

# Solutions for industrial plants



STEAM DISTILLATION | KJELDAHL | DUMAS | SMA | COD  
EXTRACTION | RANDALL | TWISSELMANN | SOXHLET

# Strong partner for industrial plants

Industrial plants cover a wide variety of sectors and thus also a broad spectrum of sample matrices and analytical methods. Analytical processes in big industries are crucial both for internal quality control in factories and also for external product control in contract laboratories. Additionally, the need for analytical systems in industrial plants is growing because more and more materials need to be analysed for recycling purposes to support the circular economy. And even though industrialised sectors can be very different, they all have one thing in common: increasingly strict regulations and requirements to comply with a wide range of limit values to protect not only the consumer, but also the environment.

At C. Gerhardt, we are familiar with the everyday life of an industrial plant. With our analytical systems, you not only get reliable products, but also professional consultation from our application specialists. On our website [www.gerhardt.de](http://www.gerhardt.de) you will find detailed information about our analytical systems, also specifically for your industry.

We would be happy to advise you personally - please feel free to contact us: [info@gerhardt.de](mailto:info@gerhardt.de).

## SOXTHERM | CLASSICAL SOXHLET-APPARATUS

Solid-liquid extraction



### Benefits

- ✦ Fully automated sample preparation with SOXTHERM
- ✦ Enormous time saving and highest work safety compared to classical Soxhlet method
- ✦ Brown glass extraction beakers for light-sensitive samples
- ✦ Environmentally friendly due to solvent recovery
- ✦ Flexible use of a wide range of solvents

### Applications:

#### → Extraction of:

- Lipophilic substances
- EOX, PAKs and PCBs
- Azo dyes from shoe textiles
- Accompanying and harmful substances such as acetone or dichloromethane
- Regenerated fibres
- Softeners from PVC and other plastics
- Residual resins in cellulose
- Resins from dehydrated natural resins
- Pigments from organic dyes
- PBB and PBDE from electronic components
- Active substances
- Fat or paraffin from wooden products
- Low-density polyethylen (LDPE)
- Bitumen

### Applications:

- Hydrocarbons from catalysts
- Ammonium nitrate and TNT
- Sintered metal

#### → Other fields of application

- Determination of the cross-link density of polymers
- Sample preparation for trace analysis (dioxin, PCBs, etc.)
- Recycling of metal and steel

#### → etc.



## KJELDATHERM, TURBOTHERM and trace metal digestion units



- ✦ Rapid and automatable analysis
- ✦ Glass variety from 100 ml - 800 ml
- ✦ Large sample quantities
- ✦ Reproducible digestion conditions
- ✦ High sample throughput with little laboratory space

### Applications:

- Determination of residues, impurities and additives in lubricants, oil, plastics, coal and other consumer goods
- Determination of zein
- Nitrogen in melamine resins and wood-based materials
- Nitrogen in leather
- Determination of nitrate, nitrite and ammonium in industrial process water and industrial wastewater treatment plants (circular economy)
- Nitrogen in blood, blood plasma and serum samples
- Nitrogen in saline solutions
- Digestion of plastic-based composites
- Aqua Regia digestion for heavy metal determination

#### → etc.

## VAPODEST

Steam distillation



VAPODEST 200-550 C  
with different degrees  
of automation

- ✦ Rapid and automatable analysis
- ✦ Glass variety from 100 ml - 800 ml
- ✦ Soft start during distillation to avoid strong reactions in the sample tube
- ✦ Traceability for various user levels
- ✦ Multiple access via different PCs and on different user levels
- ✦ Long lifetime due to robust construction
- ✦ Low maintenance and operating costs

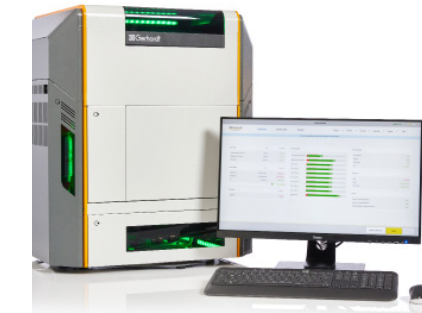
### Applications:

- Formaldehyde determination
- Purification and determination of volatiles
- Phenols and polyphenols in textiles/leather
- Ammonium determination
- NH<sub>4</sub> determination in raw material production for batteries
- Separation of alkaloids from tobacco products
- Determination of nitrite nitrogen in steel
- Nitrogen content in general
- Nitrogen in cooling lubricants

