Federal Office of Consumer Protection and Food Safety

Standardisation of (FA) methods - German Official Collection of Methods of Analysis (ASU)

Sabine Kemmlein

Federal Office of Consumer Protection and Food Safety

Federal Office of Consumer Protection and Food Safety (BVL)

Autonomous Federal Authority

- Founded in 2002
  Separation of risk assessment and risk management as a reaction to the BSE crisis
- Three offices
  Braunschweig Bundesallee
  Berlin Gerichtstraße
  Berlin Diedersdorfer Weg
- 953 employees
  of which 270 in Braunschweig (as of 1 August 2024)
- Budget 2024: € 93.1m
  (of which € 58.3m for staff expenses)
  revenues: € 14.9 m (of which € 10.5m from fees)
- Law enforcement
  (Food Safety, Plant Protection, Genetic Engineering, Veterinary Drugs)
- Support to Ministries of Agriculture, Health, Environment

The BVL - Overview

Organisation

5 Technical Departments

- Food Safety
- Plant Protection Products
- Veterinary Medicines
- Genetic Engineering
- Method Standardisation, Reference Laboratories and Antimicrobial Resistance

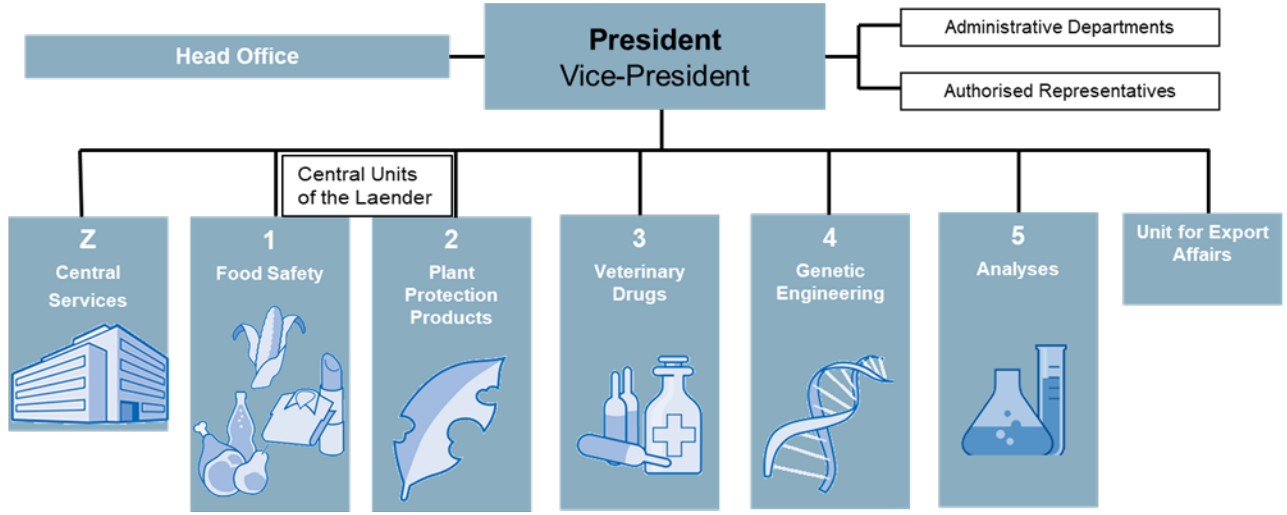
2 Central Units for Online Trade Surveillance

- G@zielt (Food, Feed, Commodities, Tobacco Products)
- ZOPF (Plant Protection Products)

Unit for Export Affairs

Cross-sectional tasks

e.g. Central Services, Head Office, International Affairs



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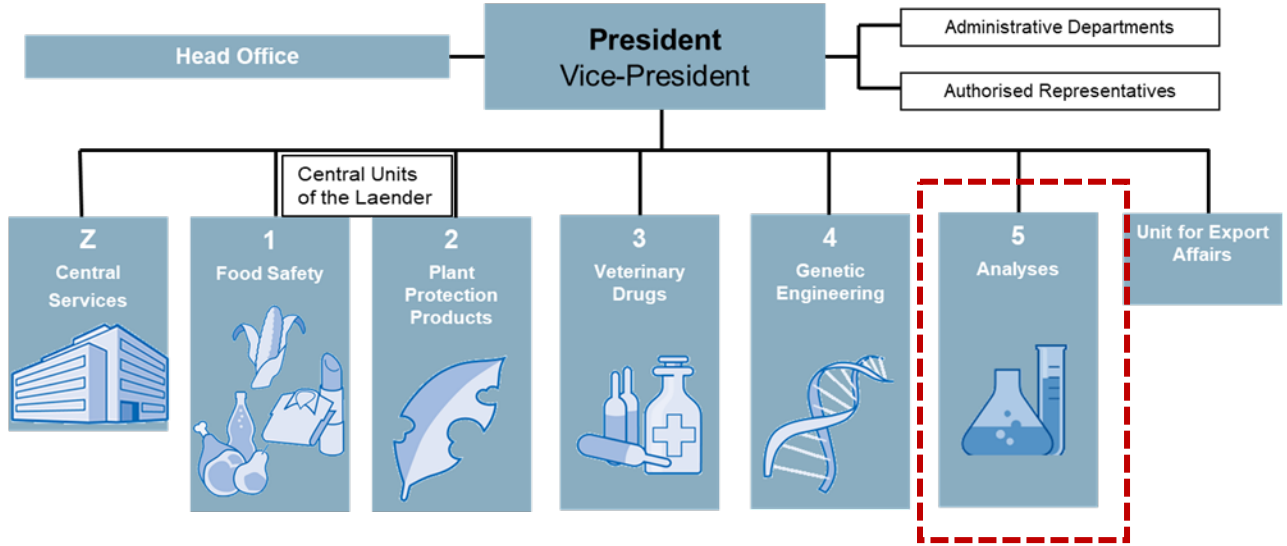


