



NORDIC COMMITTEE ON FOOD ANALYSIS

CONTENTS:

UPDATED NMKL PROCEDURE

- No. 5 (3rd Ed. 2019), Estimation and expression of measurement uncertainty in chemical analysis, has been updated, see Page 2

PAST EVENTS

- AOAC Europe—NMKL—NordVal International symposium held on 3-4 June 2019 in Oslo, Norge, see Page 3
- MALDI ToF workshop held on 5 June in Oslo, Norge, see Page 4

NEWS FROM NORDVAL INTERNATIONAL

- NordVal International's 20th anniversary, see right column and Page 5
- Thank you, Sven Qvist! See Page 5

NEW NORDVAL CERTIFIKATES

Three certificates are new, see Page 6

EXTENDED NORDVAL CERTIFICAT

One certificat has been extended, see Page 6

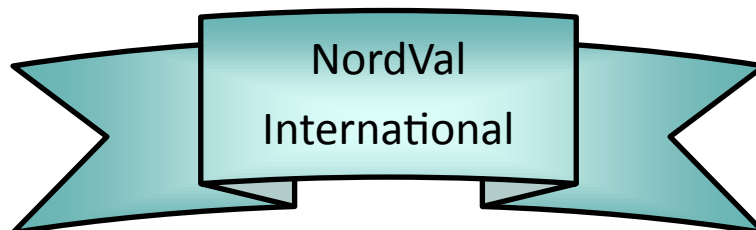
RENEWED NORDVAL CERTIFICATES

Seven certificates have been renewed, see Page 7

NEW NORDVAL PROTOCOL

One protocol is new, see Page 7

What has happened since the last newsletter?



NordVal International celebrates its 20th anniversary!

A relatively young but well-established organisation celebrates anniversary. NordVal International offers validation of alternative microbiological and chemical analysis methods. NordVal International started with validation of alternative microbiological methods and has in recent years received a growing number of applications for certifying chemical analysis methods.

ooo O ooo

NMKL procedure No. 5, Estimation and expression of measurement uncertainty in chemical analysis:

The English version has been updated - amongst others with estimation of bias - and was published as Ed. 3 in May.

At the beginning of June, NMKL og NordVal International together with AOAC Europe held an international symposium in Oslo, Norway: Speeding towards -omics: Chemical and microbiological food analyses.

NMKL held— again in Oslo at the beginning of June - a workshop about MALDI-ToF, which had many participants and formed a platform for users for networking.

UPDATED PROCEDURE

Estimation and expression of measurement uncertainty in chemical analysis (NMKL procedure No. 5, 3rd Ed. 2019)

NMKL procedure No. 5 has been updated—it now includes how to handle bias.

When the result of a chemical analysis is presented in an analytical report it is recommended that it should always be reported as a numerical result. For the result to be complete, the measurement uncertainty of the analysis should also be included. In many cases, a result can be very hard to interpret unless accompanied by its uncertainty.

In this updated version of the procedure, guidance on how to handle bias / systematic errors in relation to measurement uncertainty is included. The principles described in Nordtest TR 537 for environmental analyses have been introduced in the NMKL procedure and examples showing how these calculations are to be performed have been added. Whether one can or should correct for systematic errors is a complex issue, and a new section has been added to explain this. Additionally, a minor restructuring and update of references have been undertaken.

A Scandinavian version of this 3rd edition will follow.

Project members:

Joakim Engman, Swedish Food Agency (project manager)
Dag Grønningen, Norwegian Veterinary Institute
Heida Palmadóttir, MATIS, Iceland
Jette Jakobsen, National Food Institute, Denmark
Mervi Rokka, Finnish Food Authority
NMKL secretariat



Joakim Engman was the project manager for updating this procedure. He has worked at the Swedish Food Agency in Uppsala for many years, primarily with the analysis of heavy metals, but he also works with method standardisation in NMKL and CEN. He has looked into questions concerning chemical measurement quality in connection with the preparation of NMKL procedures and his work in Eurachem. Joakim replaces Hans Lindmark as chairman of the Swedish national committee in NMKL.

INTERNATIONAL SYMPOSIUM IN NORWAY

Symposium (past): Speeding towards -OMICS CHEMICAL AND MICROBIOLOGICAL FOOD ANALYSIS

On 3-4 June 2019 NMKL og NordVal International together with AOAC Europe held a symposium in Oslo, Norway, with approx. 140 participants from over 20 different countries.



