

 Document No.:
 Revision #
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**Title:** Certificate of Calibration for PK Flex with Pyros Express

# **CERTIFICATE OF CALIBRATION FOR PYROS KINETIX® FLEX WITH PYROS EXPRESS**

1.0 CUSTOMER INFORMATION	2.0 SERVICE INFORMATION		
Organisation: Synektik Pharma Sp. z o.o.	ICN Number: CAL023-25		
Address: ul. Artwińskiego 3, 25-734 Kielce,	Calibration Date: 28 JAN 2025		
Poland	Serial Number: PKF64-9E-2663		
Calibration Location:	Performed By: Konstantin Velmozhko		
Customer Site	NIST Traceable Thermometer		
	Serial Number:32404549		
	Calibration Due Date: 02 MAY 2025		
3.0 TRANSMITTED AND MEASURED	3.1 TRANSMITTED AND MEASURED		
TEMPERATURE AS FOUND	TEMPERATURE AS LEFT		
(37.0°C ± 0.5°C)	(37.0°C ± 0.2°C)		
Ambient (°C):23.5	If no adjustments made, tick to N/A section 3.1 ⊠		
Min (°C):37.02 Max (°C):37.13 Transmitted	Ambient (°C):		
(°C):37.0	Min (°C): Max (°C): Transmitted (°C):		
Found in tolerance ⊠	Adjusted temperatures left in tolerance		
Found in tolerance - Fine adjustments made □			
Found out of tolerance - Adjustments made	Adjusted temperatures left out of tolerance		
Unable to obtain data □			
4.0 405nm A/D VALUES AS FOUND	4.1 405nm A/D VALUES AS LEFT		
(Tubes Present 800–5500, Tubes Absent 1100-1400)	(Tubes Present 800–5500, Tubes Absent 1100-1400)		
Found in tolerance ⊠	No adjustments required ⊠		
Tubes Present out of tolerance □	405nm A/D values adjusted with 660nm □		
Tubes Absent out of tolerance □	Adjusted 405nm A/D values in tolerance □		
Not Applicable □	Adjusted 405nm A/D out of tolerance □		
5.0 660nm A/D VALUES AS FOUND	5.1 660nm A/D VALUES AS LEFT		
(Tubes Present 800–5500, Tubes Absent 1100-1400)  Found in tolerance ⊠	(Tubes Present 800–5500, Tubes Absent 1100-1400)  No adjustments required ⊠		
Tubes Present out of tolerance	660nm A/D values adjusted with 405nm		
Tubes Absent out of tolerance	Adjusted 660nm A/D values in tolerance		
Not Applicable □	Adjusted 660nm A/D out of tolerance		
	-		
6.0 405nm BASELINE STABILITY (±3mAbs)	6.1 660nm BASELINE STABILITY (±3mAbs)		
PASS ⊠ FAIL □ N/A □	PASS ⊠ FAIL □ N/A □		
7.0 STANDARD CURVE	PASS □ FAIL □ N/A ⊠		
(CC: ≥0.980, Negative Controls: onset time > lowest standard)  CALIBRATION OF PYROS KINETIX® FLEX:	PASS ⊠ FAIL □		
COMMENTS: or N/A 🖂	PASS 🗵 FAIL 🗆		
PERFORMED BY:	QA / REVIEW BOARD APPROVAL:		
Signed by:	Signed by:		
konstantin Velmozliko	anke Ruland		
Signer Name: Konstantin Velmozhko	Signer Name: Anke Ruland		
Signing Reason: I am the author of this document Signing Time: 05-Feb-2025   17:59 CET	Signing Reason: I approve this document Signing Time: 10-Feb-2025   09:37 CET		
E5BFD7324EFC4EB0B7B79F1429452944	287EDE5D741C4A83BAABC91F1CAC3098		

**DATA AND SUPPORTING DOCUMENTATION ATTACHED**: Transmitted Temperature data, A/D data, Baseline data, Standard Curve data, calibration certificate for digital thermometer.