Department 5 - Unit 501

Unit 501: ASU Office, General Affairs

- 8 scientists + 1 administrative assistent
- Head of unit: Dr. Sabine Kemmlein

- **Tasks**
  - Responsible for the German Official Collection of Methods of Analysis (ASU)
  - Supporting national crisis management with laboratory expertise
  - Support with analytical questions on food fraud
  - Answering internal & external inquiries about analytics

German Official Collection of Methods of Analysis (ASU)

· German Food and Feed Act (§ 64 LFGB)
· German Tobacco Product Act (§ 35 TabakerzG)
· German Act on Genetic Engineering (§ 28b GenTG)

Responsibilities of the BVL

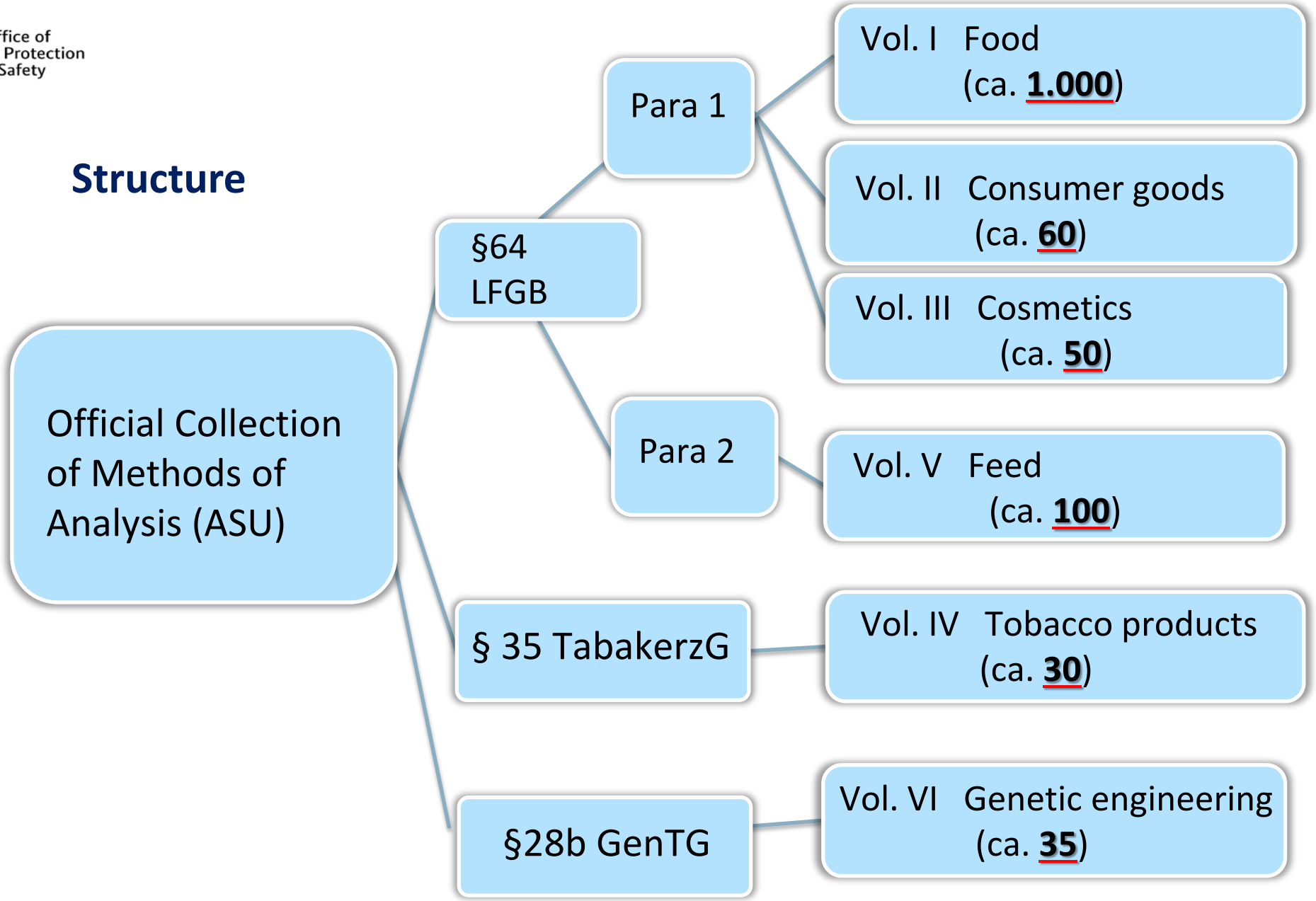
- Publication of methods of analysis e. g. for
  · Food, Feed and Additives
  · Cosmetics, Consumer Goods, Tobacco Products
  · Genetically Modified Organismn
- With the participation of experts from official control, science and industry
- ASU is to be kept continuously up to date

Basis for nationwide uniform quality of official control

Publication of ASU

- **BVL** is the editor of the ASU.
- **DIN Media** is responsible for publishing.
- ASU is published in German as a **loose-leaf collection** and as an **online database**.
- The subscription of the ASU is **subject to a fee**. National official control can use the online database without fees.
- One or three **supplementary deliveries** per year.

