

PLASTICS – A CLIMATE CHANGE PROTECTOR

Compiled by Plastics Federation of SA, May 2010

Industry has a key role to play: plastics and the plastics industry play their part in contributing to sustainable development.

Sustainable Development includes climate change aspects and especially negative effects of greenhouse gases CO₂ and methane. The greenhouse gas balance covers the full product cycle of production phase; application & use phase; and end of life [recycling and energy recovery] phase and plastics have a net positive contribution to the CO₂ balance! Climate change is directly influenced by the use of fossil fuels as energy.

Plastics only consume around 4% of global oil and gas production, compared to around 87% for transport, heating & electricity, and energy production. It is estimated that use of plastics as a whole saves more oil than is required for their manufacture. This helps other users of oil become more energy efficient, and in addition to direct energy savings, plastics also help preserve other natural resources such as food and water.

One of plastics significant climate change contributions is that it reduces the generation of CO₂ globally through its product applications.

Plastics contribution to sustainable development:

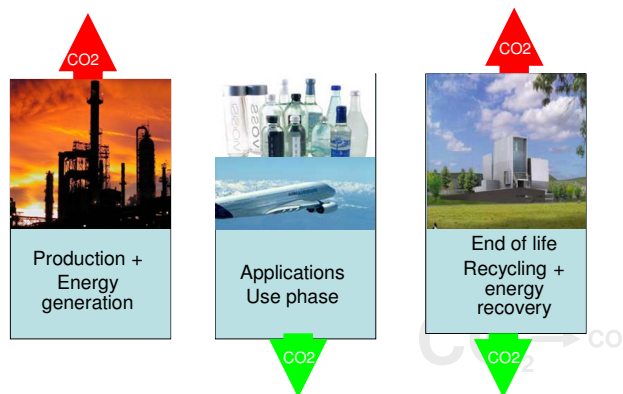
Environmental – plastics helps save resources & reduce atmospheric CO₂

Economic Development – adds value to society, through the significant employment and wealth created

Social Progress - through innovation, gives access to higher standards of living, healthcare and information

Plastics: Greenhouse gas balance over the product life cycle

PlasticsEurope
Association of Plastics Manufacturers



(Red = negative output, green = positive contribution)

The 2009 Denkstatt study (Impact of Plastics on life cycle energy consumptions and GHG emissions in Europe) clearly defines the “plastics paradox” -- the more you use, the more you save. Sustainable consumption plays a key role in CO₂ emissions and we need to count on a material which can save us the oil equivalent to 194 very large crude carriers per year. Plastics represent only 1.3% of the average European’s carbon footprint (compared with 9% clothing, 13% food, 18% recreation and leisure). The Carbon Balance shows plastics save 5

to 9 times more CO₂ during the use and recovery stages of their lifecycle, compared with the CO₂ emitted during their production.

Plastics help to protect the climate, boost resource efficiency and give us a safer life:

Our modern lifestyle would simply not be possible without plastics. Plastics have changed the world and will continue to do so - the innovative potential of plastics is far from exhausted. Plastics meet the needs of society by enabling the eco-efficient manufacture of many valuable products such as protective packaging, light and safe materials in automobiles and aviation, communication technology, electrical engineering, medical devices, insulation materials in buildings, and important parts for applications as different as renewable energy production [wind turbines] and human protection in extreme conditions.

At the end of their useful life, plastics offer various ways of recovering their value – they are simply too valuable to be thrown away.



Valuable packaging



Valuable Waste

Climate Protection: Lightweight plastic packaging reduces both the weight of goods and the amount of packaged goods that go to waste - reducing CO₂ emissions. In cars and modern airliners, plastics contribute to weight reduction, reducing fuel usage and CO₂ emissions. Homes and buildings stay warm (or cool!) with plastic insulation. Nearly 40% of all primary energy consumed globally is used in buildings and efficient insulation is a key priority in reaching Kyoto targets.

Plastics packaging saves resources – protecting food as it travels from farm to supermarket to our kitchens. In the developing world some 50% of food is wasted between farm and kitchen. Loosely-packed fruits and vegetables create 26% more waste than pre-packed produce and 1,5 gm of plastics film extends the shelf life of a cucumber from 3 to 14 days. Some 10 gm of multilayer film in a modified atmospheric packaging for meat extends shelf life from a few days to over a week. The amount of CO₂ used to produce a single portion of meat is almost 100 times more than that used to produce this multilayer film. On average only 1 to 3% of the weight of a packaged product in plastics comes from the packaging.

Resource efficiency: Without plastic packaging, it is estimated that the tonnage of alternative packaging materials would increase by a factor of 4, greenhouse gas emissions by a factor of 2, costs by a factor of 1.9, energy use by a factor of 1.5 and waste by a factor of 1.9 in volume. As the use of plastics continues to grow, this effect would increase each year. Plastic pipes ensure the efficient, safe and leak-free transportation of drinking water and sewage without waste or contamination.



CO₂ → co₂

