Certificate of Analysis

SUPELCO 37 COMPONENT FAME MIX

Certified Reference Material

Description

Product ID CRM47885
Lot **LRAC3241**
Expiration Date April 2022
Manufacturing Date July 2019
Storage Conditions Freeze
Solvent/Matrix METHYLENE CHLORIDE

Certified Values

Analyte	*Units*	*Certified Value* [1,4]	*Raw Material Purity,%*	*Analytical Value* [6]	*Elution order*	*Raw Material Lot*	*CAS*
METHYL BUTYRATE (C4:0)	µg/ml	401 ± 31	99.9	391	1	MKCF9233	623-42-7
METHYL HEXANOATE (C6:0)	µg/ml	401 ± 27	99.9	393	2	MKBZ3038V	106-70-7
METHYL OCTANOATE (C8:0)	µg/ml	401 ± 25	99.9	393	3	MKBZ3038V	111-11-5
METHYL DECANOATE (CAPRATE) (C10:0)	µg/ml	401 ± 23	99.9	398	4	LC04160	110-42-9
METHYL UNDECANOATE (C11:0)	µg/ml	200 ± 15	99.0	197	5	BCBN7141V	1731-86-8
METHYL LAURATE (C12:0)	µg/ml	401 ± 22	99.5	395	6	LB97659	111-82-0
METHYL TRIDECANOATE (C13:0)	µg/ml	200 ± 15	99.5	196	7	BCBV4347	1731-88-0
METHYL MYRISTATE (C14:0)	µg/ml	401 ± 23	100.0	395	8	LC17239	124-10-7
MYRISTOLEIC ACID METHYL ESTER (Methyl myristoleate) (C14:1)	µg/ml	200 ± 15	99.0	195	9	U-36M-F28-C	56219-06-8
METHYL PENTADECANOATE (C15:0)	µg/ml	200 ± 15	99.7	196	10	BCBR2231V	7132-64-1
CIS-10-PENTADECENOIC ACID METHYL ESTER (Methyl cis-10 pentadecenoate) (C15:1)	µg/ml	200 ± 15	99.0	200	11	U-38M-M15-C	90176-52-6
METHYL PALMITATE (C16:0)	µg/ml	615 ± 39	99.0	603	12	LC17089	112-39-0
METHYL PALMITOLEATE (METHYL CIS 9-HEXADECENOATE) (C16:1)	µg/ml	201 ± 16	100.0	205	13	SLBX9802	1120-25-8
METHYL HEPTADECANOATE (C17:0)	µg/ml	200 ± 16	96.4	203	14	BCBR1790V	1731-92-6
CIS-10-HEPTADECENOIC ACID METHYL ESTER (Methyl cis-10-heptadecenoate) (C17:1)	µg/ml	200 ± 15	100.0	199	15	SLBX7914	75190-82-8
METHYL STEARATE (C18:0)	µg/ml	401 ± 27	99.1	396	16	LC13654	112-61-8
TRANS-9-ELAIDIC ACID METHYL ESTER (Methyl trans-9 elaidate) (C18:1)	µg/ml	201 ± 15	99.0	198	17	U-47M-M31-C	1937-62-8

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ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY

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Solvent/Matrix METHYLENE CHLORIDE

