



PROFICIENCY TESTING SYSTEMS

Program 2022
Preview of 2023

Proficiency Testing

Our novelties this year

- ▶ For the first time we offer the proficiency testing study „**base milk**“. A previously set milk for **powder production** and a “vat milk” for **cheese production** is used.
- ▶ The matrix „goat“ is being added to our program for 2022. The proficiency test “**raw goat milk**” will take place in June and the proficiency test “**goat milk powder**” in October.
- ▶ We are expanding our range to include **vegan foods** and are therefore offering two new proficiency tests “**vegan spread**” and “**plant drink**”.
- ▶ Special promotion in the first half of the year: For all chemical-physical tests, you will receive a **10%** discount on the cost of your additional results from the third result onwards.

Registration via the customer portal

- ▶ If you do not yet have an account, please register as a customer at <https://service.muva.de/register>
- ▶ If you would like to participate automatically in the following year, we ask you to also register once and register your proficiency tests via the customer portal. When registering, select the option „book a subscription”.

- ▶ The order of additional sample material or information on the number of panellists who want to take part in a sensory test should be given in the "Message" field when registering. If this is unknown at the time of registration, you can also send us an informal email at any time before sending the samples.
- ▶ In almost all tests offered, the participants receive two samples of the respective matrix with different compositions of the ingredients (e. g. different fat content), exceptions are marked in the program table.
- ▶ Please note that our program is designed for two years and that some proficiency tests are offered alternately every two years.
- ▶ You can book the tests for 2023 from autumn 2022 onwards. The prices are valid for the current year.
- ▶ We reserve the right to make any changes if necessary. In such cases, we will of course inform you in advance.

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Chemical-physical analysis

NEW
NEW

Type	Proficiency test	EPQS	2022	planned for 2023	Parameter	Price ¹⁾	
						Report PDF	add. result. ²⁾
MILK							
A	Milk	927	Jan	Jan	Fat, Dry Matter, Protein, Lactose (monohydrate), Freezing Point , Density	225 €	78 €
A	Milk	955	May	May	Fat, Dry Matter, Protein, Lactose (monohydrate), Freezing Point, Calcium	225 €	78 €
A	Milk	969	Sep	Sep	Fat, Dry Matter, Protein, Lactose (monohydrate), Freezing Point, pH Value	225 €	78 €
AL	Milk (lactose-reduced, -free)	953	Apr	Feb	Lactose (monohydrate), Galactose, Glucose	149 €	59 €
K	Raw Milk ³⁾	943	Mar	Mar	Fat, Dry Matter, Protein, Lactose (monohydrate), Freezing Point, pH Value, Casein	270 €	99 €
K	Raw Milk ³⁾	977	Oct	Oct	Fat, Dry Matter, Protein, Lactose (monohydrate), Freezing Point, pH Value, Harnstoff	270 €	99 €
Z	Goat Milk ³⁾⁴⁾	959	Jun	Jun	Fat, Dry Matter, Protein, Freezing Point	239 €	80 €
A	Base Milk (powder -, cheese production)	948	Mar	Mar	Fat, Dry Matter, Protein	215 €	89 €
DIARY PRODUCTS							
D	Cream	933	Feb	Jan	Fat, Dry Matter, Protein	159 €	55 €
D	Cream	967	Aug	Aug	Fat, Dry Matter, Protein	159 €	55 €
E	Evaporated Milk / Coffee Cream	957	May	May	Fat, Dry Matter, Protein, Phosphorus, Ash	209 €	75 €
H	Butter	937	Feb	Feb	Water, Solidmnin-fat, Dry Matter, pH Value, Cholesterol, Butyric Acid Methyl Ester, Chloride, Sodium (sodium chloride)	195 €	75 €
L	Yoghurt	940	Feb	Feb	Fat, Dry Matter, Protein, Total Lactic Acid, pH Value	199 €	75 €
CHEESE							
C	Processed Cheese	936	Feb	Feb	Fat, Dry Matter, Protein, Lactose (monohydrate), pH Value, Citric Acid, Ash, Chloride, Sodium (sodium chloride)	265 €	95 €
C	Processed Vheese	966	Aug	Aug	Fat, Dry Matter, Protein, pH Value, Phosphorus, Ash, Chloride, Sodium (sodium chloride)	265 €	95 €
F	Cream Cheese	952	Apr	Apr	Fat, Dry Matter, Protein, Lactose (monohydrate), pH Value, Total Lactic Acid, Chloride, Sodium (sodium chloride)	179 €	69 €
V	Cheese (hard -, semi-hard cheese)	928	Jan	Jan	Fat, Dry Matter, Protein, pH Value, Chloride, Sodium (sodium chloride)	195 €	69 €

¹⁾ Net price plus packing and shipping costs (will be charged according to the expenses)

²⁾ Additional double determination (results) and/or additional material

³⁾ The basic price includes 4 bottles/sample of 40 ml each. For additional materials, 2 bottles/samples sent

⁴⁾ only one sample for examination

Basically, all testing samples of chem.l-phys. and microbiological proficiency tests are unfit for consumption.

Special offer: Until June you will receive a 10 % discount on the cost of your additional results from the 3rd result on

