PALL Medical

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Nanodyne™ NEO Filter

96-hour air eliminating particle, microbial, and endotoxin retentive filter

Features

- Retains particles down to nano-size
- Retains microorganisms and associated endotoxins
  - Eliminates air
  - Non-phthalate fluid pathway
  - Small and unobstructive design
  - Needle-less access Y-site option available

Benefits

- Protects neonatal and paediatric patients against particle related risks
- 96-hour filter and set life
- Reduces nursing time and cost
- Fewer unprotected set manipulations
- Minimises air emboli
- Prevents interruption of drug delivery due to air inclusions
- Enables rapid delivery of bolus medications

*Filtration. Separation. Solution.*SM

Neonatal and Paediatric Patients are Especially Vulnerable

In addition to the normal challenges of intensive care treatment paediatric clinicians and nurses have to deal with challenges such as a limited number of venous accesses and constraints on infusion volume in neonatal and paediatric therapy. Neonatal patients have an open foramen ovale, thus any intravenous contamination can move into the arterial circulation.

Risk of particulate contamination - Where does it come from?

Particulate contamination arises from a variety of sources, such as drug incompatibility reactions [1], handling and manipulating infusion systems [2], [3] incomplete reconstitution of drugs [4], [5], and residues from the production process of systems and infusates. [6], [7].

Clinical effects

Micro- and nano-particles contained in infusion solutions may induce the formation of thrombi [2], [8], [9] and lead to embolisation clinically [10]. Foreign particles introduced into human blood have been shown to trigger the onset of inflammation [11]. Particles from a drug preparation have been found to cause the loss of functional capillary density *in vivo*, which leads to an impairment of microcirculation and may result in a loss of organ function [7], [12].

Micro-organisms and endotoxins

Recent studies show that 26% of blood stream infections related to short term central venous catheters were caused by intraluminal contamination [13]. Microbial contamination of IV administration systems often arises from handling of the infusion set [14]. The bacteria involved may shed endotoxins, which may have serious effects on the inflammatory and coagulation systems. Pall Nanodyne filters retain endotoxins [15].

Air emboli

Entrained air can arise from infusion solutions degassing, incomplete priming, disconnections or repeated injections [16].

Pall Nanodyne filters protect patients

Pall Nanodyne filtration products protect the patient against macro-, micro- and nano-sized particles. Clinical studies show, that Pall Nanodyne filters lead to a significant reduction in patient complication rates.[17], [18]

Specifications

Filter Media
0.2 µm positively charged Nylon Posidyne® membrane

Filters and Tubing Extension
Non-phthalate, free of natural latex rubber

Hold up Volume
0.4 mL (filter housing and extension tubing)

Maximum Flow Rate*
(approx.) 110 mL/h
** Tested with 0.9% saline solution at 1 m head height*

Maximum Working Pressure
1500 mm Hg (approx 30 psi, 2 bar)

Connectors
IS0 male luer outlet, ISO female luer inlet

Sterility
Sterile and non-pyrogenic fluid pathway.

Usage
Single patient use up to 96 hours.

Ordering Information

Recorder Code	Description	Packaging
NE096E	with female luer inlet, male luer outlet, ultra microbore tubing, 70 mm downstream extension, and slide clamp	50 units per case
NE096LE	with female luer inlet, male luer outlet, ultra microbore tubing, 250 mm downstream extension and slide clamp	50 units per case
NE096NYE	with female luer inlet, male luer outlet, ultra microbore tubing, needle-less access Y-site 120 mm downstream extension and slide clamp	50 units per case

References

1. Valentin A. *et al*. Brit Med J (2009) 338: 814
2. Danschutter D. *et al*. Pediatrics (2007) 19: 742-753
3. Subramanian P.Pediatr Surg Int (2002) 18: 658–661
4. Sendo T. *et al*. J Clin Pharmacy and Therapeutics (2001) 26: 87 – 91
5. Kuramoto K. *et al*. Yakagaku Zasshi (2006) 126: 289 - 295
6. Brent B. *et al*. Eur Heart J. e-pub 1st Dec. 2006
7. Lehr H.-A. *et al*. Am J Respir Crit Care Med (2002) 165: 514–520
8. Gatti A. and Montanari S. Appl. Biomaterial (2006) 77B: 307 – 314 18
9. Walpot H *et al*. Der Anästhesist (1989) 38: 544-548 + 617-621
10. Puntis JWL *et al.* Archives of Disease in Childhood (1992) 67: 1475-1477.
11. Brook R.D. Clinical Science (2008) 115: 175–187
12. Schäfer S.C. *et al.* Chemotherapie Journal (2008) 17: 172
13. Safdar N., Maki D. Intensive Care Med (2004) 30: 62 – 67
14. Trautmann M. *et al.* J Hosp Infect (1997) 37: 225-236.
15. Richards C. & Grassby P.F. J Clin Pharm Ther (1994) 19:199-202.
16. Wald M. Intensive Care Med (2003) 29: 630-633
17. Van Lingen R.A. *et al*. Acta Paediatrica (2004) 93: 658
18. Jack T. *et al*. Intensive Care Med. (2010) 36: 707-7011

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