Structure

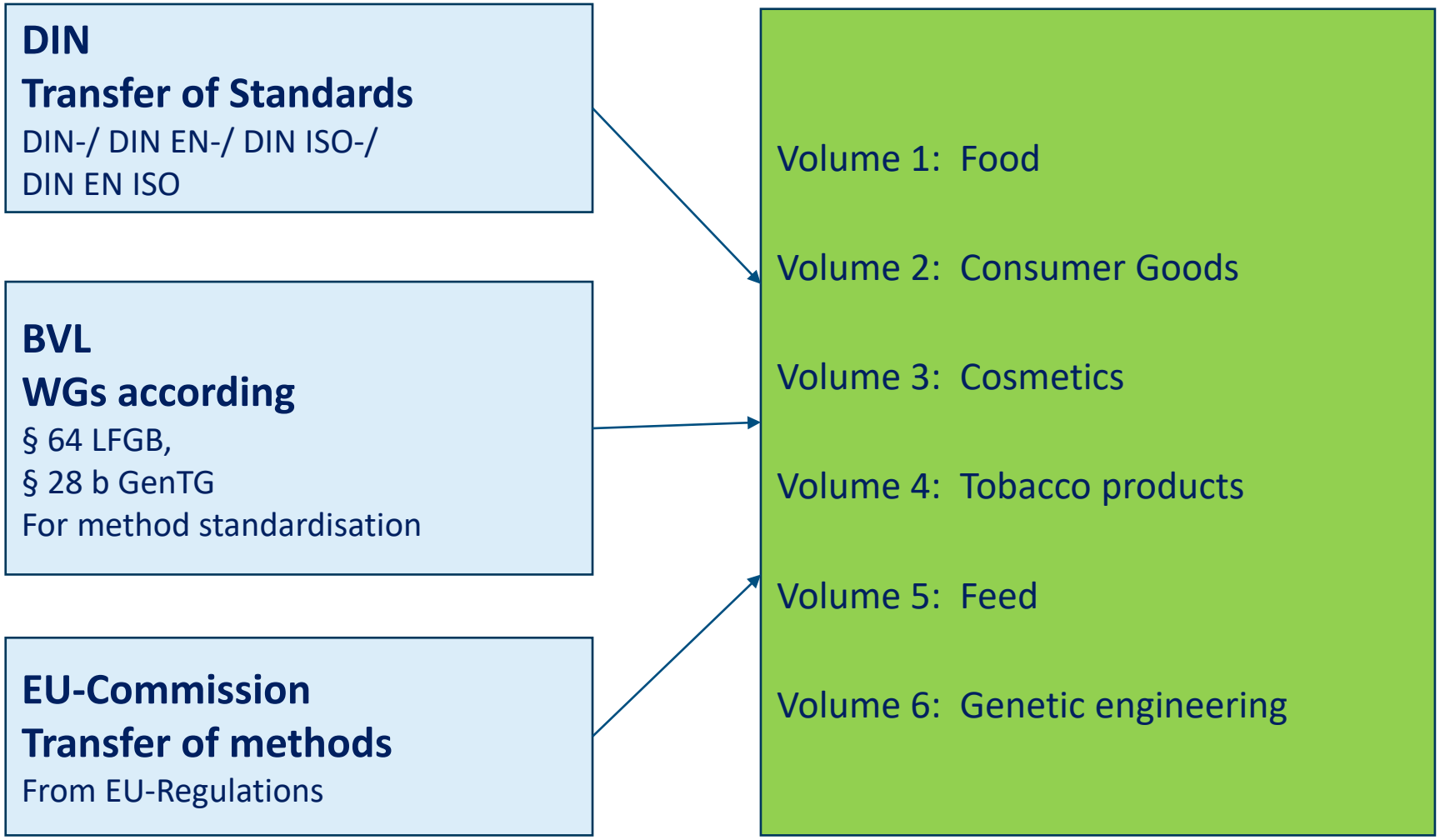

Official Collection of Methods of Analysis (ASU)
§64 LFGB
Para 1
Vol. I Food (ca. 1.000)
Vol. II Consumer goods (ca. 60)
Vol. III Cosmetics (ca. 50)
Para 2
Vol. V Feed (ca. 100)
§ 35 TabakerzG
Vol. IV Tobacco products (ca. 30)
§28b GenTG
Vol. VI Genetic engineering (ca. 35)

