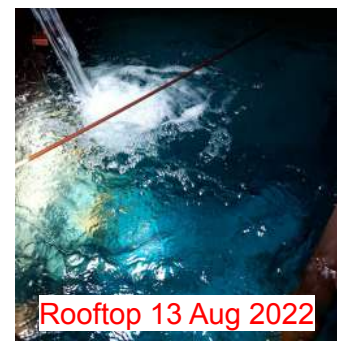


TwinOxide for Drinking Water

- KL Hotel Case Study



The Goal: World Class Drinking Water



840

Room 3488 - Sample Date **03 June 2022**
Heterotrophic Plate Count 8.4E2

0

Room 3488 - Sample Date **21 June 2022**
Heterotrophic Plate Count 0

The Solution : World Class Water Treatment by TwinOxide



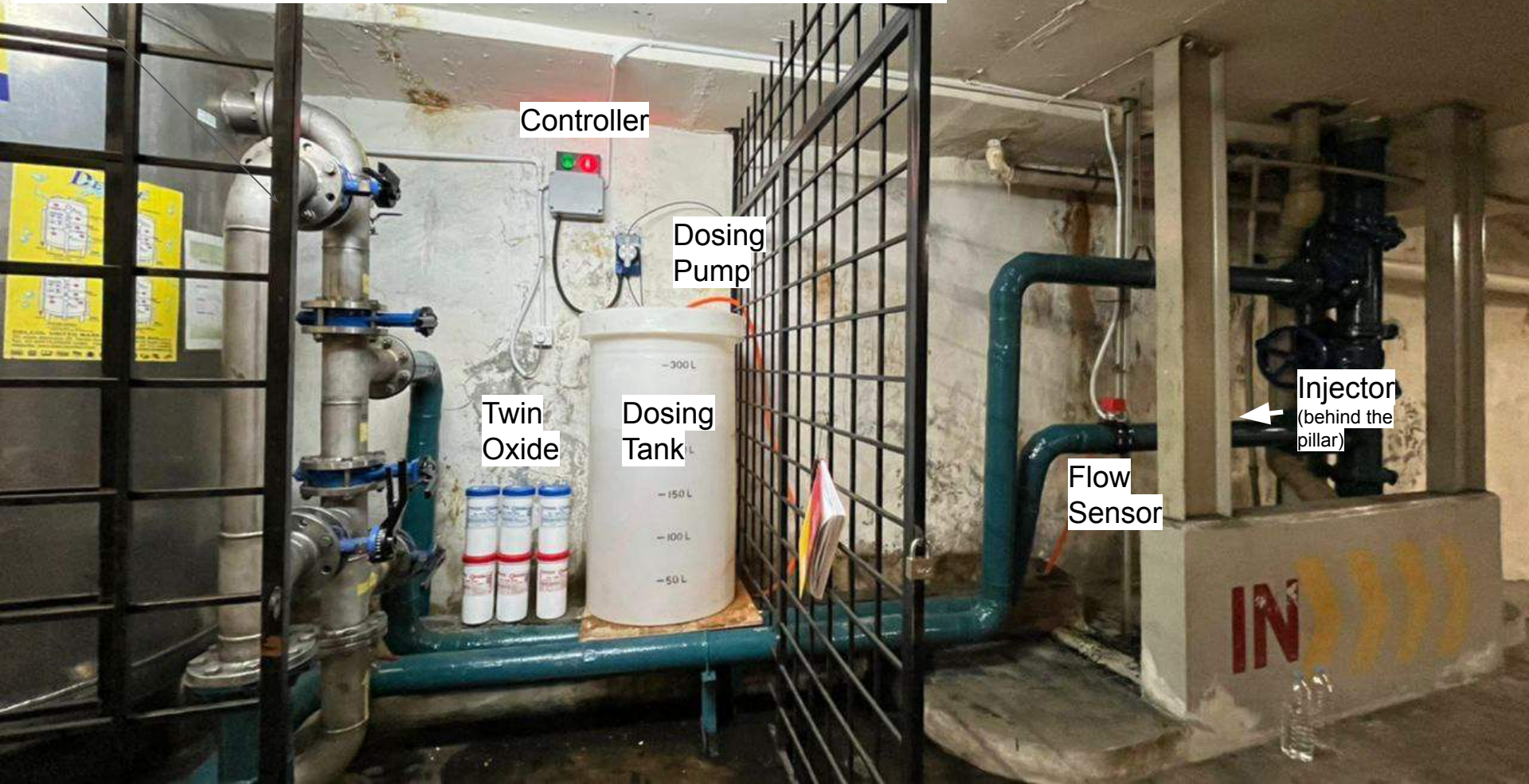
Some of their process water disinfection and bottling clients



JACOB'S CREEK



The Solution : TwinOxide Installation



What is TwinOxide?

