



YOUR COMPETENT TEST INSTITUTE



ANALYTICS



EFFICACY



INSECTS



DEVELOPMENT

SERVICE CATALOG



BIOGENIUS GMBH YOUR COMPETENT TEST INSTITUTE



Alexander Brux

Since 2005 BioGenius is supporting its customers with an in deep competence in providing services and data packages for the international registration of biocides, plant protection products and several other product segments.

With our team and with our state of the art facility of analytical and efficacy test laboratories in Germany, BioGenius is a strong partner of the global chemical industry.

For us, competence means recognizing your needs as a customer and being aware of our own limits of performance. The competence of our employees is characterized above all by their motivation to identify themselves with your goals and to use their knowledge and skills to achieve them.

At least we define competence as the creative combination of information and expertise in order to provide you as our customer with the best possible benefit to achieve your goals.

Sincerely yours

Alexander Brux
Managing Director

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EFFICACY TESTING, TECHNICAL
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YOUR COMPETENT TEST INSTITUTE

“We define **competence** as the creative combination of information and expertise in order to provide you as our customer with the best possible benefit to achieve your goals.”

Alexander Brux – Managing Director

SERVICES FOR THE BIOCIDAL PRODUCTS REGULATION

Analytical services and physico-chemical data (PT 1 to PT 22)

The GLP laboratories of BioGenius are capable of providing tailor made analytical solutions for a variety of biocidal products. With our extensive GLP-facilities BioGenius also provides flexible solutions for a broad range of physico-chemical test parameter.

Methods and Actives

- Analytical method development
- Method validation (SANCO)
- 5-Batch analyses (Art. 95)

Shelf Life Testing

- Accelerated storage stability studies
- Ambient storage stability studies
- Application tests for solid, liquid and spray products

Specific Studies

- Safety data packages
- Active ingredient residues
- Analysis of impurities and by-products

SERVICES FOR THE BIOCIDAL PRODUCTS REGULATION

Efficacy data for insecticides, attractants and repellents (PT 18 & PT 19)

BioGenius is one of the leading European efficacy test institutes for insecticide, attractants and repellent applications. With our broad range of efficacy test protocols against crawling and flying insects, BioGenius fulfills all requirements of national and international product authorizations according to the BPR:

- Laboratory tests
- Simulated-use tests (semi field)
- Field tests

Furthermore data packages for different other approaches can be tested, such as:

- Dose response tests for actives
- Screening tests for claim support
- Testing for product development

Required test species are available at BioGenius.

GUIDELINES AND REGULATIONS

The analytical services of BioGenius can be performed according to the OECD GLP guideline as well as under NON-GLP conditions.

Therefore BioGenius is capable of supporting its customers with data packages for any **product authorization** according to international regulations like:

- **Biocidal Products Regulation (BPR) 528 / 2012**
- **Plant Protection Products Regulation (PPP) 1107 / 2009**
- **REACH**
- **EU Fertiliser regulation**
- **AVPMA and US EPA**

as well as further international product authorization requirements.



ANALYTICAL METHODS

Analytical method development for active ingredients and products

- Insecticides, repellents and attractants
- Rodenticides
- Wood preservatives
- Disinfectants, hygiene products and preservatives
- Water treatment and metal working fluids

Analytical Methods

- GC-FID/MS, HPLC-UV/MS, IC, titration, UV-VIS photometry

5-Batch analyses of actives, active isomers, co-formulants and impurities in accordance to BPR and PPP

Determination of content for active substances, impurities and by-products in

- Disinfectants, hygiene products and preservatives
- Insecticides and repellents
- Rodenticides
- Water treatment and metal working fluids
- Wood preservatives

Other product types on request.

STORAGE STABILITY

Shelf life studies for product authorization and preliminary screening tests

Accelerated stability of product and packaging 54 °C, 40 °C, 35 °C, 30 °C	CIPAC MT 46.4
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Ambient stability of product and packaging
20 °C, 25 °C, 30 °C

Low temperature stability	CIPAC MT 39.3
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Stability against metals and ions	OPPTS 830.6313
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The studies can be combined with all necessary application parameters which are required for the product authorization. Other temperatures between -20 °C and 70 °C are also possible. Controlled humidity can be provided on demand.





PHYSICO-CHEMICAL PROPERTIES

Liquid applications (suspension concentrate, emulsion concentrate, etc.)

