

Chai + PIKA

Brewing Quality Solutions

Making Better Quality Decisions in Real-Time

- + Simple, turn-key qPCR solution
- + Clear, definitive, quantitative Micro QC results
- + Precision targeting of individual spoilers ensures accuracy
- + Clear batches in two days with single cell/sample sensitivity

Detect spoilers of:

Diastaticus

Lactobacillus

Megasphaera

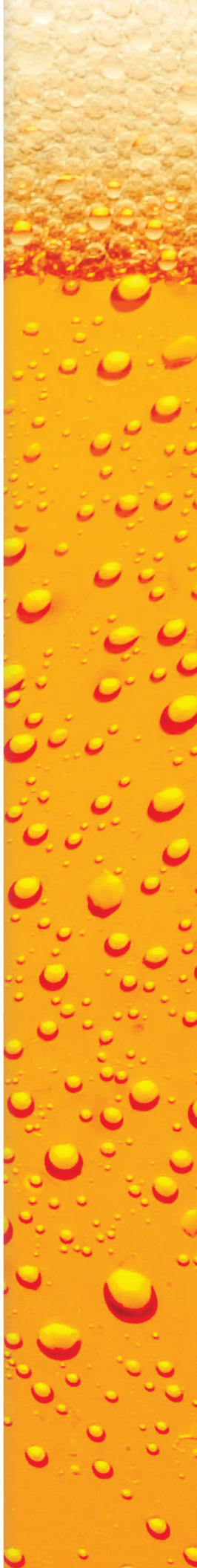
Brettanomyces

Pediococcus

Pectinatus

CHAI

PIKA
WEIHENSTEPHAN



Beer: A Competitive Ecosystem

Despite being a remarkably hostile environment for microbes, several bacterial species are able to thrive in beer, generating unwanted off-flavors, turbidity, and acidity.

Wild yeasts such as *Brettanomyces* and *S. diastaticus* can cause secondary fermentations producing not only off-flavors, but also pressure build-up leading to exploding bottles and cans.

Delivering consistent, on-brand taste and preventing damaging recalls requires a robust quality program to screen for spoilers throughout the production process.

Efficient, timely, and actionable screening requires modern tools.

Limitations of Traditional Microbiological QC

- With week-long turnaround times, beer has often left the brewery before test results are in
- Cannot rapidly test yeast prior to pitching, or bright beer prior to packaging
- Results are subject to human interpretation and often inconclusive
- Spoiler species are nearly impossible to differentiate visually
- Unable to detect low levels of diastatic contamination



The Chai+PIKA Brewing Quality Solution

Rapid Spoiler Detection & Identification with qPCR

Clear

Definitive on-screen results eliminate human interpretation

Rapid

Detect 10 CFU/mL in 2 hours, or 1 cell/sample in 48 hours

Reliable

Precision spoiler targeting using gDNA overcomes the limitations of hop resistance gene testing methods

Easy

Process your first sample after only 2–3 hours of training

Informative

Determine spoilage risk and best management action by quantifying and identifying the spoiler species present

Flexible

Adapt the system to suit your microbiological risks, shelf life & time to result requirements, sample throughput, and QC budget

Simple Workflow

Enrichment (Optional)
Time: 18–48 hours

FastOrange



Sample Prep
Time: 30 minutes

Pellet



Wash

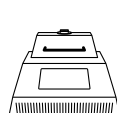


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PCR
Time: 75 minutes

PCR



Analysis



Enrichment with PCR-grade FastOrange increases sensitivity and degrades dead cells.

Media available for:

- Bacteria
- *Brettanomyces*
- *Diastaticus* and other wild yeasts

Real-Time PCR: The Gold Standard for Spoiler Detection

The Chai + PIKA solution detects spoilers with multiplex, probe-based Real-Time PCR, also known as qPCR.

Spoiler DNA is detected using a thermalcycling reaction and fluorescence optics.

Advantages over conventional PCR

- Elimination of costly gels and cartridges
- Quantitative results
- Increased specificity with probes
- Internal control detects PCR inhibition

Open qPCR: Real-Time PCR for your Brewery

The compact, rugged Open qPCR is an ideal Real-Time PCR instrument for on-site production environments.

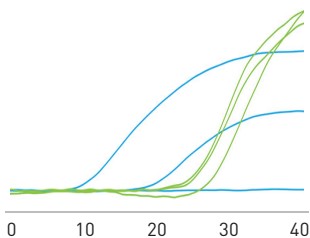
The instrument processes 16 samples at a time using long-lasting, solid-state optics. Results can be viewed on any computer in the brewery via web browser.

Results	C _q	Amount
⊕ Positive	28.1	Medium
⊕ Positive	20.4	High
⊖ Negative		Not Detectable
⊗ Inhibited		Invalid

PCR without a PhD

Open qPCR automatically runs & analyzes PIKA 4e test kits, displaying clear results understandable by all laboratory personnel.

Positive, negative, and inhibition controls are compared, ensuring reliable results with zero human interpretation.



Open System

Open qPCR is a completely open system. Define your own experiments; perform amplification, standard, and melt curve analysis; or dig into the raw data behind the PIKA test results.