Content of the ASU

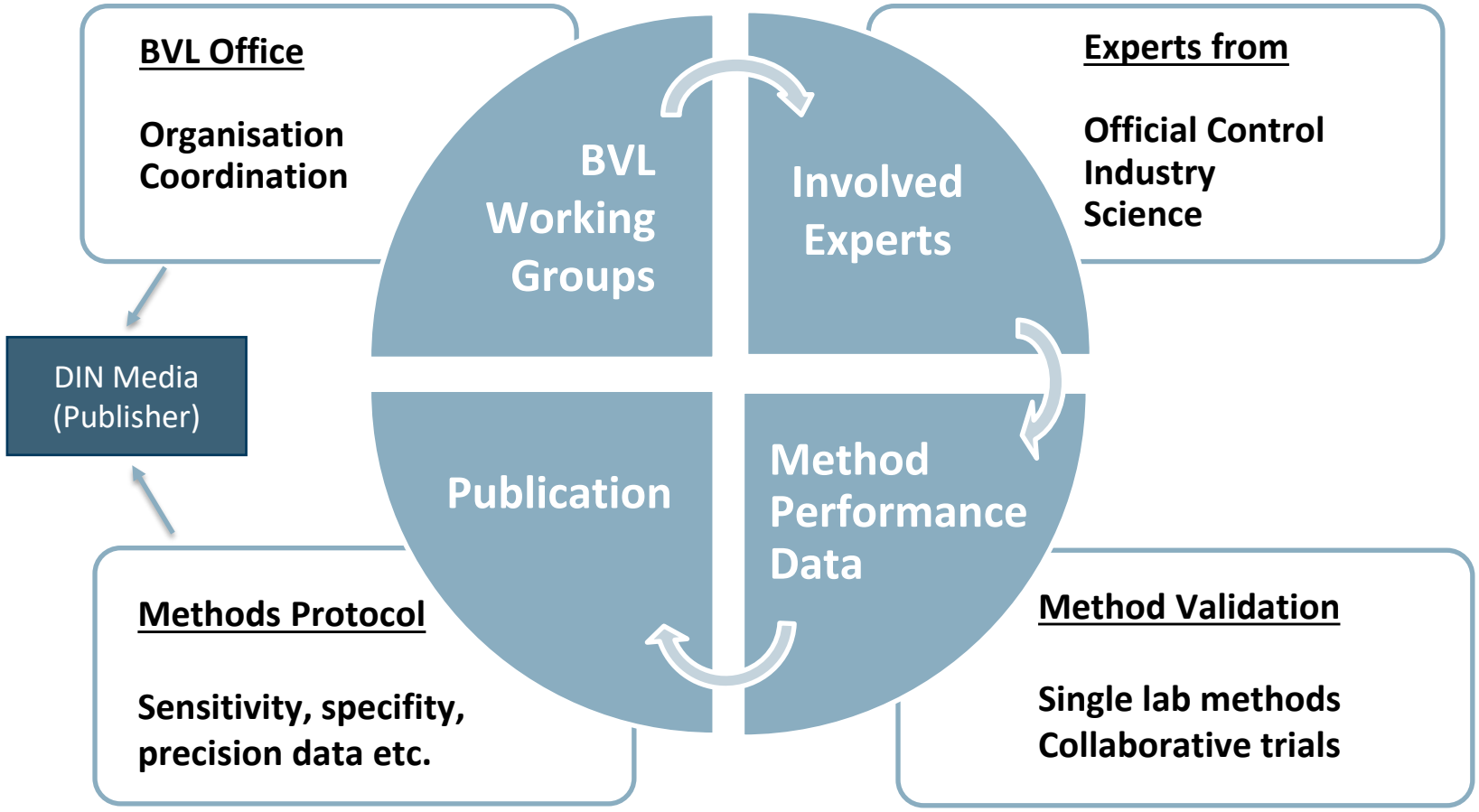
DIN
Transfer of Standards
DIN-/ DIN EN-/ DIN ISO-/
DIN EN ISO

BVL
WGs according
§ 64 LFGB,
§ 28 b GenTG
For method standardisation

EU-Commission
Transfer of methods
From EU-Regulations



Implementation Procedure



§ 64-Working Groups (~40 WG)

Nitrate/Nitrite
Bakery products
Fibres - food
Consumer good
Chem.-phys. analysis milk & -products
Element analysis
Element analysis – sub-WG in consumer goods
Meat products
Meat products – sub-WG fish products
Feed
GMO detection
GMO detection – sub-WG „Verification of methods using digital PCR“
Histology
Cosmetic products
Cosmetic products-sub-WG MOSH_MOAH
MALDI-TOF
IRMS
NMR
MCPD-Ester
Fruit and vegetable juices
Mineral Water - Microbiology

Food Allergens
Molecularbiol. Methods - Microbiology
Molecularbiol. plant-/animal species diff.
Mycotoxins
Plant toxins
Plant toxins – sub-WG opium alkaloids
Pesticides
Phycotoxins
Animal species differentiation - meat
Veterinary drug residues in food
Viruses in food
Vitamin analysis
Mass spectrometric protein analysis
§ 28b GenTG WG
§ 28b GenTG - sub-WG gv-microorganismn
NGS - bacterial characterization
NGS - bacterial characterization - sub-WG „Drylab“
NGS - species identification
NGS - species identification – sub –WG „Bioinformatics“

Federal Office of Consumer Protection and Food Safety

Active § 64 WG covering also FA Topics*

Nitrate/Nitrite*
Bakery products
Fibres - food
Consumer good

Chem.-phys. analysis milk & -products*
Element analysis
Element analysis – sub-WG in consumer goods

Meat products*
Meat products – sub-WG fish products
Feed
GMO detection
GMO detection – sub-WG „Verification of methods using digital PCR“
Histology
Cosmetic products
Cosmetic products-sub-WG MOSH_MOAH
MALDI-TOF
IRMS
NMR
MCPD-Ester
Fruit and vegetable juices
Mineral Water - Microbiology

Food Allergens
Molecularbiol. Methods - Microbiology
Molecularbiol. plant-/animal species diff.
Mycotoxins
Plant toxins
Plant toxins – sub-WG opium alkaloids
Pesticides
Phycotoxins
Animal species differentiation - meat
Veterinary drug residues in food
Viruses in food

Vitamin analysis*
Mass spectrometric protein analysis
§ 28b GenTG WG
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NGS - bacterial characterization
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NGS - species identification – sub –WG „Bioinformatics“

Tasks of the WG according § 64 LFGB

Validation and Standardisation

of Sampling and Analysis Procedures

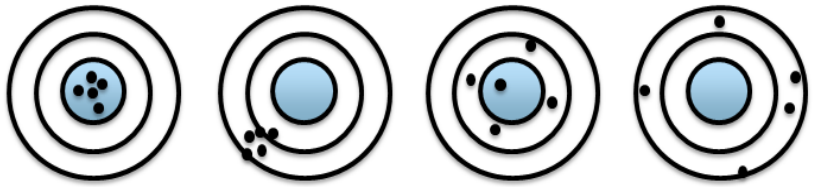
to be included in the official collection (ASU)

- Definition of purpose and scope
- Conduction of interlaboratory studies
- Evaluation of reliability, performance and reproducibility
- Continuous up-date

Method Validation – Why ?