The focus of the symposium was on new trends in the area of food analysis. The plenum sessions included a row of inspiring talks about e.g. metabolomics used in chemical food safety. The speakers gave examples of how non-targeted analysis can help identify and assess unknown chemical food safety risks. In addition, they explained how the rapid development in sequencing technologies has the potential to completely change local and particularly global surveillance, detection and tracking of infectious diseases.

Furthermore, the audience got an overview over existing types of biosensors and the development of new electrochemical biosensors for fast detection of contaminants in food products. A presentation about hand-held devices for consumers, which are becoming increasingly common, resulted in several questions such as: are they consumer-safe? Do consumers understand how to use such devices and how to take samples? Are such devices validated by an independent body?



The symposium offered parallel sessions:

The microbiological track included several presentations about the next generation of microbiological risk assessment using whole-genome sequencing for foodborne pathogen surveillance and source tracking of contamination outbreaks. Furthermore, the audience was given presentations about metagenomics and transcriptomics and their application. As NordVal International celebrates its 20th anniversary focus was also on rapid methods and validation of alternative microbiological methods. During the chemistry track the audience could listen to presentations ranging from food authenticity, MS-based metabolomics and proteomics to validation of LC-MS and LC-ICP MS.

Many posters were presented and it was difficult to decide who should receive the prize for best poster. Finally, **Dr Roberto Stella**, Istituto Zooprofilattico Sperimentale delle Venezie, Italy, was awarded the prize for the poster "Metabolomics analysis of liver reveals an unexpected contamination of bovines with clenbuterol".



Exhibitors at the symposium:

- 3M, Norway / Trioloab AB, Sweden
- Thermo Fisher Scientific, USA
- European Headquarters of Neogen Corporation, United Kingdom
- Labolytic AS, Norway
- Pall GeneDisc Technologies, France
- BRUKER Nordic AB, Sweden
- Biolan Microbiosensores, Spain
- BioMérieux UK Ltd., UK
- Matriks AS, Norway
- Promega Biotech AB, Sweden
- MSci ApS, Denmark
- BIPEA, France

Thank you to the project group consisting of 15 persons as well as to all speakers.

WORKSHOP IN NORWAY

Workshop (past): MALDI ToF WORKSHOP (FOOD MICROBIOLOGY)

On 5 June 2019 NMKL held a MALDI ToF workshop in Oslo, Norway, with 41 participants from 8 different countries.

There are many benefits by using MALDI-ToF, e.g. low costs per analysis (for consumer goods as well as manpower), no garbage and very quick analysis results. However, there are challenges as well, one of the major ones being to ensure that the results are correct; this depends on the database and demands extensive microbiological knowledge.

There were several inspiring presentations including a general introduction to MALDI-ToF, application of MALDI-ToF in a clinical and diagnostic laboratory, confirmation and identification, extension of the database with own stems and experience from daily use such as equipment set-up and sample preparation, and challenges in distinguishing between stems.

The afternoon offered great opportunity to share knowledge and experience, identify particular challenges and enlarge one's network.

A big thank you to the speakers and the many engaged participants; they all ensured an inspiring and very fruitful workshop.

Exhibitors:

- bioMérieux UK Ltd., UK
- BRUKER Nordic AB, Sweden
- Labolytic AS, Norway





NordVal International celebrates its 20th anniversary!

NordVal was established in 1999 by the Nordic Committee of Senior Officials for Food Issues under the Nordic Council of Ministers and was included in NMKL in 2007. In 2015, NordVal changed its name to NordVal International in order to demonstrate that the NordVal validation system is valid internationally. The EU regulation on microbiological criteria for foodstuffs and food production allows the food business operator to use alternative microbiological methods for Community control. The use of alternative microbiological methods is acceptable, when the methods are validated against a reference method and certified by a third party in accordance an internationally accepted protocol.

NordVal International started by validating alternative microbiological methods and has in recent years received a growing number of applications for certifying chemical analysis methods.

Thank you, Dr. Sven Qvist - a driving force in NordVal International and chairman for many years!

Veterinarian Sven Qvist has been an active member of the microbiological committee of NMKL since 1988. He was the driving force for the establishment and operation of the Danish and Nordic systems for validation of alternative microbiological methods. Sven has played an important role in facilitating the use of more rapid methods in the food industry and for official investigation in foodborne outbreaks. From 1999 to 2017 Dr. Qvist was Chair of DanVal/NordVal/NordVal International. He has tried to retire three times, but the organisations needed him because of his knowledge, network and outstanding leadership. At the age of 85 years, he has decided to step down. He certainly deserves retirement after his immense efforts. Thank you, Sven, for your enthusiasm, for sharing your profound knowledge and skills with us, and for your wise leadership for so many years.

