

A background image featuring several laboratory glassware items, including a central round-bottom flask containing a yellow liquid, and several other flasks and beakers, some containing liquids of different colors. The background is a soft, pinkish-purple gradient.

Service Analytics

with Partners under GLP and Non GLP Conditions

Our range of expertise

- **Physico-chemical Properties**
 - OECD/EU-Methods
 - UN-Methods
 - CIPAC-Methods
- **In vitro Toxicology**
- **Mutagenicity/Genotoxicity**
- **Ecotoxicology**
- **Biodegradation/Environmental Fate**
- **Analytical Chemistry**
- **Endocrine Properties**

Physico-chemical Properties

OECD/EU-Methods

Guideline	Description
OECD 101	UV-VIS Absorption Spectra
OECD 102/A.1	Melting Point
OECD 103/A.2	Boiling Point
OECD 109/A.3	Relative Density
OECD 104/A.4	Vapour Pressure (dynamic method / static method / effusion method / saturated gas method)
OECD 115/A.5	Surface Tension
OECD 105/A.6	Water Solubility
OECD 106	Adsorption/Desorption using a Batch Equilibrium Method
OECD 107/117/123/A.8	Partition Coefficient (n-octanol/water)
A.9	Flash Point
A.10	Flammability (solids)
A.11	Flammability (gases)
A.12	Flammability (contact with water)
A.13	Pyrophoric Properties of Solids and Liquids
A.14	Explosive Properties
A.15	Auto Ignition Temperature (liquids and gases)
A.16	Relative Self-Ignition Temperature for Solids
A.17	Oxidising Properties (solids)
A.21	Oxidising Properties (liquids)
OECD 111	Hydrolysis as a Function of pH
OECD 112	Dissociation Constants in Water
OECD 113	Screening Test for Thermal Stability and Stability in Air
OECD 114	Viscosity
OECD 121	Estimation of the Adsorption Coefficient (K _{oc}) on Soil and on Sewage Sludge using High Performance Liquid Chromatography (HPLC)
OECD 122	Determination of pH, Acidity and Alkalinity
OECD 29	Guidance Document on Transformation/Dissolution of Metals and Metal Compounds in Aqueous Media

CIPAC-Methods

Guideline	Description
CIPAC MT 3	Specific gravity, density and weight per ml.
CIPAC MT 15	Suspensibility of wettable powders in water
CIPAC MT 20	Stability of dilute emulsion
CIPAC MT 22	Viscosity
CIPAC MT 32	Determination of conductivity
CIPAC MT 33	Tap density
CIPAC MT 34	Dustability tests after tropical storage
CIPAC MT 36	Emulsion characteristics of emulsifiable concentrates
CIPAC MT 39	Stability of liquid formulations at 0°C
CIPAC MT 41	Dilution stability of herbicide aqueous solutions
CIPAC MT 44	Flow number
CIPAC MT 46	Accelerated storage procedure
CIPAC MT 47	Persistent foaming
CIPAC MT 53	Wettability
CIPAC MT 58	Dust content and apparent density of granular pesticide formulations
CIPAC MT 59	Sieve analysis
CIPAC MT 75	Determination of pH values
CIPAC MT 148	Pourability of suspension concentrates
CIPAC MT 159	Pour and tap bulk density of granular materials
CIPAC MT 160	Spontaneity of dispersion of suspension concentrates
CIPAC MT 161	Suspensibility of aqueous suspension concentrates
CIPAC MT 167	Wet sieving after dispersion of water dispersible granules
CIPAC MT 169	Tap density of water dispersible granules
CIPAC MT 172	Flowability of water dispersible granules after heat test under pressure
CIPAC MT 174	Dispersibility of water dispersible granules
CIPAC MT 179	Dissolution degree and solution stability
CIPAC MT 180	Dispersion stability of suspo-emulsions
CIPAC MT 184	Suspensibility of formulations forming suspensions on dilution with water
CIPAC MT 185	Wet sieve test
CIPAC MT 186	Bulk density
CIPAC MT 191	Acidity or alkalinity of formulations
Technical Monograph n°17 (2nd Edition)	Storage at ambient Temperature 2 years (at 20°C)

UN-Methods

Guideline	Description
H.4	Heat accumulation storage test (Chapter 28.4.4)*
N.1	Test method for readily combustible solids (Chapter 33.2)*
N.2	Test method for pyrophoric solids (Chapter 33.3)*
N.3	Test method for pyrophoric liquids (Chapter 33.3)*
N.4	Test method for self-heating substances (Chapter 33.3)*
N.5	Test method for substances which in contact with water emit flammable gases (Chapter 33.4)*
O.1	Test for oxidizing solids (Chapter 34.4)*
O.2	Test for oxidizing liquids (Chapter 34.4)*
C.1	Metal Corrosivity (Chapter 37.4)*