Consideration and fulfillment of the requirements or criteria of EU legislation (VO (EU) 625/2017, Annex III)

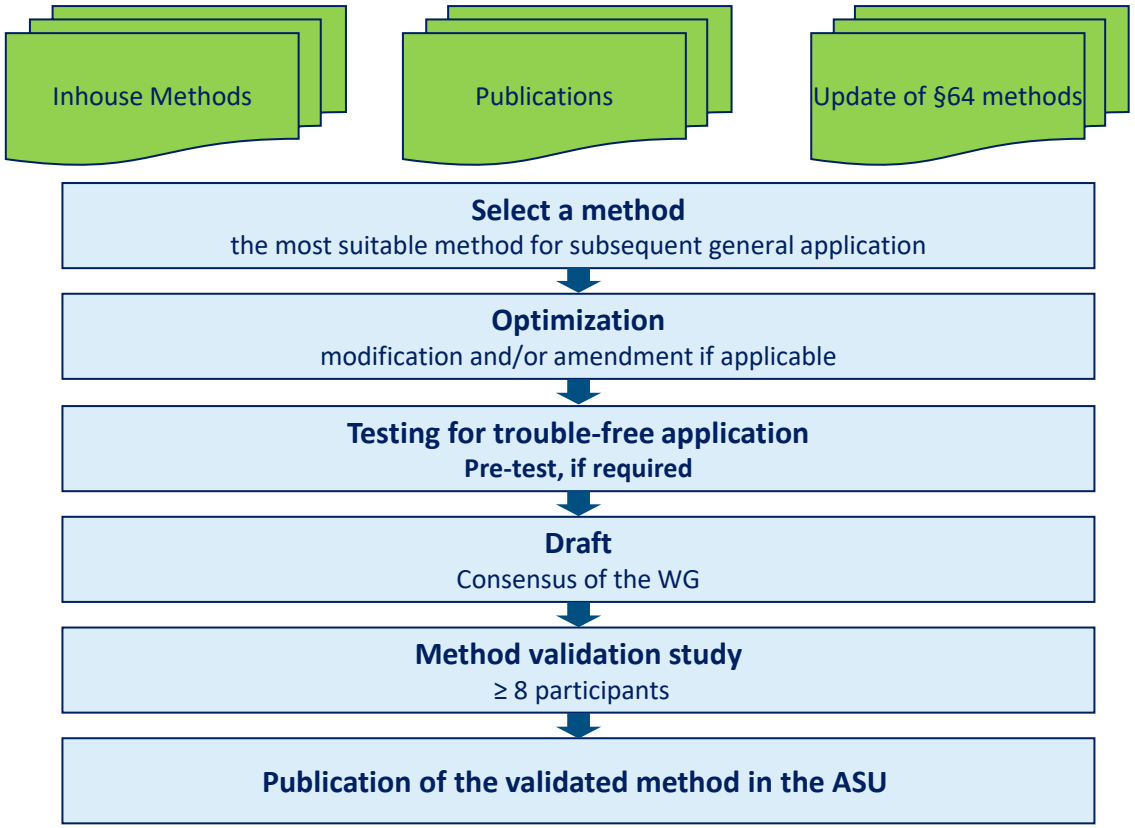
Annex III:
- Accuracy (trueness/precision)
- Precision values (reproducibility/repeatability): either obtained from a collaborative trial… or, where performance criteria for analytical methods have been established, be based on criteria compliance tests.



Precision	high	high	low	low
Trueness	high	low	medium	low

- Collaborative trials and determination of statistical reliability data are based on internationally recognized protocols – e.g. DIN ISO 5725

How are ASU Methods developed and standardized?



Advantages of the ASU concept

- ✓ **Harmonization based on consensus building**

  Experts from stakeholders already 'on board' during the development of the methods (no "lobbyists", but experienced experts)

- ✓ **Methods are based on experience from routine analysis**

  State-of-the-art science and technology is taken into account

- ✓ **Legal basis for the collection of methods**

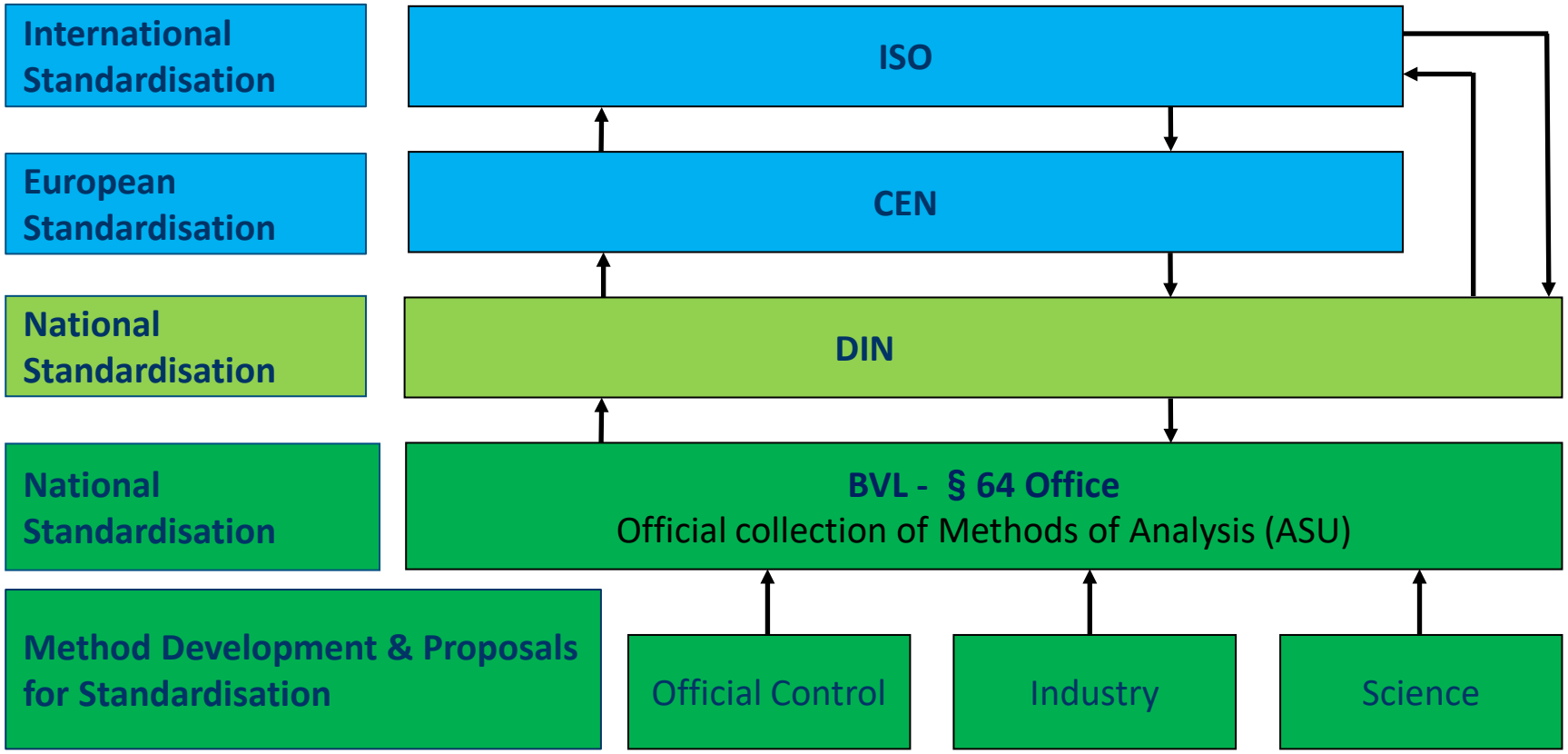
  Effects sustainable anchoring of the concept

