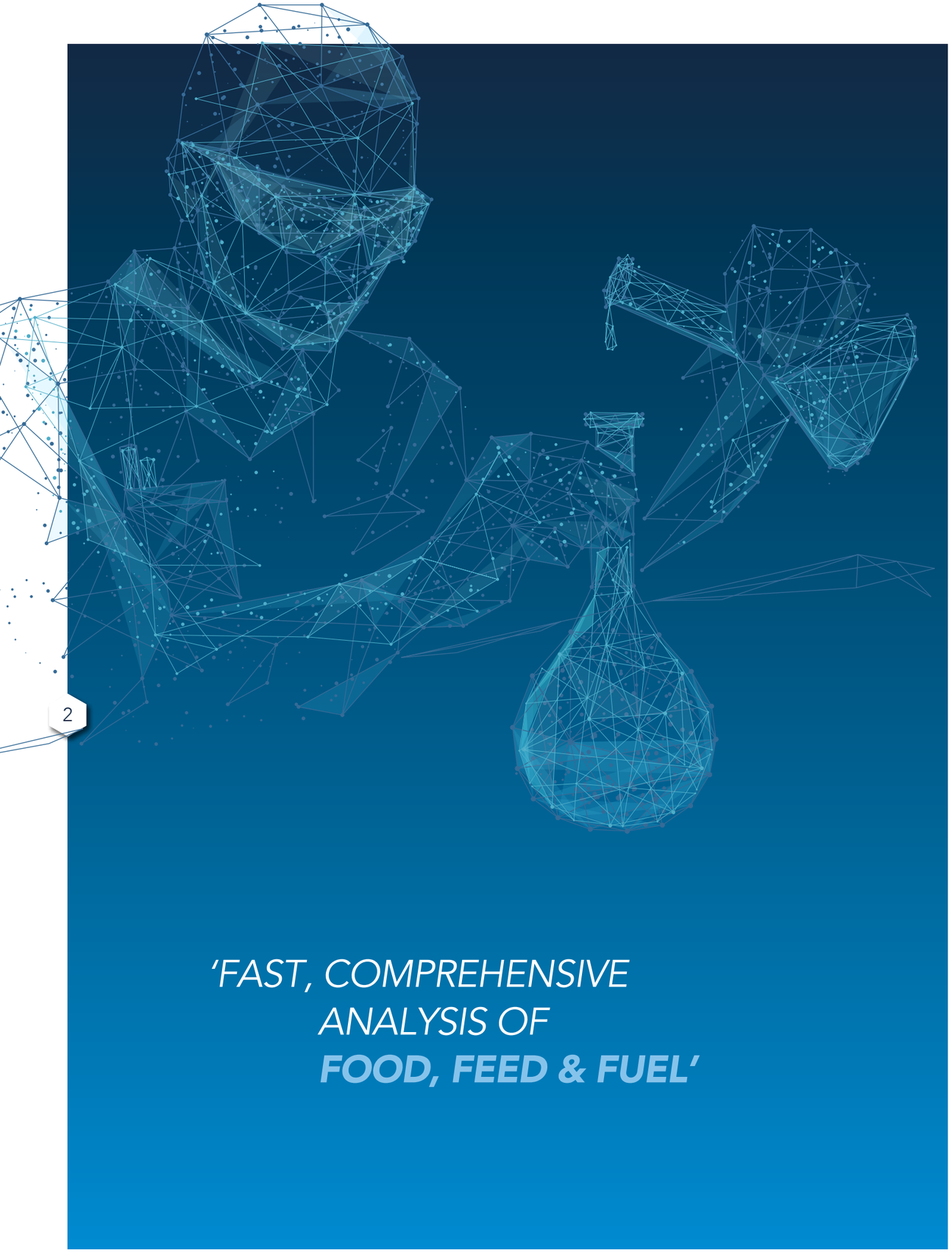
TLR
INTERNATIONAL LABORATORIES

FAST, COMPREHENSIVE ANALYSIS OF FOOD, FEED & FUEL



‘FAST, COMPREHENSIVE ANALYSIS OF ***FOOD, FEED & FUEL’***

FAST, ACCURATE, USABLE ANALYSES
FOR YOUR COMPANY

Welcome to TLR International Laboratories, an independent lab facility for chemical analysis, microbiological analysis, DNA analysis, PCR, and analysis interpretations. TLR is a modern lab in Rotterdam, The Netherlands where highly trained staff work with state-of-the-art instruments to present the best, most reliable results in ways our clients can use. TLR specialises in analysing foods, feed and ingredients for the feed industry, as well as fuel and biomass products.

When food, feed and fuel products are submitted to us for analysis, quality and safety are the highest priority – for our clients and for us. Reliable analysis results are the least you can expect from your laboratory. TLR is internationally accredited (L059) to perform a wide-ranging array of chemical, microbiological and DNA analyses. We constantly expand our range of services to include innovative, high-quality solutions so we can keep meeting your needs optimally.

Fast turnaround times are guaranteed at TLR. We can achieve these speeds by having our expert staff work with state-of-the-art equipment in a cuttingedge modern environment. All analyses are performed quickly and efficiently from a single location, saving you time and money.

Personal contact is very important to us. At TLR, you have a single point of contact: an account manager who has a solid understanding of the process. And a list of analysis results isn’t where we stop; we also provide you with an interpretation of what your results mean, tailored to your company and your specific analysis needs.

