Quality & Food Safety Solutions – Universal safety from one source!

Are you looking for reliable tools and methods to ensure the quality of your product along the entire supply chain, all the way to the consumer? Having been a supplier to and partner of the food and beverage industry for many years, we know the various influencing factors that can impair product quality. Premium quality beverages need consistent safeguarding measures, from the raw material to filling. That is why we support our customers with a series of Quality & Food Safety Solutions in addition to our Natural Ingredients and Ingredient Systems. Alongside the DMD® nutrient media and microbiological analyses, we provide our customers with support in technological questions and scientific testing programmes to examine product stability.

Our goal is to offer you practical solutions that enable you to achieve fast and reliable quality assurance easily and cost effectively.

DMD® – Döhler Microsafety Design®
Dedicated microbial detection solutions for the beverage industry Simple – Fast – Safe

Do you want fast, safe and reliable detection of even minimal microbial contamination?

DMD® products offer the following advantages:

- Ready-to-use
- Easy application and evaluation
- Fast, safe and reliable detection
- Robust against disruptive influences
- Cost-effective
- Quality tested for functionality
- Global availability

Cultural detection remains the preferred method for daily routine monitoring in quality assurance. It is cost effective and delivers reliable results. Cultural media are also an essential prerequisite for rapid molecular detection methods or microorganism identification, e.g. as liquid pre-enrichment.

Under our Döhler Microsafety Design® (DMD®) brand, we provide microbial detection solutions for almost every segment of the beverage and brewing industry. These products have become established in the international beverage industry over the last 30 years or more, and are both recommended by ministries and institutes and included in standard reference works by standardisation authorities, among others. This international acceptance is why our customers gain trust in the DMD® product quality.

In close cooperation with prestigious professors from internationally renowned universities, institutes and laboratories, we develop innovative products that are tailored to market demands and fulfil your requirements.

For further information please contact our sales representative or send us an email: dmd@doehler.com

Analytical Services

Do you not operate your own laboratory or do you want to have your own analysis results confirmed periodically by our laboratory?

Analytical Services offers you the following analyses:

- Chemical-physical (e.g. Brix, pH, carbon dioxide, total acid)
- Microbiological (e.g. beverage-spoiling microorganisms)
- Flavour and sugar analyses
- Detection of specific pesticides

You will save on investments and resources in the establishment and maintenance of your own laboratories, space and staff. Take advantage of our comprehensive experience and benchmarks based on the large number of beverage samples which we receive from the international beverage industry for analysis.

Testing procedures, such as specific and non-specific cultivation, are accredited in accordance with DIN EN ISO/IEC 17025:2005 by Deutsche Akkreditierungsstelle Chemie GmbH, represented in the German Accreditation Council (DAN) for the subject areas of chemistry and biology.

Döhler Product Science has developed state-of-the-art scientific testing programmes to put your mind at ease. These involve modelling the conditions in retail – packaging, light, oxygen and heat – as realistically as possible.

Do you need reliable declarations, indications and above all certainty on whether the product you have developed or already filled will remain stable from a microbiological and sensory point of view throughout its entire shelf life?

Product Science offers the following:

- RST – real shelf life test (under real-time conditions)
- HAT – high accelerated life test (under accelerated extreme conditions)
- Testing programmes for packaging made from glass, cardboard, PET, cans etc.
- Subsequent objective, sensory analysis from experts, including recommendations for action
- Consulting for product and packaging development with regard to optimum stability

Product Science has already conducted many thousands of stability tests and works together with a large network of partners from science and industry. Many years of experience and standardised testing programmes that are subject to constant further development ensure that you receive reliable results and certainty in product development and market launch.

Please contact our sales representative about our Quality & Food Safety Solutions or send us an email: mailbox@doehler.com

Technical Services

Do you need advice on technical products or a comprehensive evaluation of the hygiene status of your production and filling facilities?

Our Technical Services can support you in:

- Microbiological analyses of weak spots
- Sample and initial filling
- Recipe modifications
- Consulting for project planning

Take advantage of the many years of experience of our technical staff and save yourself time and money.

