



Canadian Society of Forensic Science Alcohol Test Committee Recommended Operational Procedures

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Introduction

The Canadian Society of Forensic Science (CSFS) established a "Special Committee on Breath Testing" in 1967 to study scientific, technical and law enforcement aspects of breath tests for alcohol¹. The Society believed it was important to emphasize that the determination of blood alcohol concentrations (BACs) by means of breath tests is a scientific process and, for that reason, must be performed according to proper scientific practices and standards established by scientists with specific knowledge of the subject. With this focus, the CSFS Committee developed recommended procedures for the performance of breath tests as well as minimum standards for training police officers in the use of the equipment, for the administration of a breath test program, and for the materials to be used with the equipment. These standards were published in the CSFS Journal in December 1969, coincident with the introduction of the so-called "Breathalyzer" laws in Canada (1).

Because of these initial contributions to the development of a high standard of practice, the widely recognized expertise of the Society and the members of the Committee, the Department of Justice invited the CSFS Committee (which became known as the *Breath Test Committee*) to be its principal scientific advisor on matters related to breath testing, a function that has continued to the present. Over many years, the Breath Test Committee kept abreast of advancements in breath test technology, changes in *Criminal Code* legislation and various issues surrounding breath testing. Some highlights include the introduction of road-side screening devices, the advent of automated breath test equipment, mobile breath testing and provisions to demand blood samples. The latter demonstrated the broadening interests of the Committee and its name was changed to Alcohol Test Committee (ATC) in 1985.

In the past, the Recommended Standards and Procedures of the Canadian Society of Forensic Science Alcohol Test Committee were published as a single document. Previous publications (1-12), track updated versions of standards and procedures over a period spanning more than 50 years. To provide better clarity the recommendations of the Committee have been separated into 3 documents:

1. Canadian Society of Forensic Science Alcohol Test Committee Recommended Operational Procedures. This document addresses recommended procedures for the operational use of Approved Instruments, Approved Screening Devices and Approved Containers.

¹ The unmodified word alcohol refers to ethyl alcohol.

2. Canadian Society of Forensic Science Alcohol Test Committee Recommended Best Practices for a Breath Alcohol Testing Program. This document addresses recommendations on the roles and qualifications of key personnel involved in the administration of a breath test program as well as recommendations regarding training, inspections, maintenance, modifications and physical factors.
3. Canadian Society of Forensic Science Alcohol Test Committee Equipment Standards and Evaluation Procedures. This document addresses equipment, materials, and equipment evaluation procedures.

Current members of the ATC are:

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2. The Breath Test Committee of the Canadian Society of Forensic Science. Can. Soc. Forensic Sci. J. 1977; 10: 135-138.
3. Breath Testing Standards. Can. Soc. Forensic Sci. J. 1980; 13: 38-41.
4. Recommended Standards and Procedures of the Canadian Society of Forensic Science Alcohol Test Committee. Can. Soc. Forensic Sci. J. 1986; 19(3): 164-222.
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10. Canadian Society of Forensic Science Alcohol Test Committee: Recommended Operational Procedures. Can. Soc. Forensic Sci. J. 2014; 47(4): 170-173.
11. Canadian Society of Forensic Science Alcohol Test Committee: Recommended Operational Procedures. Effective date: 2016 September 29. Published on-line at www.csfs.ca.
12. Canadian Society of Forensic Science Alcohol Test Committee: Recommended Operational Procedures. Effective date: 2018 December 18. Published on-line at www.csfs.ca.

OVERVIEW

The Alcohol Test Committee's recommended operational procedures outlines the operational procedures for Approved Instruments, Approved Screening Devices and Approved Containers. The recommended operational procedures are distinct from the standards and procedures of evaluation, inspection, maintenance, and modifications related to that equipment. These recommendations are not proposed by the Committee as required elements of proof additional to those already provided in the *Criminal Code*. Breath alcohol testing, whether it be by Approved Instruments or Approved Screening Devices, must produce analytical results that are both reliable and accurate in a non-laboratory environment while being operated by trained operators. For this reason, the Committee has developed specific operational procedures that will ensure accurate and reliable results.