- ✓ **Method validations in interlaboratory comparisons result in high acceptance**

  Availability of data on comparability and statistical reliability often results in unique selling proposition in the international arena

National & International Standardisation

Transfer of ASU methods to other standardization bodies and vice versa



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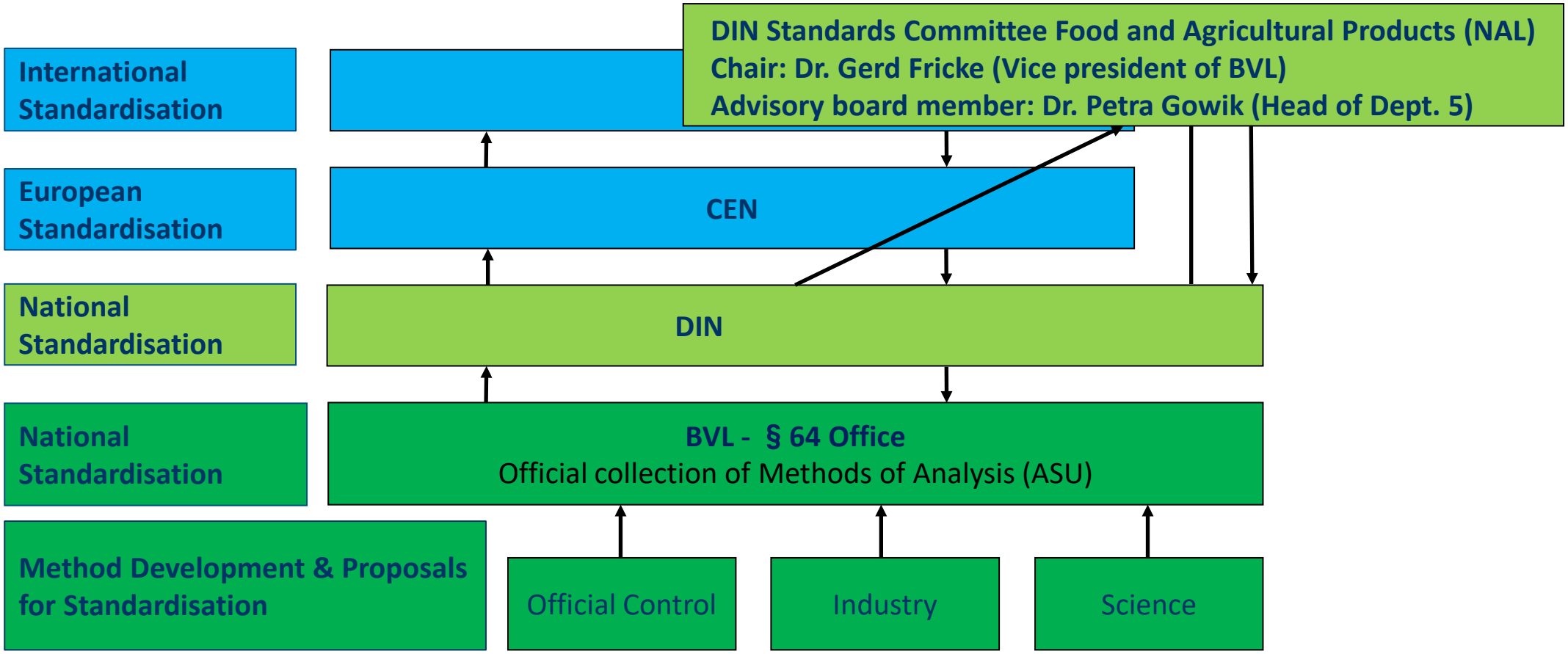
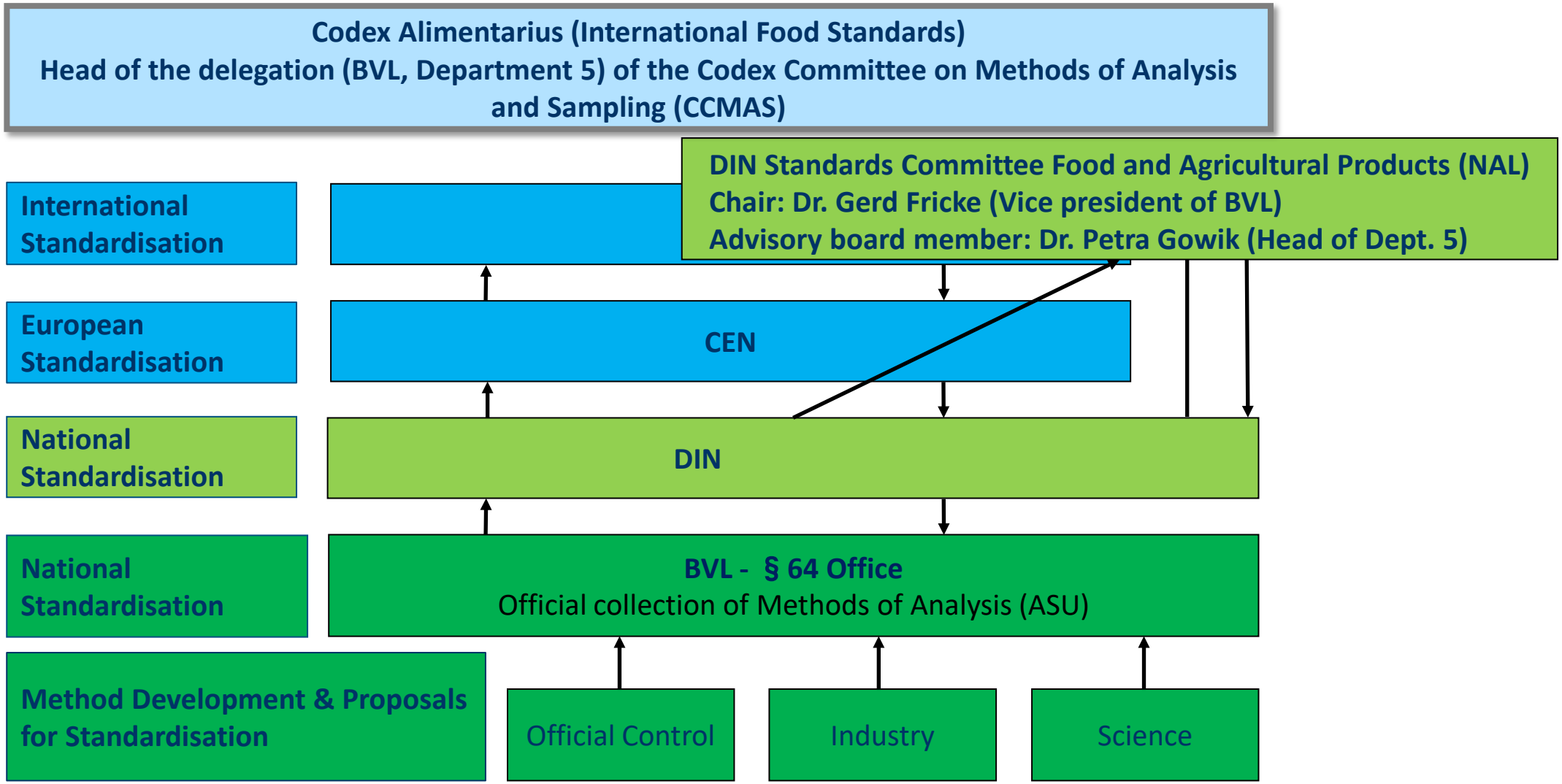