Analytical Services

Product Science Test Programme
<table>
<thead>
<tr>
<th>Target microorganisms</th>
<th>General</th>
<th>Drinking, table &amp; mineral water</th>
<th>Rinsing water</th>
<th>Beer &amp; beer mix beverages</th>
<th>Wine &amp; wine mix beverages</th>
<th>Soft drinks (&lt; 30% juice)</th>
<th>Juice &amp; nectars</th>
<th>Dairy &amp; milk mix beverages</th>
<th>Production &amp; filling facilities</th>
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<tbody>
<tr>
<td><strong>Total viable microorganism count (TVC)</strong></td>
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<td><strong>Escherichia coli/Escherichia coli forms (E.Coli/Coliforms)</strong></td>
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<td><strong>Beer and wine spoiling bacteria</strong></td>
<td>NBB®-A</td>
<td>NBB®-B</td>
<td>NBB®-C</td>
<td>NBB®-PCR</td>
<td>NBB®-P</td>
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<td><strong>Beer spoiling Lactobacilli and Pediococci</strong></td>
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<td><strong>Megasphaera, Pectinatus</strong></td>
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*Water-specific faecal indicator microorganisms.
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<th><strong>Abbreviation</strong></th>
<th><strong>Product</strong></th>
<th><strong>Format</strong></th>
<th><strong>Description</strong></th>
<th><strong>Product No.</strong></th>
<th><strong>Packaging</strong></th>
<th><strong>pH</strong></th>
<th><strong>Incubation</strong></th>
<th><strong>T°C</strong></th>
<th><strong>Days</strong></th>
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<tr>
<td>AIV® Broth</td>
<td>Broth</td>
<td>Liquid Linden Grain Medium for qualitative detection at or after expiration of aseptic filling lines</td>
<td>2.04705.050</td>
<td>Tank car</td>
<td>4.0 - 6.4</td>
<td>26 - 30</td>
<td>5 - 7</td>
<td>Aerobic</td>
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<td>AIV® Broth, concentrated</td>
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<td>Concentrated Liquid Linden Grain Medium for production of AIV® Broth</td>
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<td>AIV® Powder</td>
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<td>Powder for production of AIV® Broth - Liquid Linden Grain medium</td>
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<td>BAT-A</td>
<td>Agar</td>
<td>Selective agar for isolation of microorganisms (Microbiological Laboratory)</td>
<td>2.04709.362</td>
<td>5 x 200 ml (glass bottle)</td>
<td>4.0 ± 0.2</td>
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<td>BAT-B</td>
<td>Broth</td>
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**Brewers Quick® Kit**
- Assortment of ready-to-use culture media containing NBB®-A, NBB®-B, NBB®-P, Tubes and sterile swabs on wooden sticks: Qualitative detection of indicator microorganisms from water samples, fast and reliable trace detection of beer spoilage pathogens from beer, yeast and swab samples. Part of microbiological facility monitoring. Application: Qualitative pre-test and direct detection.

**Broth Selective**
- Liquid media for qualitative detection as part of validation of aseptic filling lines.

**TSA** (CASO Agar)
- Complex agar for the detection of L. brevis and L. sakei in one kit.

**TSA** (CASO Broth)
- Complex broth. Application: General broth for the cultivation of several microorganisms.

**CCA**
- Selective agar for the qualitative detection of E. coli and Citrobacter species, colony staining by eosin, reaction components.

**DMD® Screen Lact/Peptone**
- Kit Molecular screening of lactobacilli spp. and peptococci spp. in one kit.

**DMD® Screen Lactose Megalans**
- Kit Molecular screening of lactobacilli spp. and megalans in one kit.

**DMD® Screen Lact/Extr.**
- Kit Molecular identification of lactobacilli/dextran secreting in one kit.

**DMD® Screen Hop Resistance**
- Kit Molecular screening of hop resistance genes and for AOX and Ado in one kit.

**DMD® Universal Detection Module**
- Universal lateral-flow stripes, necessary for the analysis of all DMD® Screen & Ident Kits.

