



Memorandum

Date: March 31, 2025 **Rev 0**

To: Riyaadh Winqvist - Eijkelkamp North America

From: Rock J. Vitale, CEAC - CTEH, LLC

Copy: JP Verheul – Enthalpy Analytical

Subject: Analytical Results and Statement of Cleanliness for Eijkelkamp Submersible Pump

Background

Eijkelkamp North America manufactures submersible pumps for the collection of environmental samples for various organic and organic contaminants. With the on-going concerns regarding the presence of Per and Polyfluorinated Alkyl Susanne's (PFAS) in the environment, Eijkelkamp North America (Eijkelkamp) had interest in obtaining information if a new submersible pump has residual or leachable PFAS, which might confound future client's sample results. Accordingly, Eijkelkamp contracted Enthalpy Analytical to perform a series of cleaning, soaking and analytical tests for PFAS using EPA Method 1633 for 40 PFAS compounds. On January 14, 2025, a submersible pump manufactured by Eijkelkamp was received at the Enthalpy Analytical laboratory in Wilmington, NC under formal Chain-of-Custody for testing.

Cleaning, Circulation and Methanol Rinse Sampling Protocol

Once the submersible pump was logged into the Enthalpy Analytical facility, it was placed in secure storage until cleaning was performed. Once removed from storage, a clean bucket was rinsed with methanol and the rinse discarded. Ten L of ultra-pure methanol was slowly poured into the bucket and allowed to equilibrate for ~10 min. After the 10 min equilibration period and the methanol was homogenized, a 5 mL method blank, a laboratory positive control sample and a low-level laboratory positive control sample was created from the methanol in the bucket. The pump was then completely submerged in the bucket, and the pump remained off in the methanol for ~6 hours at room temperature.

The methanol was homogenized and a 5 mL sample was collected. The pump was then removed from the methanol and placed onto cleaned aluminum foil, and the remaining methanol was properly disposed. This entire methanol immersion procedure was repeated, with samples collected for a total of three, 6 hr soaks. A 5 mL sample was removed each time for analysis.

Cleaning, Circulation and Deionized Water Sampling Protocol

The bucket previously used for methanol rinse testing was filled with approximately 10-12L of deionized water (enough to fully submerge the pump) and was kept at room temperature throughout the course of the testing. The deionized water sat in the bucket for ~10 min, was homogenized, and a 500 mL laboratory method blank, laboratory positive control sample and laboratory low-level laboratory positive control sample were created from the water in the bucket. At this point the pump was introduced into the deionized water-filled bucket and the pump was turned on at a Low/Medium rate setting. The pump was used at this lower rate to prevent any spillage from the bucket. A covering was then placed on the bucket and the pump was left on to circulate deionized water for a duration of ~7 hrs. After turning off the pump, 5 bottles were filled with 500 mL of sample from the bucket. Three of these samples were extracted and analyzed for PFAS as triplicates and the remaining deionized water was stored at 4oC.

Data Reporting and Assessment

Three samples deionized water having been circulated through the pump for ~7 hours were extracted, concentrated and analyzed by US EPA Method 1633 for 40 PFAS compounds. These collective data were reported under Enthalpy Analytical report numbers 1124-813 on February 28, 2025 (Attachment A)

Three samples of methanol, representing 6 hours each of submissible pump soak time, for a total 18 hours of soak time were concentrated and analyzed by US EPA Method 1633 for 40 PFAS compounds. These collective data were reported under Enthalpy Analytical report numbers 1124-813R on March 7, 2025 (Attachment B).

The results for the deionized water and the three methanol rinses were below the Limits of Quantitation (LOQ) of approximately 2 ppt. While there were a small number of extracted internal standard recoveries nominally outside their acceptance criteria, these recoveries do not impact the usability of these test data.

In conclusion, the testing of the Eijkelkamp North America submissible pump received at the Enthalpy Analytical laboratory in Wilmington, NC on January 14, 2025, demonstrates that the submersible pump manufactured by Eijkelkamp does not leach PFAS into deionized water and also the more agressmethanol.