



SERVICE CATALOG

ANALYTICS



EFFICACY

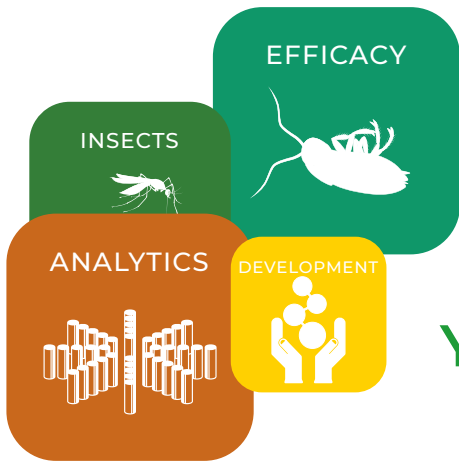


DEVELOPMENT



INSECTS





Your Competent Test Institute.



BioGenius GmbH

Your Competent Test Institute.

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

Mike Bublitz
Managing Director

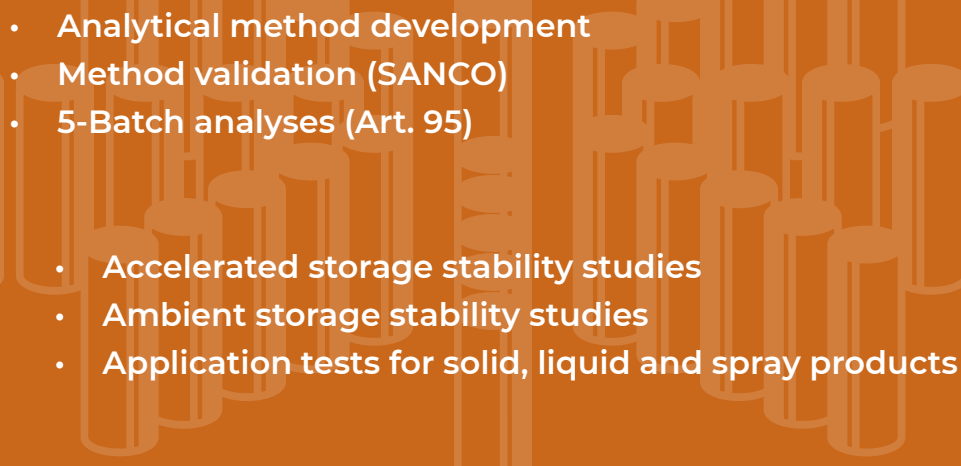




Services for the Biocidal Product Regulation

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.

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- A background image of several test tubes of varying heights and orientations, arranged in a cluster. The tubes are rendered in a light, semi-transparent orange color, matching the background of the text area.
- Analytical method development
 - Method validation (SANCO)
 - 5-Batch analyses (Art. 95)

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

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

**Services for the
Biocidal Product Regulation**



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

BioGenius is one of the leading European efficacy test institutes for insecticide 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

Data packages for different other approaches, 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.

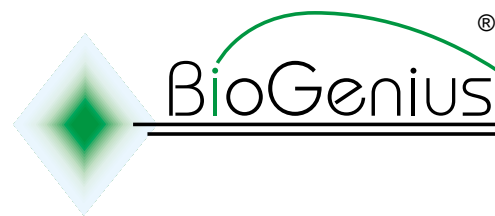
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Analytics & Application Testing



Analytical data packages

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

Validation of analytical methods according to SANCO/3030/99

- 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

- PT 18 and 19 Insecticides and repellents
- PT 1 - 6 Disinfectants, hygiene products and preservatives
- PT 14 Rodenticides
- PT 11 and 13 Water treatment and metal working fluids
- PT 8 Wood preservatives

Other product types on request.



Storage stability and physico-chemical properties

Shelf life studies for product authorization and preliminary screening tests

- Low temperature stability of product and packaging CIPAC MT 39.3
- Accelerated stability of product and packaging CIPAC MT 46.3
54 °C, 40 °C, 35 °C, 30 °C
- Ambient stability of product and packaging
20 °C, 25 °C, 30 °C
- Stability against metals and ions OPPTS 830.6313

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.

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

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

Physico-chemical properties



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

- Formulation appearance (color, odor and physical state)
- Packaging stability (incl. seepage data)
- Weight loss
- Viscosity
- Rel. density
- pH-value
- Acidity / alkalinity
- Refractive index
- Surface tension
- Particle size distribution
- Persistent foaming
- Suspensibility
- Dispersion stability
- Dilution stability
- Emulsion stability
- Pourability of suspension concentrates
- Water content (Karl-Fischer titration)
- Wet sieving
- Spontaneity of dispersion

OECD 114 / CIPAC MT 192 / MT 22.1
OECD 109 / EC A.3
OECD 122 / CIPAC MT 75.3
OECD 122 / CIPAC MT 191

OECD 115 / EC A.5
CIPAC MT 187
CIPAC MT 47.2 / 47.3
CIPAC MT 184
CIPAC MT 180
CIPAC MT 41 / 41.1
CIPAC MT 36.3
CIPAC MT 148 / 148.1
CIPAC MT 30.5
CIPAC MT 185
CIPAC MT 160



Physico-chemical properties

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

- Formulation appearance (color, odor and physical state)
- Packaging stability (incl. seepage data)
- Weight loss
- Particle size distribution
- Bulk density
- Wettability
- Suspensibility
- Sieve analysis, dry sieving
- Attrition resistance
- Friability of tablets
- Flowability
- Dustiness
- Water content (Karl-Fischer)
- Disintegration time of tablets
- Dissolution rate of water soluble bags
- Wet sieving
- Loss on drying
- Spontaneity of dispersion of water dispersible granules
- Degree of dissolution and dilution stability
- pH-value
- Acidity / alkalinity
- Persistent foaming
- Tablet integrity

