



April 29, 2024

restor3d, Inc.
Anika Moorjani
Regulatory Engineer
4001 E. NC 54 Highway
Suite 3160
Durham, North Carolina 27709

Re: K240591

Trade/Device Name: restor3d Kinovis Axiom Total Ankle System
Regulation Number: 21 CFR 888.3110
Regulation Name: Ankle Joint Metal/Polymer Semi-Constrained Cemented Prosthesis
Regulatory Class: Class II
Product Code: HSN
Dated: March 1, 2024
Received: March 1, 2024

Dear Anika Moorjani:

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 (the 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. Although this letter refers to your product as a device, please be aware that some cleared products may instead be combination products. The 510(k) Premarket Notification Database available at <https://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfpmn/pmn.cfm> identifies combination product submissions. 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. Please note: CDRH does not evaluate information related to contract liability warranties. We remind you, however, that device labeling must be truthful and not misleading.

If your device is classified (see above) into either class II (Special Controls) or class III (PMA), it may be subject to 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.

Additional information about changes that may require a new premarket notification are provided in the FDA guidance documents entitled "Deciding When to Submit a 510(k) for a Change to an Existing Device"

(<https://www.fda.gov/media/99812/download>) and "Deciding When to Submit a 510(k) for a Software Change to an Existing Device" (<https://www.fda.gov/media/99785/download>).

Your device is also subject to, among other requirements, the Quality System (QS) regulation (21 CFR Part 820), which includes, but is not limited to, 21 CFR 820.30, Design controls; 21 CFR 820.90, Nonconforming product; and 21 CFR 820.100, Corrective and preventive action. Please note that regardless of whether a change requires premarket review, the QS regulation requires device manufacturers to review and approve changes to device design and production (21 CFR 820.30 and 21 CFR 820.70) and document changes and approvals in the device master record (21 CFR 820.181).

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); medical device reporting (reporting of medical device-related adverse events) (21 CFR Part 803) for devices or postmarketing safety reporting (21 CFR Part 4, Subpart B) for combination products (see <https://www.fda.gov/combination-products/guidance-regulatory-information/postmarketing-safety-reporting-combination-products>); good manufacturing practice requirements as set forth in the quality systems (QS) regulation (21 CFR Part 820) for devices or current good manufacturing practices (21 CFR Part 4, Subpart A) for combination products; and, if applicable, the electronic product radiation control provisions (Sections 531-542 of the Act); 21 CFR Parts 1000-1050.

Also, please note the regulation entitled, "Misbranding by reference to premarket notification" (21 CFR 807.97). For questions regarding the reporting of adverse events under the MDR regulation (21 CFR Part 803), please go to <https://www.fda.gov/medical-devices/medical-device-safety/medical-device-reporting-mdr-how-report-medical-device-problems>.

For comprehensive regulatory information about medical devices and radiation-emitting products, including information about labeling regulations, please see Device Advice (<https://www.fda.gov/medical-devices/device-advice-comprehensive-regulatory-assistance>) and CDRH Learn (<https://www.fda.gov/training-and-continuing-education/cdrh-learn>). Additionally, you may contact the Division of Industry and Consumer Education (DICE) to ask a question about a specific regulatory topic. See the DICE website (<https://www.fda.gov/medical-devices/device-advice-comprehensive-regulatory-assistance/contact-us-division-industry-and-consumer-education-dice>) for more information or contact DICE by email (DICE@fda.hhs.gov) or phone (1-800-638-2041 or 301-796-7100).

Sincerely,

Peter G.
Allen -S

Digitally signed by Peter
G. Allen -S
Date: 2024.04.29 22:57:37
-04'00'

For Lixin Liu, Ph.D.
Assistant Director
DHT6A: Division of Joint Arthroplasty Devices
OHT6: Office of Orthopedic Devices
Office of Product Evaluation and Quality
Center for Devices and Radiological Health

Enclosure

Indications for Use

Submission Number (if known)

K240591

Device Name

restor3d Kinos Axiom Total Ankle System

Indications for Use (Describe)

The restor3d Kinos Axiom Total Ankle System is indicated for patients with ankle joints damaged by severe rheumatoid, post-traumatic, or degenerative arthritis. The restor3d Kinos Total Ankle System is additionally indicated for patients with failed previous ankle surgery. The restor3d Kinos Axiom Total Ankle System is intended for cement use only.

Type of Use (Select one or both, as applicable)

☒ Prescription Use (Part 21 CFR 801 Subpart D)

☐ Over-The-Counter Use (21 CFR 801 Subpart C)

CONTINUE ON A SEPARATE PAGE IF NEEDED.

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510(k) Summary

Date Prepared: April 29, 2024

In accordance with 21 CFR 807.92 requirements, this information serves as a Summary of Substantial Equivalence for the restor3d Kinos Axiom Total Ankle System.