Type	Proficiency test	EPQS	2022	Planned for 2023	Parameter	Price ¹⁾	
						Report PDF	add. result. ²⁾
POWDER							
B	Milk Powder	931	Jan	Jan	Fat, Free Fat, Dry Matter, Protein, Lactose (monohydrate), Ash, Nitrate	245 €	87 €
B	Milk Powder	965	Aug	Aug	Fat, Dry Matter, Protein, Lactose (monohydrate), pH Value, Ash	245 €	87 €
ZB	Goat Milk Powder ⁴⁾	982	Oct	Oct	Fat, Dry Matter, Protein, Ash	298 €	87 €
G	Whey Powder	949	Apr	Apr	Fat, Dry Matter, Protein, Lactose (monohydrate), Calcium, Magnesium, Nitrate, NPN, Ash, Total Lactic Acid	289 €	115 €
P	Sodium Caseinate / Whey protein concentrate	958	May	Jun	Fat, Water, Protein, Lactose (monohydrate), Ash	215 €	80 €
T	Carbohydrates / Vitamins (in baby foods)	942	Mar	/	Glucose, Fructose, Lactose (monohydrate), Saccharose, Vitamin A, Vitamin C, Vitamin E	219 € 155 €	80 €
U	Minerals / Trace Elemantes (in baby foods)	960	Jun	Jun	Sodium, Potassium, Calcium, Magnesium, Iron, Zinc, Copper, Manganese, Phosphorus, Chloride	298 €	129 €
OTHERS							
VS	Vegan Spread (alternative to dairy products)	951	Apr	Apr	Fat, Dry Matter, Protein, Ash	289 €	89 €
VM	Vegetable Drinks ³⁾ (e. g. almond, coconut, oats)	976	Sept	Sept	Fat, Dry Matter, Protein	215 €	89 €
VP	Alkaline Phosphatase (milk, cheese)	930	Jan	Jan	Phophatase Activity; qualitatively and quantitatively	154 €	55 €
AM	Aflatoxin M1 (milk)	978	Oct	Oct	Aflatoxin M1	160 €	55 €
FS	Fruit Juice	/	/	May	Glucose, Fructose, Titratable Acid, Soluble Solids (°Brix), Ethanol, pH value, Patulin	179 €	65 €
S	Canned Sausage	938	Feb	/	Fat, Water, Protein, Hydroxyproline, Ash, Chloride, Sodium (sodium chloride)	179 € 125 €	65 €
FM	Fatty Acid Distribution ⁴⁾ (raw milk)	979	Oct	Oct	C4 to C20; (C14:1, C16:1, C18:1, C18:1- <i>trans</i> , C18:2, C18:2- <i>trans</i> , C18:3)	229 €	79 €
N	Chocolate / Nougat	934	Feb	/	Fat, Milk Fat, Dry Matter, Protein, Lactose (monohydrate), Saccharose, Theobromine	199 €	70 €
HST 1	Veterinary Drugs, quantitativ (milk)	/	/	Oct	Possible groups of substances: β-Lactam, Tetracycline, Sulfonamide, Cephalosporine, Quinolones	245 €	89 €
HST2	Veterinary Drugs, qualitativ (milk)	980	Oct	Oct	Possible groups of substances: β-Lactam, Tetracycline, Sulfonamide, Cephalosporine	165 €	59 €

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²⁾ Additional double determination (results) and/or additional material

³⁾ The basic price includes 4 bottles/sample of 40 ml each. For additional materials, 2 bottles/samples sent

⁴⁾ only one sample for examination

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Mikrobiologische Analytik

Type	Proficiency test	EPQS	2022	Planned for 2023	Parameter	Price ¹⁾	
						Report PDF	add. result. ²⁾
MILK							
OK	Mesophilic, Aerobic Bacterial Count	944	Mar	Mar	Total Bacterial Count in frozen Milk	199 € ⁵⁾	55 €
OK	Mesophilic, Aerobic Bacterial Count	971	Sep	Sep	Total Bacterial Count in frozen Milk	199 € ⁵⁾	55 €
OEC	E. coli / Coliforme / Enterobacteriaceae	945	Mar	Mar	E. coli, Enterobacteriaceae, Coliforms in frozen Milk	199 € ⁵⁾	55 €
OEC	E. coli / Coliforme / Enterobacteriaceae	972	Sep	Sep	E. coli, Enterobacteriaceae, Coliforms in frozen Milk	199 € ⁵⁾	55 €
OEE	E. coli / Enterobacteriaceae	984	Nov	Nov	E. coli, Enterobacteriaceae in frozen Milk	199 € ⁵⁾	55 €
OH	Yeasts	939	Feb	/	Yeasts (Capsules in Milk Products)	199 € ⁵⁾	55 €
OHS	Yeasts / Geotrichum	946	Mar	Mar	Yeasts, Geotrichum in frozen Milk	199 € ⁵⁾	55 €
OHS	Yeasts / Geotrichum	973	Sep	Sep	Yeasts, Geotrichum in frozen Milk	199 € ⁵⁾	55 €
OST	Staphylococcus	974	Sep	Sep	Staphylokokken, gefroren	199 € ⁵⁾	55 €
DAIRY PRODUCTS							
OK	Mesophilic, Aerobic Bacterial Count	962	Jun	Jun	Total bacterial count in powder and freeze dried cheese	199 € ⁵⁾	55 €

¹⁾ Net price plus packing and shipping costs (will be charged according to the expenses)

²⁾ Contains additional duplicate determinations (results) and / or additional material

⁵⁾ The basic price includes up to 9 results, each additional result is calculated separately as an additional result. If you participate twice (in spring and autumn) you will receive a 15 % discount for the second participation in the same proficiency test.

All sample materials contain strains of safety group S1.

Basically, all testing samples of chem.l-phys. and microbiological proficiency tests are unfit for consumption.

Sensory analytics

Type	Proficiency test	EPQS	2022	Planned for 2023	Parameter	Price ¹⁾	
						Report PDF	add. results. ²⁾
SENSORY ACCORDING TO DIN EN 22935; 1-3							
SeDLG1	Milk	932	Jan	Jan	Parameter according to DIN EN ISO 22935; 1-3 (5-point scale)	199 €	80 €
SeDLG2	Dairy Products	970	Sep	Sep	Parameter according to DIN EN ISO 22935; 1-3 (5-point scale)	199 €	80 €
SeDLG3	Powder	941	Mar	Mar	Baby foods and Milk Powder: Parameter according to DIN EN ISO 22935; 1-3 (5-point scale)	199 €	80 €
SENSORY FOUR SENSES							
SeS	Rank Order	964	Aug	Aug	4 Rank Order Sets (haptic and visual test, taste, odour)	372 €	160 €

