Solution 2: Random, Unannounced on-board Drug and Alcohol test using the combination of hair specimens and saliva samples (POCT devices)

For comprehensive details regarding this Solution, please contact ARTION D&A at +30 210 260 1475 or via email at info@artiondna.com

View a brief overview here:

1.2.1 Description

Step 1: The vessel is provided with the Drug and Alcohol testing kits and POCT devices for instant tests. The certificates for the POCT devices are attached. The Company/vessel is provided with the relevant instructions (collection & mailing) and the Custody form. The Company initiates the Drug and Alcohol Test. The test can be carried out anywhere, anytime, as the Master collects the hair specimens and/or tests the crew members using the POCT devices for instant results. The hair specimens and the POCT devices are anonymous to ARTION, marked only with a code chosen by the Master or the Company for easy identification in case of positive samples or in case of a falsification attempt.

Step 2. The testing kits are dispatched through ARTION D&A to Green Biotech for the Drugs & Alcohol test (for the hair samples) and to make sure that each crew member has donated only for themselves and not for another crew member, both for hair samples and the POCT devices. The results of the POCT devices are confirmed by the Laboratory. The Certifications of this Laboratory are attached to this introduction (see attachments Green Biotech Certifications) Furthermore, the specimen collection time is also verified to avoid any undesired manipulation of the test. In case of a non-negative sample or manipulation of the test a different procedure is applied (See par. 1.1.5, handling of negative, non-negative, positive and invalid specimens par 1.1.6). This step allows ARTION and its Operators to avoid an undesired substitution or adulteration of the samples. All seafarers are tested for D&A consumption after their boarding date.

1.2.2 Analysis methods

-For hair analysis, the same analysis, as described in paragraph 1.1.2
-For Poct devices

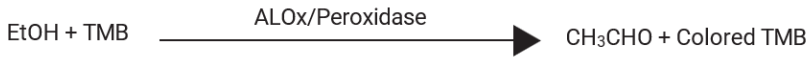
The test is a rapid oral fluid, lateral flow, one-step immunoassay for the qualitative detection of specific drugs and their principal metabolites in human oral fluid.

(1) Drug test:
The Oral Fluid Test is a competitive immunoassay that is used to screen for the presence of drugs and their principal metabolites in oral fluid. It is a chromatographic absorbent device in which drugs or drug metabolites in a sample competitively combine to a limited number of antibody-dye conjugate binding sites.

When the sponge end of the collector is immersed into the oral fluid sample, the sample is absorbed into the device by capillary action, mixes with the antibody-dye conjugate, and flows across the pre-coated membrane. When sample drug levels are zero or below the target cutoff (the detection sensitivity of the test), antibody-dye conjugate binds to the drug/protein conjugate immobilized in the Test Region (T) of the device. This produces a colored band that, regardless of its intensity, indicates a negative result.

When sample drug levels are at or above the target cutoff, the free drug in the sample binds to the antibody-dye conjugate preventing the antibody-dye conjugate from binding to the drug-protein conjugate immobilized in the Test Region (T) of the device. This prevents the development of a distinct colored band in the test region, indicating a potentially positive result. To serve as a procedure control, a colored band will appear at the Control Region (C), if the test has been performed properly.

(2) Alcohol test:
It is based on the high specificity of alcohol oxidase (ALOx) for ethyl alcohol in the presence of peroxidase and enzyme substrate such as tetramethylbenzidine (TMB) as shown in the following:



The distinct color on reactive pad could be observed in less than 20 seconds after the absorbent end was contacted with oral fluid samples with the ethyl alcohol concentration greater than 0.02%. Other alcohols such as methyl, propanol and allyl alcohol would develop the similar color on the reactive pad. However, these alcohols are not normally present in oral fluid.

1.2.3 Cut-offs

-For hair analysis, the same analysis, as described in paragraph 1.1.3
-For Poct devices

Test	Calibrator	Cut off (ng/mL)
Amphetamine (AMP)	D-Amphetamine	50
Barbiturates (BAR)	Secobarbital	60
Benzodiazepines (BZO)	Oxazepam	30
Cocaine (COC)	Cocaine	20
Methylenedioxymethamphetamine (MDMA)	3,4-Methylenedioxymethamphetaminel	100
Methamphetamine (MET)	D-Methamphetamine	50
Methadone (MTD)	Methadone	30
Opiate (OPI)	Morphine	40
Oxycodone (OXY)	Oxycodone	20
Phencyclidine (PCP)	Phencyclidine	10
Marijuana (THC)	Δ9-THC	25
Alcohol (ALC)	Alcohol	>0.02% BAC

1.2.4 Drugs, substances and metabolites detected

-For hair analysis, the same analysis, as described in paragraph 1.1.4
- For POCT devices:
Amphetamine (AMP), Barbiturates (BAR), Buprenorphine (BUP), Benzodiazepines (BZO), Cocaine (COC), Fentanyl (FTY), Methylenedioxymethamphetamine (MDMA), Methamphetamine (MET), Methadone (MTD), Opiate (OPI), Oxycodone (OXY), Phencyclidine (PCP), Marijuana (THC25), Marijuana (THC40), Alcohol (ALC).

1.2.5 Handling of Negative Samples 1.1.5 (Screening Test).

All samples are directed through ARTION D&A to Green Biotech for analysis based on the attached certifications (see attachment Green Biotech Certifications) to:

a) Determine if the samples are adequate for analysis. If the specimens are invalid for any reason the Operator is informed accordingly.
b) Comparison of the samples.
c) Determine if the samples were collected prior/after to the official collection date.
d) Analyse the samples and provide the D&A test results, within 2-6 working days after the day of delivery to the Laboratory. The non-negative samples are handled according to the par. 1.1.6.

1.2.6 Handling of non-negative samples. (Confirmation Test).

For all samples found non-negative:

a) A questionnaire to be filled with the history of the donor is required.
b) A second sample, rich is required. The sample is sent to two independent Laboratories (Green & Omega, without additional charges) for analysis.
c) The results are examined by the MRO and the final result is provided to the Operator.

The results are delivered 8-10 working days after the receipt of the samples by the Laboratories.

The role of the MRO is a procedural requirement by OCIMF ensuring a legally defensible result. In case of non-negative (positive) result Artion will suggest the Operator with all necessary MRO solutions.