation_summaries/environment/air_pollution/l28029b_en.htm
- Summary of EU industrial emissions legislation (includes VOC Solvents Emissions Directive): http://europa.eu/legislation_summaries/environment/air_pollution/ev0027_en.htm
- ÖKOPOL studies on the implementation and review of Directive 2004/42/EC: http://ec.europa.eu/environment/air/pollutants/pdf/paints_report.pdf http://ec.europa.eu/environment/air/pollutants/pdf/paints_report_2.pdf