TASTE							
Se1	Rank Order	929	Jan	Jan	2 Sets of Basic Taste (liquid and dairy product)	239 €	92 €
Se2	Rank Order	956	May	May	2 Sets of Basic Taste (fruit juice and liquid)	239 €	92 €
Se3	Rank Order	968	Aug	Aug	2 Sets of Basic Taste (dairy products)	239 €	92 €
Se4	Rank Order	/	/	Nov	1 Set of flavour (dairy product)	185 €	85 €
SeRF	Rank Order in Sausage	954	May	May	1 Taste in sausage	169 €	79 €
SeP	Profile Testing	947	Mar	Mar	5 Attributes	352 € ⁶⁾	80 €
SeV	Packaging Material	975	Sep	Sep	Intensity test with triangle test for taste and odour (water)	352 € ⁶⁾	105 €
SeD	Triangle Test	950	Apr	Apr	Taste (e. g. basic taste, aroma, off-flavour)	175 €	79 €
SeDW	Triangle Test in Sausage	963	Jun	Jun	Taste in Sausage (e. g. basic taste, aroma, off-flavour)	185 €	85 €
ODOUR							
SeA	Rank Order	935	Feb	/	Aromatic Solutions (e. g. fruits, nuts, herbs)	169 €	79 €
SeDA	Triangle Test	/	/	Feb	Aromatic Solutions (e. g. fruits, nuts, herbs)	185 €	85 €
FAT AND OIL							
SeO1	Virgin, cold pressed Rapeseed Oil	961	Jun	Jun	Parameter according to DGF-Einheits-Methode (fat)	195 €	65 €
SeO2	Frying Fat	984	Nov	/	Parameter according to DGF-Einheits-Methode (fat)	195 €	65 €
DRINKING WATER							
SeTW	Drinking Water TON / TFN	981	Oct	May	Odour Threshold Value and Flavour Threshold Value in Drinking Water acc. to DIN EN 1622	352 € ⁶⁾	80 €

¹⁾ Net price plus packing and shipping costs (will be charged according to the expenses)

²⁾ Contains additional duplicate determinations (results) and / or additional material

⁶⁾ The basic price already includes up to 3 test persons, the costs for additional test persons are only calculated from the 4th test person. In any case, please state how many examiners you would like to participate with before sending!

For sensory proficiency tests only:

If already known, please indicate the number of panellists in the field "message" when booking via online-portal, at last please tell us when the announcement is sent!

Discount system for sensory proficiency tests:

- ▶ 3 – 5 panellists 5 % discount
- ▶ 6 – 9 panellists 10 % discount ⁶⁾
- ▶ From 10 panellists on 15 % discount ⁶⁾

About us

We, muva kempten GmbH, offer one of the broadest ranges of tests and analyses in the food and water sector as well as competent advice, seminars, and products for your quality assurance. In the milk and dairy sector, we play a leading role in Bavaria, Germany, and internationally. With over 170 employees, we have outstanding expertise in analytics and related issues.

Proficiency tests are a powerful instrument for internal and external quality assurance for analytical laboratories. In the case of accreditations or certifications, participation in proficiency tests has meanwhile become indispensable to demonstrate the analytical competence of a laboratory. The use of manageable resources provides a wealth of information regarding the effectiveness and accuracy of the methods used and the skills of your employees. Analytical sources of error can be identified and trends can be clarified. As a result, the analytical performance of a laboratory can be measurably confirmed and continuously improved. Reliable analysis results avoid costs, thus leading to improved economic efficiency and, above all, to more credibility towards certification bodies and your customers.



[Proficiency tests for quality assurance](#) at muva kempten GmbH are among the world's leading systems for chemical-physical, microbiological and sensory analysis of food. We have over 30 years of experience in the organization and evaluation of proficiency tests, work in numerous national and international working groups, and have long been familiar with quality management in the laboratory and analytical quality assurance.

[Muva kempten GmbH](#) is approved as a provider of proficiency tests in food and packaging by the German coordination center for laboratory proficiency tests in official food monitoring of the Federal Office for Consumer Protection and Food Safety (DKLL) and accredited by the German accreditation body GmbH (DAkkS) according to DIN EN ISO / IEC 17043: 2010-05.

