



December 2017

Fluoropolymers: Medical Applications

Introduction

Thanks to the unique combination of their properties Fluoropolymers enable an excellent performance and long lifetimes in medical equipment such as surgically implantable medical devices, catheters, guide wires, filters and pumps.

They contribute to the reduction/ avoidance of medical complications and additional or repeated medical care, hence contributing to avoided pain and the public cost of medical care.

Applications

- Surgically implantable medical devices such as vascular grafts
- Heart patches
- Catheters
- Diaphragm pumps
- Membranes for filtering and venting purposes
- Fluoropolymers play an essential role in enabling medical imaging and analysis (via electronic chips and semiconductors in X-ray, MRI, CT scan and echography) as well as medical analysis (blood, tissue, urine analysis)
- Sterile container filters, needle retrieval systems, Tracheostomy, catheter guide wire for laparoscopy, valves, fittings, pumps, tubing and medicine inhaler canister coatings

Benefits

- Reduced risk of cross-infections and thus medical complications and the associated pain and public cost
- Increased lifetime of implants reducing risk of failure and risk of replacement
- Allows tissue attachment and cell adhesion without an adverse reaction due to the biocompatibility of Fluoropolymers
- Higher consistency of dosages, increasing effectiveness and safety of drugs
- Less frequent clogging and thus less frequent re-application/replacement for the patient
- Improved functionality of medical equipment (e.g. filtering and venting)
- Facilitates non-invasive surgical procedures with guidewires
- Facilities miniaturisation for keyhole surgery



Innovations

- Membrane for heart defects: It is a permanent implant consisting of a wire frame covered with a thin ePTFE membrane. The wire frame is made of a platinum-filled nickel-titanium (Nitinol) alloy.
- Endoprosthesis for the functionality of damaged liver: The proprietary, reduced permeability ePTFE graft lining minimizes transmural permeation of bile and mucin (which are common causes of patency loss) and minimizes tissue ingrowth into the graft for ease of surgical dissection during liver transplantation.

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