# Associates of Cape Cod Inc. PKFlex Transmitted Temperature Test Pyros® eXpress 1.3.21.62409

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Report Generated: 28.01.2025 11:25:07

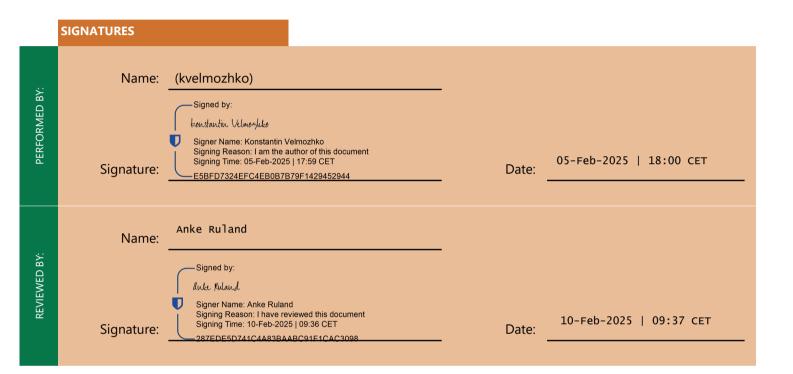
Performed By:kvelmozhkoReader Serial #:PKF64-9E-2663Firmware Version:PKF64 V1.50(170404)

Test Complete Date: 28.01.2025 Test Complete Time: 11:25

Results

Block 1 Block 2

37°C 37°C





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Performed By:kvelmozhkoReader Serial #:PKF64-9E-2663Firmware Version:PKF64 V1.50 (170404)

**Test Complete Date:** 28.01.2025 **Test Complete Time:** 11:34

#### As Found

#### 405 nm - As Found

		Tube	s Present				Tube	s Absent	
2680	2421	2804	2385		1261	1273	1265	1271	
2756	2487	2899	2730		1259	1271	1257	1256	
2699	2456	2872	2547		1265	1256	1258	1262	
2841	2501	2935	2617		1260	1256	1260	1253	
2826	2639	2864	2677		1269	1265	1252	1257	
2836	2583	2860	2269		1262	1256	1260	1259	
2869	2540	2920	2639		1252	1268	1238	1251	
2663	2619	2807	2518		1278	1267	1259	1253	
2782	2537	2672	2504		1258	1264	1251	1269	
2756	2799	2786	2299		1254	1289	1260	1256	
2692	2678	2687	2738		1251	1263	1240	1258	
2775	2516	2855	2339		1253	1261	1267	1285	
2609	2595	2885	2609		1261	1253	1261	1265	
2657	2492	2878	2619		1265	1258	1264	1261	
2776	2531	2852	2414		1264	1265	1248	1260	
2767	2518	2841	2495		1254	1267	1261	1277	
Minimu	<b>m</b> 226	9	Maximum	2935	Minimun	n 123	8	Maximum	1289

#### 660 nm - As Found

		Tube	s Present				Tube	s Absent	
2446	2095	2162	2175		1261	1254	1263	1261	
2477	2138	1977	2181		1270	1261	1263	1266	
2524	2141	2093	2365		1262	1268	1266	1252	
2399	2074	1947	2238		1264	1267	1247	1258	
2446	2395	2152	2388		1252	1255	1259	1246	
2374	2266	1995	2323		1260	1272	1266	1262	
2221	2210	1970	2340		1255	1260	1250	1253	
2338	2129	2047	2440		1260	1268	1256	1252	
2255	2155	1856	2371		1271	1267	1249	1256	
2093	2175	1874	2355		1261	1275	1252	1251	
2459	2190	1892	2231		1262	1265	1261	1261	
2157	2298	1836	2533		1271	1255	1253	1275	
2337	2362	2036	2338		1262	1256	1272	1262	
2192	2335	1927	2312		1257	1269	1251	1270	
2339	2148	2029	2312		1265	1266	1262	1253	
2263	2011	1863	2402		1257	1257	1263	1264	
Minimur	<b>n</b> 1836	5	Maximum	2533	Minimun	n 1246	5	Maximum	1275