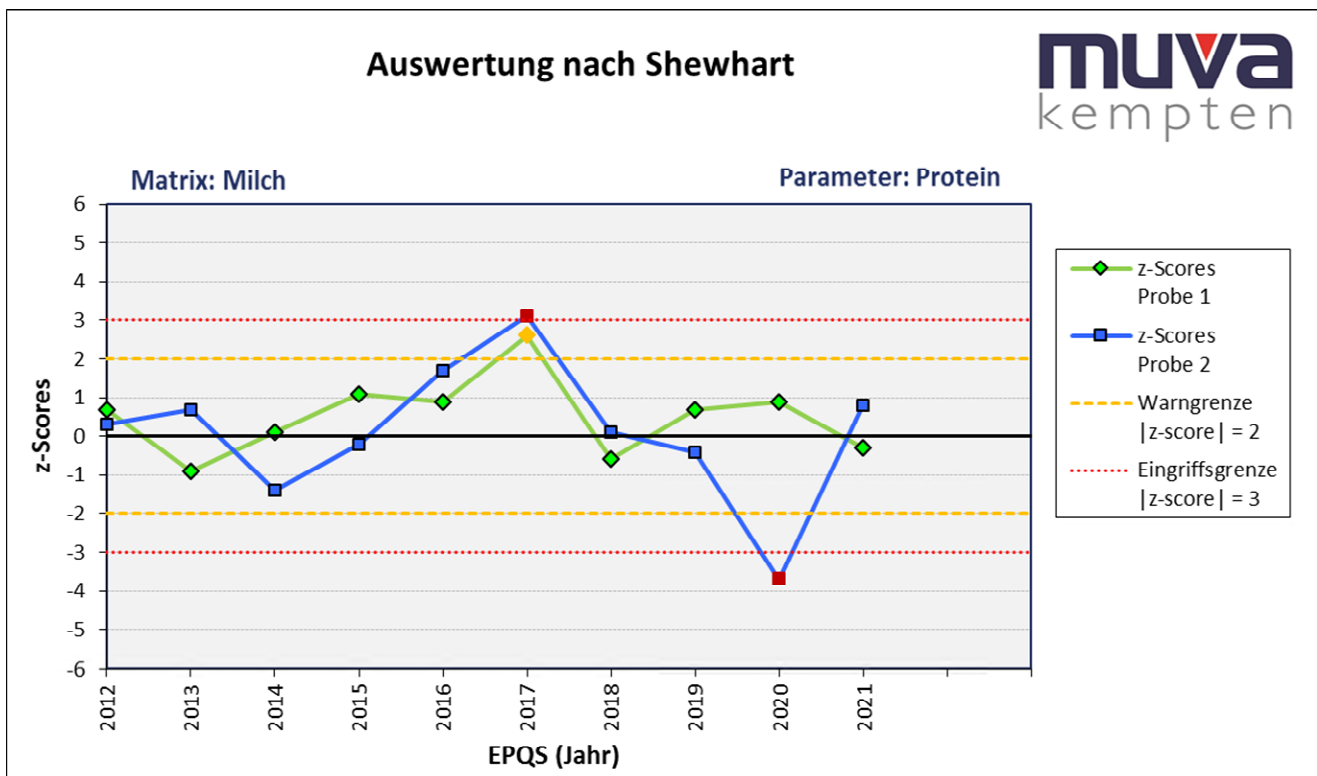


The specialists' knowledge of the entire muva kempten GmbH is available to our proficiency testing team, which our customers are of course also welcome to fall back on.

The [accreditation](#) is valid for the scope defined in the [annex](#) to the certificate D-EP-20469-01-00

We offer you:

- ▶ Precise, reliable planning and organization that meet internationally recognized specifications such as the standards DIN EN ISO / IEC 17043: 2010-05 and DIN ISO 13528: 2020-09
- ▶ An objective evaluation in which your results are treated confidentially and are anonymously coded
- ▶ A meaningful report with a comprehensible and easily understandable evaluation, with clear tables and graphics as well as clear evaluations of your analysis performance
- ▶ Graphic evaluations that show the competence of your laboratory at a glance and can be presented to third parties
- ▶ Graphic recognizability of trends or systematic deviations in the data analysis
- ▶ The possibility of comparing the performance of individual employees, devices, methods, etc. with other laboratories and tracking them over a longer period of time
- ▶ The freedom to use your own routine methods in the proficiency test and, if available, to compare them with the reference methods
- ▶ A certificate of your performance for each proficiency test, in which the z- and z'-scores of your laboratory are clearly listed for each parameter
- ▶ Competent support for questions in chemical-physical, microbiological, and sensory analysis and the associated statistical analysis
- ▶ On request, a personal performance report on your participation in recent years



Representation of the performance curve using a Shewhart control chart

Register and sign up

Register in the online portal

Register easily in our [Online Portal](#) and generate your personal account in which you can access all your activities at any time.

If you have any questions about registering or using our online portal, we offer detailed [instructions](#) and information on our homepage.

Register for the proficiency test

Have you discovered one or more proficiency tests in our program? Then we look forward to your registration.

- ▶ You have the advantage of sign up to a proficiency test quickly and easily using your personal account in our online portal.
- ▶ You will then receive a confirmation of your registration for the proficiency test by email.
- ▶ You can use the “message” function to order additional sample material or inform us of other specific requests. This is of course also possible at a later point in time by sending an informal email to RingRef@muva.de.
- ▶ You also have the option of subscribing to proficiency tests so that you do not have to re-register every year. Termination of the standing order is possible at any time before the start of the examination (sample shipment)
- ▶ If you have missed the registration deadline but want to take part in a proficiency test, please contact us by email or phone.

We configure, organize, and inform

- ▶ You will receive an announcement with the exact dates (sample dispatch, notification of results) not later than 2 weeks before the samples’ shipment of your proficiency test. All accompanying documents will be available in the online portal in due course and can be downloaded as downloads.
- ▶ If you have decided at short notice to order additional sample material, please inform us immediately via an informal email.
- ▶ You will be informed about the sending of the samples by a separate e-mail on the day of dispatch.
- ▶ You will usually receive your samples within 3-4 days.
- ▶ You are free to analyze all or only some of the parameters offered. Ideally, you should determine two values (duplicate determination) or more for each parameter using a method of your choice.
- ▶ Further analyses (e. g. with other methods, at a different point in time, or by different processors) are possible.
- ▶ Please submit the results via the online portal by the specified deadline (within 3 weeks of receiving the samples). Results for one or both samples as well as for the individual parameters of your choice can be entered and either collected or transmitted gradually.
- ▶ We will inform you by email as soon as the proficiency test report is available for you to view and download from the online portal.

- ▶ You will receive the confirmation of participation and the certificate together with the invoice by post unless otherwise agreed.
- ▶ After the proficiency test, we will be happy to answer any questions and suggestions you may have. We recommend that you use our reference materials between the individual participations and in the event of deviations.

Suspension or failure of a proficiency test

- ▶ Via the online portal you can sign out from the planned proficiency test until one calendar week after receipt of the letter of announcement.
- ▶ Beyond this point in time, we allow ourselves to charge the costs incurred up to then. After the samples have been dispatched, you must pay the full costs of the proficiency test.

Contents of your chem.-phys. and microbiological report

In addition to the measurement uncertainty and the graphic representation, the report contains the following information:

- ▶ Data on sample homogeneity
- ▶ The evaluation criteria z-score and z'-score
- ▶ The number and type of participating laboratories. (Milk industry laboratories, laboratories from the food industry, private laboratories and official monitoring bodies, among others, take part in the proficiency tests)
- ▶ The analytical methods used
- ▶ All individual results (anonymized) in tables with individual, and mean values, the associated methods and comments
- ▶ The statistical evaluation data (comprehensive information on the statistical evaluation can be found in the statistical protocol)
- ▶ A summary of the results and analytical recommendations

Determination of the method-dependent measurement uncertainty on the basis of the Nordtest

From three laboratory results (for chemical-physical proficiency tests at least 6 individual results), based on one method, the contributions to the uncertainty are calculated from the standard deviation of the individual results (= reproducibility) and from the deviation of the individual results to the assigned value (= BIAS). The expanded measurement uncertainty estimated on the basis of the Nordtest can be found in the evaluation tables for the individual parameters. If a laboratory has used several methods and sufficient values are available, the measurement uncertainties are estimated and specified separately.

These measurement uncertainties are used for information purposes and can be extremely helpful for plausibility control or for calculating the laboratory's own measurement uncertainties. However, they cannot replace your own assessment.

