

MAURITIAN
STANDARD

MS ISO
25947-4:2017

First edition
2019-02-23

Fireworks – Categories 1, 2 and 3 -
Part 4:
Test methods

ICS 71.100.30



Mauritius Standards Bureau
Moka

National foreword

This Mauritian Standard is identical with the International Standard **ISO 25947-4:2017, Fireworks – Categories 1, 2 and 3 – Part 4: Test methods**. It was adopted by the Mauritius Standards Bureau on the recommendation of the **Chemical and Related Products** Standards Committee through the Subcommittee on Fireworks. It was approved by the **Standards Council** on 31 January 2019 and notified in the Government Gazette on **23 February 2019**.*

This first edition of MS ISO 25947-4:2017 replaces the MS EN 15947-4:2014.

The following Mauritian Standards are identical to the International Standards, which are referenced in the adopted standard:

International Standard	Corresponding Mauritian Standard
ISO 25947-1	MS ISO 25947-1, Fireworks – Categories 1, 2 and 3 – Part 1: Terminology
ISO 25947-3	MS ISO 25947-3, Fireworks – Categories 1, 2 and 3 – Part 3: Minimum labelling requirements
ISO 25947-5	MS ISO 25947-5, Fireworks – Categories 1, 2 and 3 – Part 5: Requirements for construction and performance

* General Notice No. 258 of 2019



COPYRIGHT PROTECTED DOCUMENT

© MSB 2019

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without permission in writing from Mauritius Standards Bureau at the address below

*Mauritius Standards Bureau
Villa Road
Moka
Mauritius*

Telephone + (230) 433 3648
Fax + (230) 433 5051/ 433 5150
E-mail msb@intnet.mu

Contents

	Page
Foreword	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Test environment	1
4.1 General.....	1
4.2 Indoor.....	1
4.3 Outdoor.....	2
4.3.1 General.....	2
4.3.2 Category 1.....	2
4.3.3 Category 2.....	2
4.3.4 Category 3.....	2
4.4 Monitoring height.....	2
5 Apparatus	2
6 Test methods	7
6.1 General.....	7
6.2 Construction and stability.....	8
6.2.1 Length of handle.....	8
6.2.2 Attachment of separate handle.....	8
6.2.3 Length of item.....	8
6.2.4 Length of pull-string or pull-strip.....	9
6.2.5 Determination of diameter.....	9
6.2.6 Attachment of initial fuse.....	9
6.2.7 Attachment of sealing paper, ignition head or friction head.....	9
6.2.8 Resistance to ignition by an abrasive surface.....	10
6.2.9 Height of initial fuse for mounted wheels in category 3.....	10
6.3 Design — Verification.....	10
6.3.1 General.....	10
6.3.2 Conformity to drawings and part lists.....	10
6.3.3 Pyrotechnic composition — Determination of net explosive content or total NEC.....	10
6.4 Paper tests.....	11
6.4.1 Test for burning or incandescent matter.....	11
6.4.2 Test for horizontal projected debris.....	12
6.4.3 Test for vertical projected debris.....	14
6.5 Angle of ascent and height of effects.....	17
6.5.1 Apparatus.....	17
6.5.2 Procedure for double bangers and double flash bangers.....	17
6.5.3 Procedure for items other than double bangers and double flash bangers.....	17
6.6 Measurement of sound pressure level.....	17
6.6.1 General measurement for outdoors.....	17
6.6.2 Party poppers for indoors.....	18
6.6.3 Christmas crackers and snaps for indoors.....	19
6.7 Timing measurement.....	20
6.7.1 Apparatus.....	20
6.7.2 Procedure.....	21
6.8 Measuring of labelling.....	21
6.8.1 Apparatus.....	21
6.8.2 Procedure.....	21
6.9 Extinguishing of flames.....	21
6.9.1 Apparatus.....	21
6.9.2 Procedure.....	21

6.10	Burning rate of composition	22
	6.10.1 Apparatus.....	22
6.11	Droop test.....	22
	6.11.1 Apparatus.....	22
	6.11.2 Procedure.....	22
6.12	Projected debris (outdoor).....	22
	6.12.1 Apparatus.....	22
	6.12.2 Procedure.....	22
6.13	Incandescent matter	22
6.14	Visual and audible examinations.....	22
6.15	Mechanical conditioning	23
	6.15.1 Apparatus.....	23
	6.15.2 Procedure.....	23
6.16	Thermal conditioning.....	23
	6.16.1 Apparatus.....	23
	6.16.2 Procedure (option 1).....	23
	6.16.3 Procedure (option 2).....	24
6.17	Striking surface test.....	24
	6.17.1 Apparatus.....	24
	6.17.2 Procedure.....	24
6.18	Function test	24
	6.18.1 Apparatus.....	24
	6.18.2 Procedure.....	24
6.19	Determination of tube angle	25
	6.19.1 Apparatus.....	25
	6.19.2 Procedure.....	25
Annex A (informative) Mechanical conditioning (shock apparatus)		26
Annex B (informative) Determination of silver fulminate.....		30
Bibliography		32

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 264, *Fireworks*.

A list of all the parts in the ISO 25947 series can be found on the ISO website.

PREVIEW

Fireworks — Categories 1, 2 and 3 —

Part 4: Test methods

1 Scope

This document specifies test methods. It is applicable to fireworks in categories 1, 2 and 3 according to ISO 25947-2.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 3599, *Vernier callipers reading to 0,1 and 0,05 mm*

ISO 6344-3, *Coated abrasives — Grain size analysis — Part 3: Determination of grain size distribution of microgrits P240 to P2500*

ISO 21948, *Coated abrasives — Plain sheets*

ISO 25947-1, *Fireworks, Categories 1, 2 and 3 — Part 1: Terminology*

ISO 25947-3:2017, *Fireworks, Categories 1, 2 and 3 — Part 3: Minimum labelling requirements*

ISO 25947-5, *Fireworks, Categories 1, 2 and 3 — Part 5: Requirements for construction and performance*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 25947-1 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

4 Test environment

4.1 General

The test area shall be a clean, flat, horizontal, non-flammable and sound reflecting surface (for example concrete). The test sample shall be placed in accordance with the instructions on the label in the centre of the test area.

4.2 Indoor

The test area shall be indoors.

The test area shall be inside a fume cupboard, or similar enclosed space, which is capable of preventing movement of air.