

April, 2020

Dear valued customers,

FUJIFILM Wako Pure Chemical Corporation

**Announcement of specification changes
【Amino Acids Mixture Standard Solution (Type H, AN-II and B)】**

Thank you for your continued patronage. Our Amino Acid Mixture Standard Solutions (H type, AN-II type, B type) will be revamped as Certified Reference Materials (CRMs) based on Accreditation System of National Institute of Technology and Evaluation (ASNITE). Due to this change, product specifications, product codes and prices will be also changed. The new CRMs ensure measurement traceability and can be used as more accurate and reliable standard solutions for analysis. Moreover, such as information of the certified value (concentration) of each amino acid, uncertainty within the valid period, and amino acid impurities other than the components are available.

We appreciate your kind understanding of these changes. If you have any questions, please feel free to contact us.

[Products]

< Current products > *1

Code No.	Name	Size
011-14463	Amino Acids Mixture Standard Solution, Type AN-2	1mL×5A
015-14461		5mL
012-08643	Amino Acids Mixture Standard Solution, Type B	1mL×5A
016-08641		5mL
019-08393	Amino Acids Mixture Standard Solution, Type H	1mL×5A
013-08391		5mL

*1...The current products will be discontinued when all the stocks are sold.



< New products >

Code No.	Name	Size *3
015-27891	Amino Acids Mixture Standard Solution, Type AN 【CRM】 *2	1mL×5A
011-27871	Amino Acids Mixture Standard Solution, Type B 【CRM】 *2	1mL×5A
018-27881	Amino Acids Mixture Standard Solution, Type H 【CRM】 *2	1mL×5A

*2...The composition and concentration of amino acids of the new products differ from the one of the current products. Please refer to [Detail information of Composition] below for more details.

*3...Only ampoule packaging is available to assure the certified value.

[Launch date]

The new products are planned to be launched from the end of January to the middle of February, 2020.

After the new products are released, the current products will also be sold with new products in parallel for at least for 6 months and discontinued when they are sold out.

[Specification changes]

< Features >

	Current products	New products
Raw materials	Not SI traceable	SI traceable
Impurity	Amino acid content as impurity is unclear.	Information of amino acids as impurities is described.
Stability / Homogeneity	Insufficient	Clarified uncertainty calculated from stability and homogeneity evaluation results. An amino acid is excluded from the new product for stability reason. ^{※4}

※4 L-2-aminoadipic acid, which is included in the current product AN-II, is excluded from the new product (AN type).

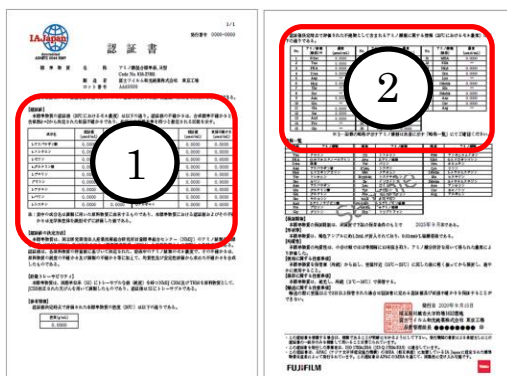
< Overview >

Our new amino acid mixture standard solutions are revamped as Certified Reference Materials (CRMs) which guarantee measurement traceability. In order to ensure the measurement traceability, CRM certified by National Metrology Institute of Japan (NMIJ) or our TRM (Traceable Reference Material) are used for each amino acid to constituting the mixed standard solutions.

Additionally, the products are produced in accordance with the accurate mixture standards solution preparation system established by NMIJ, the concentration of each amino acid determined by the individual stability, and adjusting method of optimizing pH of solvents; the technologies had transferred from NMIJ. Our standard production system conforming to ISO17034 is established by performing joint examination and technical validation with NMIJ. All new products are packed in ampoules to ensure stability. A certificate of metrological traceability (Described below) is attached to these new products, and certified value, uncertainty, and amino acid impurities are available. This enables international and universal comparison of analytical values.

[Attached document]

A certificate is attached to the certified reference materials. You can see the certified value (concentration) of each lot on the certificate.



- ① Certified value (concentration) and uncertainty
- ② Impurities

Supplemental English translation is appended to the certificate for reference.

[Detail information of Composition]

As we changed the products to CRMs, the concentration of the components has changed and an amino acid has been excluded from the new product for the stability reason.