Acidity / alkalinity	CIPAC MT 191 / OECD 122
Dilution stability	CIPAC MT 41 / 41.1
Dispersion stability	CIPAC MT 180
Emulsion stability	CIPAC MT 36.3
Formulation appearance (color, odor and physical state)	
Packaging stability (incl. seepage data)	
Particle size distribution	CIPAC MT 187
Persistent foaming	CIPAC MT 47.2 / 47.3
pH-value	CIPAC MT 75.3 / OECD 122
Pourability of suspension concentrates	CIPAC MT 148 / 148.1
Refractive index	
Rel. density	OECD 109 / EC A.3
Spontaneity of dispersion	CIPAC MT 160
Surface tension	OECD 115 / EC A.5
Suspensibility	CIPAC MT 184
Viscosity	CIPAC MT 192 / MT 22.1 / OECD 114
Water content (Karl-Fischer titration)	CIPAC MT 30.6
Weight loss	
Wet sieving	CIPAC MT 185

PHYSICO-CHEMICAL PROPERTIES

Solid applications (granular, tablet, paste, block, etc.)

Acidity / alkalinity	CIPAC MT 191 / OECD122
Attrition resistance	CIPAC MT 178 / 178.2
Bulk density	CIPAC MT 186
Degree of dissolution and dilution stability	CIPAC MT 179
Disintegration time of tablets	CIPAC MT 197
Dissolution rate of water soluble bags	CIPAC MT 176
Dustiness	CIPAC MT 171.1
Flowability	CIPAC MT 172.1 / 172.2
Formulation appearance (color, odor and physical state)	
Friability of tablets	CIPAC MT 193
Flowability	CIPAC MT 172.1 / 172.2
Loss on drying	CIPAC MT 17.4
Packaging stability (incl. seepage data)	
Particle size distribution	CIPAC MT 187
pH-value	CIPAC MT 75.3 / OECD122
Sieve analysis, dry sieving	CIPAC MT 170
Spontaneity of dispersion of water dispersible granules	CIPAC MT 174
Suspensibility	CIPAC MT 184
Tablet integrity	WHO / M / 27
Water content (Karl-Fischer)	CIPAC MT 30.6
Weight loss	
Wet sieving	CIPAC MT 185
Wettability	CIPAC MT 53.3

PHYSICO-CHEMICAL PROPERTIES

Spray applications (bag on valve spray, pressurized aerosol, trigger spray, etc.)

Can pressure (20 °C and 50 °C)	FEA 604 / 606
Density of intermediate / propellant mix	FEA 605 / EC A.3
Discharge rate	FEA 643
Intermediate appearance (color, odor and physical state)	
Packaging stability (incl. seepage data)	
Particle size distribution	CIPAC MT 187
Spray pattern	FEA 644
Total discharge / residue after use incl. valve clogging	WHO / FAO
Weight loss	



SPECIFIC STUDIES

Application testing

- Evaporation properties of vaporizer products
- Residue of active ingredients in vaporizer products after use
- Product treatment properties during use
- Stain tests to determine colour, liquid stains or active substances residues on fabrics or other surfaces

Determination of active ingredient concentration in spaces

- Concentration of active ingredients during usage time
- Determination of max. concentration and degradation of active ingredients during use
- Determination of active ingredient and residues on surfaces during and after use

Other specific studies on demand.

SAFETY DATA

Safety data packages

In-House and External

Auto ignition temperature (liquids and gases)	EC A.15
Boiling point	EC. A2 / OECD 103
Corrosion testing	UN-Test C.1
Drum test (space ignition of spray cans)	UN Class 2
Explosive properties	EC A.14 / UN-Test Series 1
Flame length and ignition distance of spray cans	UN Class 2
Flammability contact with water	EC A.12 / UN-Test N.5
Flammability gases	EC A.11
Flammability solids	EC A.10 / UN-Test N.1
Flash point	EC A.9
Melting point	EC A.1 / OECD 102
Oxidizing properties for solids	EC A.17 / UN-Test O.1 / O.3
Oxidizing properties for liquids	EC A.21 / UN-Test O.2
Pyrophoric properties	EC A.13 / UN-Test N.2 / N.3
Relative density	EC A.3 / OECD 109
Relative self-ignition temperature for solids	EC A.16 / UN-Test N.4
Surface tension	EC A.5 / OECD 115
Vapour pressure	EC A.4 / OECD 104
Water solubility	EC A.6 / OECD 105

Other tests on request.





EFFICACY TESTING

For all test insects BioGenius provides

- Screening tests
- Development tests
- Comparative tests
- Registration tests
 - Lab test
 - Simulated-use test
 - Field test

Tests to be conducted according to BPR, WHO, further international and special customer requirements.

Test rooms

- 20 m³
- 30 m³ (can be combined to a flat)
- Smaller sized units (0.5 m³ | 2.0 m³)
- Tent and hut simulation equipment

Further test rooms on demand.



