COMBI 5000

pH + EC + AM + VWC + rH + hPa + °C

Instruction manual

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Video HOW-TO-USE

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Content

1.   General information

The contents of this manual were carefully verified and have been compiled to the best of our knowledge. However, the Manufacturer does not accept liability for possibly contained statements in this manual.

In no event will the manufacturer be liable for direct, indirect, special, incidental or consequential damages resulting from any defect or omission in this manual.

The manufacturer reserves the right to make changes in this manual and the products it describes at any time, without notice or obligation. Revised editions can be found on the manufacturer's website.

2.   Safety information

Please read the entire manual before unpacking, setting up or operating this equipment. Pay attention to all danger and caution statements. Failure to do so could result in serious injury to the operator or damage to the equipment.

Make sure that the protection provided by this equipment is not impaired. Do not use or install this equipment in any manner other than that specified in this manual.

⚠ DANGER	Indicates a potentially or imminently hazardous situation which, if not avoided, will result in death or serious injury.
⚠ WARNING	Indicates a potentially or imminently hazardous situation which, if not avoided, could result in death or serious injury.
⚠ ATTENTION	Indicates a potentially hazardous situation that may result in minor or moderate injury.
!	Indicates a hazardous situation that may damage the unit if not avoided. Information that must be given special attention.
🗑	Electrical equipment marked with this symbol may not be disposed of public disposal systems. Electrical equipment users must return old or end-of-life equipment to the Manufacturer for disposal at no charge to the user.
⚠	This symbol, if noted on the instrument, references the instruction manual for operation and/or safety information.

3.   Product overview

The COMBI 5000 is a multifunctional instrument for 8 measuring parameters:

pH – EC – AM – VWC – rH – p – T – FlowControl

Your probes are automatically recognised and the corresponding measuring procedure is called up. The unit is powered by a 9V battery. Operation is menu-driven.

3.1.   Setup

Sockets   9 V battery

Display

Keypad

Front side   Battery holder   Battery cover

3.2 Starting

Battery holder	Remove the grey battery compartment cover by pressing down the ribbed tab and then pulling the cover down.
Battery	Place the provided 9V battery into the battery holder inside the battery compartment in the rear bottom part of the unit. Pay attention to the correct polarity.
Power supply unit	Instead of the battery, a power supply unit with 7 ...20 Vdc can also be connected, the cable of which is provided with a 9V clip connection. It is especially recommended for the function module FlowControl, as the unit must not switch off independently due to its monitoring function. More information on the relay output of the FlowControl, see chapter 6.4.
DataLogger	If the unit is equipped with the DataLogger function module, the battery / power supply unit supplies a built in clock (chapter 7.), which continues to operate even when the unit is switched off.
Changeover time	It can take up to 7 minutes to change the battery before the clock settings are lost and have to be carried out again.
Battery compartment	Replace the cover and slide it up until it clicks into place.
Switch On / Off	The unit is switched on and off by pressing ON / OFF. An automatic switch-off always takes place after 240 s. The FlowControl function module is always in continuous operation.
ON / OFF	The key can be pressed as long as required to read the start display or to dry the humidity sensor in the HPT probe (if connected).

3.3. Keypad

ON / OFF	Switching the measuring unit on or off at any time.
	Display shows the start screen as shown in chapter 3.4. It remains visible as long as the button is pressed.
MODE (-)	Sequential listing of various selection, setting and calibration functions.
	Counting down of setting values.
	Restart of the unit after completion of the selection, setting and calibration functions.
SELECT (+)	Acceptance of the functions / selection listed in MODE.
	Counting up of setting values.
	Switching between the pH and EC - AM - VWC - rH - p - T measuring processes, depending on the function module.
OK	Confirmation of languages, settings, functions.
	Manual storage of the measured values shown in the display, if the DATALOGGER function module is installed.
	Acceptance / cancellation of the MODE function with restart of the unit. Measurement release after exceeding the limit value in the operating mode (with FlowControl).

3.4. Function modules

Depending on the order, the COMBI 5000 is factory-equipped with one of the function modules listed below and delivered in a complete case including accessories. Retrofitting to other function modules is not possible. However, individual components of the respective configuration can be delivered later.

Function modules COMBI 5000	Complete case Designation	Complete case Article number
pH-EC-AM-VWC-rH-P-T	COMBI 5000	10920
AM-T	AM 5000	10190
EC-T	EC 5000	10290
pH-T	pH 5000	10390
VWC-T	MST 5000	10850
EC-AM-T	EC + AM 5000	10490
pH-AM-T	pH + AM 5000	10590
pH-EC-T	pH + EC 5000	10690
pH-EC-AM-T	pH + EC + AM 5000	10790
AM-VWC-T	AM + VWC 5000	10890
pH-AM-VWC-T	pH + AM + VWC 5000	10895
pH-T-FlowControl	pH-FlowControl 5000	52020A
EC-T-FlowControl	EC-FlowControl 5000	52015A
pH-EC-T-FlowControl	PH-EC-FlowControl 5000	52030A
DataLogger	optional	10140

3.5. Display examples

The following examples show typical measured value displays, depending on the installed function module. The status line at the top of the display shows the battery reserve, remaining time or current time, temperature.

An installed DataLogger is indicated by the current time (e.g. 14:56). Without DataLogger, the display shows the remaining runtime in seconds (e.g. 155) until automatic switch-off after max. 240 s.

85% Bat│14:56│+23.7˚C	DataLogger installed
0035 DATASETS MANU	35 Datasets, DataLogger MANUAL
mS/cm	Measured value unit: mS/cm
1.413	**Measured value: EC**
85% Bat│ 155 │-----˚C	DataLogger not installed
g/l	Measured value unit: g/l
0.75	**Measured value: AM**
63% Bat│14:56│-----˚C	DataLogger installed
2618 DATASETS MANU	2618 Datasets, DataLogger MANUAL
pH	Measured value unit: pH
10.72	**Measured value: pH**

`85% Bat| 155 |+19.4°C`	DataLogger not installed
`0.75        g/l`	**Measured value: AM**
`23.6        %VWC`	**Measured value: %VWC**

`63% Bat|14:56|+21.5°C`	DataLogger installed
`0178 DATASETS    AUTO`	178 Datasets, DataLogger AUTOMATIC
`%VWC`	Measured value unit: %VWC
`32.4`	**Measured value: %VWC**

`85% Bat| 174 |+26.7°C`	DataLogger not installed
`5.37 pH`	**Meas. value: pH exceeded**
`749 ppm`	**Measured value: TDS**
`1.413 mS/cm`	**Measured value: EC**

`85% Bat|19:47|+16.9°C`	DataLogger installed
`0258 DATASETS    AUTO`	258 Datasets, DataLogger AUTOMATIC
`Humidity      26.7  %`	**Measured value: Humidity rH%**
`Dew point      2.3  °C`	**Measured value: Dew point °C**
`Altitude       308  m`	**Measured value: Altitude m**
`Pressure    1037.6 hPa`	**Measured value: Air pressure hPa**