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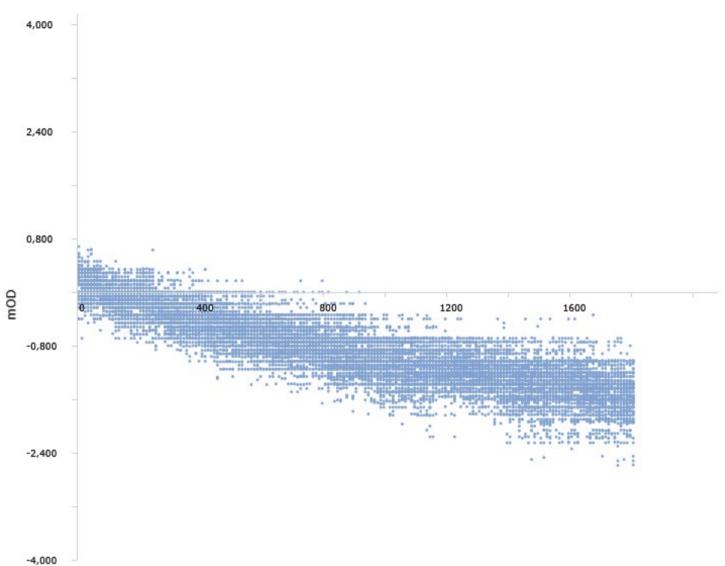


Page 1 of 5

Performed By: kvelmozhko Reader Serial #: PKF64-9E-2663 Firmware Version: PKF64 V1.50 (170404)

**Test Complete Date:** 28.01.2025 **Test Complete Time:** 12:05





Time(s)

Results

Min. mOD -2,59

Max. mOD 0,68

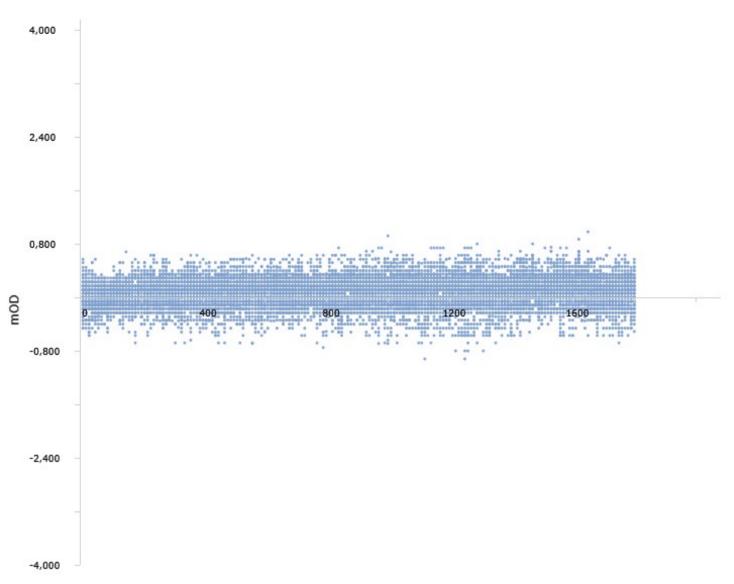


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Report Generated: 28.01.2025 12:05:32

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# Wavelength 660



# Time(s)

#### Results

Min. mOD	-0,92

Max. mOD 0,98

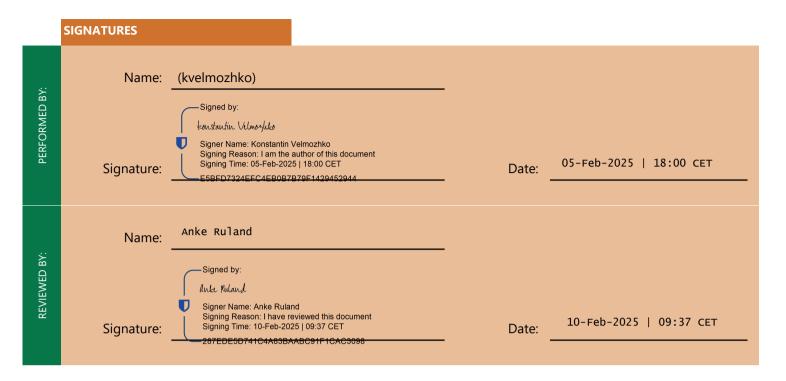


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Report Generated: 28.01.2025 12:05:32



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# Zentrum für Messen und Kalibrieren & ANALYTIK GmbH

# Kalibrierschein / Calibration Certificate

erstellt durch das Kalibrierlaboratorium issued by the calibration laboratory

#### ZMK & ANALYTIK GmbH

akkreditiert nach DIN EN ISO/IEC 17025:2018 German translation of ISO/IEC 17025:2017

Mitglied im / Member of

Deutschen Kalibrierdienst



Kalibrierzeichen Calibration mark

08-0719 D-K-15186-01-00 2024-05

Gegenstand Object

Widerstandsthermometer

mit Anzeigegerät

Hersteller Manufacturer Omega Engineering GmbH

Тур Type Fühler: Pt100 Gerät: GMH 3710

Serien-/ Prüfmittel-Nr.

