PILODIST®

Laboratory & process technology

Knowledge & Competence

Kenan Balkan
Managing Director

Laboratory and process technology – made in Germany.

PILODIST laboratory and process technology is used worldwide – in German laboratories as well as in Chinese refineries or in the oil fields on the Persian Gulf. At the company's headquarters in Bonn/Germany we produce tailor-made systems, which are marketed by a worldwide network of distributors and agents. Our employees are recognized specialists in their field with many years of experience in the sector, trend-setting ideas and extensive specialist technical knowledge. In terms of know-how, PILODIST is thus one of the most efficient suppliers on the world market.

Whether the chemicals or petrochemicals industry, the pharmaceuticals industry, aroma or food manufacturers – PILODIST laboratory and trial plants are used in the most varied areas. They distinguish themselves through exemplary quality and innovative solutions and fulfil the ASTM standards D 2892, D 1160, D 5236, D 5001 and D 6079.

In addition, we attach special importance to after-sales service which - in the interest of our customers – ensures high availability and production safety.

Rolf Jeub

PILODIST has an its own glass-blowing shop in which recognized specialists produce unusual plant components and spare parts within the shortest time.

Even older ASTM plants can be upgraded with modern control and evaluation software – and are thus decisively improved.

PILODIST – Knowledge & Competence.

Uncompromising quality.

When it is a question of the efficiency and reliability of PILODIST plants, we are extremely demanding. Therefore, we manufacture all components ourselves and coordinate them optimally with each other. Thus, glass apparatus, mechanical and electronic components and software all come from a single source. If we buy in special parts – for example, scales – we exclusively make use of recognized first-class technology in order to consistently satisfy our quality claim.

Production and installation of new systems.

Competence is a duty. In the search for the ideal solution, an increasing number of research and industry laboratories trust the know-how of PILODIST. The result is tailor-made laboratory and pilot plants for distillation and rectification, thin-film and short-path evaporator, micro and semi-micro concentric columns and apparatus, vapour-liquid apparatus, plant for extraction, ozone generators and Curie point pyrolysers, which is not only individually produced by us, but also installed – wherever our customers need it.

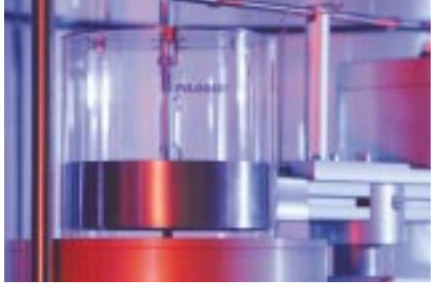
Upgrades of existing plants.

Old becomes (almost) new! The majority of already existing ASTM distillation plants can be modernized without problems – and above all, cost-effectively. For example, trend-setting process electronics with the most modern control and evaluation software can be retrofitted without the need to buy new equipment. In addition, even individual plant components can be replaced by more modern parts.

Spare part delivery and service.

Small changes, large effects. If a plant fails, it is often merely because one component no longer works and has to be replaced. No problem for PILODIST. Because we can usually produce, deliver and, on request, also install the spare part in a very short time. Our customers thus save on expensive new purchases and profit from a service which sets an example for the industry.



Particularly user-friendly distillation of crude oils according to ASTM D 2892 with the Petrodist 100 CC.

Laboratory and pilot plants for crude oil distillation.

What does mineral oil consist of? Which products can be won from crude oil through distillation? What will be the yield of these fractions? These questions, which are an everyday matter in the petrochemicals industry, can already be answered in the trial laboratory. The ideal solutions for such tasks are manual and fully-automatic distillation plants according to ASTM D 2892, ASTM D 5236 and ASTM D 1160.

The ASTM standards facilitate an identification of the crude oil samples used, whereby the ASTM D 2892 provides information up to a boiling-point of 400° C and ASTM D 5236 the continuing fractionation up to a max. boiling point of 575° C. The standard ASTM D 1160 describes the boiling analysis of samples boiling at high temperatures under vacuum.

From the process engineering and development, via the construction of systems and glass apparatus, right through to control engineering and software, PILODIST designs complete plants with input volumes of up to 50 litres.