TLR is a member of the Peterson and Control Union network. This network consists of independently operating service providers that specialise in inspection and certification of food, feed, ingredients for mixed foods, textiles and fuel.

Most of the companies operate under the Peterson and Control Union trade names. This international network allows us to take samples all around the world. These connections also ensure that the consultants at TLR and its fellow companies can be deployed and consulted for advice on quality issues worldwide.

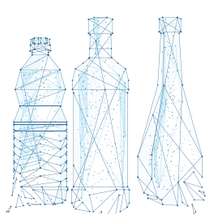
A WIDE RANGE OF FOOD ANALYSIS OPTIONS

In the food industry, quality and safety are considered public health issues. The government has imposed strict rules on food products. In this stringent regulatory framework, rapid responses, fully reliable analysis results and complete clarity are essential. TLR has the knowledge, expertise and technical capacity to quickly and expertly navigate this vulnerable market.

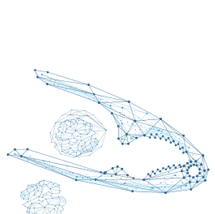
We can provide standard analysis for determining the exact nutritional content of your food products, as well as more complex methods for detecting residues and contaminants, such as pesticides, dioxins or melamine. TLR also performs classical microbiological analyses, such as plate counts, as well as modern PCR techniques for pathogenic bacteria like salmonella, or enteropathogenic E. coli and E. coli O157. PCR screening is used to detect genetically modified variants and allergens. TLR can test your products and ingredients for foreign contaminants, damaged kernels of grain, or toxic seeds.

The minimum and maximum shelf life of your products is also a vital factor in food safety. Our lab analyses and statistical evaluations allow us to determine those figures precisely. In microbiological challenge tests, our specialists research whether your food product, animal feed or ingredient would provide a productive medium for pathogenic bacteria. If this turns out to be the case, we can offer solutions in the form of various combinations of preservation technologies.

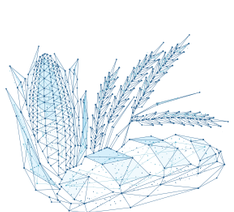
FRUITS AND VEGETABLES



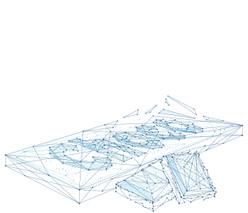
OIL AND FATS



NUTS AND DRIED FRUITS



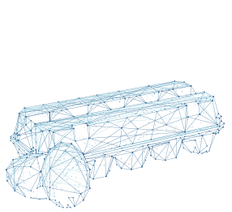
CEREALS, FLOUR AND BAKERY PRODUCTS



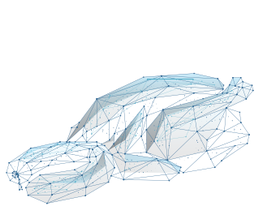
CACAO AND CHOCOLATE

HERBS AND SPICES

SEAFOOD AND SHELLFISH



EGGS



MEAT AND MEAT PRODUCTS

FRUIT AND VEGETABLES

Fresh produce is a perishable product group that spoils quickly, necessitating a rapid response. Would you like your fruit and vegetables tested for significant contamination and chemicals? TLR recommends that fruit and vegetable samples should be analysed within 24 to 48 hours.

In addition to chemical analyses, TLR can also quickly determine microbiological quality and safety, as well as the presence of mycotoxins. Poor manual hygiene and contaminated rinse water are common causes of microbiological contamination in fruit and vegetables. Enteropathogenic E. coli is also sometimes found in fruit and vegetables. TLR is accredited (L059) to detect its presence. Viruses can survive in the wax layer used to encase certain types of fruit. When analysing these products, TLR can detect the presence of e.g. the norovirus and hepatitis A.

It goes without saying that maximum reliability is absolutely required for an analysis laboratory like TLR. With the wide range of analyses we offer, we support companies in their operations according to quality standards like QS, GlobalGap, IFS and BRC.

ANALYSES FOR FRUIT AND VEGETABLE PRODUCTS

Residues
- Pesticides
- Fungicides, such as dithiocarbamates
- Herbicides like glyphosate
- Biocides

