

**MEASUREMENT CANADA PRINCIPLES FOR  
SEALING METERS AND TRADE DEVICES**



**Measurement  
Canada**

*Fair Measure For All*

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## MEASUREMENT CANADA PRINCIPLES FOR SEALING METERS AND TRADE DEVICES

### 1. BACKGROUND

For more than a century, the federal Government has been actively ensuring equity in the trade of measured commodities in Canada. Measurement Canada is the agency charged with the responsibility for administering the *Electricity and Gas Inspection Act* and the *Weights and Measures Act* which provide a public guarantee on the quality and accuracy of measurements in the marketplace. Our stated mission is to ensure equity and accuracy, where goods and services are bought and sold on the basis of measurement, in order to contribute to a fair and competitive marketplace.

A credible measurement system is vital to a country's economic health and prosperity. Measurement Canada's presence in the marketplace promotes domestic and international consumer, business and investor confidence in the integrity and accuracy of measurement, bolsters a fair and competitive marketplace, and supports stronger, sustainable business growth. Canadians as a whole benefit from an environment in which an acceptable level of measurement accuracy is maintained and where the probability of fraudulent activity is minimized.

Over the past number of years, the metrological foundation of the legislation has been strengthened and its administrative flexibility improved through evolving requirements that have provided for improved measurement accuracy and has addressed new business practices and continuing advances in technology.

As is the case in most areas of the public service, Measurement Canada has undergone many changes and has been challenged in the way it carries out its mandate. Measurement Canada is evaluating the current means and mechanisms utilized for program delivery and as a result we are examining measurement security in all trade sectors. Included in this scope, is the review of current requirements and their suitability for existing and new device measurement technology. It is our intent to harmonize sealing and alternative security requirements of all Measurement Canada legislation.

Most international legal metrology organizations require that trade measurement devices approved for commerce be suitably marked to show approval. They also require the adjustments on these devices be properly sealed to indicate that no tampering has occurred. With the advent of newer technology, Measurement Canada is dedicated to ensuring that the requirements for sealing and verification marking complement the capabilities of today's measurement devices. This includes the consideration of alternative arrangements that provide security and a means of detecting when adjustments have been made to a device.

## 2. ENVIRONMENT

Measurement Canada believes that harmonization of requirements should be attempted for various reasons including those outlined here:

- > There are more similarities than differences in the present sealing practices and the principles requiring devices to be sealed.
- > Measurement Canada's accreditation standard will be one which is applicable to all trade sectors. Harmonized sealing requirements can only serve to assist in this area.
- > All trade sectors should be treated fairly and equitably. This concept goes to the core of Measurement Canada's Mission, Vision and Values.

There are a number of concerns with present sealing practices that Measurement Canada feels should be addressed. Some of these concerns are:

- Legislation requires that all devices be sealed before being used in trade, however significant numbers of these devices are currently being used without a valid or effective seal.
- The design and configuration of some physical sealing and marking arrangements are ineffective and do not preclude deterioration or accidental breakage.
- There is limited confidence in the investigation of disputes and complaints if the seal is found to be compromised.
- Often, physical seals do not allow users to take full advantage of the features available from new device technology.
- Several reporting requirements of the current Weights and Measures legislation that relate to sealing of trade devices, are less effective than when they were promulgated due to drastic changes in Measurement Canada's operations and resources.
- The lack of uniform guidelines has created disparities across the country regarding the methods of securing a device against tampering. This lack of uniformity does not provide for an effective means to resolve issues, concerns or problems which arise from time to time.

The need to harmonize the requirements and resolve the concerns are the reasons for Measurement Canada's action.

### 3. SEALING PRINCIPLES

Sealing principles are the foundation on which any requirements should be developed. Based on consultations, Measurement Canada has determined that the sealing principles outlined here are reasonable and respect the obligations of our mandate as well as the viewpoint of industry as a whole.

These principles have been developed in answer to the following questions:

#### 3.1 What is a seal and what purpose does it serve?

The design of most physical types of sealing arrangements is frail and is by no means intended to prevent access to adjustments that affect the measurement accuracy of a device. The intent of applying a physical seal to a trade device is to provide a means to secure it so that access to metrologically sensitive adjustments and sealable parameters will be detectable. With the advent of newer technology, electronic sealing will provide the ability to detect *changes* to metrologically sensitive adjustments and sealable parameters of a device. Measurement Canada acknowledges that an intact seal has value as a deterrent due to the consequences involved when a seal is broken or rendered ineffective.

Measurement Canada proposes the use of the following definition of a seal required for the purposes of the Electricity and Gas and the Weights and Measures legislation: **a means to secure a device so that access or changes to metrological adjustments and sealable parameters will be detectable.**

An effective seal has an essential purpose in providing marketplace integrity and confidence against device tampering and as such it has three main functions:

1. To secure a device so that access or changes to metrological adjustments and sealable parameters will be detectable.
2. To identify the date and organization which verified the device. This information is necessary for the administration and enforcement of legislation, for complaint or dispute investigation purposes, and also for seal period and seal extension purposes.
3. To act as a deterrent to the unauthorized access or changing of metrologically sensitive adjustments and sealable parameters.

#### 3.2 When is a seal required?

A seal is required whenever a device, as identified by legislation, is verified for trade use and it is possible to affect the metrological adjustments or sealable parameters of the device.

### **3.3 Why is a seal important?**

- An intact seal provides confidence in both the device and the organization's integrity for the dispute investigation program.
- Seals are an integral part of the process in determining the validity of sample meters which are presented for inspection as part of seal extension programs.
- When a device is found with an intact seal, the markings on that seal can be used to determine if the device is within the legislated seal period for that type of device.
- A seal is a vital component of a credible measurement system which provides confidence in the integrity and accuracy of measurement.

### **3.4 What is a verification mark and what purpose does it serve?**

A verification mark is a mark which is applied, at the time of verification, to a device that has been found to be in compliance with the applicable legislation, typically in the form of an adhesive sticker. Its primary purpose is for the benefit of the public to show that the device has been officially examined and verified. The use of a verification mark also indicates a Measurement Canada presence in the marketplace, providing confidence in a device's accuracy and integrity. Finally, a verification mark provides a link to the organization which verified the device. This information is valuable in tracing records relating to the verification of the device.

### **3.5 Who can apply a seal or a verification mark?**

A seal or verification mark can only be applied by an accredited meter verifier or an inspector as designated by Weights and Measures or Electricity and Gas legislation.

The principles outlined in this document are being used as the basis for developing sealing requirements and additional principles for event loggers.