

DIN EN ISO 22174:2025-01 (E)

Microbiology of the food chain - Polymerase chain reaction (PCR) for the detection and quantification of microorganisms - General requirements and definitions (ISO 22174:2024)

Contents		Page
European foreword		4
Foreword		5
1	Scope	6
2	Normative references	6
3	Terms and definitions	6
3.1	General terms.....	7
3.2	Terms related to the extraction and purification of DNA/RNA.....	8
3.3	Terms related to reverse transcription of RNA to DNA.....	9
3.4	Terms related to DNA amplification by PCR/RT-PCR.....	9
3.5	Terms related to controls.....	10
3.6	Terms related to qPCR.....	11
3.7	Terms related to dPCR.....	12
4	Principle	13
4.1	General.....	13
4.2	Laboratory sample.....	14
4.3	Sampling, transport and storage.....	14
4.4	Preparation of test sample.....	14
5	Microbial enrichment and virus concentration	14
5.1	Microbial enrichment.....	14
5.2	Virus concentration.....	14
6	Nucleic acid preparation	15
6.1	General.....	15
6.2	Prevention of amplification of DNA from dead cells.....	15
6.3	Nucleic acid extraction, release and purification.....	15
6.4	Nucleic acid quality and quantity.....	15
7	PCR amplification	16
8	Detection and confirmation of amplicons	16
9	General environmental laboratory requirements	17
9.1	General.....	17
9.2	Laboratory setup.....	17
9.2.1	General.....	17
9.2.2	Control of flows.....	18
9.2.3	Cleaning of laboratory.....	19
9.2.4	Environmental monitoring for nucleic acid contamination.....	19
10	Reagents and consumables	19
11	Equipment	19
12	Procedure	20
12.1	Enrichment and sample treatment.....	20
12.2	Amplification.....	21
12.2.1	General.....	21
12.2.2	Control reaction.....	21
12.2.3	Detection of amplicon.....	23
12.2.4	Data analysis.....	23

12.3	Evaluation.....	24
12.3.1	Qualitative evaluation.....	24
12.3.2	Quantitative evaluation.....	25
12.4	Test report.....	26
13	Performance characteristics of PCR-based methods.....	26
14	Validation and verification of PCR-based methods.....	26
14.1	General.....	26
14.2	Validation.....	26
14.3	Verification.....	27
	Annex A (informative) Fluorescence signals and amplification curve.....	28
	Bibliography.....	31