Corresponding Standards

FEA 602 F Récipients aérosols remplis – Test rapide d'étanchéité des mécanismes des valves et de leur fixation sur récipients à ouverture 25,4 mm

FEA 602 D Gefüllte Aerosolverpackungen – Schnelltest auf Dichtheit der Ventilmechanismen und deren Befestigung an Dosen mit 25,4 mm Öffnung

Introduction

The seal integrity of the valve mechanism of a filled aerosol pack as well as of the mounting cup closure must be correct and controlled by the formulator and the manufacturer. They will have the choice between a rapid method, the object of the present standard, and a more accurate long term method, described in the standard FEA 603.

The two methods will be used together whenever this is possible and for a more profound study, preference will be given to the long term test.

Objective

The objective of this simple method is to measure rapidly, by means of an eudiometer, the loss of contents of a filled aerosol pack.

Scope

This method is suitable to measure the losses due to the valve mechanism on the one hand, and to the system of closure of mounting cup – neck on the other hand, on all the aerosol containers with 25.4 mm opening.

It is also suitable for the choice of the valve and of the clinching conditions for a given product or for any other study connected with the mounting cup closure.

Principle of the method

With this method, it is possible to measure, at a given temperature, the gas volume which has escaped during a given space of time from the filled container due to faults with the valve mechanism or of the mounting cup closure.

Apparatus

1) Water bath at a constant temperature
2) Two eudiometers or one double barrelled eudiometer graduated in cm^3, capable of separately reading the gas volume originating from the valve mechanism on the one hand and from the mounting cup closure on the other hand.

Working operation

1) Set the thermostatically controlled water bath to the correct temperature.

2) After having filled the eudiometers with water, take care that no air bubbles remain on the inside.
   Immerse the aerosol container in the bath taking care that no air bubbles remain in the zone destined to be covered by the eudiometers.

3) Cover the valve by the two eudiometers avoiding the introduction of air. Make sure of the stability of the tube by maintaining it in a vertical position.

4) After a given length of time, the liquid level will sink in the eudiometers if there is any gas loss. It is thus possible to read separately the gas volumes which have escaped from the valve mechanism or from the mounting cup closure.

Test report

Besides the filling conditions and actual results obtained, the test report must state the temperature of the water bath, the duration of the test, the age of the samples and any working details not provided for in this standard as well as the root cause of any gas loss.

Notes

1) During the evaluation of the results, it is necessary to take into consideration the eventual solubilisation of the propellants in the liquid phase of the eudiometer.

   In order to avoid this solubilisation, in case of dimethyl-ether or carbon dioxide gas for example, it would be desirable to operate in a saline solution or in water saturated at atmospheric pressure with the gases being used.

2) It is necessary to note the time elapsed from filling until the start of the test because, according to the types of pack, there is a variable period of stabilisation during which the loss of gas is important.

   After this period, the loss of gas diminishes considerably.