4. Measurement

4.1. pH probe

ON / OFF	pH = pH value [pH] T = Temperature [°C]　　(optional)
	Connect the probe to the BNC socket. If the function modules EC, AM, VWC, T are also installed, their probes can be connected to the 8-pin socket at the same time. By briefly pressing the SELECT key, you can switch back and forth between pH and EC, AM, VWC, T measurement.
	Remove the protective cap from the probe. Insert the probe into the soil sample (use a piercer if necessary) or dip it into the solution and swirl it slightly. If the unit has been calibrated together with a T probe, then also use this when measuring and place it close to the pH probe.
1.52	The measured value is stable after approx. 10 seconds and can be read / saved. Measured values outside the measuring range are displayed with "-----". The pH value is not temperature-compensated. With a temperature probe connected, a pH value compensated to 25°C is shown next to the temperature.
	After use, clean the probe with a cloth and put on the protective cap. **It is essential that the protective cap is filled with tap water or KCL solution to prevent the membrane in the probe tip from drying out.**
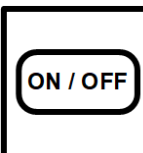
4.2. EC probe

ON / OFF	EC = Electric Conducticvity [mS/cm] T = Temperature [°C]
	Connect the probe to the 8-pin socket. If the pH function module is also installed, its probe can be connected to the BNC socket at the same time. Press the SELECT key briefly to switch between EC and pH measurement.
	Immerse the probe in the solution, moving it slightly.
1.52	The measured value is updated once per second. It is stable after 2 seconds and can be read / saved. Measured values higher than 200 mS/cm are displayed with "-----".
	Clean the probe with a dry cloth, rinse in distilled water and blow out with air if necessary. Further measurements can be taken immediately.
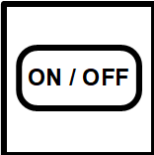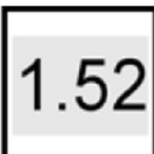
4.3. AM probe

ON / OFF	Measuring of active salts AM = Salinity [g/l]
	Connect the probe to the 8-pin socket. If the pH function module is also installed, its probe can be connected to the BNC socket at the same time. Press the SELECT key briefly to switch between AM and pH measurement.
	Insert the probe at least 50 mm deep into the soil.
1.52	The measured value is updated once per second. It is stable after 2 seconds and can be read / saved. Measured values higher than 2.99 are displayed as 2.99 g/l.
	Clean the probe with a cloth after use.
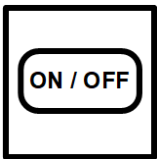
4.4. HPT probe

ON / OFF	rH = Relative air humidity [%] P = Air pressure [hPa] T = Air temperature [°C]
	Connect the probe to the 8-pin socket. To set the terrain height in metres above sea level, select MODE >> SET ALTITUDE and follow the instructions on the display. The current altitude can be taken from the GPS app of a mobile phone, for example.
	Hold the probe in the air and sway it slightly if there is not enough natural air movement.
1.52	The measured values are updated once per second. They are stable after 2 seconds and can be read / saved.
	Clean the probe with a cloth after use, clean with air if necessary. **The probe is calibrated at the factory.**
!	Never expose the probe to dust or water to avoid damaging it and to obtain the most accurate readings.
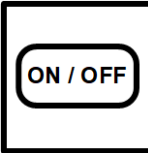
4.5.　VWC probe

ON / OFF	VWC = Volumetric water content in soil [%VWC] T = Temperature [°C]
	Connect the probe to the 8-pin socket. If the pH function module is also installed, its probe can be connected to the BNC socket at the same time. Press the SELECT key briefly to switch between VWC and pH measurement.
	Pierce the probe into the soil up to the lower edge of the housing or bury it completely with the housing. If necessary, use a piercer. Make sure that the soil is well sealed!
1.52	The measured values are updated once per second. They are stable after 3 seconds and can be read / saved. Measured values higher than 70.0 are displayed with 70.0 %, e.g. when the probe is completely immersed in water.
	Clean the probe with a cloth after use. **The probe is calibrated at the factory. To check, dip the probe into the centre of a 1 litre measuring cup filled with tap water. The display should show a value between 58 .... 62 %VWC.**
!	Never pull the probe out of the soil by the cable!
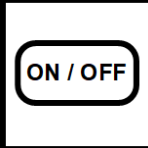
4.6.   Multi – probe

ON / OFF	VWC = Volumetric water content in soil [%VWC] AM = Salinity [g/l] T = Temperature [°C]
	Connect the probe to the 8-pin socket. If the pH function module is also installed, its probe can be connected to the BNC socket at the same time. Press the SELECT key briefly to switch between VWC / AM and pH measurement.
	Pierce the probe at least 70 mm deep into the soil without tilting it and do not move it any more. If necessary, use a slightly thinner piercer. Make sure that the soil is well sealed.
1.52	The measured values are updated once per second. They are stable after 5 seconds and can be read / saved. A VWC reading higher than 70.0 % is displayed as 70.0, e.g. when the probe is completely immersed in water. AM readings higher than 2.99 are displayed with 2.99 g/l.
	Clean the probe with a cloth after use. **The probe is calibrated at the factory. To check, dip the probe into the centre of a 1 litre measuring cup filled with tap water. The display should show a value between 58 .... 62 %VWC.**
!	Never pull the probe out of the soil by the cable!
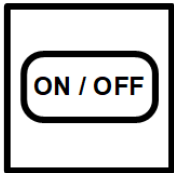
4.7. Temperature probe
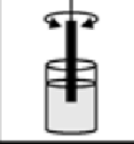
ON / OFF	T = Temperature [°C]
	Connect the probe to the 8-pin socket. If the pH function module is also installed, its probe can be connected to the BNC socket at the same time. The display shows then a pH value compensated to 25°C.
	Insert the probe at least 50 mm deep into the soil or hold it in the solution or in air.
1.52	The measured value is updated once per second. It is stable after 5 seconds and can be read / saved. The measuring range is -20 ... +80 °C. Measured values higher than 80°C are displayed with "-----°C".
	Clean the probe with a cloth after use.

5. Calibration
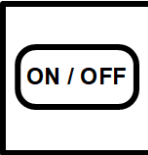
5.1. pH probe

ON / OFF	Calibration of the unit is necessary after replacing the pH probe or generally after frequent use (at least after 20 measurements). It can be carried out as often as desired.
	Connect the probe to the BNC socket and remove the protective cap. For calibration, connect only the pH (T) probe to the unit. 2-point calibration in buffer solutions **pH7 → pH4**. 3-point calibration in buffer solutions **pH7 → pH4 → pH10**.
	Immerse the probe and, if necessary, the T-probe in the buffer solution and then wait for min. 5 s. Move the probe slightly. Select **MODE >> CALIBRATION** and follow the instructions on the display. The calibration process is displayed as a progress bar. Then the COMBI 5000 restarts. An incorrect buffer solution, defective probe or other faults are shown in the display as an error message. After eliminating the error, repeat the calibration.
	After use, clean the probe with a cloth and put on the protective cap. **It is essential that the protective cap is filled with tap water or KCL solution to prevent the membrane in the probe tip from drying out.**
Note	The slope of the pH electrode [**mV/pH**] and the current sensor voltage [**mV**] can be called up any time under **MODE>pH-SENSOR STATUS**.

5.2. EC probe

ON / OFF	Calibration of the unit is necessary after replacing the EC probe or generally after frequent use. It can be carried out as often as desired.
	Connect the probe to the 8-pin socket. Calibration can be performed with the following solutions: **0.084 – 1.41 – 5.00 – 12.88 – 111.8 mS/cm**. The solutions are recognised automatically. The calibration sequence is arbitrary.
	Immerse the probe in the calibration solution and wait for at least 10 seconds. Move the probe slightly. Select **MODE >> CALIBRATION** and follow the instructions on the display. The calibration process is displayed as a progress bar. Then the COMBI 5000 restarts. An incorrect calibration solution, defective probe or other faults are shown in the display as an error message. After eliminating the error, repeat the calibration.
	Rinse the probe in distilled water, dry it with a cloth and blow it out with air if necessary. Further measurements can be taken immediately.