National & International Standardisation



Number of methods for FA available in the ASU (in German)

- Food Additives as general component: **11**
- Food Additives in foods: **66**
- Food Additives occurring also as natural component or as a contaminant: **21**

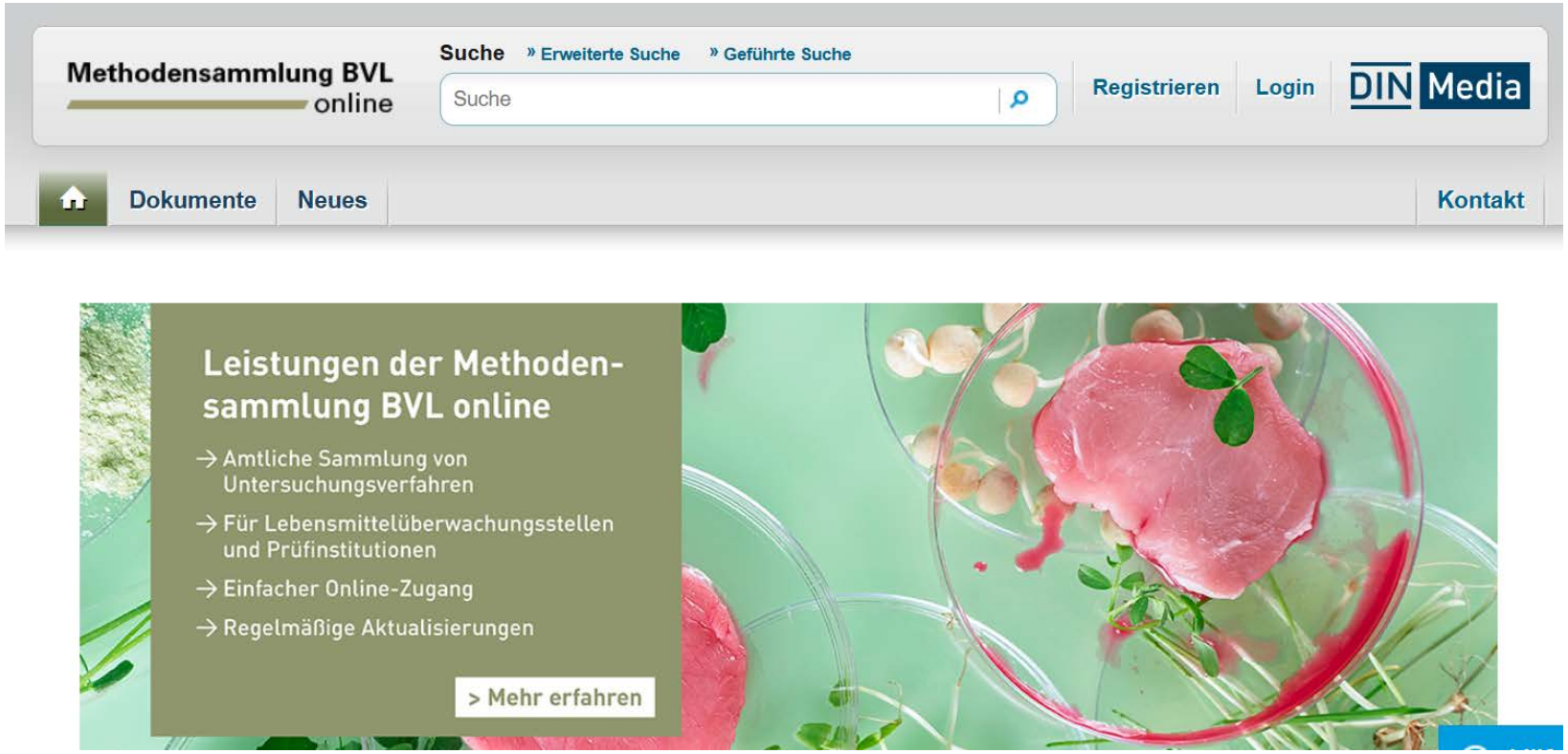
Examples of FA methods (ASU)

