Innovations for Greenhouse Gas Emission Reductions

The Chemical Industry and Climate Change

The International Council of Chemical Associations (ICCA), the worldwide voice of the chemical industry, commissioned McKinsey & Company, the global management consulting firm, for a new report on the global chemical industry's impact on greenhouse gas emissions through the life cycle of chemical products and the applications they enable.

The chemical industry is the first global industry to embark on such an initiative. The Öko Institut reviewed the report's calculations.

The report will be published in July 2009. It will be presented to stakeholders in a range of events listed below:

- July 7th, Rome, Italy, meetings prior to G8 Summit – ICCA/international launch of report
- July 9th, Washington, D.C. – U.S.A., regional launch of report
- July 10th, Tokyo – Japan, regional launch of report

For further information or to pre-order a copy of the report, please visit the ICCA website at http://www.icca-chem.org after July 7th

Background

The chemical industry is committed to helping to reduce greenhouse gas emissions. Our goal is to further reduce our own greenhouse gas emissions by improving our production processes whilst also encouraging the use of those chemical products that save energy and create a net emission reduction along the chemical value chain. The chemical industry has significantly improved energy efficiency and reduced greenhouse gas emissions at its manufacturing sites and is committed to continued improvement. In addition, a wide range of chemical products help reduce emissions because they are key ingredients in energy-efficient and renewable energy applications – from insulation, advanced lighting solutions, fertilizers and coatings to lightweight packaging, piping and vehicle parts.

Methodology

The LCA study used a life cycle carbon dioxide-equivalent (CO_2e) emissions analysis to assess the impact of the use of chemical products in enabling greater carbon efficiency in the global economy. Carbon life cycle analyses (cLCAs) were performed for over 100 individual chemical product applications, comparing the emissions of a chemical product in a given application with those of the next best non-chemical alternative. The achieved savings were compared with all emissions linked to the chemical industry, from extraction of energy feedstock/fuel through production and disposal.

The analyses spanned the major relevant products and sectors of the chemical industry and cover a representative portion of the CO_2e emissions linked to the chemical industry. All industry production-related emissions were included, whereas only the major use-driven emissions savings were measured. Additional life cycle analysis could therefore reveal greater emissions savings than reported in this study. The study calculated the chemical industry's impact on emissions in 2005, the most recent year for which complete data is available. Finally, with McKinsey modeling, 2030 scenarios were used to extrapolate how the emissions for both production and use phases may develop.

Findings

The study found that for every unit of greenhouse gases emitted directly and indirectly by the chemical industry, the industry enabled 2-3 units of emission savings via the products and technologies provided to other industries and consumers. In other words, products of the chemical industry enable greenhouse gas savings 2-3 times greater than their emissions, depending on the scope and assumptions used.

The most significant emissions savings by volume came from building insulation materials (such as expanded polystyrene (EPS), extruded polystyrene (XPS) or polyurethane (PU)), agrochemicals, lighting, plastic packaging, marine antifouling coatings, synthetic textiles, automotive plastics, low-temperature detergents, engine efficiency, and plastics used in piping. Under 2030 scenarios, the study found that the ratio of emissions savings to emissions could increase to more than '4 to 1', based on aggressive emission improvements in the production and use phases.

Conclusions

The study highlights the vital role of the chemical industry as enabler of solutions to reduce greenhouse gas emissions by making products that save energy and create a net emission reduction along the chemical value chain. The two McKinsey scenarios to 2030 also show that the chemical industry has substantial potential to help the world further reduce emissions, both through greenhouse gas emissions savings in its own production and through its products. If industry, policymakers and other stakeholders take steps to facilitate emissions reductions and fully utilize chemical products, the study suggests the ratio of emissions savings to emissions could increase to more than '4 to 1' by 2030.

About ICCA

The International Council of Chemical Associations (ICCA) is the worldwide voice of the chemical industry, a sector with 2007 turnover of more than US$3 trillion. ICCA members come from countries that account for more than 70 per cent of global chemical manufacturing operations. Chemicals management, international climate negotiations, government and business partnerships, regulatory affairs, stakeholder outreach, advocacy and communications are key areas of focus. The Council also promotes and co-ordinates Responsible Care®, the industry's unique global initiative that drives continuous improvement in health, safety and environmental (HSE) performance, and other voluntary initiatives advancing best practices within the industry. For additional information, see http://www.icca-chem.org.

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