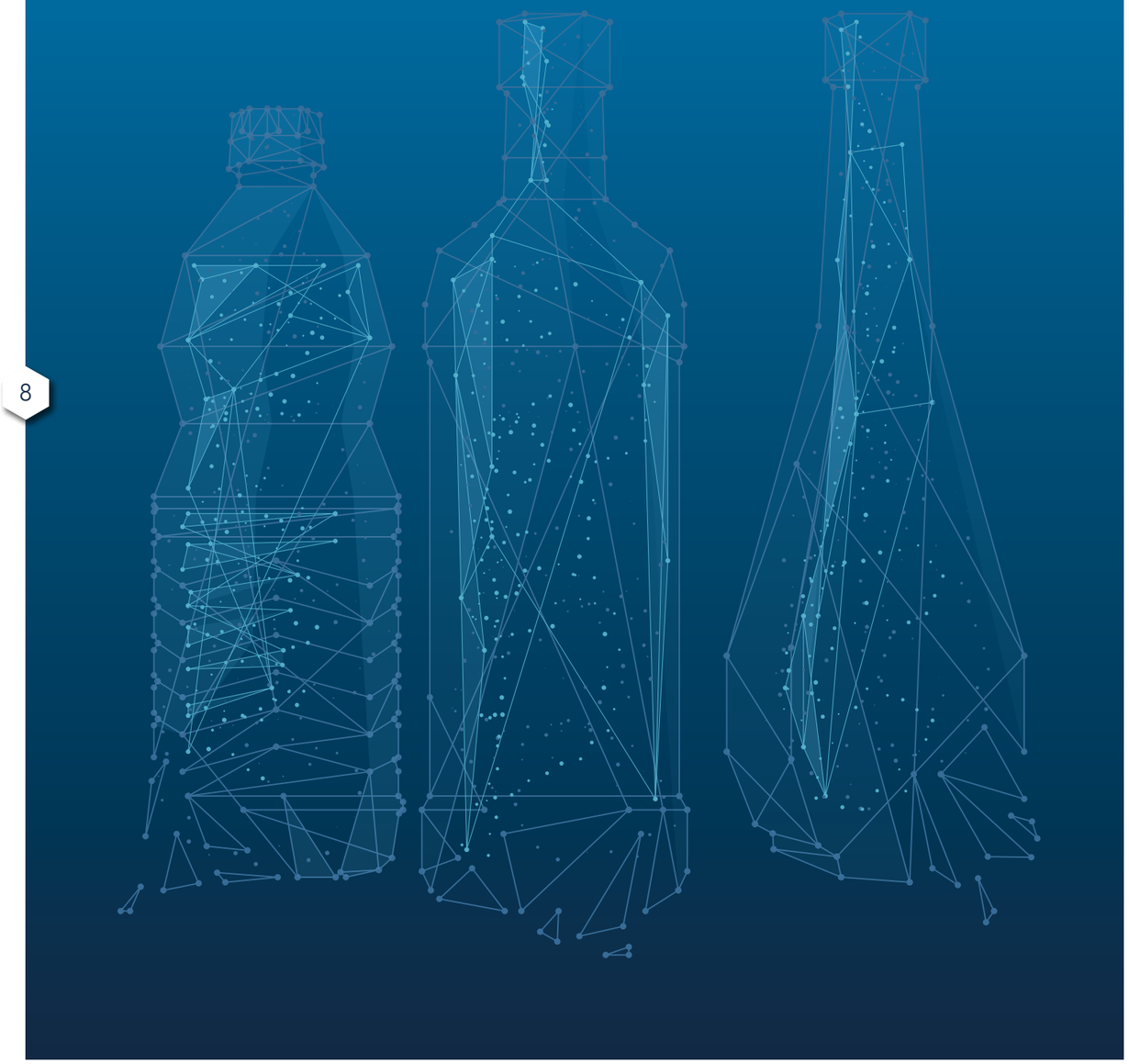
Chemicals and chemical contaminants
- Nitrate and nitrite
- Heavy metals like lead, cadmium and mercury
- Dioxins
- Mycotoxins like aflatoxin and ochratoxin

Microbiological parameters
- Total germ count
- Pathogens like salmonella and enteropathogenic E. coli (EHEC / STEC)
- Bacteria that cause spoilage, such as alicyclobacillus
- Viruses like norovirus and hepatitis A
- Patulin

Nutritional content and composition
- Protein
- Fat
- Carbohydrates
- Vitamins
- Minerals
- Trace elements
- Water

Genetic characteristics
- Identifying GMOs

'Diverse array of analyses in a single location'



OILS AND FATS

Do you need to know the quality and composition of specific oils and fats? TLR can determine and quantify key quality parameters and components of oils and fats. That includes the fatty acid profile and levels of free fatty acids, tocopherol, cholesterol, lecithin, peroxide and water.

TLR also offers a wide range of analyses to identify residues and contaminants, such as pesticides, mycotoxins, heavy metals, or polycyclic aromatic hydrocarbons. Detecting the presence of dioxins is an important step in risk management. The same applies to traces of GMOs and fat-soluble components that have migrated into food or feed from the packaging, for instance mineral oils.

Our analysis services can help you maintain compliance with food safety standards like IFS and BRC, as well as the HACCP analyses that are required by law. TLR is accredited (L059) by the Federation of Oils, Seeds and Fats Associations (FOSFA) and the Netherlands Oils, Fats and Oilseeds Trade Association (NOFOTA) and qualified to analyse oilseeds and derivative products. As a member of FEDIOL, the EU vegetable oil and proteinmeal industry association, TLR supports the mission to assure the quality and safety of oils, fats and related products.

ANALYSES FOR OILS AND FATS

Residues
- Pesticides
- Fungicides such as dithiocarbamates
- Herbicides like glyphosate
- Biocides

Chemical components and contaminants
- Fatty acid profile (PUFA, MUFA, omega-3 fatty acids, trans-unsaturated fatty acids)
- Free fatty acids
- Tocopherol
- Lecithin
- Cholesterol
- Peroxide
- Water
- Mineral oils
- Polycyclic aromatic hydrocarbons
- Heavy metals like lead, cadmium and mercury
- Dioxins
- Mycotoxins like aflatoxin and ochratoxin
- MOSH and MOAH

Microbiological parameters

Genetic characteristics
- Identifying GMOs

NUTS AND DRIED FRUITS

Would you like to know exactly what your nuts contain? Or trace unintended additives in your dried fruits? TLR offers a wide-ranging array of analyses for monitoring the quality and food safety of nuts and dried fruits. All analyses are performed in our laboratory in Rotterdam, enabling to schedule your analysis quickly and efficiently.