5.3. AM probe

ON / OFF	Calibration of the unit is necessary after replacing the AM probe or generally after frequent use. It can be carried out as often as desired.
	Connect the probe to the 8-pin socket. Calibrate in the standard solution **1.41 mS/cm**. This corresponds to a salinity of **AM = 0.75 g/l**. It is automatically detected during calibration.
	Immerse the probe vertically in the calibration solution. The tip should touch the bottom of the container in the middle. Select **MODE >> CALIBRATION** and follow the instructions on the display. The calibration process is displayed as a progress bar. Then the COMBI 5000 restarts. An incorrect calibration solution, defective probe or other faults are shown in the display as an error message. After eliminating the error, repeat the calibration.
	Clean the probe with a dry cloth. Further measurements can be taken immediately.

5.4. Multi-probe

ON / OFF	Calibration of the unit is necessary after replacing the multi-probe or generally after frequent use. It can be carried out as often as desired.
	Connect the probe to the 8-pin socket. **VWC calibration** is done in **air** (0%) and **water** (60%). The **AM calibration** is done in the calibration **solution1.41 mS/cm**. This corresponds to a salinity of **AM = 0.75 g/l**. The calibration media are recognised automatically.
	Clean and dry the probe. Select **MODE >> CALIBRATION** and follow the instructions on the display. The calibration process is displayed as a progress bar. Then the COMBI 5000 restarts. The AM calibration is optional. Immerse the probe vertically in the calibration solution. The tip should touch the bottom of the container in the middle. An incorrect calibration solution, defective probe or other faults are shown in the display as an error message. After eliminating the error, repeat the calibration.
	Clean the probe with a dry cloth. Further measurements can be taken immediately.

6. FlowControl 5000
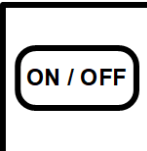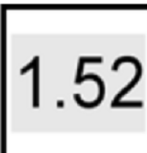
6.1. Functions

Measurement	Simultaneous continuous measurement and display of pH - EC - TDS - T - values, depending on the function module.
Calculation	Adjustable TDS factor from 0 ... 1.00 (default value = 0.53) for automatic calculation of the TDS value according to the formula: TDS [ppm] = EC [mS/cm] * 1000 * TDS FACTOR.
Indication	Inverse display of the measured value when exceeding or falling below the adjustable pH limit values from 0 ... 14 pH and EC limit values from 0 ... 200 mS/cm.
Storage	Storage of the exceeded/undershot limits in the data logger, if it is installed.
Monitoring	Simultaneous monitoring of adjustable pH and EC limits.
Alarm	Adjustable alarm delay time from 0...255 s. If the set pH or EC limit values are exceeded or undershot, the respective measured value is shown inverted in the display after a delay time has elapsed.
Switching	If the set pH or EC limit values are exceeded or undershot, the respective pH or EC relay is switched after a delay time has elapsed. **This function requires the installation of a relay card and a jack socket for connection to the potential-free relay contacts.**
Mounting	The probes are tightly screwed into the pipe installation kit.
!	The FlowControl 5000 does not switch itself off. It is therefore strongly recommended to use a 9V power supply (max 20Vdc, 200 mA) for continuous operation.

6.2. Settings

pH limits	Select **MODE >> pH LIMIT VALUE** and follow the instructions on the display.
EC limits	Select **MODE >> EC SCHWELLENWERT** and follow the instructions on the display.
Alarm delay	Select **MODE >> ALARM DELAY** and follow the instructions on the display.
TDS-Factor	Select **MODE >> TDS-FACTOR** and follow the instructions on the display. The TDS factor can be set between 0.00 ... 1.00 **TDS [ppm] = EC [mS/cm] TDS factor** (default = 0.53)
Other	As described in chapter x.x: Contrast, Language, DataLogger.
Reaction to exceeding or falling below the limit value	**If the measured value exceeds or falls below the limit values** - the respective measured value is displayed inversely - the alarm delay starts counting down - after expiry, the measured value is "frozen" in the display - an (optional) relay output is switched (chapter 6.4.) - the limit value is stored in the DataLogger (chapter 7.)
	If the measured value returns prematurely to the range between the upper and lower limit values, the measured value is - the measured value is displayed normally again - the delay time is reset to the initial value
	After eliminating the fault with the OK button - the measured value concerned is displayed normally again - the alarm delay is set to the initial value again - the (optional) relay output is switched off

6.3. Measure - Monitor - Clean - Calibrate

ON / OFF	pH = pH value [pH] EC = Electric Conductivity [mS/cm] TDS = Total Dissolved Solids [ppm] T = Temperature [°C]
	Connect the pH probe to the BNC socket. Connect the EC probe to the 8-pin socket.
	Install the completely assembled pipe installation kit in the pipe of the liquid to be measured. Insert the probes into the respective pipe installation kit and fix and seal them with the PG screw connection.
1.52	After the settings (chapter 6.1.) and / or wiring (chapter 6.4.) have been made, the measurement results can be permanently read on the unit. The reaction to measured values outside the adjustable limit values is described in chapter 6.2.
	Cleaning - Calibration If the measured values are not plausible or after 6 weeks at the latest, remove the pH probe, clean it and recalibrate it according to chapter 5.1. If the measured values are not plausible or after 3 months at the latest, remove the EC probe, clean it and recalibrate it according to chapter 5.2.

6.4. Circuit example with relay outputs

⚠ WARNING	Use low voltage: max. 50 Vac / 120 Vdc

Relais Ausgang / Relay output

COMBI 5000 FlowControl

Batterie-clip / battery-clip

gelb / yellow
braun / brown
weiss / white

2-Wege-Magnetventil, im Normalbetrieb dauernd ausgeschaltet (geschlossen)
2-ways-solenoid valve, during normal mode permanent switched off (closed)

Schaltet ein (öffnet) bei EC Grenzwertunter- / Überschreitung
Switches on (opens) when EC-value comes under / over limit

Schaltet ein (öffnet) bei pH Grenzwertunter- / Überschreitung
Switches on (opens) when pH-value comes under / over limit

Kleinspannung / low voltage, max. 50Vac / 120Vdc, 1 A

Verteilerkasten / terminal box

Steckernetzteil / Plug-in power supply

IN: 115/230 Vac 50/60 Hz
OUT: 9 ... 20Vdc / 200mA

6.5. FlowControl function modules

	pH – EC – FlowControl with connected pH and EC probe, each installed in its own pipe installation kit (bypass). Because of the monitoring operation, the unit must not switch off independently due to insufficient battery reserve. Therefore, the use of a plug-in power supply unit (9 ... 20Vdc, 200mA) is recommended for the power supply, which is connected instead of the 9V battery in the battery compartment.
	pH – FlowControl with connected pH probe, installed in a pipe installation kit (bypass). Because of the monitoring operation, the unit must not switch off independently due to insufficient battery reserve. Therefore, the use of a plug-in power supply unit (9 ... 20Vdc, 200mA) is recommended for the power supply, which is connected instead of the 9V battery in the battery compartment.
	EC – FlowControl with connected EC probe, installed in a pipe installation kit (bypass). Because of the monitoring operation, the unit must not switch off independently due to insufficient battery reserve. Therefore, the use of a plug-in power supply unit (9 ... 20Vdc, 200mA) is recommended for the power supply, which is connected instead of the 9V battery in the battery compartment.

