

Municipal and Industrial Discharge Sampling, Poland

Teledyne ISCO Water's portable BLZZRD refrigerated samplers with integrated pH/temperature sondes are used by the municipal water company in Chojnice, Poland, to monitor discharge at WWTPs and industrial sites. BLZZRD samplers comply with ISO and EN standards, a primary requirement for the department to maintain sampling and analysis accreditation.

Automatic Sampling

Matching sampling method and instrument selection to the specific application is crucial to ensure truly representative samples for accurate laboratory analysis. One application is sewage discharge monitoring, where samples are collected to determine contaminant concentrations. Contrary to grab samples, ISCO Water automatic samplers have multiple programming options and therefore can be used in a broad range of situations. They are the first choice for customers looking for a proven solution to municipal and industrial discharge monitoring.

Situation

The municipal water department in Chojnice has used Teledyne ISCO samplers since 2024 to monitor industrial discharge into the city's collection system. The department is accredited by the Polish Centre for Accreditation for wastewater sampling and analysis. Maintaining accreditation requires adherence to mandated field procedures and quality control practices in the field and in the lab to ensure representative, trustworthy results.

Active Cooling is Required

Collected samples must be stored at low temperature to protect against biodegradation. This is required for laboratory analysis involving heavy metals, BOD, and COD content. In addition, the scope of this specific analysis campaign includes FOG (fat, oil, grease), total suspended

solids (TSS), total phosphorus, nitrogen (nitrates, nitrites, ammonium nitrogen, Kjeldahl nitrogen) and petroleum-based compounds.

For the Chojnice water department, Teledyne ISCO Water's BLZZRD portable refrigerated sampler was the perfect choice. In this case, the BLZZRD is powered by a battery to provide active cooling that ensures the bottle compartment temperature remains below 39 °F (4 °C) throughout the entire sampling program timeline (in accordance with ISO5667).



Battery powered BLZZRD portable refrigerated sampler

Operation

For the most effective battery operation, the sampler refrigerator starts working after the first sample is taken. After the first sample and until completion of the running program, the sampler cools the refrigerated compartment to 34 °F (1 °C), ±1°. This low temperature and narrow range allow the refrigeration system to quickly cool liquid as it is deposited in the bottles.

One hour after the last sample of a program is taken, the sampler adjusts the refrigerator compressor to maintain the samples at 37 °F (3 °C), ±1°. At this point, the samples have been cooled and no more liquid at ambient temperature will be added. The 37 °F (3 °C) target temperature maintains the samples within recognized standards while conserving power.



The BLZZRD sampler is transported to sites by van and usually left there for one day. After samples are collected, they are sent to the accredited laboratory for analysis of specific parameters required by the discharge permit authorization.

Sampling Program

The BLZZRD sampler is configured with a 14 x 950 mL bottle set. Every bottle includes four separate samples collected every 30 minutes, with 200 mL sample volume each. The sampler program allows the definition of different sample distribution into the bottles, e.g., samples-per-bottle or bottles-per-sample when the second sample in the same time interval is collected into a

separate bottle. Both types can be sent to two different laboratories for analysis.



Sample distribution

BLZZRD uses a peristaltic pump with a maximum suction height of 8.5 m. That specification covers most manhole sampling sites within the city (7–8 m). For deeper sites (up to 15 m), the Teledyne ISCO booster pump option is recommended.

Auto-generated sampling reports

The pH/temperature sonde is integrated with BLZZRD to monitor wastewater quality. The readings are stored in the sampler and downloaded to a computer using ISCO Water's FlowLink software. Simultaneously, the sampler records bottle compartment temperature and generates sampling reports including information on bottle and sample number, date and time, bottle temperature, etc. Water quality parameters and flow rate also can be reported.

SAMPLER ID# 1650962187 13:19 7-JUL-22					
Hardware: D0 Software: 3.06.0002					
***** COMBINED RESULTS *****					
SITE: BLIZZARD					
PROGRAM: EXTENDED 1					
Program Started at 17:49 MO 4-JUL-22					
Nominal Sample Volume = 500 ml					
FR-TEMP					
SAMPLE	BOTTLE	TIME			C
1,1	1	17:49			23.7
1,1	2	19:49			1.0
1,1	3	21:49			0.9
1,1	4	23:49			0.8
----- TU 5-JUL-22 -----					
1,1	5	01:49			1.0
1,1	6	03:49			1.3
1,1	7	05:49			1.4
1,1	8	07:49			1.3
1,1	9	09:49			0.1
1,1	10	11:49			0.7
1,1	11	13:49			1.5
1,1	12	15:49			1.0
1,1	13	17:49			1.1
1,1	14	19:49			0.8

Auto-generated sampling report

Monitoring parameters such as pH and temperature is required for event based sampling when a separate and parameter specific sample must be taken (e.g., pH deviates from the discharge permit authorization).

BLZZRD: The right choice

A wide range of program options, built-in refrigeration, detailed reports and a battery power option make the BLZZRD sampler an irreplaceable solution for portable applications where active cooling is required. These features allow the water company in Chojnice to cover all sampling sites within the city. In addition, sampler compliance with ISO 5667 ensures the collection of representative samples, which is crucial to maintaining laboratory accreditation.



Portable Refrigerated Water Sampler

AC or DC Battery Powered Cooling with State-of-the-Art Data Logging

BLZZRD is a portable refrigerated sampler with active cooling from either AC or battery power. Its controller offers all advanced controls, interfaces, data logging, and remote communication features. Based on Teledyne ISCO's industry-leading 6712 controller, you get all the advanced control, data logging, and communication features of the 6712. Bottle options include 2.5- and 5 gallon composites

as well as 4 x 1-gallon, 4 x 1.8 L, and 14 x 950 mL sequentials. A 12V deep-cycle battery delivers 48 hours or more of refrigeration. The power-saving cooling system remains on standby until the first sample is drawn, and only then switches on to preserve the collected samples for pickup. Available routines include: pause-and-resume for intermittent discharge flow monitoring; sampler pacing by time, non-uniform time, flow or external event; and random interval sample collection.

Standard Features

- Standard and extended programming keeps setup simple when you don't need advanced features.
- NEMA 4x, 6 (IP67) controller enclosure is watertight and dustproof.
- SDI-12 interface provides "plug and play" connection with multi-parameter water-quality sondes and other compatible devices.
- Standard 512kB memory gives you great flexibility for logging environmental data.
- Sample delivery at the EPA-recommended velocity of 2 ft/sec., even at head heights of 26 feet.
- Patented pump revolution counter ensures accurate sample volumes and tells you when tubing should be replaced.

About Teledyne ISCO Water

Teledyne ISCO Water is a leading manufacturer of a wide range of innovative products and services designed to increase productivity while improving the quality of life on our planet. Our water and wastewater flow meters, samplers, and related products are used across the world and known for their robust construction, accuracy and dependability. Teledyne ISCO is continually improving its products and reserves the right to change product specifications, replacement parts, schematics, and instructions without notice.

For further information contact your local Teledyne ISCO Water representative or distributor.



P.O. Box 82531
Lincoln, Nebraska, 68501 USA

Phone: +1 402.464.0231
www.teledyneisco.com

© Teledyne ISCO, a division of Teledyne Instruments, Inc. | CS44

12 Dec 2025