

# Technical Specification

ISO/TS 20224-11

First edition 2024-02

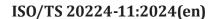
Molecular biomarker analysis — Detection of animal-derived materials in foodstuffs and feedstuffs by real-time PCR —

**₽**art 11:

Pigeon DNA detection method

Analyse de biomarqueurs moléculaires — Détection de matériaux d'origine animale dans les denrées alimentaires et les aliments pour animaux par PCR en temps réel —

₹artie 11: Méthode de détection de l'ADN de pigeon





### **COPYRIGHT PROTECTED DOCUMENT**

© ISO 2024

All rights reserved. Unless otherwise specified, or required in the context of its implementation, 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 prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office CP 401 • Ch. de Blandonnet 8 CH-1214 Vernier, Geneva Phone: +41 22 749 01 11 Email: copyright@iso.org Website: www.iso.org

Published in Switzerland

# ISO/TS 20224-11:2024(en)

Con	tents	Page
Forew	ord	iv
Introd	luction	<b>v</b>
1	Scope	1
2	Normative references	
	Terms and definitions	
3		
4	Scientific basis	
5	Reagents and materials  5.1 General  5.2 PCR reagents  5.2.1 PCR master mix.  5.2.2 Oligonucleotides.	2 2 2
6	Apparatus 6.1 Real-time thermocycler instrument.	
7	Procedure	3
	7.1 Preparation of the test portion/sample 7.2 Preparation of DNA extracts 7.3 PCR setup 7.3.1 Reaction mixes 7.3.2 PCR controls 7.3.3 Real-time PCR thermocycler plate set-up 7.4 Temperature-time programme	3 3 3 4
8	Accept/reject criteria	5
	8.1 General 8.2 Identification	
9	Validation status and performance criteria	
	9.1 General	
	9.2 Robustness	
	9.3 Reproducibility	
	9.5 Specificity	
10	Test report	11
	A (informative) BlastN +2.12.0 results for query of GenBank RefSeq genome (refseq_ genomes) and whole-genome shotgun contigs (wgs)	
Annex	B (informative) Members of the Columbidae family and its family tree established with available public genomic sequences	
Biblio	graphy	

#### ISO/TS 20224-11:2024(en)

#### **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 document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see <a href="https://www.iso.org/directives">www.iso.org/directives</a>).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at <a href="https://www.iso.org/patents">www.iso.org/patents</a>. ISO shall not be held responsible for identifying any or all such patent rights.

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

For an explanation of 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 <a href="https://www.iso.org/iso/foreword.html">www.iso.org/iso/foreword.html</a>.

This document was prepared by Technical Committee ISO/TC 34, *Food products*, Subcommittee SC 16, *Horizontal methods for molecular biomarker analysis.* 

A list of all parts in the ISO 20224 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at <a href="https://www.iso.org/members.html">www.iso.org/members.html</a>.

#### ISO/TS 20224-11:2024(en)

## Introduction

Fraudulent adulteration of meat in food and feed threatens both public safety and commerce. Adulteration can affect those adhering to ethnological dietary rules, economic development and social stability. This document provides a real-time polymerase chain reaction (real-time PCR) analytical method for the identification of meat animal species from nucleic acid present in the ingredients of food and feed.

Animal-derived biological materials in food and feed are detected and identified in the laboratory with the following successive (or simultaneous) steps: preparation of the test portion/sample, nucleic acid extraction and purification, PCR amplification and interpretation of results. This document provides guidance for PCR amplification and interpretation of results, specific to rock pigeon (*Columba livia*) DNA detection.

The ISO 20224 series consists of technical specifications that describe specific applications. New species DNA detection methods established in the future will be added as independent parts.