Serial number

Fühler-Ident.-Nr.: 10/03/17-1

Gerät: 32404549

Kunden-/Eigentümerdaten Customer

**Associates of Cape Cod Europe GmbH** Opelstraße 14

64546 Mörfelden-Walldorf

Auftragsnummer Order No.

Anzahl der Seiten des Kalibrierscheines Number of pages of the certificate

Datum der Kalibrierung

Date of calibration

3

02.05.2024

Dieser Kalibrierschein dokumentiert metrologische Rückführbarkeit auf nationale Normale zur Darstellung der Einheiten in Übereinstimmung mit dem Internationalen Einheitensystem (SI).

Die DAkkS ist Unterzeichner der multilateralen Übereinkommen der European co-operation for Accreditation (EA) und der International Laboratory Accreditation Cooperation (ILAC) zur gegenseitigen Anerkennung der Kalibrierscheine. Für die Einhaltung einer angemessenen Frist zur Wiederholung der Kalibrierung ist der Benutzer verantwortlich.

This calibration certificate documents the metrological traceability to national standards, which realize the units of measurement according to the International System of Units (SI).

The DAkkS is signatory to the multilateral agreements of the European co-operation for Accreditation (EA) and of the International Laboratory Accreditation Cooperation (ILAC) for the mutual recognition of calibration certificates. The user is obliged to have the object recalibrated at appropriate intervals.

Dieser Kalibrierschein darf nur vollständig und unverändert weiterverbreitet werden. Auszüge oder Änderungen bedürfen der Genehmigung des ausstellenden Kalibrierlaboratoriums. Kalibrierscheine sind bei Nennung des für die Freigabe Verantwortlichen in Klarschrift auch ohne Unterschrift gültig.

This calibration certificate may not be reproduced other than in full except with the permission of the issuing laboratory. Calibration certificates with the full name of the approval responsible person are valid without signature.

Datum der Ausstellung Date of issue

Freigabe des Kalibrierscheines durch Approval of the certificate of calibration by

Dieser Kalibrierschein wurde erstellt durch This calibration certificate was prepared by

Niklas Vetter

03.05.2024

Dr. Diana Jehnert

Kalibrierlaboratorium für mechanische, dimensionelle, elektrische, thermodynamische und analytische Messgrößen Calibration laboratory for mechanical, dimensional, electrical, thermodynamical and analytical measuring quantities Ortsteil Wolfen, P-D ChemiePark Bitterfeld-Wolfen, Areal A, Filmstraße Nr.7, 06766 Bitterfeld-Wolfen Tel.: +49 3494 / 6973-0 / E-Mail: info@zmk-wolfen.de / Homepage: www.zmk-wolfen.de

Seite 2 Page

08-0719

D-K-15186-01-00

2024-05

# Kalibriergegenstand

Widerstandsthermometer

Hersteller:

Pt 100

Typ: Ident.-Nr.:

10/03/17-1

Kalibrierpunkte:

(36/37/38) °C

Anzeigegerät

Hersteller:

Omega Engineering GmbH

Typ:

Serien-Nr.:

**GMH 3710** 32404549

Auflösung:

0.01 °C

#### **Normale**

Normal-Platin-Widerstandsthermometer

Typ:

Pt 25

Ident.-Nr.: Kalibrierung: GD08/G308 D-K-15186-01

DC-Temperaturmessbrücke

Typ:

MKT 50

Ident.-Nr.:

GD08/G305

Kalibrierung:

D-K-15186-01

#### Kalibrierverfahren

Die Kalibrierung des Widerstandsthermometers mit Anzeigegerät erfolgte in Flüssigkeitsbädern mit Ausgleichsblock nach der Richtlinie DKD-R 5-1, Ausgabe 09/2018, durch direkten Vergleich von Normalthermometer und Kalibriergegenstand.

#### Ort der Kalibrierung

ZMK & ANALYTIK GmbH, Bitterfeld-Wolfen

## Messbedingungen

Die Eintauchtiefe betrug 50 mm.