Example: Extract from an evaluation table with information on the expanded measurement uncertainty of a laboratory

Tab. 1: Ergebnisse in Probe 1 Table 1: Results of sample 1							Zugewiesener Wert ± Unsicherheit Assigned value ± uncertainty			1,58 (g/100g)	± 0,04 (g/100g)
Lab Code	X _{lab} Wert 1 Value 1 (g/100g)	X _{lab} Wert 2 Value 2 (g/100g)	X _{lab} Mittelw. Mean (g/100g)	Meth. Code	Beschreibung Description	Norm (Standard) Standard	Kommentar Comment	Bewertung Performance		Messunsicherheit / measurement uncertainty U _{lab}	
1,1	1,51	1,47	1,49	b52	102 °C	VDLUFA C 35.9		-1,02	-0,69		
1,2	1,42	1,47	1,45	b52	102 °C	VDLUFA C 35.9		-1,53	-1,04		
2	keine Ergebnisse / no results										
3	1,58	1,54	1,56		102 °C	ÖNORM EN ISO 3727-1		-0,23	-0,15		
4	1,64	1,66	1,65		102 °C		int. Meth.	0,80	0,54		
5,1	1,58	1,64	1,61	b52	102 °C	VDLUFA C 35.9		0,34	0,23	0,20	
5,2	1,55	1,54	1,55	b52	102 °C	VDLUFA C 35.9		-0,40	-0,27		
5,3	1,47	1,46	1,47	b52	102 °C	VDLUFA C 35.9		-1,31	-0,89		
6	1,50	1,57	1,54	b53	102 °C	VDLUFA C 35.10		-0,51	-0,35		

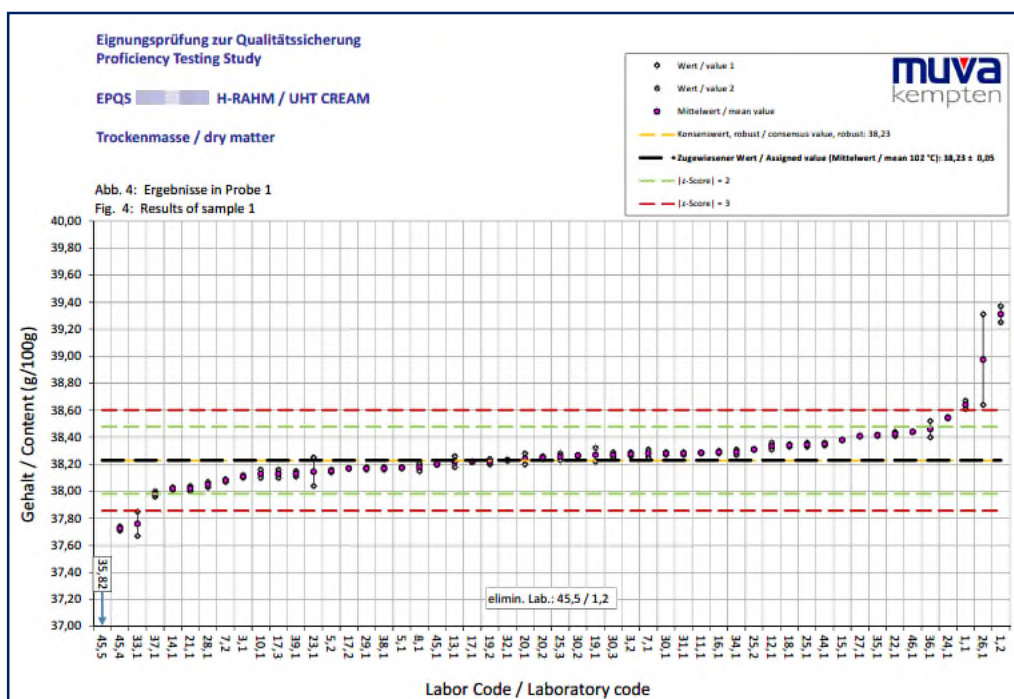
Graphic representation of proficiency test results

The different graphic schemes help you to get a quick overview of all data and to gain additional information.

The following figure shows the data sorted in ascending order. In addition, the warning and action limits of the corresponding evaluation criteria are drawn in. The distribution with regard

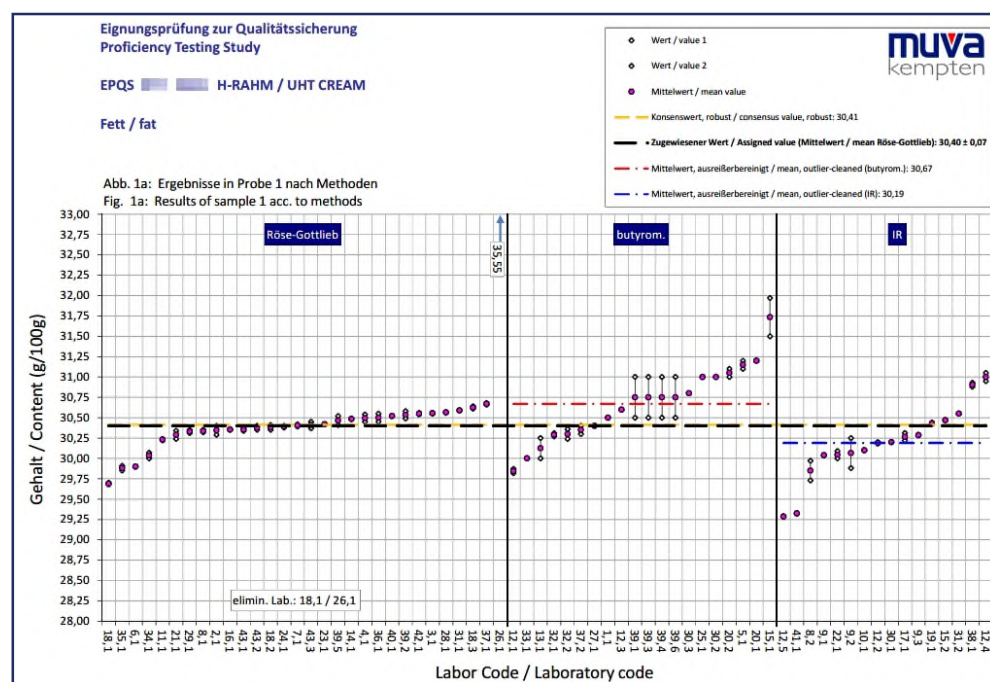
to the evaluation criteria can thus be recorded at a glance.