Numerous analyses are available to detect residues and contaminants, such as dioxins, PCBs, heavy metals or pesticides. Our laboratory can also assess all sorts of microbiological parameters, from the total germ count to characterisation of pathogens like salmonella, or tracing viruses. TLR can of course also precisely determine the nutritional content, such as protein and fat levels.

Fungal development is one of the problems in cultivation and storage of nuts. Fungi could produce mycotoxins that are harmful to human and animal health. One example is aflatoxin, which occurs in mildewed nuts and peanuts. A maximum threshold for mycotoxins in various food products has been established in the European Union. TLR can accurately and precisely detect the presence of mycotoxins and determine whether the toxin levels are within European limits.

ANALYSES FOR NUTS AND DRIED FRUITS

Residues and chemical contaminants
- Pesticides (fungicides, herbicides, biocides)
- Dioxins
- PCBs
- Polycyclic aromatic hydrocarbons (PAHs)
- Heavy metals like lead, cadmium and mercury
- Radiation
- Mycotoxins like aflatoxin and ochratoxin

Microbiological parameters
- Total germ count
- Pathogens like salmonella
- Spoilage bacteria
- Yeasts
- Fungi
- Viruses

Nutritional content and composition
- Protein
- Fat
- Carbohydrates
- Vitamins
- Minerals
- Trace elements

Microscopic techniques

CEREALS, FLOUR AND BAKERY PRODUCTS

What is the quality of your flour? TLR analyses your cereals, flour and bakery products and lets you know. Thanks in part to our close proximity to one of the most important grain ports in the European Union, we have extensive experience in quality analysis of cereals and cereal products.

In order to determine the quality of cereals and flour, TLR analyses moisture levels and assesses protein levels and quality. We use the Kjeldahl method and near-infrared (NIR) techniques for this purpose. We can also develop specific NIR calibrations tailored to your preferences, and perform rheological tests with the alveograph.

Other routine analyses include falling number, sedimentation level (Zeleny index) and detection of impurities, such as seeds, chaff or dirt (the 'admixture').

TLR also offers a wide-ranging array of methods and tests for analysis of the nutritional content, composition, microbiological quality and safety of bakery products, from total germ count to specific tests for pathogens. For example, we can characterise salmonella within 36 hours. Moreover, TLR offers an extensive range of accredited (L059) analyses for identifying pesticides, mycotoxins, dioxins, heavy metals or PAHs. We help you maintain compliance with European quality standards such as GMP+, QS, GFSI, IFS and BRC, as well as HACCP. TLR has been approved by the Grain and Feed Trade Association (GAFTA) as an analysis laboratory and can perform all GAFTA analyses.

ANALYSES FOR FRUIT AND VEGETABLE PRODUCTS

Residues and chemical contaminants
- Pesticides (fungicides, herbicides, biocides)
- Dioxins
- PCBs
- Polycyclic aromatic hydrocarbons (PAHs)
- Heavy metals like lead, cadmium and mercury
- Radiation
- Mycotoxins like aflatoxin and ochratoxin

Microbiological parameters
- Total germ count
- Pathogens like salmonella, E. coli, S. aureus and B. cereus
- Spoilage bacteria
- Yeasts
- Fungi
- Viruses like norovirus and hepatitis A