Crude oil distillation according to ASTM.

Petrodist 100 CC

Fully-automatic, computer-controlled and thus particularly user-friendly, this system distils according to the ASTM D 2892 standard. User-friendly – that also means that you need neither permanent supervision nor stops to register intermediate results. The distillation is carried out independently and without interruption from the gas cut (IBP) to the pre-selected end-point. The yield calculation thereby corresponds as a percentage to the weight of the flask charge.

All desired data, such as, for example, the operation parameters or the TBP (True Boiling Point) curve, are determined, displayed on a monitor and, on request, printed out, with the help of the PILODIST process control system.

Petrodist 200 CC

(not illustrated.)
This plant distils crude oil samples according to the ASTM D 5236 standard and corresponds in terms of equipment and performance features to the Petrodist 100.

Petrodist 300 CC

Also fully-automatically and computer-controlled, the PD 300 CC analyzes mineral oils in accordance with ASTM D 1160, in other words, it determines the boiling ranges of crude oil products under vacuum. Simultaneously with the distillation, all required data are printed out and displayed on the monitor. They include both the actual boiling points in a vacuum and under normal atmospheric pressure (ACT, AET). The final data and curves can be printed-out or also saved as files.

Petrodist 300 CC examined samples under vacuum according to ASTM D 1160.

The PILODIST Process Control system.

Rapid results in the trial laboratory. The PILODIST process control system was developed especially for crude oil analysis. It is based on a multifunctional serial bus system. In its turn, that is connected to a computer on which an own control software runs under Windows. The software permits the input of all possible parameters permits and automatically creates data tables and graphics which will be then exported to Microsoft Excel and from there processed as usual. In addition, the software can be adapted to individual user wishes at short notice and at any time. The calibration and maintenance of the system are also possible without problems and can even be realized via the Internet. Particularly interesting: the process control system can be retrofitted as part of the modernization of old distillation plants.

The software of the PILODIST process control system facilitates a convenient overview of all ongoing processes

The FilmDIST SP 200 thin film and short path evaporator can be used for the most varied tasks.

Thin-film and short-path evaporator.

Thermally-sensitive products need cautious treatment. The thin-film and short-path evaporators from PILODIST are efficient pieces of apparatus for gentle distillation in the laboratory and in trial operation. Short dwell times and low evaporator temperatures due to minimal pressure guarantee the sensitive handling of the products.

Technical data (FilmDist SP 200)

Operation temperature:	max. 250° C
Operation pressure:	1,000 - 0.001 mbar
Feed range:	50 -1,000 ml/H
Evaporator surface:	200 cm^2, short path

This plant realizes liquid-liquid extractions according to the mixer-settler principle.

Plants for extraction.

Whenever distillation or rectification are impossible or economically unfavourable, extraction processes have a special part to play. PILODIST offers not only efficient ready-to-operate plants for the extractive separation on a laboratory and technical department scale, but also the necessary measuring and regulating technology. These include, for example, systems for liquid-liquid extraction according to the mixer-settler principle, extraction columns for pulsating liquid-liquid extraction as solid-liquid extraction plants for the discontinuous and continuous operation.

The HRS 500 C semi-micro distillation apparatus distinguishes itself thanks to its high separating efficiency and an extremely low loss of pressure.

Micro and semi-micro concentric tube columns and plants.

If thermally-sensitive substances not only need to be separated by distillation gently, but also highly effectively, the use of these PILODIST columns and plants, which have proved themselves worldwide, can be recommended.

The versatile usability and high separation efficiency, for example, are good arguments for this. At the same time, the columns distinguish themselves due to the extremely low loss of pressure, the low operation content as well as the full-glass construction. Thanks to the modern computer control the micro and semi-micro concentric columns and apparatus from PILODIST are particularly user-friendly.

Technical data (model HRS 500 C):

Charge quantity:	10 - 150 ml
Operation temperature:	20 - 250°C
Normal pressure or vacuum:	up to 0.001 mbar
Separation efficiency:	up to 90 theoretical plates

Ozone generators.