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CIS-9-OLEIC ACID METHYL ESTER (Methyl cis-9 oleate) (C18:1)	µg/ml	401 ± 29	99.6	396	18	MKCJ0804	112-62-9
LINOLELAIDIC ACID METHYL ESTER (Methyl linolelaidate) (C18:2)	µg/ml	200 ± 15	100.0	200	19	SLBZ6933	2566-97-4
METHYL LINOLEATE (C18:2)	µg/ml	200 ± 15	99.0	199	20	BCBT9852	112-63-0
METHYL ARACHIDATE (C20:0)	µg/ml	401 ± 30	99.0	396	21	0000007888	1120-28-1
GAMMA-LINOLENIC ACID METHYL ESTER (Methyl γ-linolenate) (C18:3)	µg/ml	200 ± 16	99.6	199	22	MKCD9174	16326-32-2
METHYL CIS-11 EICOSENOATE (C20:1)	µg/ml	200 ± 15	99.0	199	23	MKCJ2391	2390-09-2
METHYL LINOLENATE (C18:3)	µg/ml	200 ± 14	99.0	192	24	SLBX5834	301-00-8
METHYL HENEICOSANOATE (C21:0)	µg/ml	201 ± 14	99.6	195	25	LC08970	6064-90-0
CIS-11,14-EICOSADIENOIC ACID METHYL ESTER (Methyl cis-11,14-eicosadienoate) (C20:2)	µg/ml	201 ± 16	99.0	199	26	U-68M-A4-D	2463-02-7
METHYL BEHENATE (C22:0)	µg/ml	401 ± 29	99.6	394	27	SLBW0605	929-77-1
CIS-8,11,14-EICOSATRIENOIC ACID METHYL ESTER (Methyl cis-8, 11, 14-eicosatrienoate) (C20:3)	µg/ml	199 ± 15	99.0	198	28	U-69M-N30-C	21061-10-9
METHYL ERUCATE (CIS-13-DOCOSENOATE) (Methyl cis-13-docosenoate) (C22:1)	µg/ml	200 ± 16	99.4	200	29	BCBX7574	1120-34-9
CIS-11,14,17-EICOSATRIENOIC ACID METHYL ESTER (Methyl cis-11, 14, 17-eicosatrienoate) (C20:3)	µg/ml	201 ± 15	99.0	201	30	U-70M-S20-C	55682-88-7
METHYL TRICOSANOATE (C23:0)	µg/ml	200 ± 15	99.6	196	31	SLBZ1076	2433-97-8
METHYL CIS-5,8,11,14-EICOSATETRAENOATE (Methyl arachidonate) (C20:4)	µg/ml	200 ± 14	100.0	194	32	LC15184	2566-89-4
CIS-13,16-DOCOSADIENOIC ACID METHYL ESTER (Methyl cis-13, 16- docosadienoate) (C22:2)	µg/ml	201 ± 15	99.0	201	33	U-81M-M22-C	61012-47-3

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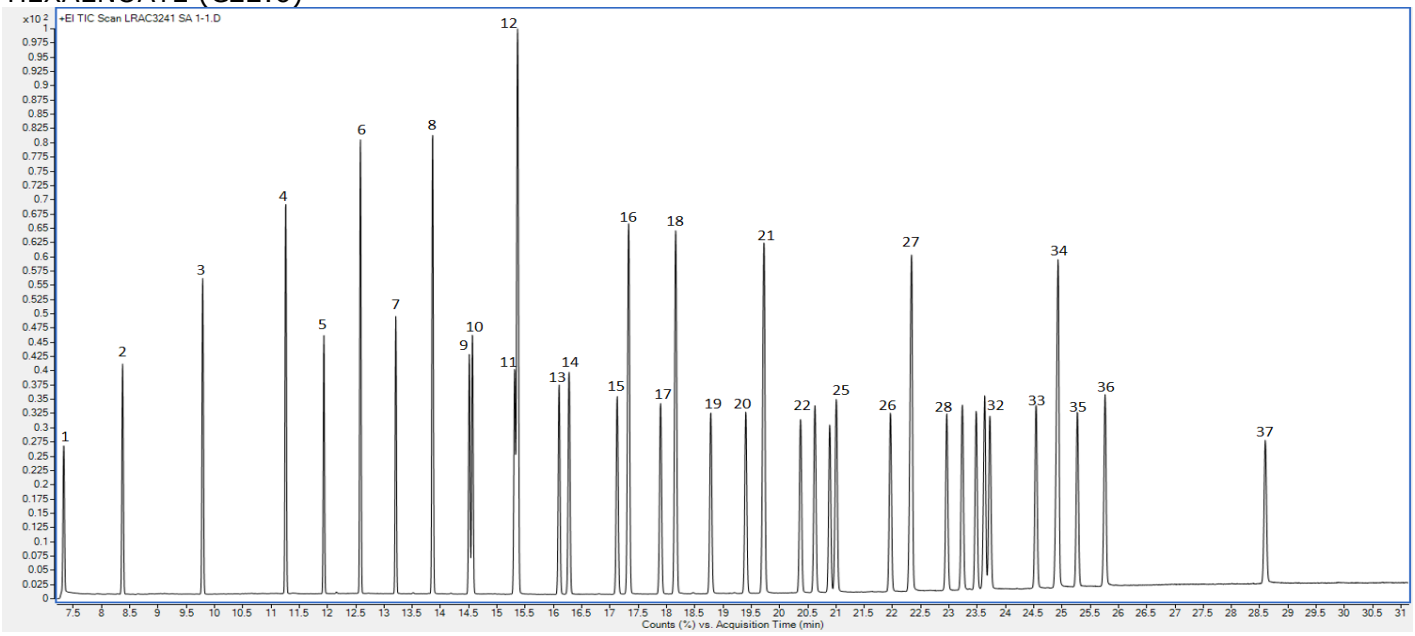
METHYL LIGNOCERATE (Methyl tetracosanoate) (C24:0)	µg/ml	401 ± 30	100.0	391	34	SLBZ6342	2442-49-1
METHYL CIS-5,8,11,14,17-EICOSAPENTAENOATE (C20:5)	µg/ml	200 ± 16	99.0	201	35	U-99M-JY30-C	2734-47-6
METHYL NERVONATE (Methyl cis-15-tetracosenoate) (C24:1)	µg/ml	200 ± 14	99.8	198	36	BCBX0854	2733-88-2
METHYL CIS-4,7,10,13,16,19-DOCOSAHEXAENOATE (C22:6)	µg/ml	200 ± 15	100.0	206	37	SLBZ9656	2566-90-7



