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Ontario

**Building Materials Evaluation
Commission**

**Commission d'évaluation des
matériaux de construction**

BMEC AUTHORIZATION: 14-08-374 PHIX™ Cartridge System

Date of Authorization: August 28, 2014

Date of Expiry¹: August 28, 2019

1. Applicant

Green Turtle Technologies, Ltd.
800 Rangeview Road
Mississauga Ontario L5E 1G9

Tel: 416 966 9400
Fax: 416 966-3439
Web: www.greenturtletech.com

2. Manufacturing Facility

*Information on file with the Commission.
Withheld at the request of the Applicant.*

3. Authorization

The PHIX™ Cartridge System is designed for acid neutralization. The PHIX™ Cartridge System has four main components, the Top Manifold, Internal Skeleton, the Cartridge Body, which is constructed out of fiberglass reinforced polypropylene, and the PHIX™ Media 3000.

The Top Manifold of the cartridge includes the threaded compression unit connected to the sink drain, the outlet connection to the drain pipe, and the threaded O-ring which is sealed to the Cartridge Body. The Internal Skeleton directs the flow of wastewater through the system and facilitates contact with the PHIX™ Media 3000. The Cartridge Body makes up the treatment chamber and is supported by a metal bracket that is fixed to the floor and raised up to the bottom of the unit. The bracket removes any loading that may be applied to the pipe, PHIX™ Cartridge, or the sink.

¹ This Authorization expires on the date shown. It is the responsibility of Authorization holders to make a complete application considering the time for review and complexity of the new application.

The PHIX™ Media 3000 contained within the treatment chamber will neutralize the acidic wastewater based on the retention time required to complete the neutralization reaction. The neutralized wastewater will be channelled through a woven filter and exits the cartridge into the plumbing system.

Additional descriptive information is provided in documents supplied by the Applicant listed in Appendix A.

Reports and assessments provided by the Applicant demonstrate that if the PHIX™ Cartridge System is manufactured, designed, constructed, installed, and maintained in accordance with the manufacturer's instructions and limitations, and the specific terms and conditions stated in this authorization, the use of the PHIX™ Cartridge System shall be deemed to not be a contravention of Sentence 7.4.4.4.(1) of Division B of the Building Code.

All other requirements pertaining to the construction and installation are subject to the requirements of the Building Code, and subject to the following terms and conditions contained below:

4. Specific Terms and Conditions

1. This authorization is valid only for Green Turtle Technologies, Ltd.'s PHIX™ Cartridge System with PHIX™ Media 3000;
2. The design of that portion of the plumbing system - pertaining neutralization of acid waste of the PHIX™ Cartridge System - shall be undertaken by a professional engineer who is licenced to practice in Ontario, and who is trained and experienced in the area of acid neutralization;
3. Documentation shall be submitted to the chief building official confirming that the wastewater from the PHIX™ Cartridge System will comply with the local sewage by-law, and/or related applicable law listed in Article 1.4.1.3. "Applicable Law" of Division A of the Building Code;
4. The documents associated with the PHIX™ Cartridge System shall be stored on-site in a safe and accessible location, in the same room, and contain a minimum of the following information:
 - a) Green Turtle Technologies, Ltd.'s contact information,
 - b) Maintenance Schedule,
 - c) Material Safety Data Sheet,
 - d) Warranty,
 - e) "Owners Manual",
 - f) Emergency Contact Information, and
 - g) A list of the chemicals, for the specific location, that the PHIX™ Cartridge System was designed to neutralize;

5. The PHIX™ Cartridge System shall be installed as per Green Turtle Technologies, Ltd.'s, "PHIX™ Cartridge System: Owners Manual," version 2 (2014);
6. The PHIX™ Cartridge System shall only be installed if a maintenance schedule, specific to the location and use, has been developed;
7. Copies of the PHIX™ Cartridge System maintenance schedule and the on-site documents as listed in 6.A.4., shall be submitted to the chief building official and to form a part of the building permit application package;
8. A trap is not permitted between the sink and the PHIX™ Cartridge System;
9. The PHIX™ Cartridge System shall only be used in a plumbing system for non-residential under-the-sink applications, specifically:
 - a. laboratories,
 - b. school laboratory benches,
 - c. hospital laboratories,
 - d. maintenance sinks, and
 - e. commercial rinse sinks;
10. A single PHIX™ Cartridge shall not be connected to more than two sink basins;
11. The PHIX™ Cartridge System shall only be installed where polypropylene pipes and fittings are permitted for use;
12. A vent is not permitted between the sink and the PHIX™ Cartridge System;
13. The aggregate design discharge through any PHIX™ Cartridge System shall not exceed 38 litres per minute;
14. A sticker containing the following information, posted in a conspicuous location, on a contrasting background, directly above any sink where the PHIX™ Cartridge System has been installed shall include:
 - a) Green Turtle's contact information,
 - b) The following statement: *"Warning: do not dispose of heavy metals, grease, organic waste, fats, oils, or any material for which the acid neutralization media was not designed in this sink", and*
 - c) PHIX™ Cartridge installed under the sink; and
15. Sticker(s) containing the following information shall be affixed to the PHIX™ Cartridge System:
 - a) Green Turtle's contact numbers,
 - b) PHIX™ Media 3000, and
 - c) Refill Instructions and fill line identification.

