



MUVA - PROFICIENCY
TESTING SYSTEMS

PROGRAMME 2012

...quality assured

Programme 2012

Test the reliability of your analyses!

❖ **chemical** ❖ **microbiological** ❖ **sensory**

Proficiency testing systems are an efficient instrument for internal and external quality assurance. Concerning accreditation and certification bodies, proficiency tests are a significant tool to demonstrate the analytical performance of the own laboratory. At a glance there is a plenty of information regarding the effectiveness and accuracy of the used method and the competence of the personal equipment. Furthermore the failures or tendencies in analysis can be recognized and corrected to guarantee the analytical performance on a constant high level. Confidential results avoid expensive charges and lead to high economic efficiency. Finally you are able to enhance the business confidence and the reliability of the certification authorities.

The **muva proficiency testing programme** for quality assurance is one of the worldwide most important schemes for chemical and sensory analysis of food. Since 20 years, muva kempton has experience in performing proficiency testing studies and in the applied statistics. muva kempton cooperates with a number of national and international working groups and is - since a long time - close with quality management and analytical quality assurance.

Innovations in the year 2012:

❖ PROFICIENCY TESTING IN CHEMISTRY

In 2012 the following proficiency testing studies are new:

- „Fatty acid distribution in milk powder“
- „UHT-milk, lactose reduced“
- „Cream, lactose reduced“
- „Vitamines and carbohydrates in powder“ (infant food).

❖ PROFICIENCY TESTING IN MICROBIOLOGY

The proficiency testing study “yeasts and moulds” will be offered in the course of this year. You will be informed in time.

❖ PROFICIENCY TESTING IN SENSORY

See special programme (page 6 - 9)

The whole expert knowledge of the muva kempton is available to our proficiency testing team and as a matter of course our clients can access it at any time.

Your accredited international provider for proficiency testing schemes in food analysis

muva kempton
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FROM OUR PROFICIENCY TESTING PROGRAMME YOU CAN EXPECT

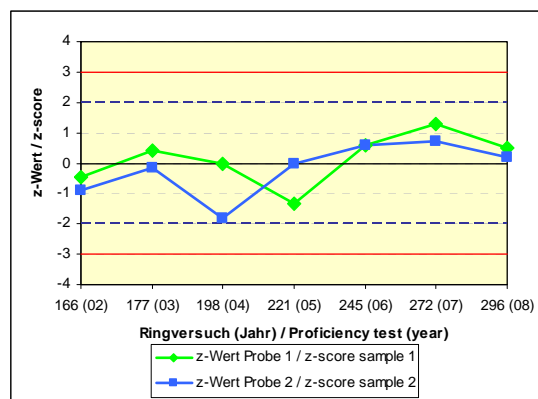
- ❖ a precise and reliable planning and organization which complies with recognized international standards like the new standard DIN EN ISO/IEC 17043:2010-05 and the International Harmonized Protocol for Proficiency Testing of (Chemical) Analytical Laboratories
- ❖ a neutral and strictly confidential treatment and presentation (encoded) of your results
- ❖ a detailed report with a traceable and understandable evaluation, together with clear graphical and tabular presentations and recommendations as well as helpful suggestions
- ❖ a certificate which presents your own z- and z'- scores, well-arranged
- ❖ a good value for money

PROFIT FROM A CONTINUOUS PARTICIPATION IN PROFICIENCY TESTING BY THE OFFER "EVALUATION OF YOUR PERFORMANCE-DEVELOPMENT"

By means of the graphical evaluation of your performance

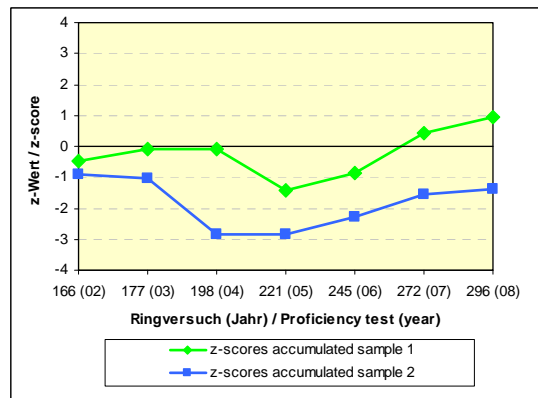
- ❖ you are able to present the competence of the laboratory

(Fig.: Shewhart control chart)



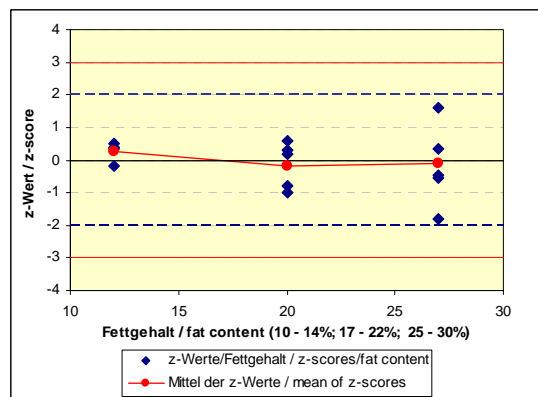
- ❖ you can recognize trends and systematic failures in your analysis very quickly

(Fig.: Cusum control chart)



- ❖ trends due to the concentration of the parameter become apparent

(Fig.: scatter plot)



Please regard our registration form!