TwinOxide generates a chlorine dioxide solution that is applied as a (drinking) water disinfectant.

When the TwinOxide solution is applied, the chlorine dioxide molecule kills the full spectrum of bacteria, algae, fungi, spores, protozoan, yeast, methanogens, viruses, mould and biofilm by its great oxidizing capacity.

TwinOxide is WHO, FDA, EPA, EU, NSF50, NSF60, OMRI and Halal approved.

It has numerous applications including drinking water and food handling, and is also NPRA approved as a surface disinfectant.

<https://www.twinoxide.com/about-twinoxide/>



Municipal Water



Livestock



Horticulture



Food and Beverage

Benefits Observed So Far

Crystal Clear Water, safe to drink in any room

- o bacteria in the guest room water Heterotrophic Plate Count 0 cfu/mL APHA 9215 B: 2017

Self Cleaning suction, distribution and header tanks
Stains disappearing from toilet bowls and hand basins

Toilet Cisterns **Clean**

Drain Smells **Gone**

Public Area Urinal Smells **Gone**

Kitchen Interceptor **waste** becoming more **soluble**

Remember - this was only **3 weeks!** It kept improving and is now crystal clear all the time.



3 June - B3 Sample Point



21 June - B3 Sample Point

Now the biggie! ROI

Water Treatment: **365 cu.m** per day

Installation Cost RM6000

Monthly Treatment Cost RM4950 for 365 cu.m per day of water

Total Operating Cost Per Annum RM59,400.00

However, the following potential costs items can be removed or removed from operating expenditure:

Tank Cleaning - RM20,000

Drinking Water Station Maintenance - Annual UV Lamp Replacement - RM500 per Lamp

Guest Room Compensation for dirty water (hotel dependent) - case study hotel RM28,000 for May 2022

Pipe clearing (kitchens)

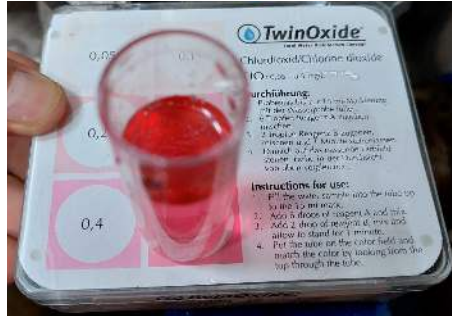
Reduced frequency for kitchen interceptor cleaning

Things to be aware of!

Was it all smooth sailing? Yes, for 3 weeks. And then something out of our control happened.



21 June after filter



24 June after filter

The incoming chlorine level from the municipal increased dramatically. When it combined with TwinOxide, a lot of the remaining biofilm in the pipes and tanks released, causing the hotel water to be discoloured.

Recovery was quick, however it is not something to be repeated.

Key Learning: Make sure the filter media is in good condition with a layer of active carbon prior to starting on this journey

The Goal: Sump Cleaning



Have a guess which sump is being treated with TwinOxide

The Goal: A Better Way to Disinfect AirCon Ducting



Ducting can be disinfected, with smells and odours eliminated, using TwinOxide

TwinOxide Certifications

Total Quality Halal Correct Certification (TQHCC)
P.O. Box 079, 2300 AD Lelystad, The Netherlands, C.C.
Kvk registration: 27270997
Tel: +31(0)522-257701 Fax: +31(0)522-257701
e-mail: info@halalcorrect.com
website: www.halalcorrect.com

مؤسسة الأمانة الإسلامية للتحقق والمصادقة
Halal Correct Certification

شهادة حلال
Halal Certificate
☆☆☆☆☆☆☆☆

تشيد مؤسسة الأمانة الإسلامية لمراقبة التحريم والتفدية "Total Quality Halal Correct Certification" بأن المنتجات المذكورة
هنا آمنة حلال وفقاً للأنظمة الشرعية الإسلامية وقد تمت مراقبتها من طرف مؤسستنا بكل دقة حسب مواصفاتها العالمية لأغلبية الحلال.
We "Total Quality Halal Correct Certification" hereby declare, that the below mentioned products have
been produced according to the Islamic Rites and certified by the rules of Halal Correct Certification.