7. DataLogger

This function module can be installed at the factory in addition to all other function modules. The time (e.g. **13:25**) is then always shown in the middle of the status line of the display (chapter 3.5.).

7.1. Functions

Quartz clock	Clock in 24h format with year, month, day, hour, minute, (incl. leap years). Approx. 7 min power reserve when battery is changed.
Datasets storage	Storage of max. 2620 datasets (with date, time, temperature, measured value, measured value type). Manual or automatic data storage can be preselected. Manual data storage of all displayed measured values at any time by pressing OK. Automatic data storage after an adjustable measuring interval of 1 min.... 24 h. The unit switches on automatically before the measurement, saves the measurement result and switches off again after 15 seconds.
Datasets export	The stored data is transferred in CSV format via a data cable (chapter 9.10.) to the USB port of a PC. Connection of the cable to the unit is automatically recognised.
Datasets deletion	Manual deletion of the data stored in the DataLogger after a security query.
Datasets storage example	A maximum of 2620 records can be stored. Dataset - Format: **Memo;Year;Month;Day;Hour;Minute;Temp;Value;Type**

7.2   Settings

Quarz clock	Select **MODE >> DATE / TIME** and follow the instructions. Set the flashing display values in sequence with the +/- keys or switch off the unit. Confirm each setting with the OK. After setting the minutes, the time is accepted and shown in the status line of the display (chapter 3.5.).
DataLogger MANU	Select **MODE >> DATALOGGER MANU-AUTO** and then **MANU** with the +/- key. The unit then restarts with this setting. In **MANU** operating mode, a measured value is saved by pressing the OK button. OK appears briefly in the display. The 3rd line of the display shows the measured values saved so far and the **MANU** operating mode.
DataLogger AUTO	Select **MODE >> DATALOGGER MANU-AUTO** and then **AUTO** with the +/- key. In the following **DATALOGGER CYCLE** menu, use the +/- keys to set the desired measuring interval from 1 min.... 24 h and confirm with OK or switch off the unit. The unit then restarts. In **AUTO** mode, the unit switches on automatically, saves the measurement result and switches off again automatically after 15 seconds. The unit can be switched on at any time to also save intermediate values with the OK or to view the current measured value. The 3rd line of the display shows the measured values saved so far and the **AUTO** operating mode.
Switch Auto > Manu	To switch from **AUTO** to **MANU** mode, switch on the unit. select **MODE >> DATALOGGER MANU-AUTO** and then **MANU**. All functions are then available again.

7.3. Hardware

Data cable	Connect the 8-pin plug of the supplied data cable to the unit. It automatically recognises the cable and shows **DATALOGGER EXPORT** on the display.
	Connect the USB plug (with integrated electronics) of the data cable to the PC.
	When the unit is connected for the first time, the PC reports the installation of driver software, as with other new USB devices. A USB serial port is then automatically set up as a COM interface whose number (e.g. COM4) can be queried via the Windows device manager and set in the communication software.
Driver software	If the driver software does not install automatically, it must be installed manually (ask your software service provider if necessary):
	Download from the Internet the file **v2.12.28 WHQL Certified**
	Help for Windows 10 under **Application Note AN_396**
	Help for Windows 8 under **Application Note AN_234**
	Help for Windows 7 under **Application Note AN_119**

7.4. Software

Programme	A programme is necessary to receive the data via the USB serial port, e.g. **Termite 3.4** from CompuPhase (freeware).
	The data is saved on the PC as a text file in CSV format after assigning any file name. The file name and storage location are set beforehand in the programme.
Interface	The following parameters must be set in the programme:
	COMx – 19200 bps – 8 Datenbits – 1 Stoppbit – Even Parity
	The programme then waits for data from the unit.

7.5.   Data export

Start	Start the programme installed on the PC. Press OK to start the data export. During the export, the display shows "**please wait** ..." depending on the amount of data. This process can be repeated as often as desired, as the exported data is not automatically deleted from the unit.
Datasets indication	The imported data sets are automatically displayed by the programme in its window and exported to the PC with a predefined file name. A semicolon (;) is used as a separator in the data records. This automatically creates the table columns and entries during the subsequent import into Excel or OpenOffice.

Datasets lines	`1.    Memo;Year;Month;Day;Hour;Minute;Temp;Value;Type`
	 `2.   ;2020;06;15;14;40;+22.6;   7.34;pH`
	 `3.   ;2020;06;17;15;53;+24.1;  12.88;EC`
	 `4.   ;2020;06;21;16;09;+21.4;  12.6;VW`
	 `5.   ;2020;06;15;16;12;+21.4;   0.75;AM`
	 `6.   ;2020;07;23;09;33;+23.6;   0.75;rH`
	 `7.   ;2020;07;23;09;33;+23.6;  1023.7;p`

Dataset process	Open the created text file with Excel or OpenOffice as a CSV file. In the opened text import window, the most important settings for a correct data import are made, e.g.: **Character set**: System **Language**: Standard **Separation options**: Semicolon **Column type**: Standard or US - English The CSV file is then read into Excel or OpenOffice. The resulting table can then be further processed according to your own ideas and saved as an XLS file, for example.
Datasets deletion	Select **MODE >> DATALOGGER CLEAR** and follow the further instructions. The number of datasets saved so far is displayed and deleted when confirmed with yes. The unit restarts with 0000 datasets and all previous settings.

8. Accessories and spare parts

Item no.	Component parts
10910	COMBI 5000, basic unit
10302	pH insertion probe
31001	Buffer solution pH 4, 100 ml
31002	Buffer solution pH 7, 100 ml
10212	EC probe with platinum sensors for EC and t°C measurement
31003	Standard solution 1.4 mS, 50 ml
31005	Standard solution 111.8 mS, 50 ml
10192	Multi-probe for activity, soil moisture and temperature measurement
10130	HPT probe for measuring air humidity, air pressure, air temperature
10124	Temperature probe
40821	VWC probe for measuring soil moisture and temperature
10121	Stainless steel AM probe, 250 mm

10122	Stainless steel AM probe, 500 mm
10123	Stainless steel AM probe, 750 mm
10140	Data logger function
52020A	pH – T – FlowControl for pH and t°C monitoring
52020R	pH – T – FlowControl for pH and t°C monitoring, with built-in relay card, connection socket and connection cable
52015A	EC – T – FlowControl for EC, TDS and t°C monitoring
52015R	EC – T – FlowControl for EC and t°C monitoring, with built-in relay card, connection socket and connection cable
52030A	pH – EC – T – FlowControl for pH, EC, TDS and t°C monitoring
52030R	pH – EC – T – FlowControl for pH, EC, TDS and t°C monitoring, with built-in relay card, connection socket and connection cable
90079	Connection cable 8-pin to USB
23041	Spray bottle with snorkel, 250 ml
90036	Volume measuring cup, 100 ml
90020	Piercing pin

9. Technical data

9.1. COMBI 5000 basic unit

Type	hand-held unit for measuring pH, EC, AM, VWC%, rH, p, °C or FlowControl
Data recording (depending on equipment)	data logger for manual / automatic storage of up to 2620 records. Storage of up to 2620 data sets. With clock, data logger cycle 1 min ... 24 h, data export in CSV format
Housing / Material	splash-proof according to IP40, EN60529 / ABS
Dimensions / Weight	83 x 180 x 55 mm (W x H x D) / 0.3 kg
Operating t°C	-10 … +60 °C
Display	graphic display 128x64 pixels, 54 x 32 mm, reflective, contrast adjustable
Connectors	8-pin DIN socket (EC, AM, VWC, p, rH, T), BNC socket (pH), 2.5mm jack socket max. 50 Vac / 120 Vdc, 1 A (FlowControl)
Peripheral interfaces	analogue, digital, RS485 bus, I²C bus, 5 Vdc 2 change-over relay outputs, (FlowControl)
Operating voltage	9V block battery (approx. 8 operating hours) or mains adapter (9 ... 20Vdc, 200mA)
Power consumption	max. 18mA, max. 45mA for function module FlowControl with relay
Duty cycle	240 s with automatic switch-off, continuous operation with FlowControl
Battery monitoring	notification and automatic switch-off at battery reserve < 3%

Measuring cycle	1 s for all measuring methods
Switching the measuring methods	automatically, depending on the connected probe. pH probe can always remain connected.
Operation	with 4 keys: ON/OFF, MODE, SELECT, OK
Languages	German, English, Russian
Warranty	2 years. Please contact us before return the unit.