The graphical representation of the results sorted by method allows you to assess the efficiency of the various methods. Furthermore, one's own results can be compared with the results of the other participants both within and between the methods.

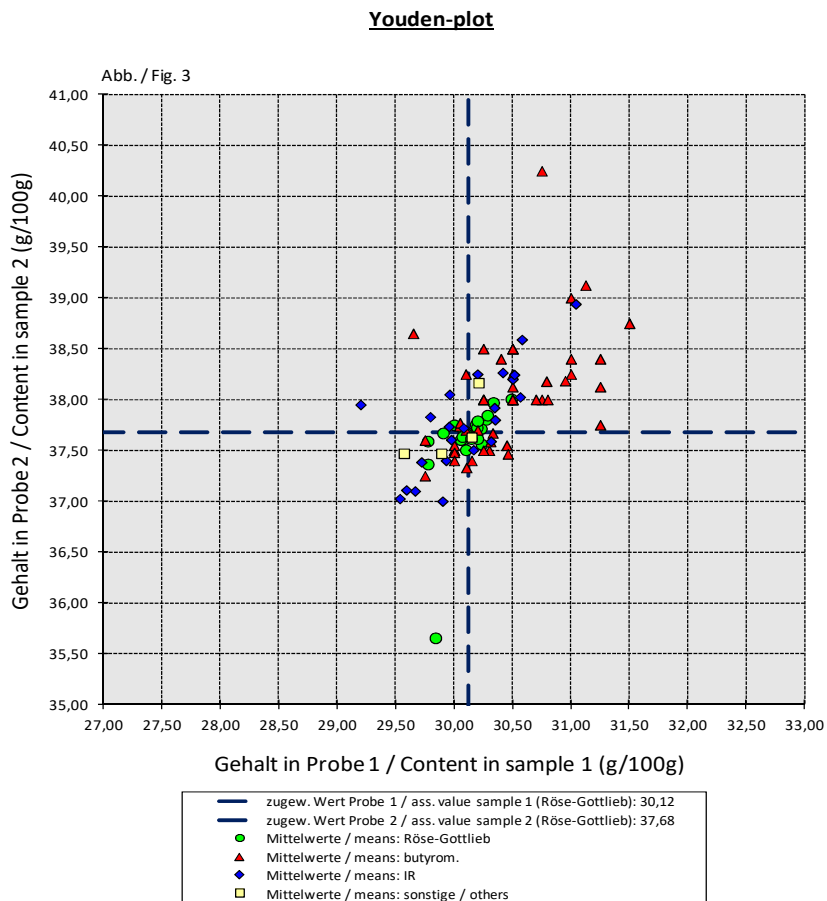
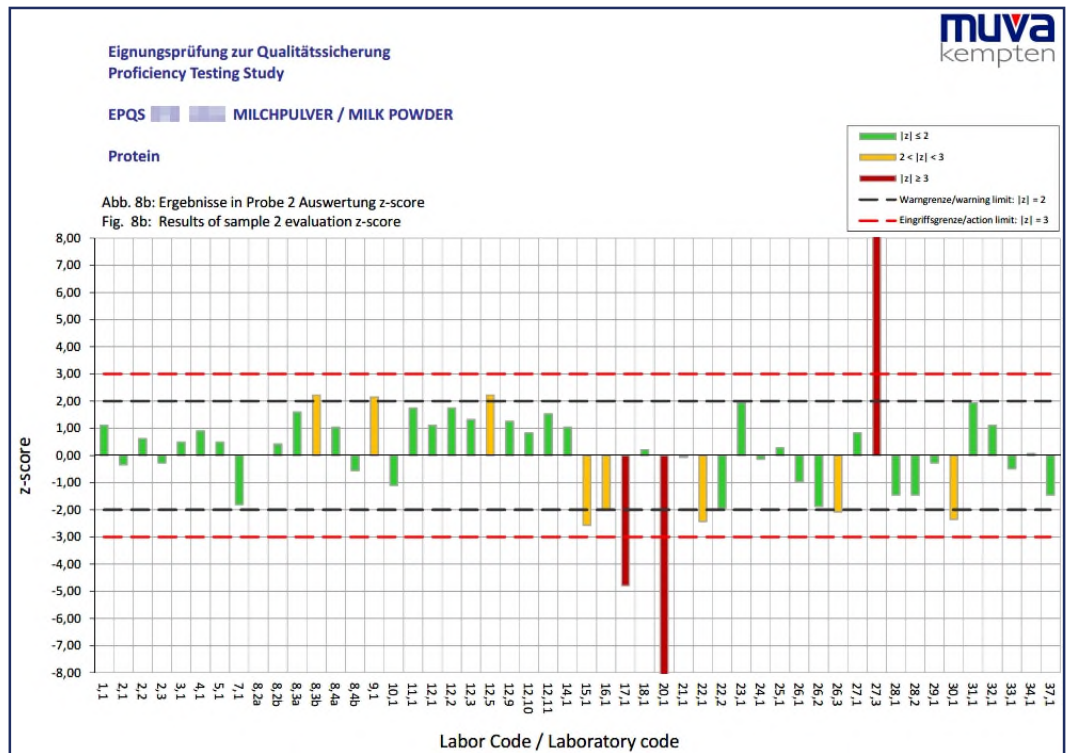


Results sorted by size with limits of the evaluation criterion z-Score

Evaluation of the results according to methods used



Example: Colored z-score graphic



Example: Youden plot, comparison of the fat content of two cream samples for error diagnosis

Ensure the quality of your senses!