CIPAC MT 187
 CIPAC MT 186
 CIPAC MT 53.3
 CIPAC MT 184
 CIPAC MT 170
 CIPAC MT 178 / 178.2
 CIPAC MT 193
 CIPAC MT 172.1 / 172.2
 CIPAC MT 171.1
 CIPAC MT 30.5
 CIPAC MT 197
 CIPAC MT 176
 CIPAC MT 185
 CIPAC MT 17.4
 CIPAC MT 174
 CIPAC MT 179
 OECD122 / CIPAC MT 75.3
 OECD122 / CIPAC MT 191
 CIPAC MT 47.2 / 47.3
 WHO / M / 27

Safety data



Safety data packages

In-house

- Melting point EC A.1
- Boiling point EC A.2
- Rel. density EC A.3
- Surface tension EC A.5
- Flash point EC A.9
- Flammability solids, screening or complete test EC A.10
- Oxidising properties for solids EC A.17
- Corrosion testing UN C.1 Section 37.4

External

- Vapour pressure EC A.4
- Water solubility flask method or column elution method EC A.6
- Flammability gases, screening or complete test EC A.11
- Flammability contact with water EC A.12 / UN N.5
- Pyrophoric properties EC A.13 / UN N.2 / N.3
- Explosive properties EC A.14 / UN 1 (c), 2 (c), C.1
- Auto ignition temperature (liquids and gases) EC A.15
- Rel. self ignition temperature for solids EC A.16 / UN N.4
- Oxidising properties liquids EC A.21 / UN O.2
- Flash point UN L.2
- Flammability solids, screening or complete test UN N.1
- Oxidising properties for solids UN O.1 / O.3
- Flame length and ignition distance of spray cans UN
- Drum test (space ignition of spray cans) UN



Analytics & Application Testing



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.

Biological Product Testing



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.

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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)
- 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.)
- Space repellent (vaporizer, fan, etc.)
- Direct spraying
- Barrier and attractant effect (bait)
- Efficacy of window sticker
- Larvicidal effect
- Bed net testing

Textile protection

- Repellent 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
- Test of treated fabric repellent
- Efficacy in airplanes

The efficacy test services of BioGenius can be performed analogous to GLP.



“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

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BioGenius is capable of supporting its customers in the development of their own new product ideas.

Uniquely in the area of product development we provide a 360° service for a wide range of applications. We integrate all fields of influence from the beginning up to the finished product.



Product ideas

Concepts
Prototypes



Innovative technologies

Insecticides
Repellents



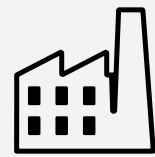
Formulation concepts

Actives
Co-formulants
Applications
Packaging
Label claims



Formulation and Products

Design
Composition
Function
Packaging



Product realization

Application
Formulation
Claim
Safety
Registration

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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.

Cockroaches

- German cockroach
- Resistant German cockroach
- Oriental cockroach
- American cockroach
- Brown-banded cockroach

- Blattella germanica*
- Blattella germanica* (resistant)
- Blatta orientalis*
- Periplaneta americana*
- Supella longipalpa*

Flies

- Common green bottle fly
- House fly
- Stable fly
- Fruit fly

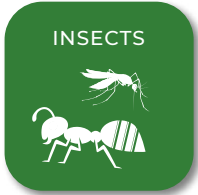
- Lucilia sericata*
- Musca domestica*
- Stomoxys calcitrans*
- Drosophila melanogaster*

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Mosquitoes

Yellow fever mosquito
Malaria mosquito
House mosquito
Asian tiger mosquito

Aedes aegypti
Anopheles gambiae
Culex quinquefasciatus
Aedes albopictus

Ants

Pharaoh ant
Black garden ant

Monomorium pharaonis
Lasius niger

Material pests and textile attacking insects

Clothes moth
Carpet beetle

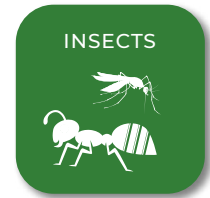
Tineola bisselliella
Anthrenus flavipes

Stored goods attacking insects

Indian meal moth
Mediterranean flour moth
Flour beetle
Lesser mealworm
Yellow mealworm
Grain weevil

Plodia interpunctella
Ephesia kuehniella
Tribolium confusum
Alphitobius spp.
Tenebrio molitor
Sitophilus granarius

Insects



Bugs

Bed bug

Resistant Bed bug

Cimex lectularius

Cimex lectularius (resistant)

Fleas

Cat flea

Ctenocephalides felis

Arachnids

American house dust mite

European house dust mite

Red poultry mite

European sheep tick

Dermatophagoides farinae

Dermatophagoides pteronyssinus

Dermanyssus gallinae

Ixodes ricinus

Nuisance arthropodes

Silverfish

Woodlouse

Yellow jacket

Garden spider

Daddy long leg spider

Lepisma saccharina

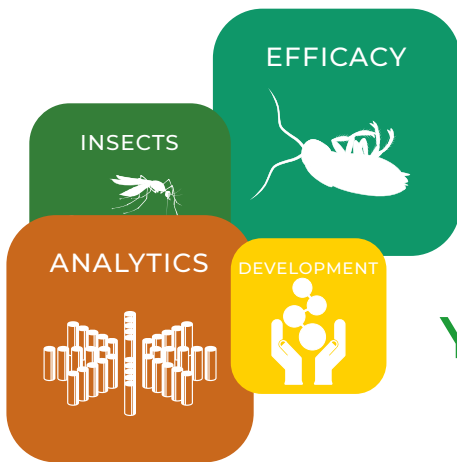
Porcellio scaber

Vespula spp.

Araneus diadematus

Pholcus spp.

Further species on demand.



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