

JAN - 8 2004

K033987

510(k) SUMMARY

**SUBMITTER:** Dideco S.p.A.  
86, Via Statale 12 Nord  
41037 Mirandola (MO) Italy

**CONTACT PERSON:** Luigi Vecchi  
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Fax: 011 39 0535 25229

**DATE PREPARED:** December 23, 2003

**DEVICE TRADE NAME:** D735 MICRO 20: Dideco D735 Micro 20 Newborn-Infant Arterial Filter with 20 micron screen (hereafter referred to as D735 MICRO 20) and  
D736 MICRO 40: Dideco D736 MICRO 40 Newborn-Infant Arterial Filter with 40 micron screen (hereafter referred to as D736 MICRO 40)

**COMMON NAME:** Arterial Filter

**CLASSIFICATION NAME:** Cardiopulmonary Bypass Arterial Line Blood Filter

**PREDICATE DEVICES:** D735 MICRO 20: Dideco D735 Micro 20 Newborn-Infant Arterial Filter with 20 micron screen and D736 MICRO 40: Dideco D736 MICRO 40 Newborn-Infant Arterial Filter with 40 micron screen (hereafter referred to as D735 and D736 respectively) (K961869), and modified for the D736 MICRO 40 Ph.I.S.I.O.: Dideco Newborn-Infant Arterial Filter with Ph.I.S.I.O. coating (Phosphorilcholine coating) as described in K002493.

**DEVICE DESCRIPTION:**

The D735 MICRO 20 and D736 MICRO 40 are sterile, non-pyrogenic disposable filters for use in arterial line of the cardiopulmonary bypass circuit with the flow rate not exceeding 2.5 liters/minute. The D735 MICRO 20 and D736 MICRO 40 are Newborn-Infant Arterial Filters with 20 and 40 micron filter screens designed to remove potentially harmful gaseous emboli, aggregated blood constituents, and particulate debris greater than 20 and 40 microns respectively from the arterial line perfusate. The bypass connector has been eliminated in the modified versions of the D735 and D736 predicate devices resulting in enhanced ergonomics. In addition, the maximum blood flow rate has been increased to 2.5 liters/minute, in order to be consistent with the maximum flow rate of the cleared D736 MICRO Ph.I.S.I.O. modified device (K002493).

**INDICATION FOR USE:**

The Dideco D735 MICRO 20 with 20 micron screen and the Dideco D736 MICRO 40 with 40 micron screen are recommended for use in the arterial line of the extracorporeal circuit during any procedure that requires cardiopulmonary bypass. The filters are used to trap and remove gaseous emboli as well as particulate debris that maybe introduced through the arterial line. The device should not be used longer than 6 hours. Contact with blood for longer periods is not advised.

#### **TECHNOLOGICAL CHARACTERISTICS:**

The D735 MICRO 20 and the D736 MICRO 40 have the same operating principles and control mechanisms when compared to the D735/D736 predicate devices. The D735 MICRO 20 and the D736 MICRO 40 utilize the same materials, the same filtering media, the same main blood flow path and the same filtering pore size (20 and 40 micron respectively) as the predicate devices.

The design features of the D735 MICRO 20 and of the D736 MICRO 40 are, with the exception of the elimination of the bypass connector, identical to those of the current MICRO Newborn-Infant series predicate devices. Furthermore, no change of the intended use has been made as result of the extension of the maximum blood flow rate up to 2.5 LPM for both the D735 MICRO 20 and D736 MICRO 40. Both devices share the identical manufacturing process. The arterial filters are ethylene oxide sterilized and have a nonpyrogenic fluid path. They are for single use only.

#### **BIOCOMPATIBILITY TEST RESULTS:**

A complete battery of tests were carried out in accordance with the requirements of ISO 10993-1:1995 and the FDA May 1, 1995 Memorandum on the use of the ISO 10993 standard for biocompatibility testing on the raw materials. Testing was performed on the D735 MICRO 20 and of the D736 MICRO 40 (accelerated aging). The devices were aged up to five years and tested for Hemolysis, Cytotoxicity, Irritation, Acute Systemic Toxicity and Mutagenicity. Sterility, Pyrogenicity and ETO residuals. Package integrity testing was also conducted. The results of the testing met established specifications. No new materials are used in the newborn/infant arterial filter as compared to the predicate devices. This 510(k) cross references biocompatibility data previously submitted in D735 MICRO 20 Dideco Newborn-Infant Arterial Filter with 20 micron screen and D736 MICRO 40 Dideco Newborn-Infant Arterial Filter with 40 micron screen 510(k) (K961869).

#### **IN VITRO TEST RESULTS:**

*In vitro* testing was carried out in accordance with the relevant requirements of "Guidance for Cardiopulmonary Bypass Arterial Line Blood Filter 510(k) Submission" Final Guidance for Industry, dated November 29, 2000. These data demonstrate both substantial equivalence with the predicate device and show that the device is compliant with safety and effectiveness requirements. The device was aged up to 5 years and tested for priming volume, filter integrity test, pull strength, blood side pressure drop, *in vitro* hemolysis/cell depletion, filtration efficiency and air handling characteristics. For comparative purposes all tests were performed on sterilized aged devices comparing the D735 MICRO 20 operated at 2.5 LPM vs. the D735 predicate device operated at 2.0 LPM and D736 MICRO 40 operated at 2.5 LPM vs. D736 predicate device operated at 2.0 LPM. The results of these tests met established specifications.

