

DEC 11 1998

K980632
510(k) Summary

Device: Duration® II Duracon® Tibial Inserts - Gas Plasma Sterilization

The purpose of this submission is to describe an additional style of Duracon® Condylar and A-P lipped tibial inserts which are stabilized/sterilized using a process called Duration® II Stabilization. The purpose of the Duration® II process is to crosslink all of the free radicals found in the UHMWPE rod stock by exposure to gamma radiation followed by a stabilization process in a heated oven. During this radiation/stabilization period, the UHMWPE is exposed to a very low oxygen concentration. The stabilized rod stock is then machined to its final configuration. The tibial insert is packaged in air, and terminally sterilized by the gas plasma sterilization process. The Duracon® Condylar and A-P lipped Inserts produced by this method conform to the requirements for Ultra High Molecular Weight Polyethylene specified in ASTM Specification F-648, and the FDA guidance document on UHMWPE used in Bearing Surfaces for Orthopedic Devices. As will be discussed later, this additional style of insert demonstrated significantly less wear when compared to air irradiated UHMWPE.

The intended use of this additional style of Duracon® Condylar and A-P lipped tibial inserts is identical to that of previously released Duracon® tibial inserts: they are intended to be used with Duracon® femoral and patellar components, and tibial baseplates in primary or revision cemented total knee arthroplasty.

These Duracon® Condylar and A-P lipped inserts are identical to those previously released. They are available in peripheral sizes extra-small through extra-extra-large in thicknesses from 6mm to 25mm. These inserts have a three point locking mechanism that is identical to those Duracon® inserts which have been previously released.

These inserts are substantially equivalent to the other Duracon® Condylar and A-P lipped tibial inserts which are already in distribution by Howmedica.

Testing was performed in accordance with the draft FDA guidance on UHMWPE.

The following marketing claims will be made for the product:

1. Duration® II products meet all ASTM F 648 specified standards
2. Duration® II products have no detectable oxidation as measured by FTIR up to 30 days of accelerated aging at 80° C in air.
3. Duration® II products have a higher gel content (crosslinking) than air irradiated UHMWPE measured in accordance with modified ASTM D2765-90 standard.

4. Duration® II has a lower tensile modulus than air irradiated UHMWPE. This lower stiffness has demonstrated an increase in contact area and a decrease in contact stress.
5. No free radicals are detected in the Duration® II material when analyzed by the ESR technique of the final product.
6. Duration® II has a lower wear rate, as measured by knee simulator testing, than air irradiated UHMWPE. Howmedica's Duration® II Stabilized UHMWPE, Duracon® A-P lipped tibial insert (large, 19mm), exhibited an average total wear of $124.87 \pm 15.0 \text{ mm}^3$ versus $158.67 \pm 11.0 \text{ mm}^3$ average total wear for the same insert conventionally gamma sterilized in air. Testing was performed in a multiaxial knee joint simulator for five million cycles using a Duracon® femoral component articulating counterface and bovine calf serum as a lubricant. The results of *in vitro* tests have not been shown to correlate with clinical wear mechanisms.

For information contact: Frank Maas
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(201) 507-7875



DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Food and Drug Administration
9200 Corporate Boulevard
Rockville MD 20850

DEC 11 1998

Mr. Frank Maas
Manager, Regulatory Affairs
Howmedica Inc.
Pfizer Medical Technology Group
359 Veterans Boulevard
Rutherford, New Jersey 07070-2584

Re: K980626
Trade Name: Duration® II Acetabular
Components - Gas Plasma Sterilization
K980632
Trade Name: Duration II Tibial
Inserts - Gas Plasma Sterilization
Regulatory Class: II
Product Code: JDI, LPH, and JWH
Dated: September 18, 1998
Received: September 18, 1998

Dear Mr. Maas:

We have reviewed your Section 510(k) notifications of intent to market the devices referenced above and we have determined these devices are substantially equivalent (for the indications for use stated in the enclosures) to 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). You may, therefore, market the devices, 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.

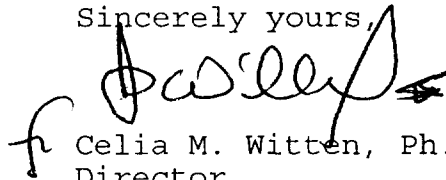
If your devices are classified (see above) into either class II (Special Controls) or class III (Premarket Approval), they may be subject to such additional controls. Existing major regulations affecting your devices can be found in the Code of Federal Regulations, Title 21, Parts 800 to 895. A substantially equivalent determination assumes compliance with the current Good Manufacturing Practice requirement, as set forth in the Quality System Regulation (QS) for Medical Devices: General regulation (21 CFR Part 820) and that, through periodic (QS) inspections, the Food and Drug Administration (FDA) will verify such assumptions. Failure to

action. In addition, FDA may publish further announcements concerning your devices in the Federal Register. Please note: this response to your premarket notification submission does not affect any obligation you might have under sections 531 through 542 of the Act for devices under the Electronic Product Radiation Control provisions, or other Federal laws or regulations.

This letter will allow you to begin marketing your devices as described in your 510(k) premarket notification. The FDA finding of substantial equivalence of your devices to legally marketed predicate devices results in a classification for your devices and thus, permits your devices to proceed to the market.

If you desire specific advice for your devices on our labeling regulation (21 CFR Part 801 and additionally 809.10 for in vitro diagnostic devices), please contact the Office of Compliance at (301) 594-4659. Additionally, for questions on the promotion and advertising of your devices, please contact the Office of Compliance at (301) 594-4639. Also, please note the regulation entitled, "Misbranding by reference to premarket notification" (21 CFR 807.97). Other general information on your responsibilities under the Act may be obtained from the Division of Small Manufacturers Assistance at its toll-free number (800) 638-2041 or (301) 443-6597 or at its internet address "<http://www.fda.gov/cdrh/dsmamain.html>".

Sincerely yours,

A handwritten signature in black ink, appearing to read 'C. Witten', with a stylized flourish at the end.

Celia M. Witten, Ph.D., M.D.
Director
Division of General and
Restorative Devices
Office of Device Evaluation
Center for Devices and
Radiological Health

Enclosures

Indications for Use

510(k) Number (if known): K980632

Device Name: Duration® II Duracon® Tibial Inserts - Gas Plasma Sterilization

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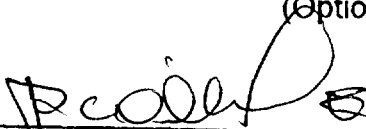
Concurrence of CDRH, Office of Device Evaluation (ODE)

Prescription Use Yes
(Per 21 CFR 801.109)

OR

Over-The-Counter Use No

(Optional Format 1-2-96)


(Division Sign-Off)
Division of General Restorative Devices

510(k) Number

K980632