9.2. pH probe

Type	insertion probe with gel electrode and protective cap
Item no.	10302
Dimensions	glass body, transparent, 12 mm Ø, length 163 mm
Connector	BNC socket
Cable	130 cm, coaxial, shielded, Teflon-insulated
Storage t°C	-20 … +60 °C
Operating t°C	-10 … +40 °C
Measuring range	0 … 14 pH
Resolution	0.01 pH
Accuracy	+/- 0.02 pH
T compensation	only when an additional T sensor is connected
Data gathering	analogue > digital
Measuring method	analogue

9.3. EC probe

Type	plastic probe with platinised electrodes
Item no.	10212
Dimensions	PVC pipe, transparent, 12 mm Ø, length 163 mm
Connector	8-pole plug with snap lock according to DIN 45321
Cable	120 cm, 4-wire
Storage t°C	-20 … +60 °C
Operating t°C	-10 … +40 °C
EC sensor	electrical conductivity
Measuring range	0 … 200 mS/cm
Resolution	automatic (0.001 / 0.01 / 0.1 mS/cm)
Accuracy	+/- 2 % from measured value
Data gathering	analogue > digital
Measuring method	analogue, multi-frequency AC
T sensor	temperature
Measuring range	-20 … +80 °C
Resolution	0.1 °C
Accuracy	+/- 0.5 % from measured value
Data gathering	analogue > digital
Measuring method	NTC resistor, R25 = 10 kOhm 1%, B = 3435

9.4.   AM probe

Type	insertion probe with 2-pole stainless steel measuring tip
Item no.	10121 (250 mm), 10122 (500 mm), 10123 (750 mm)
Dimensions	stainless steel tube, 10 mm Ø, length 250-500-750 mm
Connector	8-pole plug with snap lock according to DIN 45321
Cable	120 cm, 2-wire
Storage t°C	-20 … +60 °C
Operating t°C	-10 … +40 °C
Measuring range	0 … 2.99 g/l
Resolution	0.01 g/l
Accuracy	+/- 5 % from measured value
T compensation	no
Data gathering	analogue > digital
Measuring method	analogue, multi-frequency AC

9.5.   HPT probe

Type	probe for humidity, air pressure, air temperature
Item no.	10130
Dimensions	PVC moulding, black, 12 mm Ø, length 115 mm
Connector	8-pole plug with snap lock according to DIN 45321

Protection class	IP40
Data transfer	I²C-Bus to COMBI 5000
Cable	120 cm, 4-wire
Storage t°C	-20 … +60 °C
Operating t°C	-20 … +60 °C
Data gathering	analogue > digital
Relative humidity	10 … 100 rH%
Resolution	0.1 rH%
Accuracy	0 … 20°C: 3% 20 … 60°C: 2% 60 … 80°C: 4%
Air pressure	260 … 1260 hPa
Resolution	0.1 hPa
Accuracy	0.5 hPa
Settings	0 … 2500 m altitude above sea level on COMBI 5000
Temperature	-20 … +80 °C
Resolution	0.1 °C
Accuracy	+/- 0.2%

9.6. VWC probe

Type	insertion probe for soil moisture and temperature
Item no.	40821
Dimensions	epoxy circuit board, 1.5 mm thick, 148 mm long

Connector	8-pole plug with snap lock according to DIN 45321
Protection class	dust and waterproof according to IP67
Data transfer	RS485 with MODBUS RTU protocol to COMBI 5000
Cable	500 cm, 4-wire, shielded
Storage t°C	-20 … +60 °C
Operating t°C	-10 … +40 °C
VWC sensor	soil moisture
Measuring range	0 … 60 %VWC
Resolution	0.1 %VWC
Accuracy	+/- 5 % f. meas. value at 0 … 50 %VWC / 23°C / EC < 3
T compensation	yes
Data gathering	analogue > digital
Measuring method	capacitive, with high frequency according to FDR method
T sensor	temperature
Measuring range	-20 … +80 °C
Resolution	0.1 °C
Accuracy	+/- 0.5 % from measured value
Data gathering	analogue > digital
Measuring method	2 x NTC resistor, R25 = 10 kOhm 1%, B = 3435

9.7.   Multi – probe

Type	insertion probe with 2-pole stainless steel measuring tip
Item no.	10191
Dimensions	black PVC pipe, 10 mm Ø, length 260 mm
Connector	8-pole plug with snap lock according to DIN 45321
Protection class	dust and waterproof according to IP67
Data transfer	counting pulses
Cable	120 cm, 7-wire, shielded
Storage t°C	-20 … +60 °C
Operating t°C	-10 … +40 °C
VWC sensor	soil moisture
Measuring range	0 … 60 %VWC
Resolution	0.1 %VWC
Accuracy	+/- 5 % from measured value for 0 … 50 %VWC, 23°C, EC < 3 mS/cm
T compensation	yes
Data gathering	analogue > digital
Measuring method	capacitive, with high frequency according to FDR method
AM sensor	salinity
T compensation	yes
Electrical data	like AM-probe (chapter 10.4.)

T sensor	temperature
Measuring range	-20 … +80 °C
Resolution	0.1 °C
Accuracy	+/- 0.5 % from measured value
Data gathering	analogue > digital
Measuring method	2 x NTC resistor, R25 = 10 kOhm 1%, B = 3435

9.8. Temperature probe

Type	insertion probe, stainless steel
Item no.	10124
Dimensions	stainless steel tube, 3 mm Ø, length 106 mm
Connector	5-pole plug with snap lock according to DIN 45321
Cable	120 cm, 2-wire
Storage t°C	-20 … +80 °C
Operating t°C	-20 … +80 °C
Measuring range	-20 … +80 °C
Resolution	0.1 °C
Accuracy	+/- 0.5 % from measured value
Data gathering	analogue > digital
Measuring method	NTC resistor, R25 = 10 kOhm 1%, B = 3435K

9.9. DataLogger

Type	digital measured value memory
Item no.	10140
Storage	all measurement data in CSV format
Memory volume	2620 datasets
Data export format	Memo;Year;Month;Day;Hour;Minute;Temp;Value;Type
AUTO measuring interval	adjustable from 1 min ... 24 h in steps of 1 min. The unit switches on automatically for measurement and then switches off again.
MANU measuring interval	as often as desired, with the OK key of the COMBI 5000
Quarz clock	clock in 24h format with year, month, day, hour, minute, (incl. leap years). Approx. 7 min power reserve when battery is changed.
Accessories	data transmission cable (chapter 9.10.)

