



REPORT

CLIENT

Customer: DUKA PRODUCTION LTD.

Attention: MR. WIM TEN KATE

SERVICE REQUESTED

Sample Description: Chlorine Dioxide

Trade Designation: Dutrion Tablet

Evaluation Standard: NSF/ANSI Standard 60

Status: Pass

Report: 19-JUN-2009

NSF INFO

Project Manager: Lena Hope

NSF Program: 0045 - DWA Std. 60 (Health Effects Testing)

Report ID: C0028763_J-00074857

NSF PA: 9065484 (CL02, TE02)

Report Issue: FI20090619104213

Test Report

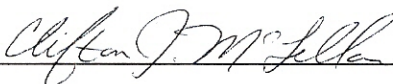
This report documents the testing of the referenced product to the requirements of NSF/ANSI Standard 60 (Drinking Water Treatment Chemicals - Health Effects). This standard establishes minimum requirements for chemicals, the chemical contaminants, and impurities that are added to drinking water from drinking water treatment chemicals. Contaminants produced as by-products through reaction of the treatment chemical with a constituent of the drinking water are not covered by this Standard. Reference the "About the Standard" section at the end of this report for additional information about NSF/ANSI Standard 60 and the products covered under this Standard.

Sample Description: Chlorine Dioxide
Trade Designation: Dutrion Tablet
Test Type: QQ - Qualification Testing
Result: Pass

Thank you for having your product tested by NSF.

This report details the results of testing performed on your product. Please do not hesitate to contact Lena Hope at 734-913-5731 if you have any questions about your product test results.

Authorized by:


Clifton McLellan - Director, Toxicology Services

Date: 18-JUN-2009

General Information

Standard: 060 - DRINKING WATER TREATMENT CHEMICALS - HEALTH EFFECTS

 DCC Number / Tracking ID - DA05835
 Sample Description - Chlorine Dioxide
 Trade Designation - Dutrion Tablet

 Sample Id: **S-0000656151**
 Description: Dutrion Tablet
 Sampled Date: 04-Jun-2009
 Received Date: 27-May-2009

Tox Normalization Information:		Lab Normalization Information:	
Calculated NF	0.0938	Date exposure completed	04-JUN-2009
Preparation method used	A	Final volume of solution	2 L
MUL	30 mg/L	Mass of material used	640 mg
Compound Reference Key:	SPAC		

Normalization Calculation:

$$\text{Normalized Result} = \text{Test Result (ug/L)} * \text{NF} \quad \text{Where NF} = \text{MUL (mg/L)} * \frac{\text{Final Volume Of Solution (L)}}{\text{Mass of Material Used (mg)}}$$

- MUL = Maximum Use Level;
- Mass of Material Used = The mass of sample analyzed in the laboratory;
- Final Volume of Solution = The volume of water used to dilute the sample;
- An additional factor may be used to adjust the analytical result to field use conditions to account for product carryover, flushing, or other assumptions stipulated with the use of the product. If an additional factor is used, it is included in the information above.

Testing Parameter	Units	Sample	Control	Result	Norm. Result	Acceptance Criteria(1)	Evaluation Status
Chemistry Lab							
N-Vinylpyrrolidinone	ug/L	ND(4)	ND(4)	ND(4)	ND(0.4)		
Arsenic	ug/L	ND(1)	ND(1)	ND(1)	ND(0.09)	1	Pass
Barium	ug/L	ND(1)	ND(1)	ND(1)	ND(0.09)	200	Pass
Beryllium	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	0.4	Pass
Cadmium	ug/L	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.02)	0.5	Pass
Chromium	ug/L	ND(1)	ND(1)	ND(1)	ND(0.09)	10	Pass
Copper	ug/L	ND(1)	ND(1)	ND(1)	ND(0.09)	130	Pass
Mercury	ug/L	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.02)	0.2	Pass
Lead	ug/L	ND(1)	ND(1)	ND(1)	ND(0.09)	1.5	Pass
Antimony	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	0.6	Pass
Selenium	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	5	Pass
Thallium	ug/L	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.02)	0.2	Pass
Volatiles: Unregulated VOC's by EPA 502.2							
Dichlorodifluoromethane	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)		
Chloromethane	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	0.3	Pass
Vinyl Chloride	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	0.2	Pass
Bromomethane	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)		
Chloroethane	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	0.04	Pass
Trichlorofluoromethane	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	50	Pass
Trichlorotrifluoroethane	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	0.3	Pass