5. General Conditions

1. The use of the PHIX™ Cartridge System as described in Section 3. and the Specific Terms and Conditions set out in Section 4 must comply with:
 - (a) the *Building Code Act, 1992*, (the “Act”) as amended or re-enacted,
 - (b) except as specifically authorized herein, the Building Code as amended or remade, and
 - (c) all other applicable legislation.
2. A copy of this Authorization shall accompany each application for a building permit and shall be maintained on the site of the construction with the building permit.
3. The Applicant specified in Section 1. shall promptly notify the BMEC of:
 - (a) the failure of the Applicant to comply with any of the Specific Terms and Conditions set out in Section 4,
 - (b) the failure of the material, system or building design that is the subject matter of this Authorization to
 - (i) comply with any of the Specific Terms and Conditions set out in Section 4, or
 - (ii) provide a satisfactory level of performance in situ, or
 - (c) the occurrence of any of the events described in General Conditions 5.4.(a), (b), (e) or (f).
4. The BMEC may amend or revoke this Authorization at any time on its own initiative, or at the request of the Applicant specified in Section 1. Without restricting the foregoing, the BMEC may amend or revoke this Authorization where it determines that:
 - (a) any change has been made to:
 - (i) the name of the Applicant specified in Section 1,
 - (ii) the address or other contact name information of the Applicant specified in Section 1,
 - (iii) the ownership of the Applicant specified in Section 2,
 - (iv) the manufacturing facilities specified in Section 2,
 - (v) the material, system, or building design that is the subject matter of this Authorization, or
 - (vi) a test method relevant to this Authorization,
 - (b) the Applicant has failed to comply with any of the terms and conditions set out in this Authorization,
 - (c) in the opinion of the BMEC, the use of the material, system or building design authorized herein provides an unsatisfactory level of performance in situ,
 - (d) in the opinion of the BMEC, amendment or revocation of the Authorization is appropriate on the basis of potential danger to public health and safety,

- (e) the *Act* or Building Code has been amended, re-enacted or remade in a manner relevant to this Authorization,
- (f) this Authorization was issued on mistaken, false or incorrect information, or
- (g) a revision of an editorial nature is appropriate.

Dated at Toronto this 28th day of August 2014

BUILDING MATERIALS EVALUATION COMMISSION

Leo Grellette
Member and designated Chair of the Building Materials Evaluation Commission

ATTACHED – “APPENDIX A - SUPPORTING INFORMATION”

Appendix A – Supporting Information

The following is a list of the documents that were submitted and reviewed, but were not limited to:

1. Specification Sheet, Dynalab Corp. “Chemical Resistance and Physical Properties”, 1 page, undated;
2. Specification Sheet, “Chemical Resistance Charts”, 9 pages, undated;
3. Test Results, Green Turtle Technologies, Ltd., “2014 PHIX™ Cartridge Test Part 1: Acid Neutralization Test”, 4 pages, dated April 14, 2014;
4. Test Results, Green Turtle Technologies, Ltd., “2014 PHIX™ Cartridge Test Part 2: Pressure and Hot Water Test”, 3 pages, dated April 16, 2014;
5. Manual, Green Turtle Technologies, Ltd., “PHIX™ Cartridge System: Owners Manual,” version 2 (2014)
6. Warranty, Green Turtle Technologies, Ltd., “ Green Turtle Limited Warranty”
7. Drawings, Green Turtle Technologies, Ltd., “PHIX™ Cartridge”, 2 drawings, DWG. No. GT0391, dated 2/7/2014;
8. Drawings, Green Turtle Technologies, Ltd., “PHIX™ Cartridge Configurations”, 1 drawing, DWG. No. GT0563, dated 21 Jan 2014;
9. Material Safety Data Sheet, “PHIX™ Media 3000”, 2 pages, dated Jan 15, 2014;
10. Specification Sheet, Green Turtle Technologies, Ltd., “PHIX™ Cartridge System Specification Sheet”, 1 page, undated;
11. Letter Approval, City of Chicago, “PHIX™ Cartridge System”, dated February 23, 2005;
12. Letter Report, Green Turtle Technologies, Ltd., “Evaluation of the PHIX™ Cartridge Manufactured by Green Turtle Technologies, Ltd.”, dated May 27, 2014, 3 pages;
13. Letter Report, Green Turtle Technologies, Ltd., “BMEC 2014-15: PHIX™ Cartridge”, dated July 14, 3 pages;
14. Letter Report, Green Turtle Technologies, Ltd., “Evaluation of the PHIX™ Cartridge Manufactured by Green Turtle Technologies, Ltd.”, dated July 14, 3 pages;
15. PowerPoint Presentation, Green Turtle Technologies, Ltd., “PHIX™ Cartridge for BMEC Approval”, dated June 26, 2014;
16. Letter Report, Green Turtle Technologies, Ltd., “Evaluation of the PHIX™ Cartridge Manufactured by Green Turtle Technologies, Ltd.”, dated August 5, 2014, 1 page;
17. Letter Report, Green Turtle Technologies, Ltd., “BMEC 2014-15: PHIX Cartridge, with attachments”, dated August 5, 2014, 2 pages, and
18. Letter, Green Turtle Technologies, Ltd., “BMEC 2014-15: PHIX Cartridge” dated August 15, 2014, 5 pages.