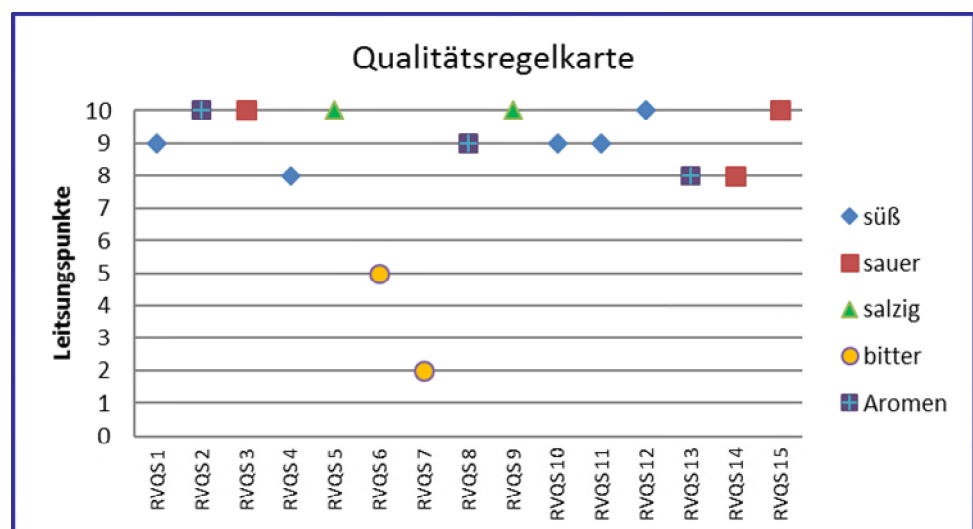
- ▶ smell
- ▶ taste
- ▶ feel
- ▶ see

The development of a sensory proficiency test is a great contribution to sensory quality assurance in product developments and daily routine tastings. A panel has the opportunity to compare its senses with other panels nationally and internationally. For quality assurance, not only the evaluation of the entire panel but also of the individual testers within a panel is important and can include, among others, the assistance in the selection of examiners. The broad spectrum of the sensory proficiency test system consists of different tests that are used in daily sensory testing and the range of four senses - smell, taste, touch, and sight - thus offers many options for ensuring the quality and performance of your panellists and your panel.

Performance development for panelists and panels using quality control cards

As part of the proficiency test systems for the ranking test methodology, we developed a point system for assessing performance for panellists. In this point system, based on the page test and taking into account the correctly recognized basic taste, points from 0 - 10 are awarded. The maximum number of 10 points is awarded if the ranking is correctly sorted and the basic taste is recognized. Since the recognition of the basic taste or the aroma is decisive for the sensory performance, the number of points achieved is divided by 2 if the identification was incorrect. With the help of this evaluation system, it is now possible to display a continuous review of the performance of individual panellists in the form of quality control cards.

Example: performance card of continuous participation in proficiency tests



Description and evaluation of the proficiency tests

The structure and process of the proficiency test systems in sensor technology correspond to the chem.-phys. and microbiological proficiency tests.

► Rank Order

Identification of the test criteria in taste (basic tastes) or odour (aroma) and ranking test according DIN ISO 8587 with 4 analyzing samples.

► Profil Testing

Profiling of an analyzing sample by two reference samples in at least 5 attributes.

► Triangle Test

Evaluation of the level of significance of the panellists and panels according to DIN EN ISO 4120 by testing 6 identical sets of triangle tests.

► Fats and Oils

The analysis of "virgin, cold-pressed rapeseed oil" and "frying fat" according to characteristic and dissimilar attributes given in the German Method "DGF Einheitsmethode C-II 1" (DGF = German society of fat science).

► Packaging Material

Intensity test in odour and taste of a utensil according to DIN 10955 and a triangle test.

► Testing acc. to DIN ISO 22935

Evaluation of milk and dairy products according to the 5-point-scale of DIN EN ISO 22935.

► Threshold Odour Number (TON) and Threshold Flavour Number (TFN)

Determination of the odour threshold value (TON) and the taste threshold value (TFN) in drinking water by the use of a comparison of pairs according to DIN EN 1622.