Sample Id: **S-0000656151**

Testing Parameter	Units	Sample	Control	Result	Norm. Result	Acceptance Criteria(1)	Evaluation Status
Chemistry Lab (Cont'd)							
1,1-Dichloroethylene	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	0.7	Pass
Methylene Chloride	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	0.5	Pass
trans-1,2-Dichloroethylene	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	10	Pass
1,1-Dichloroethane	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)		
2,2-Dichloropropane	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)		
cis-1,2-Dichloroethylene	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	7	Pass
Chloroform	ug/L	ND(5)	0.5	ND(5)	ND(0.5)	[TTHM]	
Bromochloromethane	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	0.3	Pass
1,1,1-Trichloroethane	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	20	Pass
1,1-Dichloropropene	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)		
Carbon Tetrachloride	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	0.5	Pass
1,2-Dichloroethane	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	0.5	Pass
Trichloroethylene	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	0.5	Pass
1,2-Dichloropropane	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	0.5	Pass
Bromodichloromethane	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	[TTHM]	
Dibromomethane	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)		
cis-1,3-Dichloropropene	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	0.2	Pass
trans-1,3-Dichloropropene	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	0.2	Pass
1,1,2-Trichloroethane	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	0.5	Pass
1,3-Dichloropropane	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)		
Tetrachloroethylene	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	0.5	Pass
Chlorodibromomethane	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	[TTHM]	
Chlorobenzene	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	10	Pass
1,1,1,2-Tetrachloroethane	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	1	Pass
Bromoform	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	[TTHM]	
1,1,2,2-Tetrachloroethane	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	0.2	Pass
1,2,3-Trichloropropane	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	5	Pass
1,3-Dichlorobenzene	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	60	Pass
1,4-Dichlorobenzene	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	7.5	Pass
1,2-Dichlorobenzene	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	60	Pass
Carbon Disulfide	ug/L	ND(10)	ND(1)	ND(10)	ND(0.9)	70	Pass
Methyl-tert-Butyl Ether (MTBE)	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	50	Pass
tert-Butyl ethyl ether	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)		
Methyl Ethyl Ketone	ug/L	ND(50)	ND(5)	ND(50)	ND(5)	400	Pass
Methyl Isobutyl Ketone	ug/L	ND(50)	ND(5)	ND(50)	ND(5)	700	Pass
Toluene	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	100	Pass
Ethyl Benzene	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	70	Pass
m+p-Xylenes	ug/L	ND(10)	ND(1)	ND(10)	ND(0.9)	[Xylenes]	

Sample Id: **S-0000656151**

Testing Parameter	Units	Sample	Control	Result	Norm. Result	Acceptance Criteria(1)	Evaluation Status
Chemistry Lab (Cont'd)							
o-Xylene	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	[Xylenes]	
Styrene	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	10	Pass
Isopropylbenzene (Cumene)	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	400	Pass
n-Propylbenzene	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	0.3	Pass
Bromobenzene	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)		
2-Chlorotoluene	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	10	Pass
4-Chlorotoluene	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)		
1,3,5-Trimethylbenzene	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	0.3	Pass
tert-Butylbenzene	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	10	Pass
1,2,4-Trimethylbenzene	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)		
sec-Butylbenzene	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	0.3	Pass
p-Isopropyltoluene (Cymene)	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)		
1,2,3-Trimethylbenzene	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	0.3	Pass
n-Butylbenzene	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	0.3	Pass
1,2,4-Trichlorobenzene	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)		
Hexachlorobutadiene	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	0.1	Pass
1,2,3-Trichlorobenzene	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)		
Naphthalene	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	10	Pass
Benzene	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	0.5	Pass
Total Trihalomethanes	ug/L	ND(5)	0.5	ND(5)	ND(0.5)	8	Pass
Total Xylenes	ug/L	ND(5)	ND(0.5)	ND(5)	ND(0.5)	1000	Pass
1 - If the acceptance criteria is blank and the evaluation status is "Fail", then the criteria used will be noted on the letter accompanying these results.							
[TTHM] - Acceptance based on Total Trihalomethanes							
[Xylenes] - Acceptance based on Total Xylenes							

Common Terms and Acronyms Used:

Sample.....	Test result on the submitted product sample after prepared or exposed in accordance with the standard.
Control.....	Test result on a laboratory blank sample analyzed in parallel with the sample.
Result.....	Sample test result minus the Control test result.
Normalized Result...	Result normalized in accordance with the test standard to reflect potential at-the-tap concentrations
ND().....	Result is below the detection level of the analytical procedure as identified in the parenthesis.
DCC Number.....	NSF document control code of the registered formulation of the product tested
ug/L.....	Microgram per liter = 0.001 milligram per liter (mg/L)
SPAC.....	Acceptance criteria of the standard (Single Product Allowable Concentration)

References to Testing Procedures:

<u>NSF Reference</u>	<u>Parameter / Test Description</u>
C0191	N-Vinylpyrrolidinone
C3035	Total Arsenic in Drinking Water by ICPMS (Ref: EPA 200.8)
C3038	Barium in Drinking Water by ICPMS (Ref: EPA 200.8)
C3041	Beryllium in Drinking Water by ICPMS (Ref: EPA 200.8)
C3046	Cadmium in Drinking Water by ICPMS (Ref: EPA 200.8)
C3052	Chromium in Drinking Water by ICPMS (Ref: EPA 200.8)
C3058	Copper in Drinking Water by ICPMS (Ref: EPA 200.8)
C3071	Mercury in Drinking Water by ICPMS (Ref: EPA 200.8)
C3100	Lead in Drinking Water by ICPMS (Ref: EPA 200.8)
C3113	Antimony in Drinking Water by ICPMS (Ref: EPA 200.8)
C3115	Selenium in Drinking Water by ICPMS (Ref: EPA 200.8)
C3127	Thallium in Drinking Water by ICPMS (Ref: EPA 200.8)
C4416	Volatiles: Unregulated VOC's by EPA 502.2

Test descriptions preceded by an asterisk "*" indicate that testing has been performed per NSF International requirements but is not within its scope of accreditation.

Testing Laboratories:

	<u>Flag</u>	<u>Id</u>	<u>Address</u>
All work performed at: (Unless otherwise specified)	—————→	NSF_AA	NSF INTERNATIONAL 789 N. DIXBORO ROAD ANN ARBOR MI 48105