9.10. Data transmission cable

Type	data transmission cable with integrated RS485 / USB converter
Item no.	90079
Data transfer	stored data from DataLogger COMBI 5000
Connector (PC)	USB 2.0
Connector (COMBI)	8-pole plug with snap lock according to DIN 45321

Cable	180cm, 3-wire
Data transfer	RS485, 19200 baud - 8 data bits - 1 stop bit - Even
USB driver	v2.12.28 WHQL Certified (chapter 7)
Storage t°C	-40 … +85 °C
Operating t°C	-20 … +80 °C
Power supply	5 Vdc / 15 mA via the USB port of the PC
Note	A programme must be installed on the PC that receives the data and converts it into a text file.

Table for Optimal AM-Values

Activity Meter: optimal AM-Values at good soil moisture.
The values are valid during maturity time and growth period of the plants.
Values shall never fall below 0.1 AM.
If the value falls below the optimal values, fertilisation is required.
For pot plants, fertilisation with liquid fertilisers is recommended.
For bed plants, a fertilisation with mostly Nitrate and Potassium is recommended.

Substrates:	pH-Value	AM-value
Substrate (peat soil) for young plants (salt-sensitive young plants)		0,2-0,4
Substrate (peat soil) for young plants (salt-tolerable young plants)		0.3-0.5
Substrate (peat soil) for seeding		0,1-0,2
Substrate (peat soil) for propagation		0,2-0,3

Ornamental Plants:

Botanic Name	German Name	pH-Value	AM-Value
Abies balsamea	Zwergtanne	6,0-8,0	0,2-0,4
Abies concolor	Grautanne	5,5-7,5	0,2-0,4
Abies homolepis	Nikkotanne	5,0-7,0	0,2-0,4
Abies koreana	Koreatanne	6,0-8,0	0,2-0,4
Abies lasiocarpa	Compacta	6,0-8,0	0,2-0,4
Abies nordmanniana	Nordmanntanne	6,0-8,0	0,1-0,3
Abies pinsapo	Kelleristanne	6,0-8,0	0,2-0,4
Abies procera	Silbertanne	5,0-7,0	0,2-0,4
Abies veitchii	Veitchtanne	5,0-7,0	0,1-0,3
Acer campestre	Feldahorn	6,0-7,0	0,1-0,3
Acer capillipes	Schlangenhautahorn	5,5-6,5	0,2-0,4
Acer ginnala	Feuerahorn	5,5-6,5	0,2-0,4
Acer japonicum	Japanischer Feuerahorn	6,0-7,0	0,2-0,3
Acer negundo	Eschenahorn	6,0-7,0	0,2-0,4
Acer palmatum	Fächerahorn	6,0-7,0	0,2-0,3
Acer pensylvanicum	Streifenahorn	6,0-7,0	0,2-0,3
Acer plantanoides	Spitzahorn	6,5-7,5	0,1-0,3
Acer pseudoplatanus	Bergahorn	6,0-8,0	0,1-0,3
Acer rubrum	Rotahorn	5,5-6,5	0,2-0,4
Acer rufinerve	Rostbartahorn	6,0-7,0	0,2-0,4
Acer saccharinum	Silberahorn	6,0-7,0	0,1-0,3
Acer saccharum	Zuckerahorn	6,0-7,0	0,2-0,4
Achimeues hybrida		5,0-6,5	0,2-0,3
Actinidia arguta	Strahlengriffel	6,0-7,0	0,2-0,4
Actinidia chinesis	Kiwi	6,0-7,0	0,2-0,4
Adiantum		4,5-6,0	0,2-0,3
Aechmea fasciata		5,5-6,5	0,3-0,4
Aesculus carnea	Kastanie	6,0-8,0	0,1-0,3
Aesculus hippocastanum	Roßkastanie	6,0-8,0	0,1-0,3
Aesculus parviflora	Strauchkastanie	6,0-8,0	0,1-0,4
Ailanthus altissima	Götterbaum	6,0-7,0	0,1-0,3
Akebia quinata	Klettergurke	6,0-7,0	0,2-0,5
Alnus cordata	Erle	6,5-7,5	0,1-0,3
Alnus glutinosa	Schwarz-Rot-Erle	5,5-6,5	0,1-0,3
Alnus incana	Grau-Weiß-Erle	7,0-8,0	0,1-0,3
Alstromeria		6,0-7,0	0,3-0,5
Amaranthus-Fuchsschwanz		5,5-6,5	0,3-0,5
Amelanchier laevis	Hängende Felsenbirne	6,5-7,5	0,1-0,3
Amelanchier lamarckii	Kupfer-Felsenbirne	6,5-8,0	0,1-0,3
Amorpha Canescens	Bleibusch	6,5-7,5	0,2-0,4
Amorpha fruticosa	Bastardindigo	6,5-7,5	0,2-0,6
Anemone coronaria		5,5-6,5	0,3-0,4

Botanic Name	German Name	pH-Value	AM-Value
Anthurium andreanum		4,5-5,5	0,3-0,4
Anthurium scherzianum		4,5-5,5	0,2-0,3
Antirrhinum-Löwenmaul		5,5-7,0	0,4-0,6
Aphelandra squattosa		5,0-6,5	0,3-0,5
Aralia elata	Aralie	6,5-7,5	0,2-0,6
Araucania araucana	Schmucktanne	7,0-8,0	0,2-0,4
Aristolochia macrrophylla	Pfeifenwinde	6,5-7,5	0,2-0,4
Asparagus plumus		5,5-7,0	0,2-0,3
Asparagus sprengeri		5,5-7,0	0,5-0,8
Azalea indica		3,8-5,0	0,3-0,5
Begonia bertinii		5,0-6,5	0,3-0,5
Begonia elatior		5,0-6,5	0,3-0,6
Begonia Knollenbegonien		5,0-6,0	0,3-0,5
Begonia Lorraine		5,0-6,0	0,3-0,5
Begonia semperflorens		5,0-6,5	0,3-0,5
Bellis perennis		6,0-7,0	0,3-0,5
Berberis buxifolia	Berberitze	6,5-7,5	0,1-0,3
Berberis candidula	Berberitze	6,5-7,5	0,1-0,3
Berberis gagnepainii	Berberitze	6,5-7,5	0,1-0,3
Berberis hookeri	Berberitze	6,5-7,5	0,2-0,4
Berberis julianae	Berberitze	6,5-7,5	0,2-0,4
Berberis parkjuweel	Berberitze	6,5-7,5	0,2-0,4
Berberis red jewel	Berberitze	6,5-7,5	0,2-0,4
Berberis stenophylla	Berberitze	6,5-7,5	0,1-0,3
Berberis superba	Berberitze	6,5-7,5	0,1-0,3
Berberis thunbergii	Berberitze	6,5-7,5	0,2-0,4
Berberis verrucandi	Berberitze	6,5-7,5	0,2-0,4
Berberis wilsoniae	Berberitze	6,5-7,5	0,2-0,4
Betula albosinensis	Kupferbirke	6,5-7,5	0,2-0,4
Betula ermannii	Goldbirke	6,5-7,5	0,2-0,4
Betula maximowicziana	Birke	6,5-7,5	0,2-0,4
Betula nana	Polar Zwergbirke	6,5-7,5	0,2-0,3
Betula nigra	Schwarzbirke	6,0-7,0	0,3-0,6
Betula papyrifera	Papierbirke	6,0-8,0	0,1-0,3
Betula pend. Dalecartica	Ornas Birke	6,5-7,5	0,2-0,4
Betula pend. Fastigata	Säulenbirke	6,5-7,5	0,2-0,4
Betula pend. Purpurea	Purpurbirke	6,5-7,5	0,2-0,4
Betula pend. Tristis	Hängebirke	6,5-7,5	0,2-0,4
Betula pend. Youngii	Trauerbirke	6,5-7,5	0,2-0,4
Betula pendule	Weiß-Sandbirke	6,0-7,0	0,1-0,3
Betula platyphylla	Japanische Birke	6,5-7,5	0,2-0,4
Betula utillis	Himalaya Birke	6,0-6,5	0,1-0,4
Brassica oleracea		6,0-7,0	0,4-0,6
Bromelien		4,0-5,5	0,2-0,4
Buddlera alternifolia	Sommerflieder	6,0-8,0	0,1-0,3
Buddlera davidii	Hybriden	6,0-8,0	0,1-0,3
Buxus sempervierens	Buxbaum	6,0-8,0	0,2-0,4
Calceolaria Hybriden		5.0-6,5	0,3-0,5
Callicarpa bodinieri	Schönfrucht	6,0-6,5	0,2-0,4
Calluna vulgaris	Besenheide	4,0-5,0	0,1-0,3
Calyanthus floridus	Gewürzstrauch	6,5-7,5	0,2-0,4
Camelia japonica		4,0-5,5	0,3-0,5
Campanula		6,0-6,5	0,3-0,6
Campsis radicans	Trompetenblume	6,0-7,0	0,2-0,4
Caragana arboresens	Erbsenstrauch	6,0-8,0	0,1-0,3
Carpinus betulus	Hain-Weißbuche	6,0-8,0	0,1-0,3
Caryopteris clandonensis	Bartblume	6,5-7,5	0,2-0,4