Hilde Skår Norli, Chair of NordVal International



NMKL method No. 28, "Analytical determination by weight of the total solids of tomato purée", no longer applies – instead we refer to method No. 169 for determination of dry matter and method No. 173 for determination of ash.

NORDVAL INTERNATIONAL CERTIFICATES



New NordVal certificates

Three new certificates for test of residues of anti-microbial agents in milk

Three new certificates for Analytik in Milch Produktions- and Vertriebs- GmbH, Germany, have been issued. The methods describe Brilliant Black Reduction tests in microtiter plates for detection of anti-microbial agents in bovine milk. The inhibitors lessen or inhibit metabolic activity of the test bacteria. Detection may be visual or photometric. The methods have been tested in a large test for a range of different anti-microbial agents. The results are compared with EU maximum residue limits and POD curves are given.

The new certificates are:

- NordVal International Certificate 051 for “BRT Inhibitor Test”
- NordVal International Certificate 052 for “BRT MRL Screening Test”
- NordVal International Certificate 053 for “BRT hi-sense”

Extended NordVal certificate

NordVal certificate issued for LactoSens® biosensor has been extended.

The certificate for the biosensor developed by DirectSens® to determine residual lactose in lactose-free milk products has been extended. By the time of extension, the name of the method was changed from LactoSens® 0,01 % to LactoSens® R.

New validation studies have been performed to validate that the biosensor LactoSens® R may also be used to determine residual lactose in milk samples with a fat content up to 36 % and in fermented milk products: yoghurt, cream, sour cream and curd. Further, it was evaluated that the sensor also is applicable to lactose-free flavoured yoghurts and milk drinks (coffee, cacao, fruits). In addition, it was verified that the sensors are stable for at least 3 days' storage at 30 °C.

All NordVal International certificates are available on the homepage
www.nmkl.org under the tab “NordVal”.

NORDVAL INTERNATIONAL CERTIFICATES

Renewed NordVal certificates



Seven certificates have been renewed:

- ◇ NordVal International Certificate 047 issued to HyServe " Compact Dry ETC Method for the Enumeration of Enterococci in Food and Water intended for Human Consumption " has been renewed. Compact Dry are ready-to-use dry media sheets comprising culture medium and a cold-soluble gelling agent, rehydrated by inoculating the sample. The Compact Dry ETC method contains chromogenic medium and selective agents for the detection and enumeration of Enterococci, which according to the manufacturer's instructions appear as blue colonies after 24h incubation at 36 ± 1 °C.
- ◇ NordVal Certificate 018 Hygicult[®] TPC by Orion Diagnostica Oy has been renewed. Hygicult[®] TPC slides are intended for rapid monitoring of microbiological hygiene in different types of materials - contact plates and swabs. New calculations have been performed to ensure compliance with NordVal validation protocol No. 1 and ISO 16140-2.
- ◇ NordVal International Certificate 017 "Campylobacter real-time PCR" issued to Eurofins, has been renewed. This real-time PCR method is applicable for the detection of the human pathogenic thermotolerant Campylobacters (*C. jejuni*, *C. coli* and *C. lari*) in chicken raw meat, cloacae swabs and faecal samples collected on disposable shoe covers in rearing houses.
- ◇ Two NordVal International certificates issued to Bioteccon have been renewed: NordVal International Certificate 023 "foodproof[®] Salmonella Detection Kit, Hybridization Probes and foodproof[®] Salmonella Detection Kit, 5' Nuclease, in combination with foodproof[®] ShortPrep I Kit or foodproof[®] StarPrep One Kit", and NordVal International Certificate 025 "foodproof[®] Listeria monocytogenes Detection Kit, Hybridization Probes and foodproof[®] Listeria monocytogenes Detection Kit, 5' Nuclease, in combination with foodproof[®] ShortPrep II Kit or foodproof[®] StarPrep Two Kit". Both methods are real-time PCR and use detection with specific, fluorescence labelled probes. The former is applicable for food, feed and environmental samples and the latter for food and environmental samples.
- ◇ Two NordVal International certificates issued to Hyserve have been renewed: NordVal International Certificate 042 "Compact Dry X-SA Method for the Enumeration of *Staphylococcus aureus* in Foods" and NordVal International Certificate 043 "Compact Dry YM Method for the Enumeration of Yeasts and Moulds in foods". Compact Dry comprises ready-to-use dry media sheets with culture medium and a cold-soluble gelling agent, rehydrated by inoculating 1 ml diluted sample into the centre of the self-diffusible medium. The Compact Dry X-SA and the Compact Dry YM methods both contain chromogenic medium and selective agents for the detection and enumeration of *Staphylococcus aureus* or yeast and mould, respectively.