DESCRIPTION OF THE PROFICIENCY TESTING SCHEMES

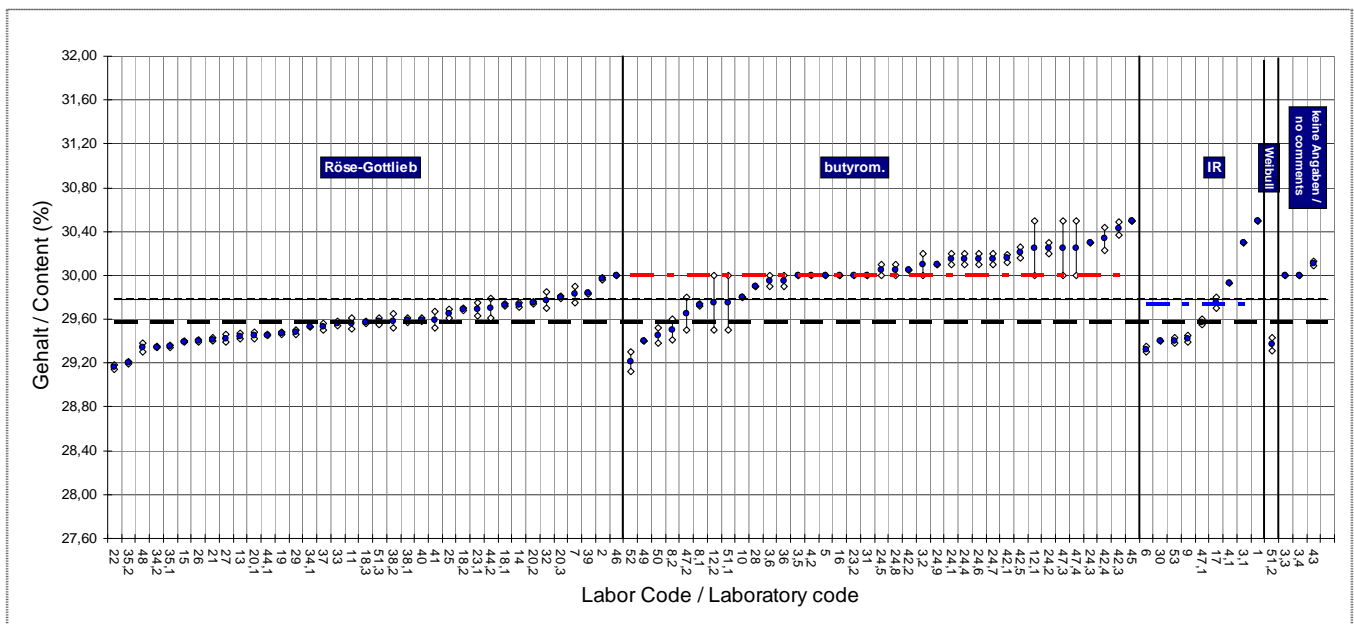
- ❖ 3 weeks before sample shipment, you receive the study announcement together with the relevant target dates (dispatch of the samples, deadline for results). If you wish to perform more than one double determination, you inform us by the provided form
- ❖ As announced you will receive two samples (tested for homogeneity, equal in composition, but different contents in selected parameters) as well as the necessary form sheet. You are requested to analyse each parameter in duplicate with the method of your choice under repeatable conditions. Further duplicate determinations are possible according to your choice (e.g. using another method, on a different day or by different technicians). Please report the results until the fixed target date (usually within 3 weeks)
- ❖ Within about two months after that, you will receive the report (with all information encoded) together with your personal lab-code, a certificate and the invoice. The report contains the following information:
 - ◆ the number of participating laboratories
 - ◆ the used methods
 - ◆ all data of homogeneity
 - ◆ the summary of results
 - ◆ recommendations and the annex.

In the annex you find the tables with:

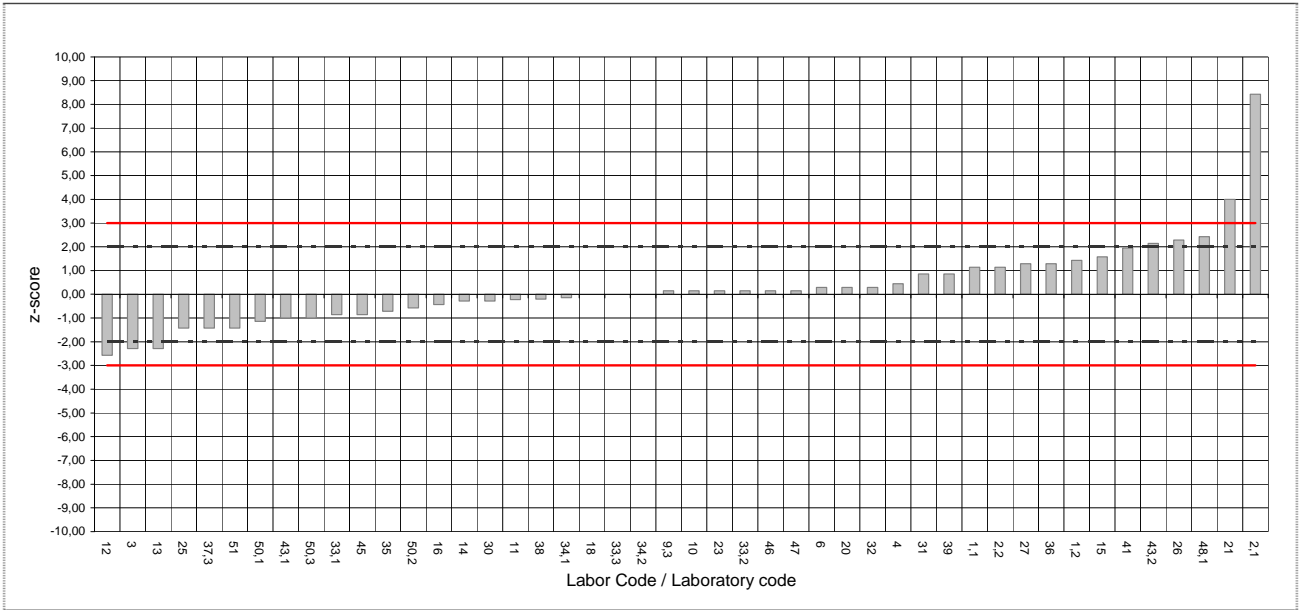
- ◆ all single and mean values
 - ◆ the corresponding methods with all relevant information
 - ◆ the performance criteria z-score, z'-score and CRD (relation to the critical difference of the reference method)
 - ◆ statistical data (extensive information on the statistical evaluation you may find in our statistical protocol under [www.muva.de / proficiency testing](http://www.muva.de/proficiency_testing)).
- as well as graphical presentations (see examples on the following page).
- ❖ After the study we are glad to be at your command for questions and recommendations. In between the studies and in case of disappointing results we recommend using muva reference materials.

Graphical presentation of proficiency testing results

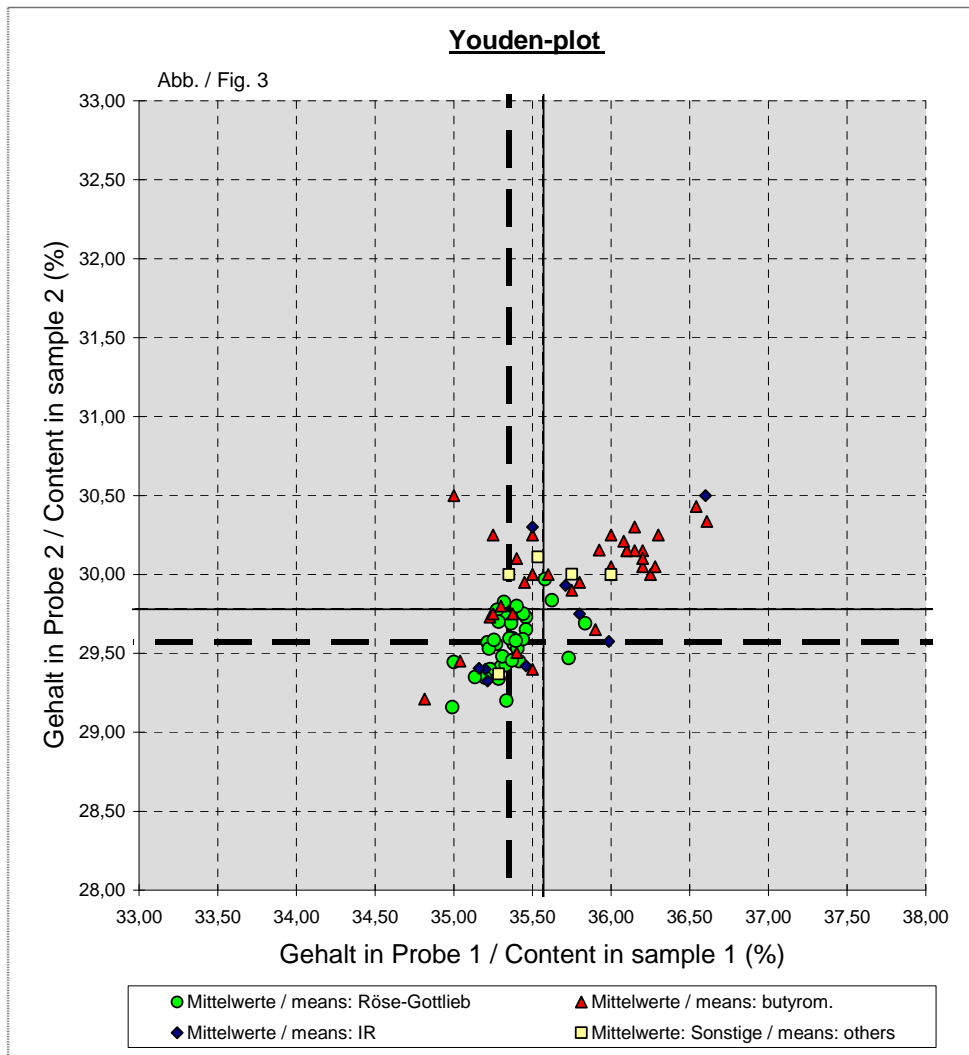
Example: Fat content in cream



Example: z-values for protein in cream. Lines for $z = +/- 2$ and $z = +/- 3$



Example: Youden-Plot, protein content in two cream samples, view for tendencies



INNOVATIVE SENSORY PROFICIENCY TESTING SYSTEM

DESCRIPTION OF THE SENSORY PROFICIENCY SYSTEM FOR FOOD INDUSTRY



Assure the quality of your senses!