Die Eigenerwärmung des Widerstandsthermometers wurde nicht bestimmt. Es wurde ein zusätzlicher Messunsicherheitsbeitrag in der Messunsicherheitsbilanz berücksichtigt.

#### Hysterese

Die Hysterese des Temperaturfühlers wurde nicht bestimmt und ist nicht Bestandteil der angegebenen Messunsicherheit.

In Abhängigkeit von den anwendungsspezifischen Genauigkeitsanforderungen ist für den Einfluss der Hysterese ein zusätzlicher Messunsicherheitsbeitrag von 0,2 % des Einsatzbereiches zu berücksichtigen.

### Umgebungsbedingungen

Temperatur: (23 ± 5) °C rel. Feuchte: (50 ± 20) % Seite 3 Page 08-0719 D-K-15186-01-00 2024-05

#### Messergebnisse

Temperatur Normal in °C	Anzeige Kalibriergegenstand in °C	Anzeige- korrektion in K	Messunsicherheit in K
35,983	35,97	0,01	0,04
36,980	36,96	0,02	0,04
37,998	37,96	0,04	0,04
35,984	35,96	0,02	0,04

# Die Temperaturmesswerte sind Mittelwerte aus Mehrfachmessungen.

Die Temperatur ergibt sich aus der Beziehung:

Temperatur = Anzeige Kalibriergegenstand + Anzeigekorrektion

Die Messergebnisse gelten für den Zustand des oben aufgeführten Kalibriergegenstandes zum Zeitpunkt der Kalibrierung.

#### Messunsicherheit

Angegeben ist die erweiterte Messunsicherheit, die sich aus der Standardmessunsicherheit durch Multiplikation mit dem Erweiterungsfaktor k = 2 ergibt. Sie wurde gemäß EA-4/02 M: 2022 ermittelt. Der Wert der Messgröße liegt mit einer Wahrscheinlichkeit von annähernd 95 % im zugeordneten Werteintervall.

#### **Hinweis**

Die Deutsche Akkreditierungsstelle GmbH ist Unterzeichner der multilateralen Übereinkommen der European co-operation for Accreditation (EA) und der International Laboratory Accreditation Cooperation (ILAC) zur gegenseitigen Anerkennung der Kalibrierscheine. Die weiteren Unterzeichner innerhalb und außerhalb Europas sind den Internetseiten von EA (<a href="https://www.european-accreditation.org">www.european-accreditation.org</a>) und ILAC (<a href="https://www.ilac.org">www.ilac.org</a>) zu entnehmen.

# Ende des Kalibrierscheines





#### **Certificate Of Completion**

Envelope Id: B4CC1349-9D75-4B4F-B756-98D4A6AA27AD Status: Completed

Subject: Complete with Docusign: CAL023-25 Cert PKF64-9E-2663, 5. 2024-05-02\_Kalibrierschein GMH3710\_SN ...

Source Envelope:

Document Pages: 13 Signatures: 8 **Envelope Originator:** Initials: 0 Certificate Pages: 5 Anke Ruland

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Security Level: Email, Account Authentication

(Required)

**Signature** 

konstantin Velmozliko

Signature Adoption: Pre-selected Style

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I am the author of this document

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**Status** 

**Timestamp** 

Agent Delivery Events	Status	Timestamp
Intermediary Delivery Events	Status	Timestamp
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Witness Events	Signature	Timestamp
Notary Events	Signature	Timestamp
Envelope Summary Events	Status	Timestamps
Envelope Sent	Hashed/Encrypted	05-Feb-2025   09:48
Certified Delivered	Security Checked	10-Feb-2025   09:35
Signing Complete	Security Checked	10-Feb-2025   09:37
Completed	Security Checked	10-Feb-2025   09:37
Payment Events	Status	Timestamps
Electronic Record and Signature Discl	osure	

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#### Required hardware and software

Operating Systems:	Windows® 2000, Windows® XP, Windows Vista®; Mac OS® X
Browsers:	Final release versions of Internet Explorer® 6.0 or above (Windows only); Mozilla Firefox 2.0 or above (Windows and Mac); Safari <sup>TM</sup> 3.0 or above (Mac only)
PDF Reader:	Acrobat® or similar software may be required to view and print PDF files
Screen Resolution:	800 x 600 minimum

Enabled Security Settings:	Allow per session cookies

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