OZM RESEARCH
Instruments & Technologies for Energetic Materials

MV 26
METHYL VIOLET TEST APPARATUS
Product Datasheet

The instrument for determination of thermal stability according to the Methyl Violet test **MV 26** is designed for evaluation of thermal stability of nitrocellulose, nitroglycerine, and nitroglycol. However it may be used for testing of high explosive stability as well. This test uses the fact that nitrate esters decompose to produce NO_2 in order to determine the stability of measured substances. The stability is determined by means of the change of colour of indicator paper. The result of this test is period of time from inserting sample to preheated heating block to change of colour of indicator paper.

APPLICATIONS

Methyl violet test is one of several methods for determination of thermal stability of propellants based on change of colour of indicator papers beside Abel test, Heat test or Vieille test. Mentioned tests work on a similar principle, but differ from each other in terms of the temperature of measurement, weight of sample, size and shape of heating tube, or kind of used indicator paper. Above mentioned tests can not be used to compare different types of explosives.

Methyl violet tester **MV 26** is designed to comply with requirements of the following standards of testing:

- MIL-STD-286C, Method 404.1.2, Heat tests (120 and 134.5 °C).

INSTRUMENT DESCRIPTION

The instrument consists of a heating block made of aluminium with 26 internal holes for glass tubes. The glass tubes with the tested samples are inserted to the holes in a heating block. The tubes are covered by a lid with hook. On the hook inside the test tube is hung indicator paper. The quality of indicator papers is guaranteed to meet Naval Powder and are currently used and accredited by the USA Military. The holes are filled with silicon oil for better heat transfer. Each block contains 2 independent temperature sensors. The temperature of the block is controlled by a digital temperature controller. The controller unit contains an independent alarm circuit off the heating if the temperature accidentally increases above a specified safety limit (controlled by and the limit controller). Temperature in the heating blocks is controlled and corrected using calibrated mercury thermometers or calibrated digital thermometer.

This instrument enables measurement of up to 25 samples with individual time of exposure for each one, but further models of heating block with different number or dimensions of the holes are available on the request.

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TECHNICAL PARAMETERS

Temperature range:	30 - 160 °C
Accuracy of temperature:	±0.1 °C
Typical sample weight:	2.5 g
Dimensions of Methyl Violet strips:	2 x 7 cm

STANDARD INSTRUMENT PARTS

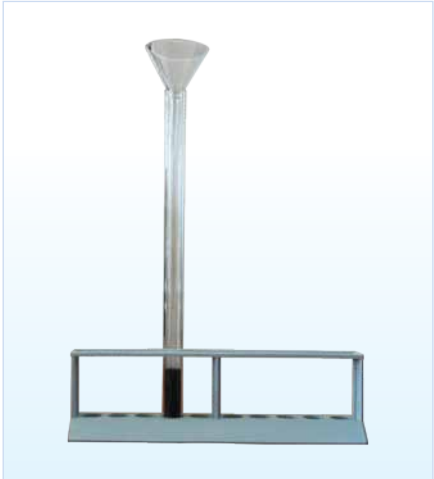
MV-HB-26	Heating block, 26 holes (diam. 19 mm, depth 280 mm)
MV-TC	Temperature controller including limit controller

OPTIONAL ACCESSORIES

MV-CMT	Calibrated mercury thermometer 0 - 150 °C / 0.2 °C
DIG-T200	Calibrated digital thermometer 0 - 200 °C / 0.1 °C
Stopwatch	Water Resistant Digital Stop-timer Stop-Watch

CONSUMABLES

MV-GTT	Glass test tube O.D. x L (18 x 290 mm)
MV-LH	Lids and hooks
MV-SIP-GUN	Set of Methyl Violet strips (specially prepared and used by the USA Military)



SHIPPING DATA

Package dimensions (W x L x H):	60 x 70 x 70 cm
Package gross weight:	80 kg
Custom code:	9027 80 97

INSTALLATION REQUIREMENTS

Space requirements - Heating block unit: D x H: 290 x 390 mm; Weight: 40 kg

Space requirements - Temperature controller unit: W x L x H: 210 x 300 x 140 mm; Weight: 4.5 kg

Electric power source: 230 V / 50 Hz, 500 W

Flameproof working desk for heating block unit

Fume hood or local exhaust for heating block unit

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