Especially for reliable application in laboratories and trial plants, PILODIST has developed various ozone generators. For the feed gas primarily oxygen is used, since it has a high ozone concentration. Of course for economic reasons, dried air can also be used as a feed gas.

The particularly compact and versatile generators can be continuously regulated with respect to the ozone output, concentration and the ozone flow. The ozone content can be individually regulated between 5 and 100 % with the help of a controller or an external signal.

The generator module is to be found, together with the energy supply and the instrumentation, in an air-cooled IP 42 aluminium housing. An LCD display shows the energy consumption.

The versatile PILODIST 104 distillation apparatus achieves a high separation efficiency of up to 100 theoretical plates.

The PILODIST 107 solvent recovery unit recovers particularly pure solvents.

Columns and systems for the distillation/ recovery.

Distillation and recovery are among the routine tasks in the laboratories. To provide the user with instruments that reliable and easy to use, PILODIST offers a wide range of different systems for the distillation and recovery.

PILODIST 104

This versatile distillation apparatus distinguishes itself through its high level of efficiency. It is particularly suitable for the solution of complex separating problems, as well as for the production of pure substances, aromatic compounds of high molecular weight, fatty acids etc.

The distillation itself is conducted processor-controlled and gently with the help of a temperature-controlled oil bath. The process can be conducted not only at normal atmospheric pressure, also with a vacuum between 1.000 and 0.1 mbar.

The apparatus can separate liquid quantities of 100 to 4,000 ml by distillation at an operating temperature between 20 and 250° C. The efficiency is up to 100 theoretical plates.

PILODIST 107

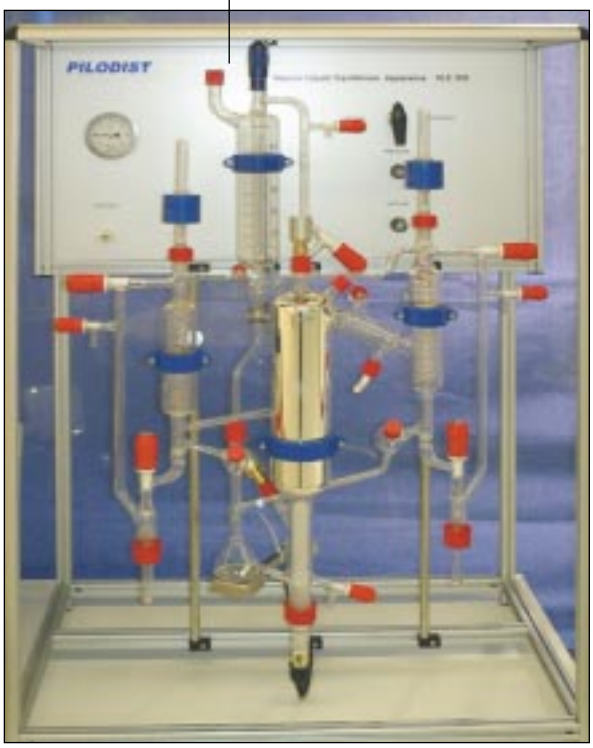
With this solvent recovery unit, particularly pure solvents can be recovered, such as for example, such as xylenes, alcohols, acetonitriles, Isooctane, hexane, methyl chloride and other HPLC solvents.

Here again a high level of separation efficiency (up to 60 theoretical plates) can be achieved - and this with large load ranges of 150 to 3,000 ml/H. The operating temperature is a maximum of 300 °C. The recovery is conducted at normal atmospheric pressure or, on request, also in a vacuum. The unit distinguishes itself through its straightforward handling and its all-glass construction.

PILODIST 250

(not illustrated)
This all-glass distillation plant which operates discontinuously and continuously with various columns is particularly suitable as a pilot plant for planning and process development. Its area of application is between 20 and 250 °C under normal atmospheric pressure or a vacuum down to approx. 1 mbar. The load range can be from 1l/H to 12l/H.

The VLE 100 D vapour-liquid-equilibrium apparatus is part of the standard equipment in processing laboratories.