#### → etc.

## N-Realyzer

Automated N-determination according to Dumas

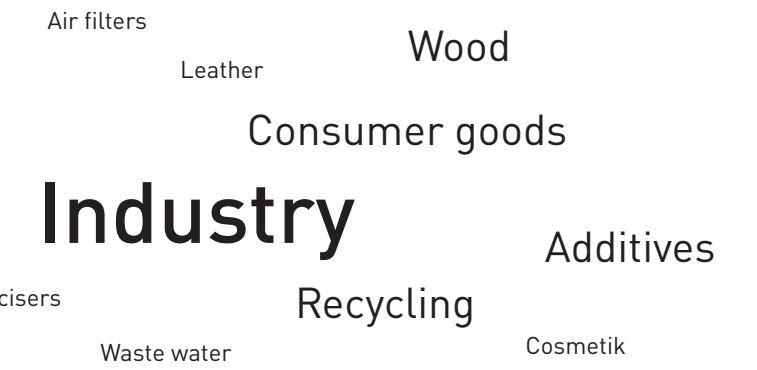


- ✦ Patent pending autosampler design
- ✦ Intuitive software
- ✦ Rapid and precise reference results
- ✦ Low and predictable operating costs
- ✦ Numerous applications: Liquid, pasty, solid samples

### Applications:

- Nitrogen in nitrocellulose
- Nitrogen in fuel additives
- Nitrogen in molasses and yeast
- Nitrogen in rubber
- Nitrogen in nitrile gloves
- Nitrogen in polymers
- Nitrogen von process water
- Nitrogen in polymers and plastics

#### → etc.



## FIBRE THERM

Fibre extraction, ADF, ADL, NDF



- ✦ Automated process for the determination of the individual fibre fractions
- ✦ Simultaneous analysis of 12 samples
- ✦ Precise and reproducible results
- ✦ Optimal extraction and filtration conditions due to FibreBag technology
- ✦ High savings in work time and chemicals compared to manual method

### Applications:

- ADF, ADL, NDF in wood
- Fibre content of biomass
- Fibre content of products from sustainable, plant-based raw materials
- Fibre content of insulation boards and building boards made from natural fibres
- Determination of cellulose, hemicellulose and lignin content for quality control of plant-based building material

#### → etc.



MEETING HIGH DEMANDS ON ANALYTICS

Strict environmental regulations and requirements from national and international norms and guidelines place high demands on analytics. C. Gerhardt’s analytical systems cover a wide range of analytical possibilities, here are only a few examples:

Parameter	Matrix	Gerhardt apparatus
Determination of substances soluble in organic solvents	Textiles	SOXTHERM, Soxhlet
Determination of oil and fat content	Feathers and down	SOXTHERM, Soxhlet
Determination of the content of soluble components	Rubber	SOXTHERM, Soxhlet
Total Nitrogen in Lubricating Oils and Fuel Oils	Lubricating Oils and Fuel Oils	KJELDATHERM, TURBOTHERM and trace metal digestion unit
Nitrogen Content	Rubber	KJELDATHERM, TURBOTHERM, and trace metal digestion unit
Determination of harmful ingredient in consumer goods	Consumer goods with skin contact	KJELDATHERM, TURBOTHERM and trace metal digestion unit
Total cyanide	Water, wastewater and sludge analysis	TURBOTHERM TTs CYANID / VAPODEST
Determination of nitrate and Ammonium nitrogen according to Devarda	Water, wastewater and sludge analysis	KJELDATHERM / VAPODEST
Determination of the chemical oxygen demand	Water, wastewater and sludge analysis	KJELDATHERM
Determination of the phenol index	Water, wastewater and sludge analysis	VAPODEST
Determination of nitrogen content and „skin substance“	Leather	KJELDATHERM, TURBOTHERM and trace metal digestion unit



APPLICATION SERVICE

Our laboratory staff is regularly trained and is always available for specific questions. If desired, we can optimise your applications or create an application specifically for you.

- + On-site service
- + Evaluation of your samples in our application laboratory
- + Applicative Support (Webinars / Trainings / Online-Support)
- + Consultation / Installation and Training
- + Aftersales Service / Customer Service

STRONG PARTNER

We are global leaders in the automation of reference analysis. We stand for the development, production and global distribution of highly efficient, precise and reliable analytical systems.

Our specialties are automatic systems for

- + Nitrogen analysis according to Kjeldahl
- + Nitrogen analysis according to Dumas
- + Determination of fat content (hydrolysis and extraction)
- + Analysis of plant fibres (crude fibre, ADF, NDF)



Have you heard of our webinars?



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