

## SMART-X is safe and legally compliant

**IMPORTANT !** This fact sheet aims at providing customers and other interested parties with valuable information about the environmental credentials of SMART-X coextruded polystyrene sheet material for visual communication applications.

**What is SMART-X?** SMART-X is an excellent signage and direct marketing sheet material for light yet rigid suspended signs and directly printed and contour routed displays.

**What is SMART-X made of?** SMART-X sheets have a core of foamed polystyrene onto which thin surface liners of solid polystyrene are coextruded (fused, NO glue used). SMART-X sheets are of uniform composition (100% polystyrene).

**What is polystyrene?** Like almost all other plastics, polystyrene is made of crude oil which is split up by chemical processes into fuels and all sorts of other derivatives (waxes, tar, sulphuric acid, etc.). About 4% of all crude oil is used as raw material for making plastics and a fraction of these are polystyrene.

The vast bulk of polystyrene is EPS (expanded polystyrene). The white EPS beads are bound (fused) into packaging for food and electrical goods, thermal insulation panels for houses and shock absorption items like sports helmets.

SMART-X sheets on the other hand are a type of XPS (extruded polystyrene) which is 4 times denser than EPS and can be converted into rigid sheets.

**Is polystyrene safe to use and produce?** The primary product of polystyrene, the monomer styrene, is produced since World War Two. And while high level exposure to styrene can be as dangerous to health as most other chemical products, the finished product polystyrene is completely safe if used as intended.

SMART-X sheets are manufactured without the use of CFCs or HCFCs and there is no pollution of the ground or the water around the plant because there are no liquid and hardly any other emissions (primarily heat).

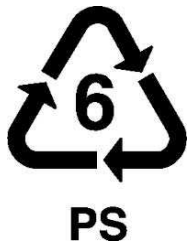
All clean production scrap (start up waste, side trimmings, quality rejects) is processed and returned to the production process of new material.

The material used for packaging is wood, carton and LD-PE wrapping film, all of which can either be recycled or even reused if considered clean enough.

**Life Cycle Analysis of polystyrene** Life Cycle Analyses (LCA) aim at assessing the impact of a product on the environment by measuring the consumption of resources during its production and by looking at the negative aspects caused by the product's use and ultimate disposal (pollution of the environment, global warming, and so on).

There are LCA of packaging applications which concluded that polystyrene (EPS) has fewer and/or less negative impact on the environment than traditional materials like paper or wood because it needs less energy and pollutes the air and water less during the production of a given item. Moreover, polystyrene is not only lighter during transport and use of an article, but also once it needs to be disposed of. A similar reasoning applies to SMART-X when compared to alternative materials for the same use.

## End of useful life considerations



The best way to dispose of SMART-X sheets that are no longer useful is by recycling. SMART-X sheets are 100% pure polystyrene and can be recycled like other products made of polystyrene (mostly EPS).

To make the recycling operation environmentally sound and economically worthwhile (energy and costs for collection and transport), it must take place in the country of consumption. It may take a bit of effort to find the nearest recycler, but polystyrene recycling rates have increased considerably in the recent years and information should be available through [www.info@eps.co.uk](mailto:www.info@eps.co.uk).

When recycled, polystyrene can be made into useful everyday products like cases for CDs and video tapes, office equipment (e.g. rulers) mouldings for architectural use and of course packaging in many forms and shapes.

In Europe, the most practiced way of putting obsolete polystyrene articles, including SMART-X sheets, to a final use is by recovering their calorific value. It's even higher than fuel oil and more than two times that of wood or paper. In this case, state-of-the-art incineration plants with flue gas cleansing equipment eliminate the danger of dangerous emissions and pollution of the air.

Polystyrene and SMART-X sheets are valuable material resources that mustn't be disposed of in landfills. However, if by accident or because of lacking alternatives SMART-X sheets are put into landfills, they don't constitute a danger to subterranean water and don't pollute the ground because they are non-toxic, not hydro soluble and generally not bio-degradable.

## Summary

- First and foremost, SMART-X sheets are an excellent substrate for short and medium term indoor and outdoor advertising campaigns.
- SMART-X sheets are lighter, more rigid and easier to print and route than many other panels used for the same purpose.
- SMART-X sheets are of uniform composition, made to 100% of polystyrene, one of the most commonly used types of plastics.
- SMART-X sheets are produced with state-of-the-art equipment and machinery without pollution of the environment. Relevant EHS (Environment, Health and Safety) procedures are strictly observed.
- SMART-X sheets are produced with raw materials that are approved by both, the REACH and RoHS legislations. No CFCs or HCFCs are used.
- SMART-X production scrap is routinely processed and recycled in accordance with the tough Swiss waste management legislation.
- SMART-X sheets, including their packaging, are of uniform composition and can all be recycled in the country of consumption to avoid the environmental impact associated with long haul transport.
- SMART-X sheets can also be incinerated in controlled conditions to recover their calorific value which is higher than the one of traditional fuel oil.
- **Airex AG and 3A Composites herewith state that they take all precautions to limit as much as reasonably possible the environmental impact of SMART-X, its production and use.**