In vitro Toxicology

in vitro Skin Tests

Guideline	Description
ECD 431	Skin Corrosion: «In Vitro Skin Corrosion: Reconstructed Human Epidermis Test Method»
OECD 435	Skin Corrosion : «In Vitro Membrane Barrier Test Method for Skin Corrosion» (Corrositex)
OECD 439	Skin Irritation: «In Vitro Skin Irritation: Reconstructed Human Epidermis Test Method»

in vitro Eye Tests

Guideline	Description
OECD 437	Serious Eye Damage: «Bovine Corneal Opacity and Permeability Test Method for Identifying i) Chemicals Inducing Serious Eye Damage and ii) Chemicals Not Requiring Classification for Eye Irritation or Serious Eye Damage» (BCOP)–
OECD 492	Eye Irritation: EpiOcular™ Irritation
–	Eye Irritation: HET CAM Test

in vitro Skin Sensitization

Guideline	Description
–	Direct Peptide Reactivity Assay – DPRA

Cytotoxicity

Guideline	Description
ISO 10993-5	Cytotoxicity; Growth Inhibition Test

Endocrine Properties

Guideline	Description
–	Estrogen- and Androgen Receptor Transcriptional Activation Assay

Mutagenicity and Genotoxicity

Test methods

Guideline	Description
OECD 471	Bacterial Reverse Mutation Test – AMES Test
–	Ames Screening – MPF Test
ASTM E1687	Modified Ames Test - Standard Test Method for Determining Carcinogenic Potential of Virgin Base Oils in Metalworking Fluids
OECD 473	<i>In Vitro</i> Mammalian Chromosome Aberration Test
OECD 487	<i>In Vitro</i> Mammalian Cell Micronucleus Test
OECD 476	<i>In Vitro</i> Mammalian Cell Gene Mutation Test: Mouse Lymphoma Test
OECD 476	Hyposxanthine-guanine phosphoribosyl transferase Test: HPRT Test

Ecotoxicology

Aquatic studies

Guideline	Description
OECD 201	Freshwater Alga and Cyanobacteria, Growth Inhibition Test
OECD 202	<i>Daphnia sp.</i> Acute Immobilisation Test
OECD 203	Fish, Acute Toxicity Test (<i>Danio rerio</i> , <i>Onchorhynchus mykiss</i>)
OECD 209	Activated Sludge, Respiration Inhibition Test
OECD 210	Fish, Early-life Stage Toxicity Test (<i>Danio rerio</i>)
OECD 211	<i>Daphnia magna</i> Reproduction Test
OECD 212	Fish, Short-term Toxicity Test on Embryo and Sac-fry Stages (<i>Danio rerio</i>)
OECD 215	Fish, Juvenile Growth Test (<i>Danio rerio</i>)
OECD 218	Sediment-Water Chironomid Toxicity Using Spiked Sediment
OECD 219	Sediment-Water Chironomid Toxicity Using Spiked Water
OECD 225	Sediment-Water <i>Lumbriculus</i> Toxicity Test Using Spiked Sediment
OECD 233	Sediment-Water Chironomid Life-Cycle Toxicity Test Using Spiked Water or Spiked Sediment
OECD 235	<i>Chironomus sp.</i> , Acute Immobilisation Test
OECD 236	Fish Embryo Acute Toxicity (FET) Test (<i>Danio rerio</i>)
OECD DRP (2008)	Fish Life-Cycle Test (<i>Danio rerio</i>)

Terrestrial Studies

Guideline	Description
OECD 207	Earthworm, Acute Toxicity Tests (<i>Eisenia andrei</i>)
OECD 208	Terrestrial Plant Test: Seedling Emergence and Seedling Growth Test
OECD 216	Soil Microorganisms: Nitrogen Transformation Test
OECD 217	Soil Microorganisms: Carbon Transformation Test
OECD 222	Earthworm Reproduction Test (<i>Eisenia andrei</i>)

Biodegradation

Ready Biodegradability

Guideline	Description	Substance properties
OECD 301A	DOC-Die-Away Test	water soluble, not volatile
OECD 301B	CO ₂ -Evolution Test (Sturm Test)	insoluble in water, not volatile
OECD 301C	Modified MITI Test (I)	insoluble in water, volatile
OECD 301D	Closed-Bottle Test	poor water soluble volatile
OECD 301E	Modified OECD Screening Test	water soluble, not volatile
OECD 301F	Manometric Respirometry Test	insoluble in water, volatile
OECD 310	CO ₂ -Headspace Test	volatile

Inherent Biodegradability

Guideline	Description	Substance properties
OECD 302B	Zahn-Wellens / EMPA Test	insoluble in water, not volatile, filterable
OECD 302C	Modified MITI Test (II)	insoluble in water, volatile

Special biodegradation tests

Guideline	Description
OECD 303A	Activated Sludge Units
OECD 306	Biodegradability in Seawater
OECD 311/ ISO 11734	Anaerobic Biodegradability of Organic Compounds in Digested Sludge
CEC L-103-12	Degradation of Lubricants with IR-Analysis
DEKRA PSR document	Plant Growth Test with Cress – Toxicity determination of oil degradation products (follows the DEKRA PSR document for evaluations & declarations in the product category hydraulic fluids). In the first part of the test, the biological degradation of test oil is held; in the second part plant seeds were treated with the degradation products of the test oil.