❖ **Smell**

❖ **Taste**

❖ **Touch**

❖ **Sight**

❖ **Hearing**

Research and development in sensory proficiency testing schemes support the assurance for quality at sensory working. Sensory panels have the possibility to compare their performances with other panels. Moreover the assessment of the individual panellist among each other is very important for the quality assurance, too. It can be an excellent instrument to select and supervise sensory panels. Our Sensory Proficiency Testing System consists of different tests – used in the daily routine work – as well as of the offer of four senses – smell, taste, touch and sight. So the validation of the quality and performance of your panel and panellists can be enabled.

NEW DEVELOPMENTS IN 2012

❖ **Packaging material:** First time in this year we offer the proficiency testing study “packaging material”. This proficiency testing study is composed of two parts. First part is an intensity test in smell and taste according a sample preparation of an utensil of DIN 10955:2004-06. The second part is a triangle test, in which the significance level of each panellist and each panel is calculated by DIN 4120:2005-04. Surely all the results are presented in graphics and tables. The participation is important for a panel size of minimum 3 panellists.

DESCRIPTION OF THE PROFICIENCY TESTING SCHEMES

❖ **RANK ORDER**

Individual assessors obtain two sets each with four samples in randomised order. Each sample has a three digit blinding code. By tasting or smelling the samples the testing attribute (basic taste, aroma) has to be identified. Then the panellists rank the four samples according to their increasing intensity of the testing attribute (ranking test, DIN 10963). Results are inscribed in a result sheet.

Panellists should be provided with water or non-salted cracker to cleanse their palate between samples. Panellists have to test individually. The participation at this proficiency testing may be served for both, individual assessors and panels as a whole.

❖ **PROFILE TESTING**

The panellists get a set of 3 samples. Two samples purposes as references and the third sample should be analysed. The task of the panellist is to sort the analysing sample according the two references on a scale from 1 – 10. On this scales the two references are classified as two fixed basis values. The attributes are characteristics of smell and taste, as well as texture and colour. The results are inscribed in a result sheet.

Panellists should be provided with water or non-salted cracker to cleanse their palate between samples. Panellists have to test individually. For calculation of the measurement uncertainty it is necessary to participate with panels with more than 3 panellists at this proficiency testing.

❖ **TRIANGLE TEST**

Each panellist gets a set of 3 samples. Two samples are identical, the third one is differing. The task for each panellist is to identify the differing samples and if possible to specify the attribute in taste, smell, consistency or colour. Each panellist gets 6 sets for tasting. The participation is possible for a panel with minimum 3 panellists.

ASSURANCE OF THE MATERIAL

The material is tested of homogeneity to ensure the sensory properties. The homogeneity test is equivalent with corresponding chemical analyses according to BCR/48/93. Sensory experts of muva kempton organize the sensory measurements. The verification of the material occurs consecutively monitoring by the performance of the proficiency testing and the chemical and microbiological quality assurance.

EVALUATION OF THE PROFICIENCY TESTING FOR THE SENSORY PANEL

The statement about the qualification for sensory measurements is reported for each panel and each assessor. The laboratories and the panellists are encoded with numbers.

❖ RANK ORDER

For the individual panellist the error sum is calculated of ranking the four samples. Consequently the results of the individual assessors of one panel can be compared among each other. The results are reported in tables and graphics. A comparison of the results with other participating laboratories is possible. The analysis of the whole panel occurs with the page test. Hereby the ability to identify the correct sample order will be statistically proved.

❖ PROFILE TESTING

The result of each panellist is presented in tables and graphics (spider web). Within a panel the mean and standard deviation of each attribute is calculated of the panellist values as well as the measurement uncertainty. The different means of the panels are shown in a spider web, too. With this data the total mean and standard deviation can be calculate

❖ TRIANGLE TEST

The results of each panellist are chart in a table. The correct answers are detected. With the numbers of the correct analyses of the panellists and the panels the significance level were calculated with the table of significance of DIN 4120:2005-04.