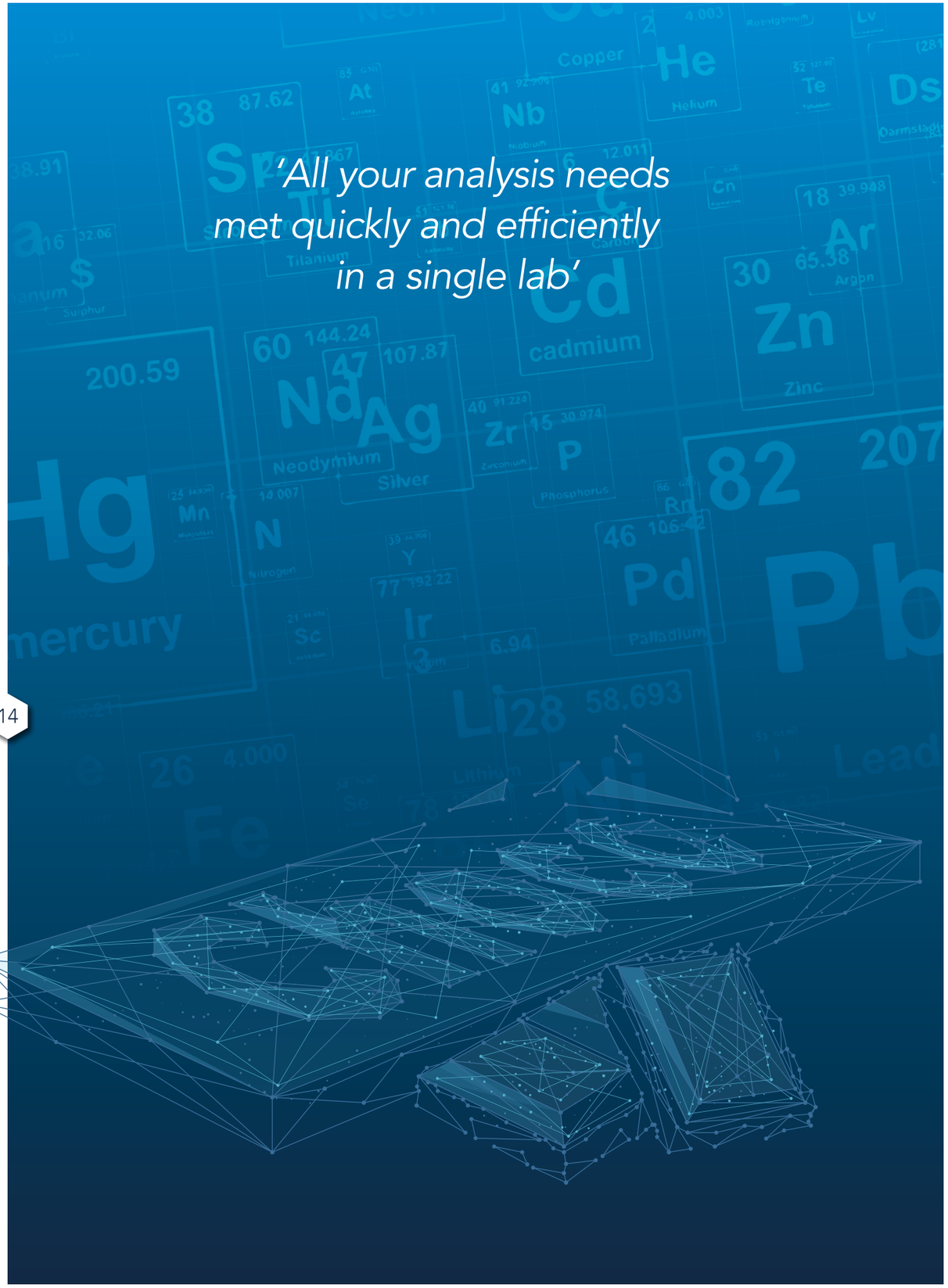
Nutritional content and composition
- Protein
- Fat
- Carbohydrates
- Dietary fibre
- Vitamins
- Minerals
- Trace elements
- Water
- Sugar (mono-, di- and oligosaccharides)
- Sugar alcohols
- Sweeteners
- Acrylamide

Cereal and baking quality
- Protein content and protein quality (Kjeldahl method and NIR)
- Rheological tests (alveograph)
- Falling number
- Sedimentation value (Zeleny index)
- Impurities ('admixture')

Genetic characteristics
- Authenticity assessment using DNA sequencing and PCR techniques

Microscopic techniques

'Close proximity to the EU's largest grain ports'



CACAO AND CHOCOLATE

Are you eager to assure the quality of your cacao and chocolate products and seeking continued optimisation? TLR is ready to assist you with a wide range of specific analyses. Cacao and chocolate are subject to all sorts of requirements that are laid down in European regulations; the requirements under Dutch law are defined in the Commodities Act Degree on Cacao and Chocolate. There are regulations for microbiological, chemical and labelling requirements.

Relevant analyses including cacao bean grading, which we base on microscopic techniques. We perform authenticity assessment for beans and chocolate based on DNA methods. We can also check whether the fat profile of the chocolate conforms to statutory requirements and determine the nutritional content. TLR also has various testing options at its disposal to detect residues and contaminants, such as analysis of dioxins, PCBs, heavy metals or pesticides. We can also map out all sorts of microbiological parameters. Examples include detecting and characterising pathogenic bacteria like salmonella, listeria monocytogenes, bacillus cereus and staphylococcus aureus.

Our international network allows us to arrange professional sampling worldwide through affiliated companies like Peterson and Control Union.

ANALYSES FOR CACAO AND CHOCOLATE

Residues and chemical contaminants
- Pesticides (fungicides, herbicides, biocides)
- Dioxins
- PCBs
- Polycyclic aromatic hydrocarbons (PAHs)
- Heavy metals like lead, cadmium and mercury
- Radiation
- Mycotoxins like aflatoxin and ochratoxin

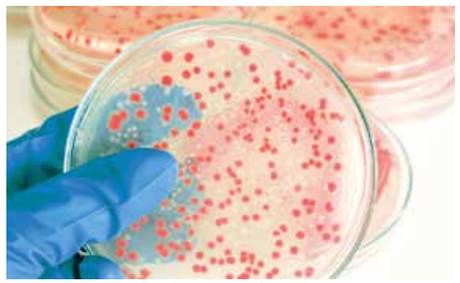
Microbiological parameters
- Total germ count
- Pathogens like salmonella
- Spoilage bacteria
- Yeasts
- Fungi
- Viruses

Nutritional content and composition
- Protein
- Fat
- Carbohydrates
- Vitamins
- Minerals
- Trace elements
- Fatty acid profile
- Free fatty acids
- Unsaponifiable matter
- Water
- Alkaloids like caffeine and theobromine
- Sugar (mono-, di- and oligosaccharides)
- Sugar alcohols
- Sweeteners
- Organic acids

Microscopic techniques
- Grading of cacao beans

HERBS AND SPICES

Need to have your herbs and spices subjected to monitoring and analysis within 24 to 48 hours? That time frame is standard at TLR. Rapid delivery is crucial for perishable fresh ingredients like herbs and spices. And you’d also like your dried herbs and spices to be tested quickly and efficiently for the presence of e.g. heavy metals and colourants.