The following table shows the different Biodegradation Tests according OECD 301 which are applied in dependence of the substance properties.

Table 1 – Applicability of Test Methods (OECD 301, Ready Biodegradability)

Test	Analytical method	Suitability for compounds which are:		
		poorly soluble	volatile	adsorbing
DOC Die-Away (301A)	Dissolved organic carbon	-	-	+/-
Co ₂ Evolution (301B)	Respirometry: CO ₂ evolution	+	-	+
MITI (I) (301C)	Respirometry: oxygen consumption	+	+/-	+
Closed Bottle (301D)	Respirometry: dissolved oxygen	+/-	+	+
Modified OECD Screening (301E)	Dissolved organic carbon	-	-	+/-
Manometric Respirometry (301F)	Oxygen consumption	+	+/-	+

Environmental Fate

¹⁴C-marked Simulation Tests

Guideline	Description
OECD 307	Aerobic and Anaerobic Transformation in Soil (with or without ¹⁴ C-marked material)
OECD 308	Aerobic and Anaerobic Transformation in Aquatic Sediment Systems (with or without ¹⁴ C-marked material)
OECD 309	Aerobic Mineralisation in Surface Water – Simulation Biodegradation Test (with or without ¹⁴ C-marked material)

Bioaccumulation

Guideline	Description
OECD 305	Bioaccumulation in Fish: Aqueous and Dietary Exposure (<i>Danio rerio</i>)

Analytical Chemistry and Instrumentation

Due to our diverse and modern analytical equipment, we are capable to examine analytically a wide variety of substances and matrices in our laboratory.

We offer you the necessary accompanying analysis for ecotoxicological, toxicological and physico-chemical studies, from the development of the analytical method to the validation and implementation. We can also assist you with the substance identification in accordance with sameness studies under REACH as well as with the analysis of active substances in pesticide or biocide formulations.

Our services comprise:

- Development, Implementation and Validation of Analytical Methods
- Revalidation or ILV Studies (Independent Laboratory Validation) for the identification and quantification of active substances in Plant Protection Products according to SANCO/3030/99 rev. 4
- Analytical Measurements within Ecotoxicological, Toxicological and Physico-chemical Studies
- Residue Studies of Formulations in Various Matrices
- 5-Batch Analysis
- Sameness Studies according REACH

Our analytical equipment includes the areas of chemical analysis Analytical Chemistry and chromatography.

Analytical Chemistry

- UV-VIS
- FTIR
- Liquid-Scintillation-Counter
- ICP-OES
- TOC
- Titration

Chromatography

- GC
 - FID, ECD, NPD
- GC-MS
 - EI, Headspace
- HPLC
 - UV, RI, FLD, ELSD, RAD
- HPLC-MS
 - ESI, APCI
- LC-MS / MS

Testing of endocrine Properties according OECD

The endocrine disruptors (endocrine disrupting compounds EDCs) have become an increasing focus for the public, since they show already in the lowest concentrations hormone-like effects on organisms in the environment and on human.

2002 the OECD Conceptual Framework for the Testing and Assessment of Endocrine Disrupting Chemicals was introduced by the EDTA (OECD Endocrine Disrupter Testing and Assessment Task Force), which specifies five different investigation levels for the risk assessment of endocrine disrupting chemicals:

- Level 1** Sorting & prioritization based upon existing information
- Level 2** *In vitro* assays providing mechanistic data
- Level 3** *In vivo* assays providing data about single endocrine mechanisms and effects
- Level 4** *In vivo* assays providing data about multiple endocrine mechanisms and effects
- Level 5** *In vivo* assays providing data on effects from endocrine & other mechanisms

We support you in testing your substance on endocrine disrupting properties with the following studies:

Level 2

Estrogen- and Androgen Receptor Transcriptional Activation Assay

Level 4

Fish Sexual Development Test (OECD 234)
Fish Reproduction Partial Lifecycle Test
Sediment-Water Chironomid Toxicity Using Spiked Sediment (OECD 218)
Sediment-Water Chironomid Toxicity Using Spiked Water (OECD 219)
Daphnia Reproduction Test (OECD 211)
Earthworm Reproduction Test (OECD 222)
Sediment Water *Lumbriculus* Toxicity Test (OECD 225)

Level 5

Fish Life Cycle Test (*Danio rerio*) (OECD DRP 2008)

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