

SCRUBBER SAMPLING KIT

DESCRIPTION

Drew Marine's Scrubber Sampling Kit consists of a sample bottle kit with prepaid analysis that allows ship operators to collect a set of scrubber washwater samples and to have the samples tested by a certified laboratory in order to determine the overall washwater quality. By periodically determining the quality of the scrubber washwater, ship operators can monitor and report their results to the respective authorities and provide proof of compliance for this part of the exhaust gas cleaning system (EGCS) whenever required.

There are two Scrubber Sampling Kits available from Drew Marine for documenting discharge washwater. Scrubber Sampling Kit 'A' contains the necessary components to allow the crew to collect and to prepare one set of washwater samples for the analytical testing determining the required test data for pH, PAH, Dissolved Metals, Total Metals, and Nitrates. Scrubber Sampling Kit 'A' is suitable for determining the required test data for Scheme A according to the EGCS certification scheme and with the US Vessel General Permit (VGP). Note: Ship operators that participate with IMO's certification Scheme A may be granted a waiver by the Administration for compliance of their existing installation(s) to possible future stricter washwater discharge standards.

Scrubber Sampling Kit 'B' contains a smaller kit for preparing one washwater sample for the determination of nitrite and nitrate, and the result reported as nitrates. Scrubber Sampling Kit 'B' is suitable for determining the required test data for Scheme B of the EGCS certification, as well for each renewal survey or whenever only nitrate discharge data is required to be determined e.g., by the vessel's Flag Administration.

Both Scrubber Sampling Kit 'A' and 'B' contain detailed procedures that include the steps for properly obtaining washwater samples and preparing the samples for transport to the laboratory.

TEST METHODS

Test Parameters	Test Method	Sample Bottle Type/ Preservation	Sample Volume
pH	SM 4500H-B	Plastic / Unpreserved	60 ml
PAHs	EPA 625	Amber Glass / Unpreserved	2 x 1000 ml
Dissolved	EPA 200.8	Plastic; filtered 0.45 µm/ HNO ₃ < 2 pH	250 ml
Total Metals	EPA 200.8	Plastic / HNO ₃ < 2 pH	250 ml
Nitrates*	SM 4500-NO ₃ -F	Plastic / H ₂ SO ₄ < 2 pH	250 ml

* Nitrite and Nitrate are tested separately and reported together as Nitrates.



SCRUBBER SAMPLING KIT 'B' (PCN 1AB5911)

The preceding table lists, by parameter, the various test methods used by Drew Marine's certified laboratory along with the details of the supplied sample bottle types/volumes and preservatives. The test methods listed which are used for determining the test parameters shown conform to or are equivalent to the test methods specified by EGCS certification scheme and the VGP.

SAMPLE PREPARATION & PRESERVATION

Contains a specific number of new sample bottles of various sizes. Each set allows the collection of sample from one sampling location within the exhaust gas scrubber washwater discharge system, viz. inlet water, water after the scrubber, and discharge water. Therefore, in order to sample from these three particular locations, three sets of the respective Scrubber Sampling Kit must be used.

In order to preserve the chemical and biological nature of the samples, certain bottles will need to be preserved after being filled with sample. Refer to the table shown in the section entitled Test Methods to identify which sample bottles need preservation.

Specifically, the sample intended for Dissolved Metals must first be filtered through the included 0.45 micron filter and subsequently preserved with nitric acid to a pH < 2. The unfiltered sample for Total Metals must be preserved only with nitric acid to a pH < 2. The sample for Nitrates must be preserved only with sulfuric acid to a pH < 2.

Suitable preservation reagents, nitric acid and sulfuric acid, are available separately in 4ml bottles from Drew Marine. Each 4ml bottle is suitable for preserving 250ml of sample. Avoid the use of 'weak' preservation reagents as they merely dilute the sample being preserved and can lead to erroneous test results. Refer to the Ordering Information section to order the appropriate number of preservation reagents from Drew Marine.



Contact your Drew Marine representative for more information

SAMPLING LOCATIONS

Per IMO and VGP, a total of three sets of samples are required for each sampling event. The sample sets are to be taken from the following locations of scrubber washwater discharge system:

1. Inlet water (for background)
2. Water after scrubber (before treatment system)
3. Discharge water (before dilution or other reactant dosing)

SAMPLING PROCEDURE

To ensure that the samples are representative of the washwater from each sampling location, detailed sampling instructions are included with both Scrubber Sampling Kits.

The Scrubber Sampling Kit 'A' includes a 5-liter Cubitainer which serves as the main collection mechanism for preparing one set of samples. This large container allows enough washwater to be collected from one sampling location. The included pour spout allows easy sample distribution into individual sample bottles. The Scrubber Sampling Kit 'B' is sampled directly into the sample bottle.

After the individual sample bottles have been prepared, the samples need to be kept cold until they are ready to be dispatched to the laboratory. The samples can either be chilled under ice in a cooler or kept inside a refrigerator until the day of courier pickup.

SAMPLING DISPATCH

Each Scrubber Sampling Kit includes an appropriately sized insulated mailer with enough freezable cold packs to allow its contents to remain in a controlled temperature up to 72 hours. The mailer also contains suitable packing material designed to protect the individual sample bottles while in transit to the laboratory. Three days prior to sample dispatch, place the cold packs into a freezer. On the day of dispatch, transfer the frozen cold packs and chilled samples to the insulated mailer.

Complete the included Proforma Invoice, Request for Analysis, and Chain of Custody forms. The Proforma Invoice identifies the full style of the laboratory address and aids with sample dispatch and customs clearance. The Request for Analysis form identifies the sampling details, vessel location, and inline monitoring reference values. The Chain of Custody form, which also identifies the test parameters required for analysis, must be signed and dated each time the samples are relinquished from one party to another party.

It is recommended for the sender to use a traceable courier service and to notify Drew Marine of the tracking number, if possible.

It is the responsibility of the sender to dispatch the prepared sample set in the insulated mailer as a single package to the laboratory without delay. Courier fees are the responsibility of the sender.

TEST REPORT

Analytical test reports are issued by Drew Marine. For both Scrubber Sampling Kits, Nitrates are reported within 48 hours after sample receipt by the laboratory. For Scrubber Sampling Kit A, the remaining test parameters are reported approximately seven business days after sample receipt by the laboratory. Test reports must be retained on board for a period of 3 years as official records of washwater discharge monitoring.

ORDERING INFORMATION

Please select the appropriate Scrubber Sampling Kit based on the desired EGCS certification scheme. The recommended quantity listed ensures the correct number of kits and preservation reagents that would be required for every sampling event.

Note: Additional orders of the Scrubber Sampling Kits may be ordered individually as needed.

In order to collect test data for EGCS certification Scheme A, please order PCN 1AB5910 SCRUBBER SAMPLING KIT 'A'. This kit also complies with the US EPA as part of the annual reporting requirement for the VGP.

PCN	Description	Qty/Event
1AB5910	SCRUBBER SAM- PLING KIT 'A'	3
1AB5912	SULFURIC ACID, 4ML BTL	3
1AB5913	NITRIC ACID, 4ML BTL	6

To collect only Nitrates for EGCS certification Scheme B, please order PCN 1AB5911 SCRUBBER SAMPLING KIT 'B'.

PCN	Description	Qty/Event
1AB5911	SCRUBBER SAM- PLING KIT 'B'	3
1AB5912	SULFURIC ACID, 4ML BTL	3

The following test kit is available separately to check the sample pH value during preservation.

PCN	Description
0246117	PH METER KIT P06

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