

Fluoro Pack®

to offer Modular Surface Fluorination Plants



What is surface fluorination?

The advantages of surface fluorinated containers are well-known in the packaging sector. Fluorinated packaging materials, such as High Density Polyethylene (HDPE), have become the material of choice for the containment, transportation and preservation of various products.

Fluorinated containers are 100% recyclable and the fluorination process generates minimum waste and adheres to the Atmospheric Pollution Prevention Act (Act No. 45 of 1965). These containers are a superior alternative to other packaging materials such as metal, glass, and multilayer polymers, especially with regard to cost, when used for the packaging of hazardous substances. Permeation, softening of container walls, panelling, loss of product, discolouration, odour emissions and fragrance/flavour loss are all prevented by surface fluorination.

The Pelchem patented technology

Pelchem is currently in the process of modularising its existing surface fluorination plant technology to offer packaged Modular Surface Fluorination Plants to existing and new clients. These Modular Surface Fluorination Plants can be customised according to the customer's requirements and specifications. The technology offering can vary from just a licensing agreement for the design to a complete turnkey solution that can include the installation, commissioning, training, maintenance and general management of the plant.

The need and gap

Pelchem SOC Ltd, a subsidiary of the South African Nuclear Energy Corporation SOC Ltd (Necsa), has over 20 years' experience in surface fluorination and holds a number of design patents and trade secrets in this regard. At present, South African companies wishing to fluorinate containers have to transport these items to Pelchem's premises, which has both cost and time implications.

Benefits of Modular Surface Fluorination Plants

- On-site surface fluorination facility saves transportation logistics, time and cost
- Customisable
- Developed by Pelchem, which has 20 years' experience in commercial surface fluorination

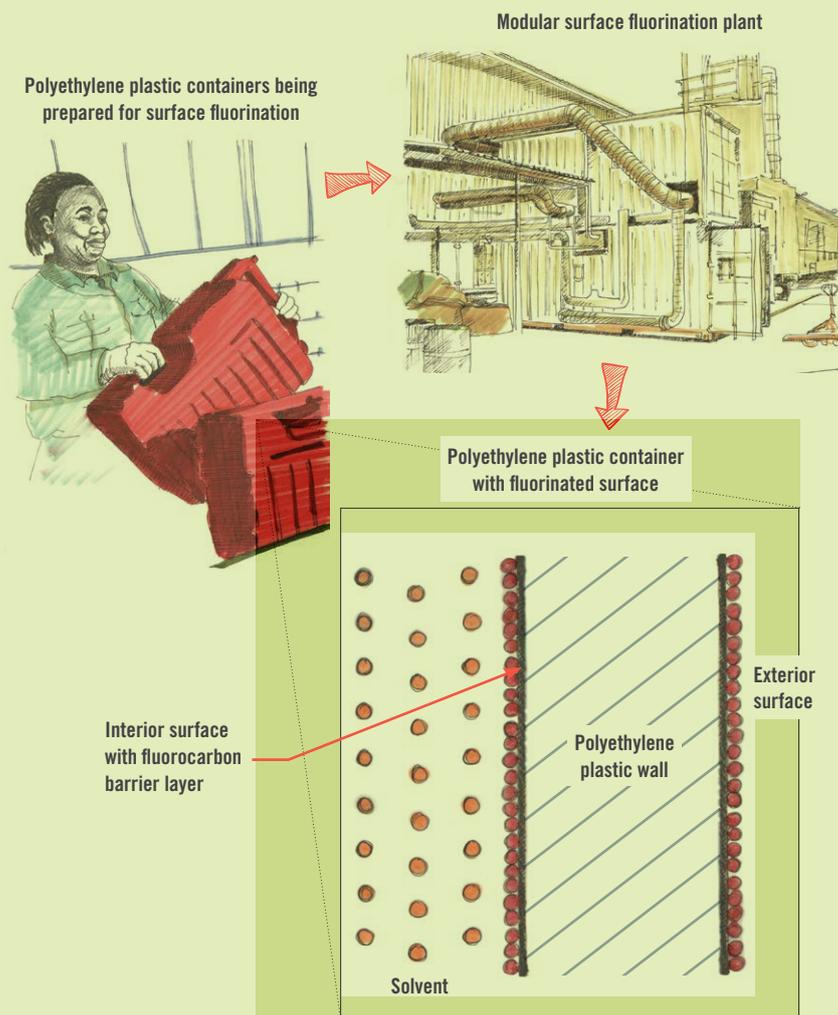


The Pelchem value proposition

This innovation will lead to significant cost and time savings for companies that require surface fluorination, since handling, packaging and transportation of empty plastic containers to and from Pelchem will be eliminated.

The concept of surface fluorination

Surface fluorination involves the modification of polymer (large macromolecules composed of many repeated sub-units, such as plastics) surfaces using fluorine gas mixtures to impede the permeation (the penetration of a liquid, gas, or vapour through a solid container's surface) and improve the adhesion characteristics. Fluorination therefore changes the polarity and surface characteristics of the polymer.



Technology readiness level (TRL) and intellectual property protection

- TRL 9 – Fully Commercialised
- Patents and Trade Secret in place

Become a partner in this technology

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About Necsa

Nuclear technology plays a fundamental role in day-to-day life. Applications such as medical isotopes, used in cancer treatment, and fluorochemicals, used in petroleum manufacturing and in items such as LCD screens and cellphones, enhance more than 10 million lives every year.

Necsa is at the forefront of nuclear energy and radiation science research and development (R&D) on the African continent. NTP Radioisotopes SOC Ltd, a Necsa subsidiary, is one of the top three producers of nuclear medicine in the world, while Pelchem SOC Ltd, another Necsa subsidiary, is the only fluorochemical production, sales and distribution company in the southern hemisphere.

The Applied Chemistry Group at Necsa undertakes R&D of commercial or Nuclear Fuel Cycle (NFC) fluorination processes/products. The focus is on the synthesis of fluoro-organics using dry fluorinating agents and supporting technologies such as molecular spectroscopy and modelling, thermal analysis and chemometrics.