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ZHONGYING QUALITY INSPECTION TECHNOLOGY CO., LTD.

## TEST REPORT

REPORT CODE NO.: XD04108-2021

SAMPLE BRAND: PUTRION

SAMPLE NAME: CHLORINE DIOXIDE EFFERVESCENT TABLETS

INSPECTION COMPANY: HEBEI ERAO BIOTECH CO.,LTD

**May 21, 2021**



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## Inspection Report

Sample Number: XD04108-2021

Sample Product name:	PUTRION (Chlorine Dioxide Effervescent Tablets)
Manufacturing Company:	Hebei Erao Biotech Co., Ltd
Requested Company:	Hebei Erao Biotech Co.,Ltd
Company Address:	No. 11 Chuangye Alley, Dajiazhuang Village, Liucun Town, Shenze County, Shijiazhuang City, Hebei Province, China
Production date/Batch NO.:	20210329/21032901
Identify Category:	Commissioned Inspection
Number of samples	4 Bags
Specification model:	200g/bag
Sample properties:	Tablet
Sample date:	April 8, 2021
Inspection completion date:	May 21, 2021
Test based on:	"Disinfection Technical Specifications" ( 2002 edition) "Cosmetics Safety Technical Specification" (2015 edition)

### TEST RESULTS:

1. PUTRION-Chloride dioxide effervescent tablets (Batch NO.21032901) was tested out most large concentration solution pH average value 2.83.
2. PUTRION-Chloride dioxide effervescent tablets(Batch NO.21032901) by Five-step iodometry was detected the chlorine dioxide content 10.3%.



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3. PUTRION-Chloride dioxide effervescent tablets (Batch NO.21032901) set into 54°C constant temperature and humidity tank reservoir for 14 days, detected by the Five-step iodometry method, to measure out chlorine dioxide content 10.1%, 1.9% decrease. The test result meets the requirements of "Disinfection Technical Specification" (2002 Edition), and the validity period of the product can be set as 1 year.
4. PUTRION-Chloride dioxide effervescent tablets (Batch NO.21032901) detected by Graphite furnace atomic absorption spectrometry, the lead content was 0.31 mg/kg, the detection result matching the regulations on lead limit under the "Cosmetics Safety Specification" (2015 Edition) .
5. PUTRION-Chloride dioxide effervescent tablets (Batch NO.21032901) detected by fluorescence spectrophotometry hydride atoms, arsenic content of 0.052mg/kg, the detection results is for "Cosmetic Safety Technical Specifications" (2015 Edition) on arsenic limit Regulations .
6. PUTRION-Chloride dioxide effervescent tablets (Batch NO.21032901) by a hydrogen compound atomic fluorescence spectrometry detection, the mercury content of 0.026mg/kg. Detection result is for "Cosmetic Safety Technical Specifications" (2015 Edition) limits on mercury Regulation.
7. PUTRION-Chloride dioxide effervescent tablets (Batch NO.21032901) immersed into metal sheet after 72h, for stainless steel, carbon steel, aluminum, the corrosion rate of copper (R), respectively 0.0080mm/a, 0.854mm/a. 0.607 mm/a, 0.668mm/a, based on grading corrosive Analyzing: PUTRION-Chloride dioxide effervescent tablets (Batch NO.21032901 ) substantially no corrosion of stainless steel, for carbon steel, aluminum, copper with moderate corrosion.
8. Under the experimental conditions, repeated three times, D/E Neutralizing Broth Neutralizer can effectively neutralize PUTRION-chlorine dioxide disinfection effervescent tablets with a concentration of 100mg/L (Batch NO. 21032901), the inhibitory effect of sample application solution on E. coli: and the neutralizer and neutralized product have no effect on the growth and culture of the tested bacteria (E. coli) .
9. Under the experimental conditions, the repeated three times for the tested PUTRION-Chloride dioxide effervescent tablets (Batch NO.21032901), chlorine dioxide concentration of 100mg/L of sample liquid application for 10min, on killing of E. coli of average log value is  $\geq 5.00$ , which meets the requirements of "Disinfection Technical Specification" (2002 edition), and the disinfection is qualified.