❖ PACKAGING MATERIAL: INTENSITY TEST

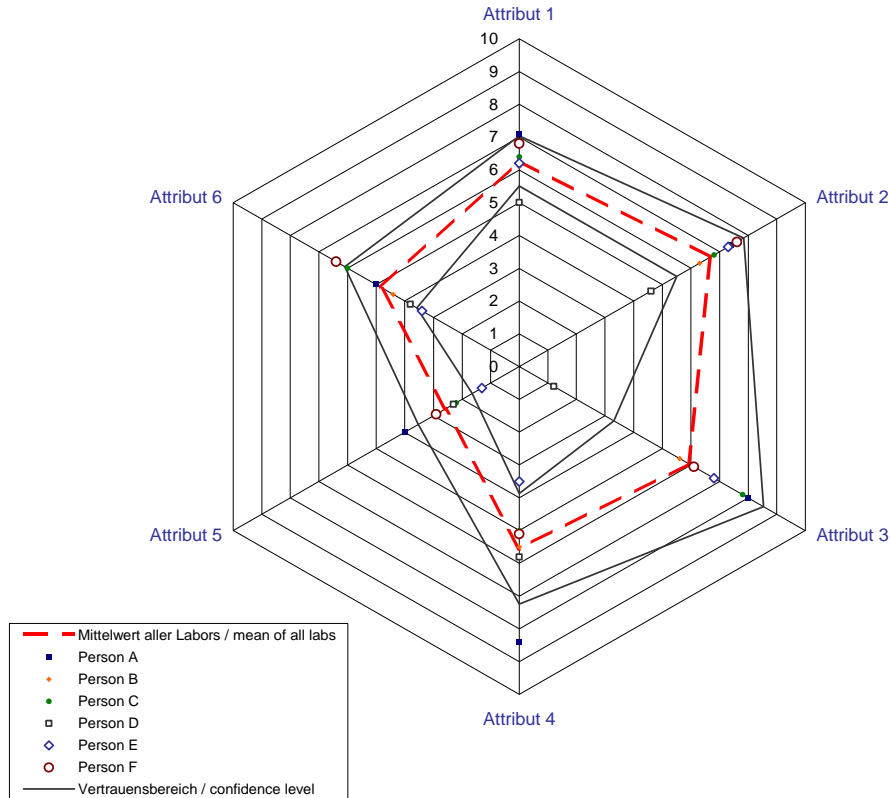
The results of the intensity tests of smell and taste of each panellist are presented in tables and graphics. For each panellist the statistical data number, mean, median, standard deviation and confidence interval are calculated. Moreover the means of all panels were compared and the total mean of all panels are calculated.

* REBATE SYSTEM FOR PROFICIENCY TESTING IN SENSORY:

- 3 – 5 persons (incl. panel evaluation) 5% rebate
- 6 – 9 persons (incl. panel evaluation) 10% rebate
- ≥ 10 persons (incl. panel evaluation) 15% rebate

❖ PROFILE TESTING

Spider web: graphic presentation of the results of one panel and between the panels



❖ TRIANGLE TEST

Evaluation of the significance level of each panellist and each panel

| Set Nr | Person | diff. Sample | detected sample | explanation | result | Results of panellist |
|---|--------|--------------|--------------------|--------------------|------------|---|
| 62 | 9 - A | 554 | 554 | packaging material | o.k. | 9 - A differing attribute with 83 % detected 5 of 6 answers correct moderate evidence that a difference was apparent, with a- risk = 0,05 |
| 63 | | 321 | 321 | | o.k. | |
| 65 | | 647 | 647 | smells "old" | o.k. | |
| 64 | | 928 | 840 | | nicht o.k. | |
| 61 | | 711 | 711 | | o.k. | |
| 66 | | 458 | 458 | | o.k. | |
| 55 | 9 - B | 499 | 499 | | o.k. | 9 - B differing attribute with 67 % detected 4 von 6 answers correct no evidence |
| 56 | | 510 | 510 | | o.k. | |
| 57 | | 564 | 564 | | o.k. | |
| 58 | | 779 | 624 | | nicht o.k. | |
| 59 | | 73 | 536 | | nicht o.k. | |
| 60 | 726 | 726 | packaging material | o.k. | | |
| 49 | 9 - C | 254 | 254 | oxidized | o.k. | 9 - C differing attribute with 100 % detected 6 von 6 answers correct strong evidence that a difference was apparent, with a- risk = 0,01 |
| 50 | | 861 | 861 | | o.k. | |
| 51 | | 799 | 799 | packaging material | o.k. | |
| 52 | | 537 | 537 | | o.k. | |
| 53 | | 641 | 641 | | o.k. | |
| 54 | | 18 | 18 | | o.k. | |
| Results of panel 1 | | | | | | |
| differing attribute with 83 % detected | | | | | | |
| 15 von 18 answers correct | | | | | | |
| very strong evidence that a difference was apparent, with a- risk = 0,001 | | | | | | |

REFERENCE MATERIAL

After participation in muva proficiency testing studies, you have the opportunity to buy the material used in this muva proficiency testing study.

We recommend using our muva reference material in the meantime of the proficiency studies for a regular (statistical) quality control of your own panel and each individual assessor.

WORKSHOP AND INHOUSE-TRAINING

Every year, the department of proficiency tests and reference materials of muva kempten offers minimum one workshop dealing with quality assurance and / or statistics in quality assurance.

Additional we are glad to visit your company for special training dealing with subjects of your own choice.

Please contact us.

SHIPPING COSTS

Packing and shipping costs will be charged according to the expenses. Do not hesitate to contact us for more information.

Registration not later than 2 month before the respective proficiency testing study !

Please send this form per email or fax return to us. You also find this form on our homepage www.muva.de ; proficiency testing.