A. 510(k) Sponsor:

restor3d, inc.
4001 E. NC 54 Highway, Suite 3160
Durham, North Carolina, 27709

B. Primary Correspondent:

Anika Moorjani
Regulatory Engineer
(501) 240-3476 (direct)
anika@restor3d.com

C. Premarket Notification:

Trade Name:	restor3d Kinos Axiom Total Ankle System
Common Name:	Total Ankle Replacement
Classification Name:	Prosthesis, Ankle, Semi-Constrained, Cemented, Metal/Polymer
Regulation Number:	21 CFR 888.3110
Product Code:	HSN
Classification:	II
Review Panel:	Orthopedic

D. Indications for Use:

The restor3d Kinos Axiom Total Ankle System is indicated for patients with ankle joints damaged by severe rheumatoid, post-traumatic, or degenerative arthritis. The restor3d Kinos Total Ankle System is additionally indicated for patients with failed previous ankle surgery. The restor3d Kinos Axiom Total Ankle System is intended for cement use only.

E. Predicate Devices:

The subject line extension to the restor3d Kinos Axiom Total Ankle System is substantially equivalent to the following devices:

510(k)	Trade Name	Manufacturer
Primary Predicate Device		
K123954	INFINITY Total Ankle System	Wright Medical Technology, Inc.
Secondary Predicate Device		
K182878	SALTO TALARIS Total Ankle Prosthesis	Smith and Nephew, Inc.
Reference Devices		
K192778	Kinos Axiom Total Ankle System	restor3d, Inc. <i>Cleared under Kinos Medical</i>
K223316	Identity Imprint Porous Total Knee Replacement System, Identity Imprint Porous Cruciate Retaining Total Knee Replacement System	Conformis, Inc. <i>Owned and operated by restor3d, Inc.</i>
K203447	iTotal Identity Cruciate Retaining (CR) Total Knee Replacement, iTotal Identity Posterior Stabilizing (PS) Total Knee Replacement	Conformis, Inc. <i>Owned and operated by restor3d, Inc.</i>
K201393	Restor3d MTP Implant	restor3d, Inc.

F. Device Description:

The subject restor3d Kinos Axiom Total Ankle System is an implant and instrument system designed to preserve motion in patients with ankle arthritis or previously failed ankle surgery. The device is a fixed bearing and semi-constrained implant construct, intended for replacement of the articulating surfaces of the ankle that have been affected by a disease state or injury. The device provides limited mobility to a patient by restoring alignment of the articulating surfaces, reducing pain, and providing flexion-extension movement within

the ankle joint. The device is intended to be used with bone cement. The subject restor3d Kinos Axiom Total Ankle System consists of three implant components – a tibial implant affixed to the tibia, a bearing implant assembled to the tibial implant and a talar implant affixed to the talus. The tibial implant and bearing implant, assembled intraoperatively, function together and articulate with the talar implant to create a fixed bearing prosthesis, replacing the articulating surface of the tibiotalar joint.

The additively manufactured r3 talar dome and Vitamin E, cross-linked ultra-high molecular weight polyethylene (UHMWPE) r3 bearing component, subject of this 510(k), are compatible with:

- All Kinos Axiom Total Ankle System Tibial Tray Components and associated instrumentation cleared via K192778
- All Kinos Axiom Total Ankle System X-Stem Tibial Components and associated instrumentation cleared via K232595

G. Performance Testing:

The modified device was subjected to the following performance testing and/or analyses to establish substantial equivalence in comparison to the predicate devices.

- Contact Area Testing per ASTM F2665
- Constraint Testing per ASTM F2665
- Range of Motion Testing per ASTM F2665
- Locking Mechanism Fatigue Strength Analysis per ASTM F2665
- Implant Strength Engineering Analysis per ASTM F2665
- Wear Engineering Analysis per ASTM F2665

H. Substantial Equivalence Comparison:

Substantial equivalence of the line extension to the predicate devices is based on the following:

- The line extension for the r3 talar implant components and Vitamin E, cross-linked ultra-high molecular weight polyethylene (UHMWPE) bearing components have the same indications for use and intended use
- The line extension for the r3 talar implant components and Vitamin E, cross-linked ultra-high molecular weight polyethylene (UHMWPE) bearing components share similar performance characteristics
- Changes in technological characteristics, including material and manufacturing methods, are not shown to raise any different questions of safety or effectiveness

I. Conclusion:

Based on the comparison of the intended use and indications for use, the subject restor3d Kinos Axiom Total Ankle System is substantially equivalent to the predicate devices. The introduction of an additively manufactured cobalt-chromium talar component (per ASTM F3213), changes to introduce a vitamin E, cross-linked ultra-high molecular weight polyethylene (UHMWPE) bearing component, and changes to the design and size offerings do not raise issues of safety and effectiveness.