PALL Medical

Pall *Lipipor* TNA2E

Filter for Parenteral Nutrition

Patient protection

- **Air:** preventing embolism by position - independent air elimination
- **Particles:** protecting the circulatory system against the undesirable effects of particulate contamination in peripheral and central venous infusions
- **Enlarged lipid droplets:** significantly reducing the number of enlarged droplets (>5 µm) in admixtures[1]
- **Microbes:** reducing the risk from inadvertently contaminated infusates, particularly with fungi of clinical importance

Benefits

- **Gravity prime and easy to use:** the **Pall** *Lipipor* TNA2E filter minimises nursing time and reduces set manipulation
- **Gravity flow:** can be used in applications that do not need an infusion pump
- **Low Protein Binding:** The **Pall** *Lipipor* TNA2E filter membrane has been demonstrated to have low protein binding
- **Slim smooth housing design:** is comfortable for patients and easy to tape in place
- **Membrane Compatibility:** The **Pall** *Lipipor* TNA2E filter membrane does not adversely affect normal lipid size distribution

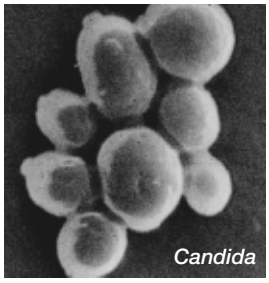
*Filtration. Separation. Solution.*SM

Pall *Lipipor* TNA2E
Filter for Parenteral Nutrition

The **Pall** *Lipipor* TNA2E Filter is a self-priming, air-eliminating filter with a 1.2 µm low protein binding *Supor* membrane and non-phthalate fluid pathway. It is indicated for the removal of inadvertent particulate debris, enlarged lipid droplets, fungal contaminants and entrained air that may be found in parenteral nutrition containing lipid.

Inadvertent contamination of parenteral nutrition preparations can have serious consequences

- Air can become entrained in infusions due to degassing, disconnection or run-dry. It may not be visible in lipid-containing preparations. It can be particularly problematic on central venous line infusions, leading to air embolism[2].
- Particulate contamination arises from infusion systems, infusate components, manipulations[3,4] and as precipitates due to interactions between components[5]. Particles are deposited in the microvasculature of the lungs and other organs and may have serious clinical consequences[6]. Gross precipitation in admixtures has proved fatal and may not be visible when lipid is present[5].
- Enlarged lipid droplets arise in admixtures due to instability. It has been suggested that the proportion of lipid present as droplets >5 µm should be minimised, since large numbers may lodge in the lung microvasculature and produce an embolic syndrome[1].


Candida

- Microbial contamination can arise in infusion systems inadvertently due to manipulations. Parenteral nutrition is an acknowledged risk for fungaemia with *Candida* species being the most common organisms involved[7]. *Malassezia furfur* is also emerging as an increasingly important pathogen in neonates[8]. These fungi are able to survive and grow in lipid-containing preparations[8,9].

Technical Specifications

Filter Medium	Low protein binding 1.2 µm Polyethersulphone *Supor* membrane
Retention of *Candida albicans*	100% removal of a total challenge of up to 10^8 for 24 h[9,11]
Tubing Extensions	Non-Phthalate PVC, 3 mm ID
Hold up Volume (filter housing + extension tubings)	12 mL (approximately)
Maximum Recommended Flow Rate a. Pumped b. Under Gravity	 500 mL/hr* 500 mL/hr*
Maximum Working Pressure	2 bar (30 psi)
Luer lock connectors (in accordance with ISO 594-2: 1998)	Female inlet Male outlet
Sterilisation Method	Gamma irradiation
Usage	Single patient use. Change at 24 h. Where aseptically attached in an aseptic environment to a single infusion system and container of infusate that are intended for 2 days continuous pumped infusion, the filter may be used for up to 48 h

* For a typical lipid containing admixture

Ordering Information

Description	Reorder No.	Packaging
Pall *Lipipor* TNA Filter for Parenteral Nutrition	TNA2E	50 units per case

References:

1. Driscoll DF *et al*. JPEN 1996;20:296-301. 2. Coppa GF *et al*. JPEN 1980;5:166-8. 3. Foroni LA. J Parent Sci Technol 1993;47:311-4. 4. Ball PA *et al.* Clin Nutr 1999;18(S1):14-5. 5. US FDA Safety Alert. Am J Hosp Pharm 1994;51:1427-8. 6. Walpot H *et al*. Anaesthetist 1989;38;544-8. 7. Vazquez JA *et al.* J Infect Dis 1993;168:195-201. 8. Robinson R & Ball P. Pres. NZ Hosp Pharm Assoc Meeting, October 1996. 9. Validation Guide for **Pall** *Lipipor* Filters, 2002. 10. Scheckelhoff DJ *et al*. Am J Hosp Pharm 1986;43:73-7. 11. Stephens A. Poster pres. Ann Meeting BAPEN, November 2001

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