Fon: 0049(0)831/5290-232
 Fax-Nr: 0049(0)831/5290-197
 Email: ring-ref@muva.de

| Please enter your full address ! | |
|--------------------------------------|--|
| Company: | |
| Company: | |
| Street: | |
| City and zip-code | |
| Person to contact: for this tests | |
| Phone: | |
| Fax: | |
| e-Mail: | |
| EU-Vat- Identification-No. | |

- Registration valid until change or cancellation**
- Additional registrations, former registrations remain valid**
- Registration for 2012 only**

| Type | Product * | RVQS | Period | Parameter | Prices (€)** | | | | |
|---|--|------|--------|---|----------------|--------------------------|----------------|--------------------------|-----|
| | | | | | report by post | report by e-mail | for add. dd*** | | |
| NEW 2012 | | | | | | | | | |
| AL | Milk lactose reduced | 434 | March | lactose (monohydrate), galactose | 116 | <input type="checkbox"/> | 108 | <input type="checkbox"/> | 30 |
| DL | Cream lactose reduced | 461 | May | lactose (monohydrate), galactose | 116 | <input type="checkbox"/> | 108 | <input type="checkbox"/> | 30 |
| FM | Fatty acid distribution in milk powder | 460 | Nov. | C4 bis C24; (C14:1, C16:1, C18:1, C18:1-trans, C18:2, C18:3) | 225 | <input type="checkbox"/> | 217 | <input type="checkbox"/> | 70 |
| SENSORY | | | | | | | | | |
| See extra registration form for sensory proficiency tests | | | | | | | | | |
| MILK | | | | | | | | | |
| A | Milk | 423 | Jan. | fat, protein, lactose, freezing point, dry matter | 219 | <input type="checkbox"/> | 211 | <input type="checkbox"/> | 73 |
| A | Milk | 442 | May | fat, protein, lactose, freezing point, dry matter, calcium | 248 | <input type="checkbox"/> | 240 | <input type="checkbox"/> | 87 |
| A | Milk | 453 | Sept. | fat, protein, lactose, freezing point, dry matter | 219 | <input type="checkbox"/> | 211 | <input type="checkbox"/> | 73 |
| K | Raw milk shock frozen | 430 | Feb. | fat, protein, lactose, freezing point, casein, pH value | 286 | <input type="checkbox"/> | 278 | <input type="checkbox"/> | 90 |
| K | Raw milk shock frozen | 456 | Oct. | fat, dry matter, protein, lactose, freezing point, urea, pH value | 319 | <input type="checkbox"/> | 311 | <input type="checkbox"/> | 102 |
| DAIRY PRODUCTS | | | | | | | | | |
| D | Cream | 431 | Feb. | fat, dry matter, protein | 153 | <input type="checkbox"/> | 145 | <input type="checkbox"/> | 45 |
| D | Cream | 452 | Sept. | fat, dry matter, protein | 153 | <input type="checkbox"/> | 145 | <input type="checkbox"/> | 45 |
| E | Evaporated milk / coffee cream | 432 | March | fat, dry matter, protein, phosphorus, ash | 215 | <input type="checkbox"/> | 207 | <input type="checkbox"/> | 73 |
| H | Butter | 428 | Feb. | water, solid non-fat, pH value, cholesterol, sodium chloride | 185 | <input type="checkbox"/> | 177 | <input type="checkbox"/> | 63 |
| L | Yoghurt | 425 | Jan. | fat, dry matter, protein, lactic acid, pH value | 207 | <input type="checkbox"/> | 199 | <input type="checkbox"/> | 71 |