**GastroFast® Agar**
- Selective agar for the isolation of indicator microorganisms using swab sampling with sterile swabs as an elevated test.

**LMB**
- Agar Selective broth based on the lactose peptone broth used in the German method DWA and described in the German Drinking Water Ordinance.

**NBB®-A**
- Agar Selective agar for isolation, cultivation and quantitative determination in filtered beer. Application: Basic culture medium with integrated indicator for membrane filtration, pour plate and streaking method.

**NBB®-B**
- Broth Selective liquid media for fast trace detection in yeast culture and filtrate/beer. Application: Sample enrichment with integrated indicator for simple assessment.

**NBB®-B Tube**
- Broth Selective liquid media for fast trace detection in yeast culture and filtrate/beer. Application: Sample enrichment with integrated indicator for simple assessment.

**NBB®-B-Am**
- Broth Culture medium for qualitative detection of indicator microorganisms using swab sampling with sterile swabs as part of microbiological hygiene monitoring.

**NBB®-B-Am Tube**
- Broth Culture medium for qualitative detection of indicator microorganisms using swab sampling with sterile swabs as part of microbiological hygiene monitoring.

**NBB®-C**
- Concentrated broth/liquid medium for fast trace detection in filtered beer after enrichment.

**NBB®-P**

**NBB®-PCR**
- Broth Pre-enrichment culture medium for a fast PCR and real-time PCR detection of beer-spoilage bacteria.

**PCA**
- Agar Selective agar for the isolation of yeasts and moulds.

**PAO**
- Fatty Acid Agar.

**SBA**
- Sakazaki-Rohde Agar (Salmonella 4% Glucose Agar).

**SSL**
- Broth Selective broth for fast diagnosis of SSL. Application: Sample enrichment, examination of swab samples.

**Transfast® Broth**
- Broth Selective broth for fast and qualitative sample enrichment. Application: Sample enrichment, examination of swab samples.

**Transfast® Gel**
- Gel for gel culture, fast and qualitative detection of spoilage microorganisms. Application: Direct detection.

**Transfast® Starter Kit**
- Kit Assortment of ready-to-use culture media containing Transfast® Broth, Transfast® Gel and sterile Transfast® Gel Tubes for a fast and reliable detection.

**VRBL**
- Malt Red Wine Lactose Agar.

**YGC**
- Yeast Extract Glucose Osmotic/Pressure Agar.

**YGB**
- Yeast Broth.
Under our Döhler Microsafety Design® (DMD®) brand, we provide microbial detection solutions for a wide range of beverages and beverage ingredients. Are you interested in more information on the DMD® Screen and Ident Kits, NBB®-PCR Broth or our other innovative culture media for beverages? Visit our website at www.doehler-dmd.com or get in touch by email at dmd@doehler.com

About Döhler

Döhler (www.doehler.com) is a global producer, marketer and provider of technology-driven Natural Ingredients, Ingredient Systems and Integrated Solutions for the food and beverage industry. Döhler’s integrated approach and the broad product portfolio are the optimal basis for innovative and safe food & beverage applications. The product portfolio of Natural Ingredients ranges from natural flavours, natural colours, health & nutrition ingredients, cereal ingredients, dairy ingredients, speciality ingredients, dry ingredients, fruit & vegetable ingredients to Ingredient Systems.

Headquartered in Darmstadt, Germany, Döhler is active in over 130 countries and has 30 production sites, as well as sales offices and application centres on every continent. More than 5,000 dedicated employees provide our customers with fully integrated Food & Beverage Solutions from concept to realisation.

“WE BRING IDEAS TO LIFE.” briefly describes Döhler’s holistic, strategic and entrepreneurial approach to innovation. This comprises market intelligence, trend monitoring, the development of innovative products and product applications, advice on food safety and microbiology, food law as well as Sensory & Consumer Science.