Botanic Name	German Name	pH-Value	AM-Value
Castanea sativa	Eßbare Kastanie	6,0-7,0	0,1-0,3
Catalpa bignonioides	Trompetenbaum	7,0-8,5	0,2-0,4
Cattleya mossiae		4,0-5,5	0,2-0,3
Ceanothus Gloire de Versails	Säckelblume	6,5-7,5	0,2-0,4
Cedrus atlantica	Zeder	7,0-8,0	0,2-0,4
Cedrus deodara	Himalajazeder	5,0-7,0	0,2-0,4
Cedrus glauca	Blauzeder	6,5-8,5	0,2-0,4
Cedrus pyramidalos	Pyramidenzeder	6,5-8,5	0,2-0,4
Cedrus pendula	Hängezeder	6,5-8,5	0,2-0,4
Celastrus orbiculatus	Baumwürger	6,5-7,5	0,2-0,4
Cercidiphyllum japonicum	Judasblattbaum	6,5-7,5	0,2-0,4
Cercis siliquastrum	Judasbaum	6,5-8,0	0,2-0,4
Chainomeles japonica	Scheinquitte	6,0-6,5	0,1-0,3
Chainomeles lagenaria	Scheinquitte	6,0-6,5	0,1-0,3
Chamecyparis alumil Gold	Scheinzypresse	6,0-8,0	0,1-0,3
Chamecyparis column. glauca	Scheinzypresse	6,0-8,0	0,1-0,3
Chamecyparis ellwoodii	Scheinzypresse	6,5-8,0	0,1-0,3
Chamecyparis glauca spek	Scheinzypresse	6,5-8,0	0,2-0,4
Chamecyparis golden wonder	Scheinzypresse	6,5-8,0	0,2-0,4
Chamecyparis keleris aurea	Scheinzypresse	6,5-8,0	0,2-0,4
Chamecyparis lanei	Scheinzypresse	6,5-8,0	0,2-0,4
Chamecyparis lawsoniana	Scheinzypresse	6,0-8,0	0,1-0,3
Chamecyparis minima glauca	Scheinzypresse	6,5-8,0	0,2-0,4
Chamecyparis nootkat. glauca	Scheinzypresse	6,5-8,0	0,2-0,4
Chamecyparis nootkat. lutea	Scheinzypresse	6,5-8,0	0,2-0,4
Chamecyparis nootkat. pend.	Scheinzypresse	6,0-8,0	0,2-0,4
Chamecyparis obtusa	Scheinzypresse	6,0-8,0	0,2-0,4
Chamecyparis pisif. filifera	Scheinzypresse	6,0-8,0	0,2-0,4
Chamecyparis pisif. plumosa	Scheinzypresse	6,0-8,0	0,1-0,3
Chamecyparis pisif. squarrosa	Scheinzypresse	6,0-8,0	0,1-0,3
Chamecyparis pisifera boule.	Scheinzypresse	6,0-8,0	0,1-0,3
Chamecyparis stardust	Scheinzypresse	6,5-8,0	0,2-0,4
Chamecyparis stewartii	Scheinzypresse	6,5-8,0	0,2-0,4
Chamecyparis white spot	Scheinzypresse	6,5-8,0	0,2-0,4
Chionanthus virginicus	Schneeblume	6,0-6,5	0,2-0,4
Chrivsanthemum indica		5,5-7,0	0,5-0,8
Cissus antarctica		5,0-6,5	0,4-0,6
Clematis alpina	Alpenwaldrebe	6,5-7,5	0,2-0,4
Clematis hybriden	Waldrebe	6,5-7,5	0,2-0,4
Clematis montana	Rote Waldrebe	6,5-8,0	0,2-0,4
Clematis paniculata	Herbstwaldrebe	6,5-8,0	0,2-0,4
Clematis tangutica	Goldwaldrebe	6,5-8,0	0,2-0,4
Clematis vitalba	Waldrebe	6,5-8,0	0,1-0,3
Clematis viticella	Ital. Waldrebe	7,0-8,0	0,1-0,3
Clethra alnifolia	Scheinelle	6,0-7,0	0,2-0,4
Clivia minata		5,5-6,5	0,3-0,4
Codiaeum (Croton)		5,0-6,0	0,2-0,4
Coleus		6,0-7,0	0,4-0,6
Columnea		5,0-6,0	0,2-0,4
Colutea arborescens	Blasenstrauch	6,5-7,5	0,1-0,3
Convallaria		6,0-6,5	0,3-0,5
Cornus alba	Gemeiner-Hartriegel	6,0-8,0	0,1-0,3
Cornus alba kesselringii	Schwarzholz-Hartriegel	6,5-8,0	0,1-0,3
Cornus alba marginata	Weißbunter-Hartriegel	6,0-8,0	0,1-0,3
Cornus alba sibirica	Purpur-Hartriegel	6,0-8,0	0,2-0,4
Cornus alba spaethii	Gelbbunter-Hartriegel	6,5-7,5	0,2-0,4
Cornus alternifolia	Baumwachs	6,5-7,5	0,2-0,4
Cornus canadensis	Teppich-Hartriegel	4,0-6,0	0,1-0,3
Cornus condroversa	Etagen-Hartriegel	6,5-8,0	0,2-0,4