Vapour-liquid-equilibrium apparatus

This apparatus is standard equipment in almost every processing laboratory. Vapour-liquid-equilibria must be repeatedly be determined for two and more components when it is necessary to determine the distillation conditions necessary for separation and the theoretical number of separation stages. The corresponding PILODIST model VLE 100 D is designed for operation under pressure (up to 3 bar) but also in a vacuum or at normal atmospheric pressure. All components of the apparatus are enclosed in a safety frame. A micro-processor control supports the determination of precise and reliable results.

Technical data (VLE 100 D):

Operation pressure: 3,000 - 1.0 mbar
Operation temperature: 180°C (option up to 250°C)
Charge quantity: approx. 100 ml

Max. temperatures in milliseconds – a special feature of the PILODIST Curie point pyrolysis.

Curie point pyrolyser.

Pyrolysis facilitates the gaschromatographic analysis of non-volatile substances such as plastics, paints, varnishes and other polymers. The PILODIST Curie Point Pyrolyser particularly distinguishes itself through its exactly reproducible temperature of pyrolysis, shock heating up within milliseconds, a wide temperature range by means of ferromagnetic filaments (300 to approx. 1,000°C) and long service life. Another advantage: the pyrolyser can be attached to any gaschromatograph.

Individual glass components – from our own production.

Glass is still one of the most important materials in the production of laboratory equipment. Our own glass-blowing shop is therefore the core feature of our in-house production in which the most varied glass components are made by hand. Thus, glass components are produced which are individual and adapted precisely to the specific requirements of the customer. And should a customer have a broken column, piston or tube, the complete apparatus does not have to be replaced. After all, a corresponding spare part can be manufactured within a short time.

Our glass-blowing-shop produces:

- columns
- glass flasks
- coolers
- special components, individually produced according to customer wishes

Installation, upgrades and service – worldwide.

PILODIST is wherever our customers need us. Whether we install new laboratory and pilot plants, service and modernize already existing facilities, or supplying spare parts and repair defective equipment, we are represented by our representative offices worldwide.

Production and Intallation

The scarcer the raw materials become, the more efficiently they must be used. This is, however, only possible if the corresponding plant is being continuously further improved. PILODIST therefore regularly works on the further development of its laboratory and process technology. Ideas and visions are optimally realized by our glassblowers, mechanics, electronics technicians and software developers. As a result, we can provide and install technology as a reliable partner of the chemicals and petrochemicals industries which is always state-of-the-art.

Individual glass components are manufactured by experienced specialists in the glass-blowing shop.

Small works of art made of glass -- indispensable in daily laboratory use.

Upgrades

Laboratory and pilot plants are expensive. And before you consider a new purchase, you should check whether the same results could not be obtained with an upgrade. PILODIST, therefore, has also specialized in the modernization of existing plants – even those made by other manufacturers. In this connection, individual components are replaced by more modern components, old electronics and control engineering replaced by the latest processor-controlled systems and user-friendly applications software installed. Our customers profit as a result from simpler and, above all, more efficient test processes in the laboratory. Send us your plant data and we would be delighted to provide you with a proposal for your upgrade.

Spare parts

Thanks to our own glass, mechanical and electronic component production, spare parts can be manufactured and supplied at short notice. We can even replace single components for plants made by other manufacturers. The advantage for our customers: cost-intensive replacement of complete systems is no longer required.

We supply:

- glass/glass apparatus parts
- mechanical components
- electronics
- controls
- special components

On request, we can also replace parts directly on the spot. Let us know your requirements or send us the defective component - we will respond quickly!

Service

With our worldwide service we reach our customers via short routes and in the shortest time. This is made possible by a global network of sales partners and service stations.

On request, we would be delighted to provide you with the contact data of our local representatives. (info@pilodist.de).

Contact

PILODIST supplies solutions for laboratory and process technology worldwide.
Call upon our know-how:

Telephone ++49 (0) 228/92 89 43 80
E-Mail an: info@pilodist.de

PILODIST®

Laboratory & process technology

Auf der Kaiserfuhr 43
D-53127 Bonn
Telephone: ++49 (0) 228 92 89 43 80
Telefax: ++49 (0) 228 92 89 43 82
E-mail: info@pilodist.de
Web: www.pilodist.de

Knowledge & Competence