TLR provides monitoring within 24 hours for nitrate and within up to 48 hours for pesticides such as insecticides, fungicides and biocides. In addition, TLR can analyse dried herbs and spices for the presence of heavy metals and polycyclic aromatic hydrocarbons (PAHs).

Herbs and spices are regularly treated with artificial colourants using azodyes. These could include prohibited or harmful dyes like Sudan red. If the dyes are permitted colouring agents that are listed in the Commodities Act Decree on the use of colourants in foodstuffs, their presence must be stated on the label. TLR can determine the quantity of azodye with great precision.

Herbs and spices are extremely susceptible to microbiological contamination. These ingredients are often cultivated and dried under unhygienic conditions in tropical regions. For that reason, TLR offers an extensive range of microbiological analyses. The analyses generally include total germ count, lactobacilli, and enterobacteriaceae such as salmonellae and enteropathogenic E. Coli (EHEC / STEC). TLR can also detect the presence of mycotoxins.

We can also arrange professional sampling on your behalf. If necessary, we can call on our international network of affiliates like Peterson and Control Union to arrange sampling for you anywhere in the world.

ANALYSES FOR HERBS AND SPICES

Residues
- Pesticides
- Fungicides such as dithiocarbamates
- Herbicides like glyphosate
- Biocides

Chemicals and chemical contaminants
- Nitrate and nitrite
- Heavy metals like lead, cadmium and mercury
- Polycyclic aromatic hydrocarbons (PAHs)
- Azodyes
- Mycotoxins like aflatoxin and ochratoxin

Microbiological parameters
- Total germ count
- Pathogens like salmonella and enteropathogenic E. coli (EHEC / STEC)
- Lactobacillae

Nutritional content and composition
- Protein
- Fat
- Carbohydrates
- Vitamins
- Minerals
- Trace elements
- Fatty acid profile
- Water

Genetic characteristics
- Identifying GMOs

SEAFOOD AND SHELLFISH

Does your seafood still meet your standards of quality? Fish, crustaceans and molluscs are among the most frequently traded food products in the world. Production is gradually shifting from wild-caught fish to aquaculture, under pressure from overfishing and the growing demand. As certain seafood products grow scarcer, unauthorised substitution by less exclusive species may sometimes take place.

Quality is related in part to the origin of the seafood species. TLR can identify fraud by tracing the origins of the fish or shellfish. In these analyses, we use DNA sequencing or PCR techniques.

Another parameter that indicates quality is the freshness of the seafood products, which can be measured using the total volatile base nitrogen (TVBN). Threshold levels have been set for this value in the European Union, as well as for histamine levels. Spoilage can cause histamine levels to rise, possibly leading to food poisoning. TVBN and histamine assessment are also within the scope of TLR's services. Obviously, we also offer microbiological analyses, for instance for yeasts, fungi, E. coli, Bacillus, norovirus and Vibrio Spp.

Nutritional content is also important. TLR can use measuring equipment to precisely determine levels of protein, fat, carbohydrates, water and vitamins. In addition, TLR can check for (environmental) contaminants and residues like pesticides, polycyclic aromatic hydrocarbons (PAHs), dioxins, PCBs, heavy metals, residues of veterinary drugs, and radioactive contamination.

ANALYSES FOR FISH AND SHELLFISH

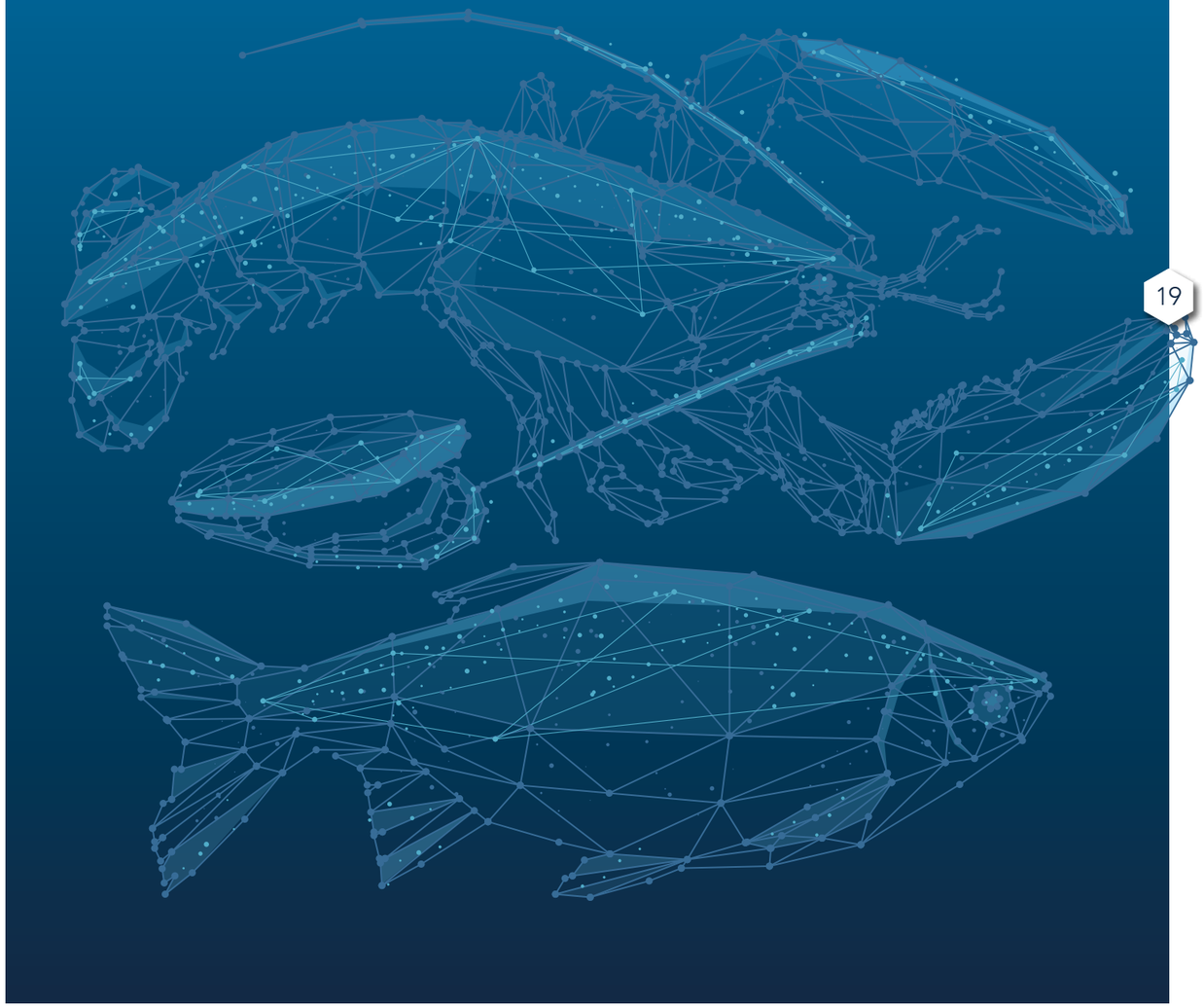
Residues
- Veterinary drugs
- Pesticides (fungicides, herbicides, biocides)