New NordVal protocol

NordVal International has got a new validation protocol No. 1b, which concerns microbiological methods – confirmation and typing methods (January 2019); it harmonises with ISO 16140-6:2016.

NMKL procedures available

- No 1, 2nd Ed. 2005 Kalibrering och kontroll av vågar på laboratorier. *Calibration and performance checking of laboratory balances*
- No 3, 1996 Kontrollkort och kontrollprov i den interna kvalitetskontrollen på kemiska livsmedelslaboratorier. *Control charts and control materials in internal quality control in food chemical laboratories*
- No 4, 3rd Ed., 2009 Validering av kemiska analysmetoder. *Validation of chemical analytical methods*
- No 5, 2nd Ed. 2003 Skattning och angivande av mätosäkerhet vid kemiska analyser. *Estimation and expression of measurement uncertainty in chemical analysis (3rd Ed. 2019)*
- No 6, 2nd Ed. 2016 Generelle retningslinier for kvalitetssikring af sensoriske laboratorier. *(Yleiset ohjeet aistinvaraisten laboratorioiden laadunvarmistukseen)*
- No 7, 1998 Kontrol af UV/VIS spektrofotometre. *Checking of UV/VIS spectrophotometers*
- No 8, 4th Ed. 2008 Måleusikkerhet ved kvantitativ mikrobiologisk undersøkelse av næringsmidler. *Measurement of uncertainty in quantitative microbiological examination of foods*
- No 9, 2nd Ed., 2007 Utvärdering av det systematiska felet med användning av certifierade referensmaterial. *Evaluation of method bias using certified reference materials*
- No 10, 2nd Ed. 2017 Kvalitetskontroll av mikrobiologiske dyrkningsmedier. *Control of microbiological media*
- No 11, 2nd Ed. 2010 Sensorisk bedømmelse av drikkevann. *Procedure for sensory analysis of drinking water*
Juomaveden aistinvarainen arviointi.
- No 12, 2nd Ed., 2014 Håndbok i prøvetaking av næringsmidler. *Guide on sampling for analysis of foods*
- No 13, 2003 Volumetrisk kontrol. *Volumetric control*
- No 16, 2005 (2007) Sensorisk Kvalitetskontroll. *Sensory quality control*. Aistinvarainen laadunvalvonta
- No 17, 2006 Kravspesifikasjoner ved kjøp av analysetjenester. *Guidelines for requirement specifications for food analyses*.
- No 18, 2006 Bruk av referansmaterialer, referansestammer og kontrollkort i mikrobiologiske næringsmiddellaboratorier. *The use of reference materials, reference strains and control charts in a food microbiological laboratory*
- No 19, 2007 Riktlinjer för sensorisk bedömning av livsmedelsförpackningar. *Guideline for sensorial Analysis of Food containers/packages*
- No 20, 2007 Evaluering av resultater fra kvalitative metoder. *Evaluation of results from qualitative methods*
- No 21, 2nd Ed. 2016 *Guide for sensory analysis of fish and shellfish* (Available in English and Finnish)
- No 22, 2008 Anvisningar för värdering av immunokemiska testkit för livsmedelsanalys. *Considerations regarding evaluation of immunochemical test kits for food analysis*
- No 23, 2008 Handledning i kvalitetssäkring för mikrobiologiska laboratorier. *Guide on quality assurance in microbiological laboratories*
- No 24, 2010 Veiledning i kvalitetssäkring for kemiske levnedsmiddellaboratorier. *Guidelines for quality assurance for food chemical laboratories* (also available in Finnish)
- No 25, 2014 Utbyte (Recovery) vid kemiska analytiska mätningar. *Recovery information in analytical measurement*
- No 26, 2nd Ed., 2015 Kontroll och intern kalibrering av termometrar och temperaturkontroll på mikrobiologiska laboratorier. *Control and internal calibration of thermometers and temperature control on microbiological laboratories*
- No 27, 2013 Måleusikkerhet i sensoriske analyser. *Measurement uncertainty in sensory analysis*
- No 28, 2014 *Guidelines for reporting sensory data*
- No 29, 2014 *Guidelines for sensory analysis of meat and meat products (English and Finnish)*
- No 30, 2014 *Statistical Evaluation of Results from Quantitative Microbiological Methods (English)*
- No 31, 2015 *Guidelines for sensory evaluation of bread*
- No. 32, 2017 Verifikation af mikrobiologiske metoder. *Verification of microbiological methods*