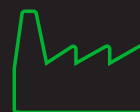




The truth about solvents in graphic film production

Continuing the discussion about achieving sustainable film technology



Across the world, graphic film manufacturers like 3M strive to achieve their sustainability goals – and help their customers do the same. The use of solvents in manufacturing is a key consideration. Many solvents are classified as volatile organic compounds (VOCs) and some can contribute to greenhouse gas emissions.

Still – solvents have been used in the manufacture of polymer films for decades. For many vinyl films, vinyl resin is combined with solvents and plasticizers to form a liquid called an organosol. This mixture is coated onto a wide web and heated in an oven. This results in two outcomes: a conformable and durable film product and evaporated solvents which are then collected and destructed, sometimes requiring additional energy.

Other processes, such as extrusion or calendaring, exist for film manufacturing. But they have historically produced lower-performance films than those cast from organosol. Essentially, the molecules within the film tend to retract during use. This can cause shrinkage, lifting and even product failure. Therefore solvents remain the prevailing choice to keep films conformable, help prevent shrinkage and keep the film material in use longer. In fact, the majority of today's premium graphic film products are manufactured using solvents.

Taking precautions

3M uses solvents for the adhesive, the film and liner in the production of many of our graphic films. This helps ensure that the film performs as intended during end use, and helps prevent degradation during shipping or storage. 3M includes

Solvent-free spotlight

Our 3M™ Envision™ Print Film PL50mC is made using a solvent free adhesive coating process and removes cleanly above 50°F without heat or chemicals. The film coating process is solvent free as well and is made from 47% bio-based materials, as measured by the combination of film, adhesive and liner according to ASTM D6866. It's recommended for short-term vehicle and fleet graphics, interior and exterior smooth, flat surfaces.

the reduction of solvent usage in our overall roadmap toward sustainable films. As part of this commitment, we've incorporated equipment that collect evaporated solvent and sends it through a thermal oxidizer to prevent it from diffusing into the surrounding environment.

Further steps in our journey

Already, some opaque 3M films and many in the 3M™ ElectroCut™ Series are made using solventless adhesive coating processes. We are beginning to introduce products with solvent-free processes for adhesive and film coatings. And any of our graphic print films are compatible with a broad range of print platforms, many of which are solventless.

This is part of a carefully planned roadmap toward sustainable film products for walls, windows, floors, sidewalks, signage, fleet vehicles and more.

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