Chemicals and chemical contaminants
- Dioxins
- PCBs
- Polycyclic aromatic hydrocarbons (PAHs)
- Heavy metals like lead, cadmium and mercury
- Radiation

Microbiological parameters and spoilage parameters
- Total germ count
- Pathogens like salmonella, enteropathogenic E. coli (EHEC / STEC), Bacillus and Vibrio Spp
- Yeasts
- Fungi
- TVBN
- Histamine
- Mycotoxins

Nutritional content and composition
- Protein
- Fat
- Carbohydrates
- Vitamins
- Minerals
- Trace elements
- Fatty acid profile
- Water

'Sampling and advice around the globe via the Peterson and Control Union network'



MEAT AND MEAT PRODUCTS

Are you looking for a laboratory that analyses your meat products quickly? TLR understands that rapid analysis is crucial for a perishable, frequently sold product group like meat. We perform lots of different analyses to determine nutritional content, quality and food safety, and to detect food fraud. All analyses are performed in a single location. This allows us to achieve significant time savings.

TLR has modern DNA sequencing and PCR techniques at its disposal to provide evidence of fraud – like selling horsemeat as beef. In addition, we can check for a wider range of (environmental) contaminants and residues, such as pesticides, polycyclic aromatic hydrocarbons (PAHs), dioxins, PCBs, heavy metals, residues of veterinary drugs, and radioactive contamination.

We also offer pathogen testing, including tests for clostridium botulinum, enteropathogenic E. coli (EHEC – ESTEC), listeria and salmonella.

TLR performs salmonella characterisation using the checkpoint method, which allows us to confirm the type within 36 hours. Our scope also includes detecting viruses like norovirus or hepatitis A.

The nutritional content of meat products and correct labelling are important. TLR analyses the levels of protein, fat, carbohydrates, water, vitamins, minerals and trace elements in your products.

ANALYSES FOR MEAT AND MEAT PRODUCTS

Residues
- Veterinary drugs
- Pesticides (fungicides, herbicides, biocides)