CERTIFICATE No. HCC1355033557-TW0202

Company address: De Toernpoort 17, 5684 PZ Box, the Netherlands : العنوان
Manufacturer: TwinOxide International B.V. : اسم المصنع
Manufacturer address: De Toernpoort 17, 5684 PZ Box, the Netherlands : العنوان
Brand name: TwinOxide : اسم العلامة التجارية
Product name: TwinOxide : تعريف المنتج
List of approved products: It is determined on Halal certificate annex : المنتجات المعتمدة
Standards applicable: ISO 2005-1:2016, HAS 23000 & 23021, MS 15003:2009 القياسات : المواصفات القياسية
Product Category: Chemicals (L) : مجال التصنيف

Certified products are subject for continuous conformity assurance by Halal Correct

Issue date: 22-06-2023 : تاريخ الإصدار
Halal Certificate No.: HCC1355033557-TW0202 : رقم شهادة الحلال
Certificate valid until: 21-06-2024 : تاريخ انتهاء صلاحية هذه الشهادة

الهيئة الخاضعة للتفقيق والمصادقة
Chairman of the Foundation
Halal Correct Certification (TQHCC)
Mr. Abdulrahman Al-Jalali
المجلس الشرعي للبحث والإفتاء
Chairman of the Board for
Islamic Fatwa and Research
Mr. Imam Galal Ali Amer

يتمتع استعمال هذه الشهادة في المطاعم والمحال التجارية بدون تقييد رسمي من إدارة المؤسسة.
It is not allowed to use this Halal certification by shops/stores without provision of Halal Correct.

Halal Correct Certification (TQHCC) is a member of World Halal Food Council - WHFC.
And accredited by MUIS (KUALA LUMPUR), ULEMA (KUALA LUMPUR), SSGC (SINGAPORE), Copyright 2020 - Halal Correct Certification ©

DOC: DA25038 Date: 11/12/2023

NSF/ANSI Standard 60 - Drinking Water Treatment Chemicals
Authorized Registered Formulation

Customer Name: TWINOXIDE INTERNATIONAL B.V. Facility Location: THE NETHERLANDS
Customer Number: C0055873 Facility Address: BEST, THE NETHERLANDS
Facility Number: C0022282

Trade Name / Level / Function	Disinfection & Oxidation	MUL (mg/L)
Trialite (mg/L)		50
TwinOxide 0.3% Solution		50

Listing Notes
Component A and Component B are to be mixed following manufacturer's use instructions to produce a 0.3% chlorine dioxide solution.
Certification applies to finished product.

Section/Category: CSDX, SECTION 6 - DISINFECTION AND OXIDATION

Chemical Name: Chlorine Dioxide, Liquid **Physical State:** Liquid

Auditor Notes
Please note the product trade name of the sample collected on the Product Sample Form.

Sample Notes
Please collect a sample of both components.

NSF International
780 N. Dixboro Road, Ann Arbor, MI 48105 USA

RECOGNIZES

TwinOxide International B.V.
The Netherlands

AS COMPLYING WITH NSF/ANSI 50, 60 AND ALL APPLICABLE REQUIREMENTS.
PRODUCTS APPEARING IN THE NSF OFFICIAL LISTING ARE
AUTHORIZED TO BEAR THE NSF MARK.



This certification is the property of NSF International and is not to be reproduced or used for other purposes. This NSF Mark is not to be used on any product or service that is not listed in the NSF Official Listing for the appropriate standard. For the most current and complete listing of products, please visit the NSF website at www.nsf.org.

January 25, 2018
Certificate C0055873-13

Thomas D. Smith
General Manager, Water Solutions

OMRI Listed®
The following product is OMRI Listed. It may be used in certified organic production or food processing and handling according to the USDA National Organic Program regulations.

Product
TwinOxide 0.3% ClO2 Solution Component A Sodium Chlorite Powder Composition

Company
TwinOxide International B.V.
Mario Alfonso Gastón Cepeda
Calle uno #17
Col Centro Industrial Tlalvepantla
Tlalvepantla Edo. de Mexico 54230 Mexico

Category
NOP: Chlorine Dioxide

Status
Allowed with Restrictions

Issue date
24-May-2018

Product number
gct-10801

Class
Processing Sanitizers and Cleaners

Expiration date
1-Jun-2022

Restrictions
May be used in direct contact with post-harvest crop or food at levels approved by the FDA or the EPA for such a purpose. Such use must include a final rinse and residual chlorine levels in final rinse water shall not exceed the Maximum Residual Disinfectant Limit under the Safe Drinking Water Act, except that a final rinse is not required for use in FSIS inspected egg breaking facilities. When used as disinfectants and sanitizers for food contact surfaces, may be used up to maximum labeled rates and rinsing is not required unless mandated by the label use directions. May be used up to maximum labeled rates for disinfecting and sanitizing equipment or tools. No intervening event is necessary before equipment is used in organic production.

Peggy Mians
Executive Director/CEO

Another person is certified according to the product in the name OMRI Listed. It may be used in certified organic production or food processing and handling according to the USDA National Organic Program regulations. It may be used in certified organic production or food processing and handling according to the USDA National Organic Program regulations. It may be used in certified organic production or food processing and handling according to the USDA National Organic Program regulations.

OMRI LISTED
Organic Materials Review Institute
P.O. Box 11556, Eugene, OR 97440-3758, USA
541.343.7800 info@omri.org OMRI.org