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10. Under the experimental conditions, the repeated three times to test PUTRION-Chloride dioxide effervescent tablets (Batch NO.21032901), chlorine dioxide concentration 100mg /L sample liquid application for 10min, Staphylococcus Staphylococcus's the average killing logarithm value  $\geq 5.00$ , in line with the requirements "Disinfection Technical Specifications" (2002 edition), and disinfection qualified.

11. Under the experimental conditions was repeated three times to test PUTRION-Chloride dioxide effervescent tablets (Batch NO.21032901), chlorine dioxide concentration of 100mg/L of sample liquid application, effect for 10min, copper green false single Aeromonas's average killing log values are  $\geq 5.00$ , in line with "Disinfection Technical Specifications" (2002 edition) requirements, disinfection qualified.

12. Under the experimental conditions, the repeated three times, D/E Neutralizing Broth Neutralizer can effectively neutralize PUTRION-chlorine dioxide effervescent tablets (Batch NO.21032901) with a chlorine dioxide concentration of 100mg/L. The inhibitory effect of the sample application solution on Candida albicans: and the neutralizing agent and neutralizing the product to the culture and the tested bacteria (Candida albicans) were grown to raise no effect.

13. Under the experimental conditions was repeated three times to test PUTRION-Chloride dioxide effervescent tablets (Batch NO.21032901), chlorine dioxide concentration 100mg/L sample was applied for 10min, Candida albicans fungus's average kill The logarithmic values are  $\geq 4.00$ , which meets the requirements of the "Disinfection Technical Specification" (2002 Edition), and the disinfection is qualified.

14. Under the experimental conditions was repeated three times, D/E and meat +10g/LNa<sub>2</sub>S<sub>2</sub>O<sub>3</sub> neutralizer effective chlorine dioxide concentration of 400mg/ L of PUTRION-Chloride dioxide effervescent tablets (Batch NO.21032901) was applied to the sample B. subtilis strain var.niger bud inhibition of hold: and the neutralizing agent and neutralizing the product to test curved (B. subtilis strain var.niger spores) culture growth has no influence.

15. Under the experimental conditions was repeated three times to test PUTRION-Chloride dioxide effervescent tablets (Batch NO.21032901), chlorine dioxide concentration of 400mg/L of sample liquid application for 15min, B. subtilis black bud color variants Cannon's average killing



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logarithm value  $\geq 5.00$ , in line with "Disinfection Technical

Specifications "(2002 edition) requirements, and disinfection qualified.

16. Under the experimental conditions was repeated three times, D/E neutralizing broth neutralizer can effectively neutralize the inhibitory effect of PUTRION-chlorine dioxide effervescent tablets (Batch NO.21032901) with a chlorine dioxide concentration of 100mg/L on Mycobacterium chelonae subspecies; and the neutralizing agent and neutralizing the product of the tested bacteria (Mycobacterium chelonae abscesses subspecies) had no effect on growth and culture.

17. Under the experimental conditions was repeated three times to test PUTRION-Chloride dioxide effervescent tablets (Batch NO.21032901), chlorine dioxide concentration was 100 mg/L of sample liquid application, 15min, Mycobacterium chelonae abscesses average logarithmic value of killing species is  $\geq 4.00$ , which meets the requirements of "Disinfection Technical Specification " (2002 Edition), and the disinfection is qualified.

18. A test experiment conditions was repeated three times to test PUTRION-Chloride dioxide effervescent tablets (Batch NO.21032901), the sample application solution with a chlorine dioxide concentration of 100mg/L after continuous use for 7 days, on artificially contaminated medical devices (glass thermometer) on Mycobacterium abscess turtle subspecies of killing logarithm value  $\geq 3.00$ , disinfection qualified, in line with "Disinfection Technical Specifications" (2002 edition) of requirements, continuous use of qualified stability .

