
**Rigid PVC pipes — Differential scanning
calorimetry (DSC) method —**

**Part 1:
Measurement of the processing
temperature**

*Tubes rigides en PVC — Méthode utilisant la calorimétrie différentielle à
balayage —*

Partie 1: Mesurage de la température de procédé



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Foreword

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The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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ISO 18373-1 was prepared by Technical Committee ISO/TC 138, *Plastics pipes, fittings and valves for the transport of fluids*, Subcommittee SC 5, *General properties of pipes, fittings and valves of plastic materials and their accessories - Test methods and basic specifications*.

ISO 18373 consists of the following parts, under the general title *Rigid PVC pipes — Differential scanning calorimetry (DSC) method*:

- Part 1: Measurement of the processing temperature
- Part 2: Measurement of the enthalpy of fusion of crystallites

Introduction

Studies have been undertaken at the international level to determine a method of measuring the B-onset or maximum processing temperature used during the production of rigid PVC pipes. These studies have demonstrated that a test using differential scanning calorimetry (DSC) fulfils these requirements.

The method involves taking small samples from the pipe wall and heating these in a differential scanning calorimeter. Small endotherms are used to detect the thermal history of the samples and the B-onset or maximum processing temperature is derived from these data.

The technique requires a good understanding of DSC instruments and techniques, particularly in relation to PVC. It is important that newcomers to the technique familiarize themselves with both the instrumentation and method prior to undertaking reportable tests.

It is intended that individual product standards will specify the requirements for B-onset or maximum processing temperature.

The method can also be suitable for other types of extruded rigid PVC products, but different sampling protocols might be required.

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Rigid PVC pipes — Differential scanning calorimetry (DSC) method —

Part 1: Measurement of the processing temperature

1 Scope

This part of ISO 18373 specifies a method for the determination of the processing temperature of rigid PVC pipe samples. The method is based on the measurement of the thermal history using differential scanning calorimetry (DSC) and is suitable for all types of rigid PVC pipes.

2 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

2.1

baseline tilting

adjustment of the angle of the baseline to bring it to the horizontal

2.2

curve magnification

magnification of the differential scanning calorimetry (DSC) curve around A-onset and B-onset temperature ("zooming")

2.3

A-onset

indication of first crystallite melting

2.4

B-onset

indication of maximum processing temperature (T_p)

2.5

instrumental baseline

measurement with empty sample pan, i.e. background subtraction

2.6

position of sample

location in the product from where the sample was taken

2.7

purge gas

gas used to ensure an inert environment

2.8

repeat samples

samples from the same position