| Type | Product * | RVQS | Period | Parameter | Prices (€)** | | | | |
|---------------------|---|------|--------|--|----------------|--------------------------|----------------|--------------------------|-----|
| | | | | | report by post | report by e-mail | for add. dd*** | | |
| CHEESE | | | | | | | | | |
| C | Processed cheese | 443 | May | fat, dry matter, protein , sodium chloride, pH value, citric acid, ash, nitrate | 275 | <input type="checkbox"/> | 267 | <input type="checkbox"/> | 106 |
| C | Processed cheese | 457 | Oct. | fat, dry matter, protein , sodium chloride, pH value, lactose, galactose | 269 | <input type="checkbox"/> | 261 | <input type="checkbox"/> | 101 |
| F | Fresh cheese | 427 | Jan. | fat, dry matter, protein | 153 | <input type="checkbox"/> | 145 | <input type="checkbox"/> | 45 |
| F | Fresh cheese | 455 | Oct. | fat, dry matter, protein, lactic acid | 186 | <input type="checkbox"/> | 178 | <input type="checkbox"/> | 58 |
| V | Hard cheese / Parmesan | 435 | March | fat, dry matter , protein, sodium chloride, pH value | 195 | <input type="checkbox"/> | 187 | <input type="checkbox"/> | 67 |
| POWDER | | | | | | | | | |
| B | Milk powder | 422 | Jan. | fat, free fat, dry matter, protein, lactose, ash | 248 | <input type="checkbox"/> | 240 | <input type="checkbox"/> | 87 |
| B | Milk powder | 450 | Sept. | fat, dry matter, protein, lactose, nitrate, ash | 248 | <input type="checkbox"/> | 240 | <input type="checkbox"/> | 87 |
| G | Whey powder | 446 | June | fat, dry matter, protein, lactose, ash , calcium, magnesium, NPN | 290 | <input type="checkbox"/> | 282 | <input type="checkbox"/> | 110 |
| P | Whey protein concentrate/ Sodium caseinate | 447 | June | fat, water, protein, lactose, ash | 215 | <input type="checkbox"/> | 207 | <input type="checkbox"/> | 73 |
| T | Carbohydrates/ vitamines in powder (Infant food) | 448 | June | saccharose, fructose, glucose , starch, vitamin C, vitamine E | 224 | <input type="checkbox"/> | 216 | <input type="checkbox"/> | 78 |
| U | Dietary supplement | 437 | April | sodium, potassium, calcium, magnesium, iron, zinc, phosphorus, chloride, copper, manganese | 303 | <input type="checkbox"/> | 295 | <input type="checkbox"/> | 125 |
| OTHERS | | | | | | | | | |
| FS | offer Fruit juice | 440 | April | glucose, fructose , total acid, pH value, ethanol, patulin, sulfite, Brix | 175 | <input type="checkbox"/> | 167 | <input type="checkbox"/> | 55 |
| S | offer Boiled sausage | 444 | May | fat, water , protein, hydroxyproline, sodium chloride, ash | 155 | <input type="checkbox"/> | 147 | <input type="checkbox"/> | 77 |
| N | Chocolate/ Nut nougat paste | 438 | April | fat, milk fat, dry matter, protein, lactose, saccharose , theobromine | 255 | <input type="checkbox"/> | 247 | <input type="checkbox"/> | 92 |
| X | Chocolate milk | 424 | Jan. | acesulfam K, saccharin, theobromine, caffeine | 154 | <input type="checkbox"/> | 146 | <input type="checkbox"/> | 50 |
| MICROBIOLOGY | | | | | | | | | |
| OE | E.Coli | 441 | April | E.coli | 195 | <input type="checkbox"/> | 187 | <input type="checkbox"/> | 70 |
| OK | Bacterial count | 458 | Oct. | Total bacterial count | 195 | <input type="checkbox"/> | 187 | <input type="checkbox"/> | 70 |
| OH | Yeasts | 433 | March | Yeasts | 195 | <input type="checkbox"/> | 187 | <input type="checkbox"/> | 70 |

Bold printed: additional method-specified evaluation

Basically the samples of all chemical and microbiological proficiency testing studies are unfit for consumption

* some materials could be produced by subcontractors

** net price plus packing and shipping costs (will be charged according to the expenses)

*** additional double determination (results) or additional material

If you wish to continue according to your earlier registration we do not need a reply from you.

For EU countries outside Germany: Benefits of muva kempten are accessed by using the EU-Vat-Identification-No. since 01.01.2010

Company

Date, Signature

REGISTRATION – SENSORY

Registration not later than 2 month before the respective proficiency testing study !

Please send this form per email or fax return to us. You also find this form on our homepage www.muva.de ; proficiency testing.

Fon: 0049(0)831/5290-232
 Fax-Nr: 0049(0)831/5290-197
 Email: ring-ref@muva.de

| Please enter your full address ! | |
|----------------------------------|--|
| Company: | |
| Company: | |
| Street: | |
| City with zip-code | |
| Person to contact: | |
| Phone: | |
| Fax: | |
| e-Mail: | |
| EU-Vat-Identification-No. | |

- Registration valid until change or cancellation
- Additional registrations, former registrations remain valid
- Registration for 2012 only

NEW: PACKAGING MATERIAL

| Type | Product * | RVQS | Period | Parameter | Report by post | Report by E-mail | add. person |
|------|--------------------|------|--------|-----------------------------------|--|------------------------------|-------------|
| SeV | Packaging material | 426 | Jan. | Intensity test with triangle test | 370 ²⁾ <input type="checkbox"/> | 362 <input type="checkbox"/> | 105 |

TASTE - SENSORY:

| | | | | | | | |
|-----|-----------------|-----|-------|--|--|------------------------------|----|
| SeP | Profile testing | 439 | April | 5 attributes | 360 ²⁾ <input type="checkbox"/> | 352 <input type="checkbox"/> | 80 |
| SeD | Triangle test | 445 | June | Triangle test | 150 ²⁾ <input type="checkbox"/> | 142 <input type="checkbox"/> | 35 |
| Se1 | Rank order | 436 | March | 2 sets of basic tastes (liquid and milk product) | 245 ³⁾ <input type="checkbox"/> | 237 <input type="checkbox"/> | 90 |
| Se2 | Rank order | 449 | July | 2 sets of basic tastes (fruit juice and liquid) | 245 ³⁾ <input type="checkbox"/> | 237 <input type="checkbox"/> | 90 |
| Se3 | Rank order | 459 | Nov. | 2 sets of basic tastes (milk products) | 245 ³⁾ <input type="checkbox"/> | 237 <input type="checkbox"/> | 90 |

SMELL - SENSORY

| | | | | | | | |
|------|------------|-----|------|------------------------------|--|------------------------------|----|
| SeA1 | Rank order | 429 | Feb. | 2 sets of aromatic solutions | 188 ³⁾ <input type="checkbox"/> | 180 <input type="checkbox"/> | 67 |
| SeA2 | Rank order | 454 | Sep. | 2 sets of aromatic solutions | 188 ³⁾ <input type="checkbox"/> | 180 <input type="checkbox"/> | 67 |