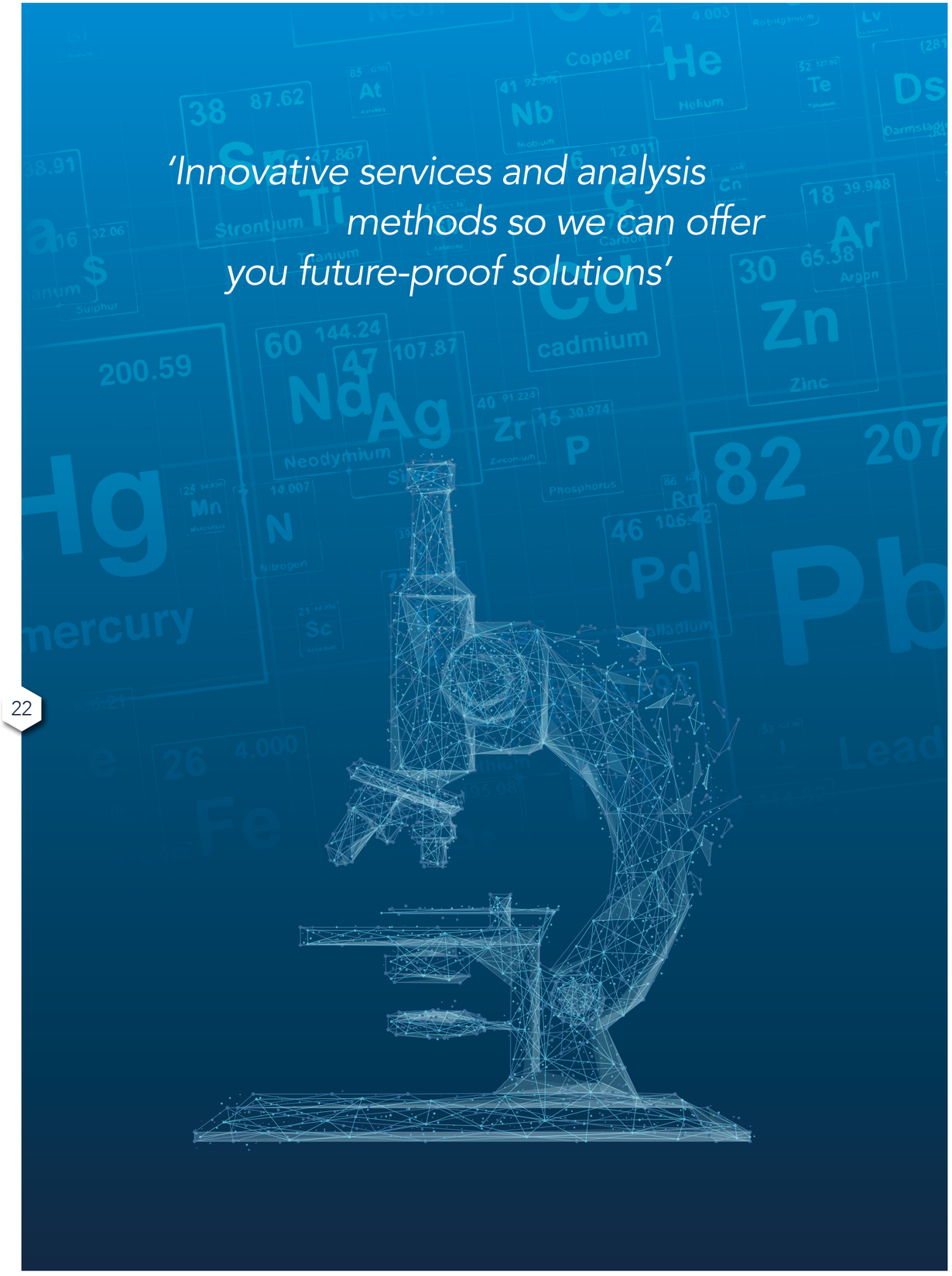
Chemical components and contaminants
- Dioxins
- PCBs
- Polycyclic aromatic hydrocarbons (PAHs)
- Heavy metals like lead, cadmium and mercury
- Radiation

Microbiological parameters
- Total germ count
- Pathogens like salmonella, enteropathogenic E. coli (EHEC / STEC) and listeria
- Spoilage bacteria
- Yeasts
- Fungi
- Viruses like norovirus and hepatitis A

Nutritional content and composition
- Protein
- Fat
- Carbohydrates
- Vitamins
- Minerals
- Trace elements
- Fatty acid profile
- Water

Genetic characteristics
- Detecting species and origin with DNA sequencing and PCR techniques

'Including pathogen testing for enteropathogenic E. coli (EHEC-STEC)'



TLR DOES MORE ON YOUR BEHALF

Besides its extensive package of analyses, TLR can mean a lot more to you. We can help you navigate the regulatory framework and arrange sampling – within the European Union, but also worldwide thanks to the international network of our affiliate companies: Peterson and Control Union.

Expert advice tailored to your needs

The TLR consultants can offer wide-ranging advice on enforcing and improving food safety and quality, troubleshooting, helping achieve the intended standard of product quality in production, and assisting in risk assessment and risk evaluation of food production processes according to methods and standards such as HACCP, ISO 22000, GMP+, GLOBALGAP, BRC, IFS and QS.

Quality and safety training

TLR offers tailor-made training programmes in food quality and food safety for your ranking staff and employees. Your staff will acquire the relevant skills they need to achieve your management goals. We target all segments of the food sector, including catering, food production and distribution, and retail.

Solutions that suit your needs

The range of services provided by TLR are not easily described in a short, simple phrase. On the one hand, this is because we are dedicated to ongoing innovation, so we frequently add new services and advanced analysis methods to our range. Conversely, we deliver tailor-made solutions for analyses and other research questions whenever necessary.

Do you have a question for us?

Feel free to call or e-mail; our team of account managers is ready to help you find a solution that suits your needs!

ACCREDITATIONS

TLR is NEN-EN-ISO/IEC 17025 accredited (L059) by the Dutch Accreditation Council. In addition, TLR is accredited (L059), certified or approved by the following international organisations:

1. FOSFA - Federation Oils, Seeds & Fats Associations Ltd.
2. FEDIOL - European Vegetable Oil and Proteinmeal Industry
3. NOFOTA - Netherlands Oils, Fats and Oilseeds Trade Association
4. GAFTA - Grain and Feed Trade Association
5. VERNOF - Association of Dutch Producers of Edible Oils and Fats
6. QS - Qualität & Sicherheit (scope: feed, and fruit & vegetables)
7. GMP+ Feed Safety Assurance scheme
8. OVOCOM Platform Animal Feed chain
9. GlobalGAP
10. VLOG (Verband Lebensmittel Ohne Gentechnik)

INTERNATIONAL LABORATORIES

TLR INTERNATIONAL LABORATORIES
+31 (0)10 282 32 92
contact@tlr.nl