<Type AN>

(Current product)

(New product)

Component	Concentration (μmol/mL)	Concentration (μmol/mL)
O-Phosphoserine	1.24375~1.25625	<i>0.1125~0.1375</i>
Taurine	1.24375~1.25625	<i>0.1125~0.1375</i>
O-Phosphoethanolamine	1.24375~1.25625	<i>0.1125~0.1375</i>
Urea	49.75~50.25	<i>4.500~5.500</i>
L-Aspartic Acid	2.4875~2.5125	<i>0.2250~0.2750</i>
L-Hydroxyproline	2.4875~2.5125	<i>0.2250~0.2750</i>
L-Threonine	2.4875~2.5125	<i>0.2250~0.2750</i>
L-Serine	2.4875~2.5125	<i>0.2250~0.2750</i>
L-Glutamic Acid	2.4875~2.5125	<i>0.2250~0.2750</i>
Sarcosine	6.21875~6.28125	<i>0.5625~0.6875</i>
L-2-Aminoadipic Acid	1.24375~1.25625	—
L-Proline	2.4875~2.5125	<i>0.2250~0.2750</i>
Glycine	2.4875~2.5125	<i>0.2250~0.2750</i>
L-Alanine	2.4875~2.5125	<i>0.2250~0.2750</i>
L-Citrulline	2.4875~2.5125	<i>0.2250~0.2750</i>
DL-2-Aminobutyric Acid	1.24375~1.25625	<i>0.1125~0.1375</i>
L-Valine	2.4875~2.5125	<i>0.2250~0.2750</i>
L-Cystine	2.4875~2.5125	<i>0.1125~0.1375</i>
L-Methionine	2.4875~2.5125	<i>0.2250~0.2750</i>
L-Cystathionine	1.24375~1.25625	<i>0.1125~0.1375</i>
L-Isoleucine	2.4875~2.5125	<i>0.2250~0.2750</i>
L-Leucine	2.4875~2.5125	<i>0.2250~0.2750</i>
L-Tyrosine	2.4875~2.5125	<i>0.2250~0.2750</i>
L-Phenylalanine	2.4875~2.5125	<i>0.2250~0.2750</i>
β-Alanine	2.4875~2.5125	<i>0.2250~0.2750</i>
DL-3-3-Aminoisobutyric Acid	2.4875~2.5125	<i>0.2250~0.2750</i>
Cl ion conc. (Reference value)	0.10~0.13 mol/L	0.01mol/L

<B Type>	(Current product)	(New product)
Component	Concentration (μmol/mL)	Concentration (μmol/mL)
4- Aminobutyric Acid	2.4875~2.5125	<i>0.2250~0.2750</i>
2- Aminoethanol	2.4875~2.5125	<i>0.2250~0.2750</i>
Ammonium Chloride	2.4875~2.5125	<i>0.2250~0.2750</i>
5-Hydroxy-DL-lysine	2.4875~2.5125	<i>0.2250~0.2750</i>
L- Ornithine	2.4875~2.5125	<i>0.2250~0.2750</i>
L-Lysine	2.4875~2.5125	<i>0.2250~0.2750</i>
1-Methy-L-histidine	2.4875~2.5125	<i>0.2250~0.2750</i>
L-Histidine	2.4875~2.5125	<i>0.2250~0.2750</i>
3-Methyl-L-histidine	2.4875~2.5125	<i>0.2250~0.2750</i>
L-Anserine	2.4875~2.5125	<i>0.2250~0.2750</i>
L-Carnosine	2.4875~2.5125	<i>0.2250~0.2750</i>
L-Arginine	2.4875~2.5125	<i>0.2250~0.2750</i>
Cl ion conc. (Reference value)	0.10~0.13 mol/L	0.01mol/L

<H Type>	(Current product)	(New product)
Component	Concentration (μmol/mL)	Concentration (μmol/mL)
L- Aspartic Acid	2.48~2.52	<i>0.2250~0.2750</i>
L- Threonine	2.48~2.52	<i>0.2250~0.2750</i>
L- Serine	2.48~2.52	<i>0.2250~0.2750</i>
L- Glutamic Acid	2.48~2.52	<i>0.2250~0.2750</i>
L- Proline	2.48~2.52	<i>0.2250~0.2750</i>
Glycine	2.48~2.52	<i>0.2250~0.2750</i>
L- Alanine	2.48~2.52	<i>0.2250~0.2750</i>
L- Cystine	2.48~2.52	<i>0.1125~0.1375</i>
L- Valine	2.48~2.52	<i>0.2250~0.2750</i>
L- Methionine	2.48~2.52	<i>0.2250~0.2750</i>
L- Isoleucine	2.48~2.52	<i>0.2250~0.2750</i>
L- Leucine	2.48~2.52	<i>0.2250~0.2750</i>
L- Tyrosine	2.48~2.52	<i>0.2250~0.2750</i>
L- Phenylalanine	2.48~2.52	<i>0.2250~0.2750</i>
L- Lysine	2.48~2.52	<i>0.2250~0.2750</i>
L- Histidine	2.48~2.52	<i>0.2250~0.2750</i>
Ammonium Chloride	2.48~2.52	<i>0.2250~0.2750</i>
L- Arginine	2.48~2.52	<i>0.2250~0.2750</i>
Cl ion conc. (Reference value)	0.10~0.13 mol/L	0.01mol/L

1) **Standard value**...The median of concentration is 1/20 of the current product.

2) **—**...The component is excluded from the new product.

Except for 1) and 2), the median of the concentration is 1/10 of the current product.