19. The PUTRION-Chloride dioxide effervescent tablets (Batch NO.21032901), chlorine dioxide concentration of 100 mg/L of sample liquid application, disinfectant wipe, 1.0 min, hand( hand hygiene) surface natural bacterial's average killing logarithm value  $\geq 1.00$ , which is for "Disinfection Technical Specifications "(2002 edition ) requirements .

20. The PUTRION-Chloride dioxide effervescent tablets( Batch NO.21032901) , chloride dioxide concentration of 100mg/L of the sample should be with liquid, disinfectant wipe, 3.0 min, the hand(surgical hand)surface of natural bacteria's average killing logarithm value  $\geq 1.00$ , that is in line with "Disinfection Technical Specifications " (2002 edition) requirements .

21. The PUTRION-Chloride dioxide effervescent tablets (Batch NO.21032901), chlorine dioxide concentration of 100mg/L of sample liquid application, immersion disinfection 10min, Huang jaw



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surfaces natural bacteria's average kill log value  $\geq 1.00$ , in line with the requirements of "Disinfection Technical Specifications " (2002 edition).

22. The PUTRION-Chloride dioxide effervescent tablets (Batch NO.21032901) , chlorine dioxide at a concentration of 100mg/L of the sample should be a liquid, Soaking disinfection, effect 10min, artificial stained bacteria on the fabric surface of the sample E. rod bacterium, average killing logarithm value  $\geq 3.00$ , in line with "Disinfection Technical Specifications " (2002 edition).

23. The PUTRION-Chloride dioxide effervescent tablets (Batch NO.21032901) , chlorine dioxide concentration was 100mg/L of the sample should be a liquid. Soaking disinfection 10min, E. coli contamination on the surface of the average kill log value  $\geq 3.00$  meets the "Disinfection Technical Specifications" (2002 edition) requirements .

24. The PUTRION-Chloride dioxide effervescent tablets (Batch NO.21032901) , chlorine dioxide at a concentration of 100mg/L of sample liquid application, disinfectant wipe, 10 min, to the surface of natural wood table bacteria, the average killing log values  $\geq 1.0$ , in line with "disinfection technical specifications" (2002 edition) of the requirements.

25. The simulated field disinfection test of swimming pool water shows that the tested PUTRION-chlorine dioxide effervescent tablet (Batch NO. 21032901), the sample is used at a water ratio of 1g:50L, and it is added to the water sample to make the chlorine dioxide concentration in the water sample 2mg/L, acting for 30 minutes, can reduce the amount of E. coli in the artificially infected water sample to 0cfu/100mL, compliance with "Disinfection Technical Specifications" (2002 edition) requirements.

26. Under the test temperature 22~25°C , relative humidity 50 to 55% to test PUTRION-Chloride dioxide effervescent tablets (Batch NO.21032901) , configure a sample application solution with a chlorine dioxide concentration of 100mg/L, spray disinfection at a dosage of 10mL/m<sup>3</sup>, and act for 30 minutes to kill artificially polluted Staphylococcus albicans in the air of a 20m<sup>3</sup> closed room, three results were  $\geq 99.90\%$ , matching "Disinfection Technical Specifications"(2002 edition) requirements .

27. Under the test temperature is 22~25°C , relative humidity 46~53%, The PUTRION-Chloride dioxide effervescent tablets (Batch NO.21032901) to prepare chlorine dioxide



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concentration of 100mg/L of samples should be used solution in 10mL/m<sup>3</sup> dosage spray disinfection effect 30min, to 20m<sup>3</sup> closed room air to kill the natural bacteria, three results were  $\geq 90.0\%$ , comply with "Disinfection Technical Specifications" (2002 edition) .

28. The PUTRION-Chloride dioxide effervescent tablets(Batch NO.21032901) detection of microbial contamination test results fit for "Disinfection Technical Specifications" (2002 Edition)

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Issuer(Signature):

Inspection Completion Date: May 21, 2021