Method No.	Release date	Title
L 57.09.04-1	2007-04	Chromatographische Prüfung von E 160 b Annatto, Bixin und Norbixin
L 57.05.01-2	1981-01	Gelatine und andere Proteine in Agar-Agar E 406, Nachweis mit Trinitrophenol
L 57.05.04-1	1981-01	Glykolat in Carboxymethylcellulose E 466. photometrisch
L 57.12-2	2018-10	Bestimmung der Jodfarbzahl (nach DIN 6162)
L 57.22.01-1	1984-05	Bestimmung von Cyclohexylamin, Dicyclohexylamin und Anilin in Natriumcyclamat, GC
L 57.22.02-1	1984-05	Bestimmung von o- und p-Toluolsulfonamid in Saccharin-Natrium und Saccharin, GC
L 57.22.99-1	1998-09	Bestimmung des Natriumcyclamatgehaltes in Süßstoff-Tabletten; Titrimetrisches Verfahren
L 57.22.99-2	1998-09	Bestimmung von Saccharin in Tafelsüßen; Spektralphotometrisches Verfahren (nach DIN EN 1376)
L 57.22.99-3	1998-09	Bestimmung von Acesulfam-K in Tafelsüßen; Spektralphotometrisches Verfahren (nach DIN EN 1377)
L 57.22.99-4	1998-09	Bestimmung von Aspartam in Tafelsüßen; Hochleistungsflüssigkeitschromatographisches Verfahren (nach DIN EN 1378)
L 57.22.99-5	1998-09	Bestimmung von Natriumcyclamat, Saccharin und Sorbinsäure in Flüssigtafelsüßen (nach DIN EN 1379)

Examples of FA methods (ASU)

Method No.	Release date	Title
L 00.00-9	1984-11	Bestimmung von Konservierungsstoffen in fettarmen Lebensmitteln H: Brot, Bier, Limonadengrundstoff (Benzoesäure, Sorbinsäure, para-Hydroxybenzoesäure-ethylester, para-Hydroxybenoesäure-methylester, para-Hydroxybenzoesäureprpopylester)
L 00.00-10	1984-11	Bestimmung von Konservierungsstoffen in fettreichen Lebensmitteln H: Mayonnaise und Mayonnaiseerzeugnissen
L 00.00-11	1984-11	Nachweis von Antioxidationsmitteln in Lebensmitteln - Trockensuppe, Chips, Kaugummi, Marzipan
L 00.00-28	2001-07	Bestimmung von Acesulfam-K, Aspartam und Saccharin-Natrium in Lebensmitteln; HPLC-Verfahren (nach DIN EN 12856) Joghurterzeugnissen, Fruchtsaftgetränke
L 00.00-46/1	1999-11	Untersuchung von Lebensmitteln- Bestimmung von Sulfit in Lbm. Teil1: Optimiertes Monier-Williams-Verfahren (DIN EN 1988-1)
L 00.00-46/2	1999-11	Untersuchung von Lebensmitteln- Bestimmung von Sulfit in Lbm. Teil1: Enzymatisches-Verfahren (DIN EN 1988-2) - Frischobst, Obstprodukte, Bier
L 00.00-62	2015-06	Bestimmung von Vitamin E (α-, β-, γ- und δ-Tocopherol) in Lebensmitteln mit Hochleistungs-Flüssigkeitschromatographie (nach DIN EN 12822)
L 00.00-63/2	2001-07	Bestimmung von β-Carotin (nach DIN EN 12823-2)
L 00.00-149	2014-08	Bestimmung von Lycopin und β-Carotin in Lebensmitteln; HPLC-UV-Verfahren
L 00.00-162	2016-10	Bestimmung von Sorbinsäure und Benzoesäure in Lebensmitteln tierischen Ursprungs (HPLC-Verfahren)
L 00.00-171	2020-05	Bestimmung von Vitamin C in Lebensmitteln - HPLC-UV-Verfahren

Official website ASU



https://www.methodensammlung-bvl.de/de

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Thank you for your attention!

Contact:
Dr. Sabine Kemmlein
Federal Office of Consumer Protection and Food Safety (BVL)
Unit 501 ASU office, General Affairs
sabine.kemmlein@bvl.bund.de