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Additional Information:

Method Parameters:
Column: SP 2560, 100 m, 0.25 mm, 0.20 µm (Column #218)
Inlet Temp: 220 °C, Split mode with 35:1 split ratio
Oven Temp Program: 100 °C (4 min) @ 25 °C/ min to 200 °C (8 min) and @ 5 °C/ min to 250 °C (6 min)
Injection volume: 1 µ L
Column Flow: 2.4 mL/min
Detector: MSD in FS mode (m/z 40-400), Scan rate: 4 Hz. Solvent delay: 7.20 min, Transfer line: 250 °C

1 **Metrological traceability:** Traceable to the SI and higher order standards from NIST through an unbroken chain of comparisons. The balance used to weigh raw materials is accurate to +/-0.0001 g and calibrated regularly using mass standards traceable to NIST. All dilutions were performed gravimetrically. Additionally, individual analytes are traceable to NIST SRMs where available and specified above.
4 Ucrm - Uncertainty values in this document are expressed as Expanded Uncertainty (Ucrm) corresponding to the 95% confidence interval. Ucrm is derived from the combined standard uncertainty multiplied by the coverage factor k, which is obtained from a *t*-distribution and degrees of freedom. The components of combined standard uncertainty include the uncertainties due to characterization, homogeneity, long term stability, and short term stability (transport). The components due to stability are generally considered to be negligible unless otherwise indicated by stability studies. The mathematical representation of the Ucrm calculation is as follows:

$$u_{CRM} = \sqrt{u_{char}^2 + u_{\text{hom}\ ogeneity}^2 + u_{stability}^2}$$

k: Coverage factor derived from a t-distribution table, based on the degrees of freedom of the data set. Assume 2.0 for a **Confidence interval = 95%**

6 Analytical Value- For QC verification of the certified value only- not to be used in calculations. Represents the analytical data obtained by comparison to a standard as analyzed by the method described in the CoA or another acceptable method. The result may differ from the certified value and UCRM based on method uncertainty as well as the uncertainty associated with the standard used for comparison.

Traceability: The standard was manufactured under an ISO/IEC 17025:2017 certified quality system. The balance used to weigh raw materials is accurate to +/- 0.0001g and calibrated regularly using mass standards traceable to NIST. All dilutions were preformed gravimetrically. Additionally, individual analytes are traceable to NIST SRMs where available and specified above.

Homogeneity: Homogeneity was assessed in accordance with ISO 17034:2016. Completed units were sampled using a random stratified sampling protocol. The results of chemical analysis were then compared using a one-way analysis of variance approach as described by TNI EL-V3-2009 Appendix A.2. See Instructions for minimum sub-sample size.

Expiration is at end of month given on certificate and label.

THIS PRODUCT WAS DESIGNED, PRODUCED AND VERIFIED FOR ACCURACY AND STABILITY IN ACCORDANCE WITH **ISO/IEC 17025:2017 (ANAB Cert AT-1467)** and **ISO 17034:2016 (ANAB Cert AR-1470).**

MSDS reports for components comprising greater than 1.0% of the solution or 0.1% for components known to be carcinogens are available upon request.

Andy Ommen - QC Manager

Mark Pooler - QA Supervisor

Certification Date	July 23, 2019
Version	0-7232019

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