EFFICACY TESTING

Crawling insects

- Surface treatment (including long term residual effect)
- Space efficacy (spray, vaporizer, fogger, etc.)
- Direct spraying
- Flushing out
- Baits and attractants (including colony kill for Black ants, *Lasius niger*)
- Barrier and repellent effects including space repellents
- Secondary kill („Domino effect“)
- Larvicidal effect

Flying insects

- Surface treatment (including long term residual effect)
- Space efficacy (spray, vaporizer, fogger, etc.)
- Spatial repellent (vaporizer, candles, etc.)
- Direct spraying
- Barrier and attractant effect (bait)
- Efficacy of window sticker
- Larvicidal effect
- Bed net testing

Textile protection

- Repellency and mortality (long term effect)
- Bait and attractant effect (pheromone trap)
- Evaluation of textile damage (Woolmark test method TWC-TM 25; ISO 3998)

Additional test capabilities

- Test of skin repellent products against mosquitoes, stable flies and ticks
- Test of treated fabric repellent
- Test according special customer requirements (after feasibility check)



TECHNICAL CONSULTING

“How to design suitable registration data sets for your unique products?”

There are many guidelines and regulations which need to be followed during authorization processes especially for biocides. However, these documents and the mentioned methods cannot be applied to each product and each application. Therefore, a practical and technical evaluation is always required and mandatory. In addition, tests may need to be adjusted for products which are not covered by the method descriptions. We as BioGenius define this kind of support as “Technical Consulting” and we are looking forward to supporting you with our following services:

- Evaluate the technical status of your products
- Screen your products and applications for possible challenges
- Create possible solutions for your products and applications
- Suggest possible improvements
- Discuss possible test scenarios with the competent authorities
- Adjust available methods for your products
- Prepare statements for the competent authorities to support the tests / argumentations
- Create new tests to represent the product application in reality



DEVELOPMENT

BioGenius is able to support its customers in finding the right analytical method for their specific product, so that the preparation of registration-ready product dossiers is no obstacle. BioGenius also supports the development of suitable test methods for efficacy testing according to the requirements of international guidelines or according to specific customer requirements and product/marketing strategies.

With our competent service, we will find the right test method for your project!



INSECTS

The arthropod breeding of BioGenius fulfills the requirements for testing of professional and consumer products.

Following arthropod species are directly bred at BioGenius or can be ordered from network partners.

Ants

Black garden ant	<i>Lasius niger</i>
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Arachnids

European house dust mite	<i>Dermatophagoides pteronyssinus</i>
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Red poultry mite	<i>Dermanyssus gallinae</i>
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Sheep tick	<i>Ixodes ricinus</i>
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Bugs

Bed bug	<i>Cimex lectularius</i>
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Resistant Bed bug	<i>Cimex lectularius (resistant)</i>
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INSECTS

Cockroaches

American cockroach	<i>Periplaneta americana</i>
German cockroach	<i>Blattella germanica</i>
Oriental cockroach	<i>Blatta orientalis</i>

Flies

Common green bottle fly	<i>Lucilia sericata</i>
Fruit fly	<i>Drosophila melanogaster</i>
House fly	<i>Musca domestica</i>
Stable fly	<i>Stomoxys calcitrans</i>

Fleas

Cat flea	<i>Ctenocephalides felis</i>
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Material pests and textile attacking insects

Carpet beetle	<i>Anthrenus flavipes</i>
Clothes moth	<i>Tineola bisselliella</i>



INSECTS

Mosquitoes

Asian tiger mosquito	<i>Aedes albopictus</i>
House mosquito	<i>Culex quinquefasciatus</i>
Malaria mosquito	<i>Anopheles gambiae</i>
Yellow fever mosquito	<i>Aedes aegypti</i>

Nuisance arthropodes

Daddy long leg spider	<i>Pholcus spp.</i>
Garden spider	<i>Araneus diadematus</i>
Silverfish	<i>Lepisma saccharina</i>
Woodlouse	<i>Porcellio scaber</i>
Yellow jacket	<i>Vespula spp.</i>
Paper silverfish	<i>Ctenolepisma longicaudatum</i>
Firebrat	<i>Thermobia domestica</i>

Stored goods attacking insects

Flour beetle	<i>Tribolium confusum</i>
Grain weevil	<i>Sitophilus granarius</i>
Indian meal moth	<i>Plodia interpunctella</i>
Lesser mealworm	<i>Alphitobius spp.</i>
Mediterranean flour moth	<i>Ephestia kuehniella</i>
Yellow mealworm	<i>Tenebrio molitor</i>

Further species on demand.





IMPRINT

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