The results of the study showed that the device characteristics of the D735 MICRO 20 vs. D735 predicate device and D736 MICRO 40 vs. D736 predicate device were comparable.

#### **CONCLUSIONS:**

The results of *in vitro* studies demonstrate that the D735 MICRO 20 and D736 MICRO devices perform in a manner substantially equivalent to the predicate devices. Biocompatibility and functional tests demonstrate that their performance is equivalent to the D735 and D736 predicate devices, according to their intended use. Additional testing has demonstrated the effectiveness of production techniques assuring that the newborn-infant arterial filters are sterile and non-pyrogenic.



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Food and Drug Administration  
9200 Corporate Boulevard  
Rockville MD 20850

Dideco S.P.A.  
c/o Mr. Barry Sall  
Parexel International Corp.  
195 West Street  
Waltham, MA 02451-1163

Re: K033987

D735 MICRO 20, Dideco D735 Micro 20 Newborn-Infant Arterial Filter with 20 micron screen and for the D736 MICRO 40, Dideco D736 Micro 40 Newborn-Infant Arterial Filter with 40 micron screen

Regulation Number: 21 CFR 870.4260

Regulation Name: Cardiopulmonary Bypass Arterial Line Blood Filter

Regulatory Class: Class II (two)

Product Code: DTM

Dated: December 23, 2003

Received: December 23, 2003

Dear Mr. Sall:

We have reviewed your Section 510(k) premarket notification of intent to market the device referenced above and have determined the device is substantially equivalent (for the indications for use stated in the enclosure) to legally marketed predicate devices marketed in interstate commerce prior to May 28, 1976, the enactment date of the Medical Device Amendments, or to devices that have been reclassified in accordance with the provisions of the Federal Food, Drug, and Cosmetic Act (Act) that do not require approval of a premarket approval application (PMA). You may, therefore, market the device, subject to the general controls provisions of the Act. The general controls provisions of the Act include requirements for annual registration, listing of devices, good manufacturing practice, labeling, and prohibitions against misbranding and adulteration.

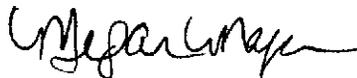
If your device is classified (see above) into either class II (Special Controls) or class III (PMA), it may be subject to such additional controls. Existing major regulations affecting your device can be found in the Code of Federal Regulations, Title 21, Parts 800 to 898. In addition, FDA may publish further announcements concerning your device in the Federal Register.

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Please be advised that FDA's issuance of a substantial equivalence determination does not mean that FDA has made a determination that your device complies with other requirements of the Act or any Federal statutes and regulations administered by other Federal agencies. You must comply with all the Act's requirements, including, but not limited to: registration and listing (21 CFR Part 807); labeling (21 CFR Part 801); good manufacturing practice requirements as set forth in the quality systems (QS) regulation (21 CFR Part 820); and if applicable, the electronic product radiation control provisions (Sections 531-542 of the Act); 21 CFR 1000-1050. This letter will allow you to begin marketing your device as described in your Section 510(k) premarket notification. The FDA finding of substantial equivalence of your device to a legally marketed predicate device results in a classification for your device and thus, permits your device to proceed to the market.

If you desire specific advice for your device on our labeling regulation (21 CFR Part 801), please contact the Office of Compliance at (301) 594-4646. Also, please note the regulation entitled, "Misbranding by reference to premarket notification" (21CFR Part 807.97). You may obtain other general information on your responsibilities under the Act from the Division of Small Manufacturers, International and Consumer Assistance at its toll-free number (800) 638-2041 or (301) 443-6597 or at its Internet address.

Sincerely yours,

  
for Bram D. Zuckerman, M.D.  
Director  
Division of Cardiovascular Devices  
Office of Device Evaluation  
Center for Devices and  
Radiological Health

Enclosure

510(k) Number (if known): \_\_\_\_\_

Device Name: D735 MICRO 20, Dideco D735 Micro 20 Newborn-Infant Arterial Filter with 20 micron screen and for the D736 MICRO 40, Dideco D736 Micro 40 Newborn-Infant Arterial Filter with 40 micron screen

Indications for Use:

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Prescription Use    
(Part 21 CFR 801 Subpart D)

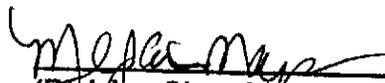
and/or

Over-The-Counter Use \_\_\_\_\_   
(21 CFR 807 Subpart C)

(PLEASE DO NOT WRITE BELOW THIS LINE-CONTINUE ON ANOTHER PAGE IF NEEDED)

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Concurrence of CDRH, Office of Device Evaluation (ODE)

  
(Division Sign-Off)  
Division of Cardiovascular Devices

510(k) Number K033987