Technical Specifications

Sensitivity	10 CFU/mL with direct PCR 1 cell/sample with FastOrange enrichment
PCR Time	75 minutes
Compatible Samples	Beer (turbid & clear), yeast slurries, colonies, swabs
Controls	Positive, negative, and internal inhibition
Test Kit Shipping Temp.	Ambient
Test Kit Storage Temp.	2 – 8 °C
Instrument Connectivity	Wi-Fi, Ethernet, USB
Device Support	Windows, Mac, Linux

The Real Beer Spoilers of *Lactobacillus* & *Pediococcus*

While there are hundreds of species of *Lactobacillus* & *Pediococcus*, only a tiny fraction have the ability to grow in beer.

Early approaches to differentiating the spoilers tested for hop resistance genes such as *horA* and *horC*. However, these genes reside on plasmids which are frequently exchanged between organisms. This makes hop resistance testing an unreliable method, as false positives occur when the genes are found in non-spoilers, while false negatives occur in low-hopped beers.

PIKA's Precision Approach

PIKA's 4e kits pinpoint the Real Beer Spoilers by individually targeting the genomic DNA of the 13 scientifically proven spoiler species of *Lactobacillus* & *Pediococcus* by PCR.

The Real Beer Spoiler Screening Kit combines all 13 tests into a single PCR reaction for easy, economical detection, while the Real Beer Spoiler Identification Kit identifies all spoiler species present.

The result: a precision test for the spoilage potential of your beer.

The Real Beer Spoilers

Lactobacillus

L. acetotolerans, *L. backii*, *L. brevis*, *L. casei*, *L. collinoides*, *L. coryniformis*, *L. lindneri*, *L. parabuchneri* ("frigidus"), *L. perolens*, *L. plantarum*, *L. rossiae*

Pediococcus

P. damnosus, *P. inopinatus*

PIKA monitors contamination events in breweries around the world through its consultancy, and continually evaluates new organisms for inclusion.

Chai + PIKA WeiHenStephan

Brewing Quality Solutions

Chai + PIKA

Brewing Quality Solutions

Chai Bio and PIKA Weihenstephan partner to provide breweries with simple, effective tools that improve quality and reduce waste.

About Chai

Making lab-quality biotechnology affordable and applicable in the real-world.

Chai develops comprehensive molecular biology solutions for on-site testing.

We proudly serve customers spanning research, health, food & beverage, and environmental applications.

About PIKA Weihenstephan

Brewing PCR Specialists defining best practices for over 25 years.

PIKA Weihenstephan is a commercial spin-off of the leading brewing institution TUM Weihenstephan University.

As a professional beer quality lab and consultancy, they set the standard for beer-spoiler detection and quality control around the world.

Ordering Information

Instruments

Real-Time PCR	E013201	Open qPCR, Dual Channel	1 unit
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4e Test Kits

Bacteria	T3204S	<i>Lactobacillus & Pediococcus</i> Real Beer Spoiler Screening Kit	48 tests
	T3240S	<i>Lactobacillus & Pediococcus</i> Real Beer Spoiler Identification Kit	6 tests
	T3251S	<i>L. acetotolerans</i> Test Kit	48 tests
	T3201S	<i>Lactobacillaceae</i> Screening Kit	48 tests
	T3205S	<i>Megasphaera</i> Screening Kit	48 tests
	T3206S	<i>Pectinatus</i> Screening Kit	48 tests
	T3200S	Acetics Screening Kit	48 tests
Yeast	T3209S	Superattenuator Yeasts Screening Kit	48 tests
	T3207S	<i>Brettanomyces</i> Screening Kit	48 tests
	T3267S	<i>Diastaticus</i> Test Kit	48 tests
	T3202S	Yeast & Mold Screening Kit	48 tests

FastOrange Enrichment Media

Bacteria	S1514M	FastOrange B Agar	12 x 170 mL
	S1510M	FastOrange B Broth	12 x 240 mL
	S1511M	FastOrange B Enrichment Bottles	15 x 50 mL
	S1513M	FastOrange B Ready-to-Use Swabs	48 x 5 mL
<i>Brettanomyces</i>	S1512M	FastOrange B Tubes	48 x 5 mL
	S1523M	FastOrange Brett Agar	12 x 170 mL
	S1520M	FastOrange Brett Broth	12 x 240 mL
	S1521M	FastOrange Brett Enrichment Bottles	15 x 40 mL
Wild Yeast	S1522M	FastOrange Brett Tubes	48 x 5 mL
	S1525M	FastOrange Wild Yeast Agar	12 x 170 mL
	S1526M	FastOrange Wild Yeast Broth	12 x 240 mL
	S1527M	FastOrange Wild Yeast Enrichment Bottles	15 x 40 mL
Yeast	S1528M	FastOrange Wild Yeast Tubes	48 x 5 mL
	S1518M	FastOrange Yeast Agar	12 x 170 mL
	S1515M	FastOrange Yeast Broth	12 x 240 mL
	S1516M	FastOrange Yeast Bottles	15 x 40 mL

Order online at www.chaibio.com or contact sales at (800) 642-4002 or sales@chaibio.com

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