



March 2008

PILOT USE LEVEL DESIGNATION FOR BASIC TREATMENT

For

Kristar Enterprises, Inc. FloGard Perk Filter™

Ecology's Decision:

Based on Kristar's application submissions and recommendations by the Technical Review Committee (TRC), Ecology hereby issues the following use level designations:

1. Pilot use level designation (PULD) for the Perk Filter™ for basic treatment:
 - Using a zeolite-perlite-carbon (ZPC) filter media as specified by Kristar.
 - Sized at hydraulic loading rate of no more than 1.5 gpm/ft² of media surface area, per Table 1.

Table 1. Design Flowrates per Cartridge

Effective Cartridge Height (inches)	12	18
Cartridge Flowrate (gpm/cartridge)	6.8	10.2

2. Pilot use level designation (PULD) for the Perk Filter™ for basic treatment:
 - Using a zeolite-carbon (ZC) filter media as specified by Kristar.
 - Sized at a hydraulic loading rate of no more than 0.95 gpm/ft² of media surface area, per Table 2.

Table 2. Design Flowrates per Cartridge

Effective Cartridge Height (inches)	12	18
Cartridge Flowrate (gpm/cartridge)	4.3	6.4

The use level designations expire on September 30, 2010 unless extended by Ecology, and is subject to the conditions specified below.

Ecology's Conditions of Use:

Perk Filter™ units shall be designed, installed, and maintained to comply with these conditions:

- 1. Perk Filter™ units must be designed, assembled, installed, operated, and maintained in accordance with Kristar’s applicable manuals and documents and the Ecology Decision.**
- 2. Perk Filter™ units are approved for basic treatment at the hydraulic loading rate of 1.5 gpm/ft² for the ZPC media or 0.95 gpm/ft² for the ZC media at the 15-minute water quality design flow rate (as specified in Ecology’s most recent Stormwater Manual), as calculated using the latest version of the Western Washington Hydrology Model or other Ecology-approved continuous runoff model. Note that if single event methods are used to estimate runoff flowrates, Figures 9.6a and 9.6b of the 2005 Stormwater Management Manual for Western Washington should be used to adjust the peak single event flowrate for calculation purposes. This is done by dividing the peak 10 minute flowrate predicted by the single event method by the ratio indicated in Figure 9.6a for on-line designs, or Figure 9.6b for off-line designs. The 6-month, 24-hour rainfall amount for the project site must be known to identify the appropriate ratio. The adjusted flowrate is then divided by the approved cartridge flowrate to compute the number of cartridges necessary. Note: This method is not applicable for Eastern Washington.**
- 3. Kristar commits to submitting a QAPP for TRC review and Ecology approval by September 30, 2008 that meets the TAPE requirements for attaining a GULD for basic treatment for the ZPC and ZC units. Additional QAPPs must be reviewed and approved by the TRC and Ecology for each field site in Washington State. The sites chosen should be reflective of the product’s treatment intent.**
- 4. Local jurisdictions must file a “Pilot Level Technologies Notice of Intent” form with the Department of Ecology prior to authorizing Perk Filter™ for a pilot use level application.**
- 5. Kristar shall complete all required testing and submit a TER for TRC and Ecology review by March 31, 2010.**
- 6. Kristar may request Ecology to grant deadline or expiration date extensions, upon showing cause for such extensions.**
- 7. Discharges from the Perk Filter™ units shall not cause or contribute to water quality standards violations in receiving waters.**

Applicant: Kristar Enterprises, Inc.

Applicant’s Address: 1219 Briggs Avenue
Santa Rosa, CA, 95401

Application Documents:

- Perk Filter™ Final Report, prepared by: Office of Water Programs, California State University, Sacramento (September 2007)
- Verification Phase of Perk Filter™ Tests with Zeolite-Perlite-Carbon Media and Zeolite-Carbon Media (August 2007)

Applicant's Use Level Request:

- Pilot use level designation as a basic treatment device in accordance with Ecology's 2005 Western Washington Stormwater Manual.

Applicant's Performance Claims:

- Capability to remove 80% of total suspended solids from stormwater runoff from sites with influent concentrations between 100 mg/L and 200 mg/L and provide effluent concentrations of 20 mg/L or less with influent concentrations less than 100 mg/L given a typical particle size distribution.

Technical Review Committee's Recommendations:

The TRC finds that:

- Kristar should be given the opportunity to demonstrate, through additional laboratory and field testing, whether the Perk Filter™ filter system can attain Ecology's basic treatment goals.

Findings of Fact:

- Based on laboratory testing at a flowrate of 12 GPM per filter, the Perk Filter™ containing ZPC media had an average total suspended solids removal efficiency of 82% using Sil-Co-Sil 106 with an average influent concentration of 102 mg/L and zero initial sediment loading.
- Based on laboratory testing at a flowrate of 4 GPM per filter, the Perk Filter™ containing ZC media had an average total suspended solids removal efficiency of 84% using Sil-Co-Sil 106 with an average influent concentration of 101.5 mg/L and zero initial sediment loading.

Other Perk Filter™ Related Issues to be Addressed By the Company:

1. No field test results are available, so it is unknown whether the Perk Filter™ can reliably attain 80% removal of the finer particles comprising TSS found on local highways, parking lots, and other high-use areas at the design operating rate. Kristar should test a variety of operating rates to establish conservative design rates. Pollutant loading capacities of and

breakthrough data on the filter media should also be determined to better predict maintenance cycles.

2. The system should be tested under normal operating conditions, such that the settling basin is partially filled with pollutants. Results obtained for “clean” systems may not be representative of typical performance.
3. Field testing should be conducted at sites that are indicative of the treatment goals.
4. Testing should be conducted to obtain information about maintenance requirements in order to come up with a maintenance cycle.
5. Loading tests should be conducted on the filter to determine maximum treatment life of the system.

Technology Description: Download at www.kristar.com

Contact Information:

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