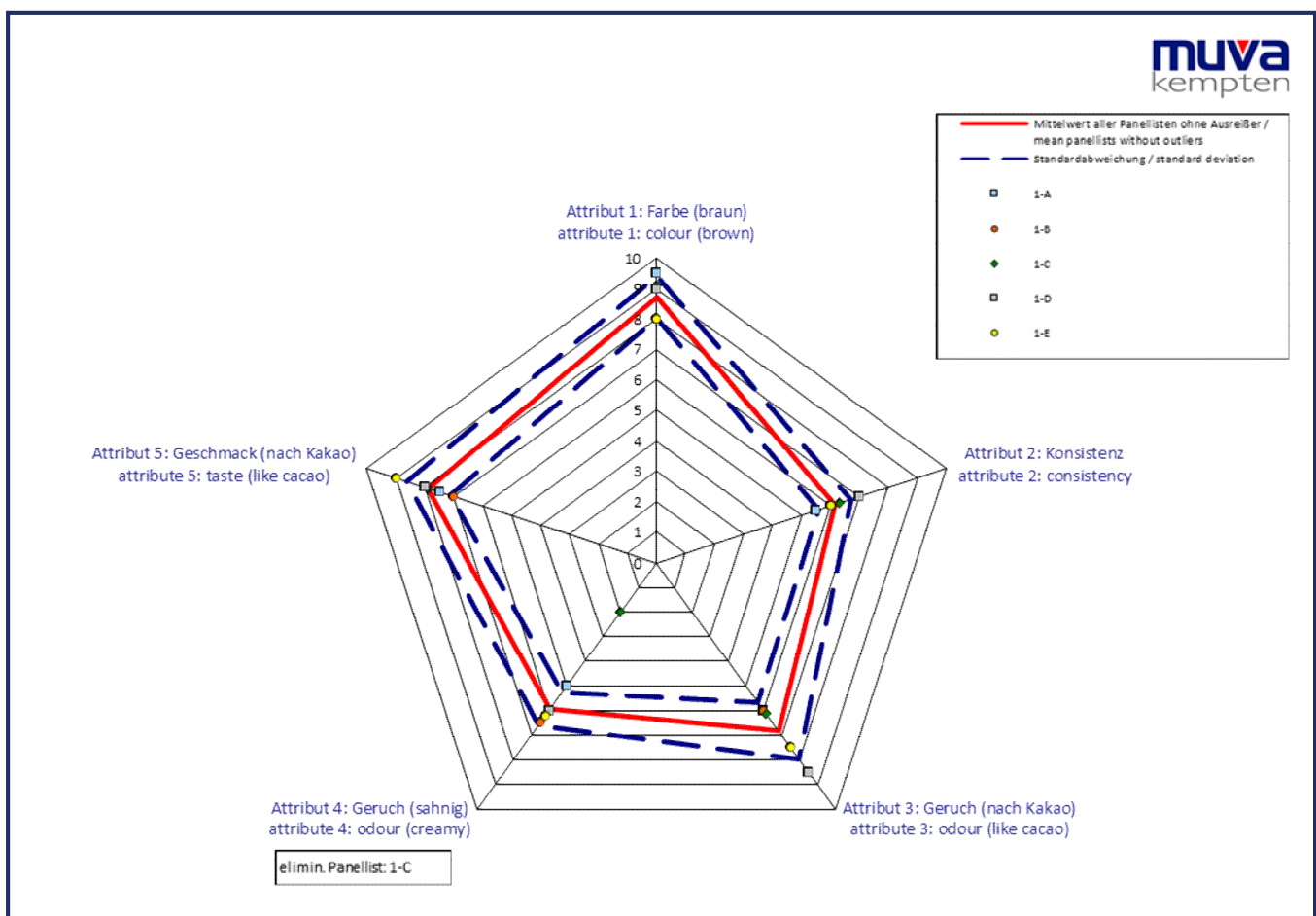
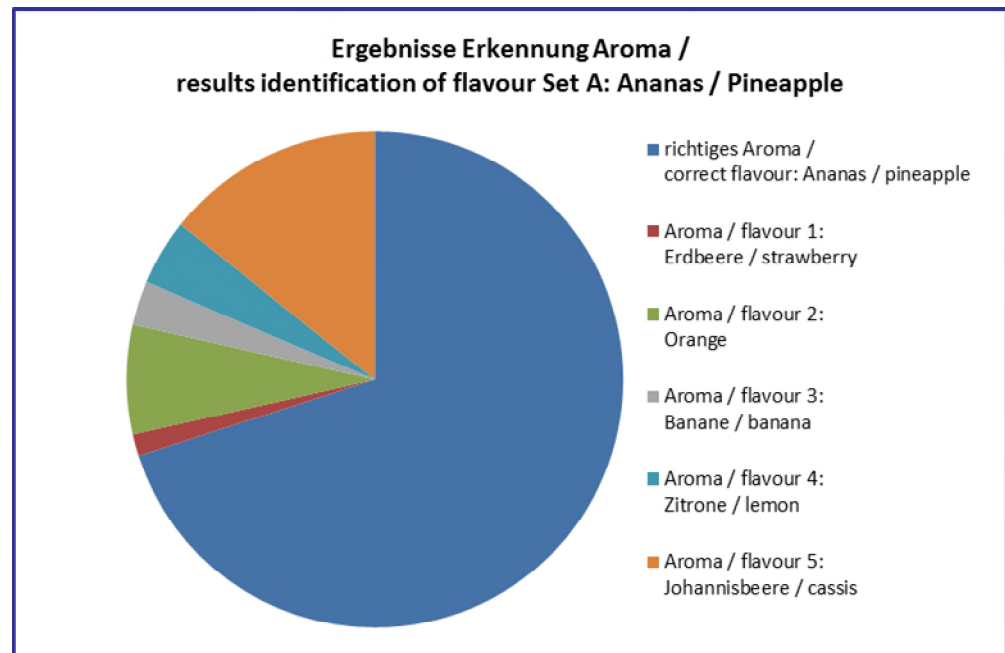
For comparability at a glance, all results are listed encoded in tables and graphics. See the examples at point "graphical presentation of the results". In all proficiency testing studies the interesting statistical values – for example, mean, median, standard deviation, etc. – are calculated. In the reports, there is also stated about the qualification for sensory measurements for each panel and each assessor.

Assurance of the material

The material is tested for its homogeneity on the basis of sensory analyzes using a special procedure based on BCR / 48/93. The sensory measurements are carried out by test persons from muva kempten GmbH who are regularly trained in sensory skills. The synchronous chemical-physical and microbiological quality assurance of the offered material is carried out by our accredited laboratory.

Examples of graphical representation of the results

Example: Graphic representation of the identification of the correct aroma as a pie chart



Example: Graphical representation of the results of a profile test in the spider web

We also offer...

Reference material

After the proficiency tests have been carried out, you have the option of ordering the sample material from the proficiency tests as reference material (www.muva.de/Referenzmaterialien).

We recommend the use of our reference materials for regular (statistical) control of your chemical-physical, sensory and microbiological analysis between proficiency tests.

Do you need reference material "made to measure" specially made to your needs? We would be happy to make you a non-binding offer.

Seminars and in-house training

Twice a year we offer a seminar on quality assurance and the basics of applied statistics in analytics. You can find more information on our homepage at www.muva.de/Seminare.

In addition, we would be happy to come to you with a program developed to your needs. Please contact us if you are interested.

Discount system for chem.-phys. and take part in the microbiological proficiency test

The discount for the chemical-physical and microbiological proficiency tests is based on the turnover of the participant in the proficiency tests/reference materials from the previous year. The discounts are graded as follows:

- ▶ From 5.000,- €: 5 % discount
- ▶ From 10.000,- €: 10 % discount
- ▶ From 15.000,- €: 15 % discount
- ▶ From 20.000,- €: 20 % discount

Discount system for sensory proficiency tests

The discount for the sensory proficiency tests depends on the number of panel participants as follows:

- ▶ From 3 – 5 panellists (panel evaluation included): 5 % discount
- ▶ From 6 – 9 panellists (panel evaluation included): 10 % discount
- ▶ From 10 panellists (panel evaluation included): 15 % discount

Shipping conditions

The test samples for the proficiency tests are shipped ex works.

Packaging and shipping costs are calculated depending on the effort. If you have any questions, please do not hesitate to contact us.

Please note the [applicable general terms and conditions](#) and the [data protection declaration](#) of muva kempten GmbH.