I APPROVED INSTRUMENTS

1. The subject shall not have consumed or placed alcohol (or any other substance that may interfere with the test) in the mouth for at least 15 minutes prior to the collection of a breath sample.
2. A system blank test shall be conducted and shall give a reading not greater than 10 mg/100 mL².
3. A system calibration check shall be conducted within the range of 50 to 150 mg/100 mL and shall give a reading within 10% of the target value of the alcohol standard. The alcohol standard shall be certified by a designated analyst.
 - a. Where a simulator is used for the calibration check, the temperature of the alcohol standard shall be within the range of 33.8 to 34.2°C to produce a target value of 100 mg/100 mL. The use of a portion of a batch/lot of alcohol standard in a simulator with a non-recirculating system shall not exceed 7 days or 16 calibration checks, whichever occurs first. For a simulator with a recirculating system, use shall not exceed 15 days or 50 calibration checks, whichever occurs first.
 - b. Where a dry gas alcohol standard is used for a calibration check, the cylinder shall be kept at ambient room temperature and used only within the acceptable temperature range specified by the manufacturer. The dry gas alcohol standard shall not be used below a pressure specified by the manufacturer. The dry gas alcohol standard shall only be used with Approved Instruments that are capable of determining the target value.
 - c. Any alcohol standard, be it wet bath or dry gas, shall not be used past its expiry date.

2. mg/100 mL = milligrams of alcohol per 100 millilitres of blood

4. Readings for the blank and calibration checks shall be recorded to the nearest milligram and shall not be truncated.
5. Two samples of deep lung breath collected at least fifteen minutes apart shall be tested.
 - a. Readings of breath tests shall be truncated before being reported.
 - b. If the reported results of two tests differ by more than 20 mg/100 mL, additional samples shall be collected and tested until two results agreeing within 20 mg/100 mL have been obtained.

II APPROVED SCREENING DEVICES

1. The calibration of the Approved Screening Device shall be checked by a Screening Device Calibration Technician with an alcohol standard. The period of time between calibration checks shall not exceed 31 days.
 - a. Where a simulator is used for the calibration check, the temperature of the alcohol standard shall be within the range of 33.8 to 34.2°C to produce a target value of 100 mg/100 mL. The use of a portion of a batch/lot of alcohol standard in a simulator shall not exceed 7 days or 16 calibration checks, whichever occurs first.
 - b. Where a dry gas alcohol standard is used for a calibration check, the cylinder shall be kept at ambient room temperature and used only within the acceptable temperature range specified by the manufacturer. The dry gas alcohol standard shall not be used below a pressure specified by the manufacturer. The target value shall be determined from the nominal value by either an accessory device (e.g. True-Cal), a procedure provided by the manufacturer, or by the Approved Screening Device itself.
 - c. Any alcohol standard, be it wet bath or dry gas, shall not be used past its expiry date.
 - d. During the calibration check, the result shall give a reading within ± 5 mg/100 mL of the target value of the alcohol standard. If the result falls outside of this range, the Approved Screening Device must be re-calibrated.
2. Only the Screening Device Calibration Technician shall have access to the calibration adjustment feature.
3. The results of the calibration check shall be documented.
4. Units with rechargeable batteries shall be charged according to the manufacturer's recommendations.

5. If the Approved Screening Device is battery operated, a battery check shall be part of the test procedure.
6. A test on a subject shall not be conducted until the Approved Screening Device is verified that it is ready to receive a sample.
7. A test on a subject shall not be conducted until at least 15 minutes after the time the subject states alcohol has last been consumed.
8. The Approved Screening Device shall be operated according to the manufacturer's recommendations.

III APPROVED CONTAINERS (BLOOD SAMPLES)

1. Approved Containers shall be stored in a sealed package until presented for use.
2. Samples shall be venous blood and shall be taken from the subject only by a Qualified Medical Practitioner or a Qualified Technician (in respect of blood samples), in accordance with recognized medical procedures.

Note: "Qualified Medical Practitioner" means a person qualified by provincial law to practice medicine. "Qualified Technician" (in respect of blood samples) means a person who is, or a person who is a member of a class of persons that is designated by the Attorney General under subparagraph 320.4(b)(i) of the *Criminal Code*.

3. If a swab is used to clean the puncture site, it shall not contain ethyl alcohol.
4. Blood samples should be stored under refrigeration (approximately 4°C) at all times that it is practicable to do so. Access shall be limited to authorized personnel only.
5. Approved Containers may be used beyond their expiry date. The expiry refers to the date beyond which the vacuum is no longer warranted by the manufacturer.