PROFICIENCY TEST „FOUR SENSUOUS“

| | | | | | | | |
|-----|------------|-----|------|-------------------------------------|--|------------------------------|-----|
| SeS | Rank order | 451 | Sep. | 4 sets (taste, smell, sight, touch) | 380 ³⁾ <input type="checkbox"/> | 372 <input type="checkbox"/> | 160 |
|-----|------------|-----|------|-------------------------------------|--|------------------------------|-----|

- * some materials could be produced by subcontractors
 ** net price plus packing and shipping costs (will be charged according to the expenses)
 more information about the rebate system under sensory proficiency testing system
 2) basic price contains 3 panellists, each additional panellist has to pay the price for an additional person
 3) basic price contains one person, any other person pay the price for additional panellists

❖ I want to participate on these ticked proficiency testing studies with _____ panellists!

If you wish to continue according to your earlier registration we do not need a reply from you!

For EU countries outside germany: Benefits of muva kempten are accessed by using the EU-Vat-Identification-No. since 01.01.2010

Company

Date, Signature

(registration is always possible!)

Please send this form per email or fax return to us. You also find this form on our homepage www.muva.de ; proficiency testing

Fon : 0049(0)831/5290-232
 Fax-Nr : 0049(0)831/5290-197
 Email : ring-ref@muva.de

We demand the following evaluation of the performance-development obligatory (please fill in the matrices and the parameters):

| | |
|--|--|
| Please enter your full address !! | |
| Company: | |
| Company: | |
| Street: | |
| City with zip-code | |
| Person to contact: | |
| Phone: | |
| Fax: | |
| e-Mail: | |
| EU-Vat-Identification-No. | |

For EU countries outside germany: Benefits of muva kempten are accessed by using the EU-Vat-Identification-No. since 01.01.2010

You may order the evaluation of the performance-development with immediate effect and retrospective (up to 5 years):

| Presentation as Shewhart control chart and Cusum control chart | Matrix (beginning: year) | Parameter (12.- € per result) | Presentation as scatter plot* |
|--|--------------------------|-------------------------------|-------------------------------|
| | 1. | 1. | <input type="checkbox"/> |
| | 2. | 2. | <input type="checkbox"/> |
| | 3. | 3. | <input type="checkbox"/> |
| | 4. | 4. | <input type="checkbox"/> |
| | 5. | 5. | <input type="checkbox"/> |

*special costs for the presentation as scatter plot (dependent on concentration, s. programme): 10.-€ for each participation, matrix and parameter

Example for cost calculation:

Performance-development in 3 proficiency tests "milk" (for each double determination and the parameter fat, protein and lactose):
 3 parameter per 12,-€ in one proficiency test = 36,-€ for each double determination
 Threefold participation in a year = 108,-€

You will obtain the figures of the performance-development at the end of 2012.

The registration is valid until a written notice of change or cancelation. If you wish to continue according to your earlier registration we do not need a reply from you.

Firma _____

Datum; Unterschrift _____

Overview muva proficiency testing 2012

| Type | Proficiency testing type | Jan. | Feb. | March | April | May | June | July | Aug. | Sep. | Oct. | Nov. | Dec. |
|------|---|------|------|-------|-------|-----|------|------|------|------|------|------|------|
| A | Milk | X | | | | X | | | | X | | | |
| B | Milk powder | X | | | | | | | | X | | | |
| C | Processed cheese | | | | | X | | | | | X | | |
| D | Cream | | X | | | | | | | X | | | |
| E | Evaporated milk | | | X | | | | | | | | | |
| F | Fresh cheese | X | | | | | | | | | X | | |
| G | Whey powder | | | | | | X | | | | | | |
| H | Butter | | X | | | | | | | | | | |
| K | Raw milk shock frozen | | X | | | | | | | | X | | |
| L | Yoghurt | X | | | | | | | | | | | |
| N | Chocolate | | | | X | | | | | | | | |
| P | Caseine/Caseinates | | | | | | X | | | | | | |
| S | Boiled sausage | | | | | X | | | | | | | |
| T | Sugar / Vitamines in powder (infant food) | | | | | | X | | | | | | |
| U | Dietary supplement (powder) | | | | X | | | | | | | | |
| V | Hard cheese | | | X | | | | | | | | | |
| X | Chocolate milk | X | | | | | | | | | | | |
| AL | Milk lactose reduced | | | X | | | | | | | | | |
| DL | Cream lactose reduced | | | | | X | | | | | | | |
| FS | Fruit juice | | | | X | | | | | | | | |
| FM | Fatty acid distribution in milk powder | | | | | | | | | | | X | |
| OE | E.coli | | | | X | | | | | | | | |
| OK | Bacterial count | | | | | | | | | | X | | |
| OH | Yeasts | | | X | | | | | | | | | |
| Se | Sensory Taste | | | X | | | | X | | | | X | |
| SeA | Sensory Smell | | X | | | | | | | X | | | |
| SeD | Triangle test | | | | | | X | | | | | | |
| SeP | Profile testing | | | | X | | | | | | | | |
| SeS | PT four sensuous | | | | | | | | | X | | | |
| SeV | PT Packaging material | X | | | | | | | | | | | |



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