Botanic Name	German Name	pH-Value	AM-Value
Cornus florida	Blumen-Hartriegel	6,0-7,0	0,2-0,4
Cornus konsa	Japanischer-Hartriegel	6,0-7,0	0,2-0,4
Cornus mas	Kornelkirsche	6,0-8,5	0,1-0,3
Cornus sanguinea	Roter-Hartriegel	6,5-8,5	0,1-0,3
Cornus stolonifera	Hoher-Hartriegel	6,5-8,0	0,1-0,3
Cornus stolonifera sericea	Rotholz-Hartriegel	6,5-8,0	0,1-0,3
Corylopsis panciflora	Glockenhasel	6,5-7,5	0,2-0,4
Corylopsis spicata	Glockenhasel	6,5-7,5	0,2-0,4
Corylus acellana	Rotblättrige Zellernuß	6,0-8,0	0,2-0,4
Corylus avellana	Wald-Haselnuß	6,0-8,5	0,1-0,3
Corylus avellana contorta	Korkenzieher-Haselnuß	6,0-8,0	0,2-0,4
Corylus colurna	Baum-Hasel	6,5-8,5	0,2-0,4
Corylus maxima	Großfrüchtige Haselnuß	6,5-7,5	0,1-0,3
Corylus maxima purpurea	Purpur-Haselnuß	6,0-8,0	0,2-0,4
Cotinus voggygria	Perückenstrauch	6,5-8,0	0,2-0,4
Cotoneaster acutifolius	Spitzblättrige Felsenmispel	6,5-8,0	0,1-0,3
Cotoneaster adpressus	Zwergmispel	6,0-8,0	0,1-0,3
Cotoneaster bullatus	Strauchmispel	6,5-8,0	0,1-0,3 .
Cotoneaster d. skogholm	Böschungsmispel	6,5-8,0	0,1-0,3
Cotoneaster d. streibs findl.	Kriechmispel	6,5-8,0	0,2-0,4
Cotoneaster d. var. radicans	Teppichmispel	6,5-8,0	0,2-0,4
Cotoneaster dammeri	Zwergmispel	6,5-8,0	0,2-0,4
Cotoneaster dammeri	Kriechmispel	6,5-8,0	0,2-0,4
Cotoneaster dielsianus	Strauchmispel	6,5-8,0	0,1-0,3
Cotoneaster divaricatus	Strauchmispel	6,5-8,0	0,3-0,5
Cotoneaster franchetti	Strauchmispel	6,5-8,0	0,3-0,5
Cotoneaster horizontalis	Fächermispel	7,0-8,0	0,1-0,3
Cotoneaster microphyllus	Zwergmispel	6,5-8,0	0,2-0,4
Cotoneaster multiflorus	Strauchmispel	6,5-8,0	0,1-0,3
Cotoneaster pendulus	Hängemispel	6,5-8,0	0,1-0,3
Cotoneaster praecox	Felsenmispel	6,5-8,0	0,1-0,3
Cotoneaster salicifolius	Immergrüne Mispel	6,5-8,0	0,2-0,4
Crataegus carrierei	Apfeldorn	7,0-8,5	0,2-0,4
Crataegus laevigata	Rotdorn	7,0-8,0	0,1-0,3
Crataegus monogyna	Weißdorn	6,5-8,5	0,1-0,3
Crataegus monogyna-stricta	Säulendorn	7,0-8,0	0,2-0,4
Crataegus prunifolia	Pflaumendorn	6,5-8,5	0,1-0,3
Crateagus coccinea	Scharlachdorn	7,0-8,5	0,1-0,3
Crateagus crus-galli	Hahnendorn	7,0-8,5	0,1-0,3
Crossandra		5,5-6,5	0,2-0,4
Cryptomeria japonica	Sicheltanne	7,0-8,0	0,2-0,4
Cupressocyparis leylandü		6,0-8.0	0,1-0,3
Cyclamen		5,5-6,5	0,4-0,6
Cymbidium		4,5-6,0	0,2-0,4
Cytisus beanii	Ginster	7,0-8,0	0,1-0,3
Cytisus decumbens	Kriechginster	7,0-8,0	0,1-0,3
Cytisus kewensis	Elfenbeinginster	7,0-8,0	0,1-0,3
Cytisus praecox	Elfenbeinginster	6,0-6,5	0,1-0,3
Cytisus purpurens	Purpurginster	6,5-8,5	0,1-0,3
Cytisus scoparius	Besenginster	6,0-7,0	0,1-0,3
Cytisus scoparius hybriden	Besenginster	6,0-6,5	0,2-0,4
Daboecia cantabrica	Irische Heide	4,5-5,5	0,2-0,4
Dahlia-Topf		6,0-7,0	0,4-0,6
Daphne mezereum	Weißer Seidelbast	7,5-8,5	0,1-0,3
Daphne oneorum	Seidelbast	7,0-8,0	0,2-0,4
Davidiai nvolcurata	Taubenbaum	6,5-8,0	0,3-0,5
Decaisnea fargesii	Blauschote	7,0-7,5	0,2-0,4
Dendrobium		4,5-5,5	0,2-0,3
Deutzia gracilis	Maiblumenstrauch	6,0-8,0	0,1-0,4
Deutzia kamiflora	Deutzie weiß-rosa	6,0-8,0	0,1-0,4

Botanic Name	German Name	pH-Value	AM-Value
Deutzia magnifica	Deutzie weiß	6,0-8,0	0,1-0,4
Deutzia mont rose	Deutzie	6,0-8,0	0,1-0,4
Deutzia rosea	Deutzie	6,0-8,0	0,1-0,4
Deutzia scabra	Deutzie	6,0-8,0	0,1-0,4
Dianthus (Edelnelke)		6,0-7,0	0,5-0,8
Dieffenbachia		5,0-6,5	0,4-0,6
Dracaena		5,0-6,0	0,2-0,4
Elaeanus angustifolia	Ölweide	7,0-8,0	0,1-0,3
Elaeanus commutato	Silber-Ölweide	7,0-8,0	0,1-0,3
Elaeanus ebbingel	Wintergrüne Ölweide	6,5-8,0	0,1-0,3
Elaeanus multiflora	Eßbare Ölweide	6,5-8,5	0,1-0,3
Elaeanus pungens	Buntlaubige Ölweide	6,5-7,5	0,2-0,4
Enkianthus campanulatus	Prachglocke	4,5-6,5	0,2-0,4
Enkianthus nigrum	Krähenbeere	6,5-7,5	0,2-0,4
Erica alatus	Echte Heide	6,0-8,0	0,1-0,4
Erica carnea		4,5-6,0	0,3-0,6
Erica cinerea	Echte Heide	4,5-6,0	0,1-0,4
Erica gracilis		3,5-4,5	0,3-0,5
Erica tetralix	Echte Heide	4,5-6,0	0,1-0,4
Erica vagans	Echte Heide	4,5-6,0	0,1-0,4
Euonymus alatus	Korkspindel	6,0-7,0	0,2-0,4
Euonymus eropaeus	Pfaffenhütchen	7,0-8,5	0,1-0,3
Euonymus fortunei	Purpurkriechspindel	6,5-8,0	0,1-0,3
Euonymus planipis	Großfrüchtige Kriechspindel	6,5-8,0	0,1-0,3
Euphorbia fulgens		5,5-6,5	0,3-0,5
Euphorbia milii		5,5-6,5	0,4-0,6
Euphorbia pulch.		5,5-7,0	0,4-0,6
Exochorda racemosa	Prachspiere	5,0-7,0	0,1-0,3
Fagus silvatica	Rotbuche	6,0-8,0	0,1-0,3
Farne		4,5-6,0	0,3-0,5
Ficus decora		5,0-6,5	0,4-0,7
Ficus monstera		5,0-6,5	0,4-0,7
Forsythia	Goldglöckchen	6,0-8,0	0,2-0,4
Fothergilla gardenii	Niedriger Federbuschstrauch	5,5-7,0	0,2-0,4
Fothergilla mayor	Niedriger Federbuschstrauch	5,5-7,0	0,2-0,4
Fothergilla monticola	Niedriger Federbuschstrauch	5,5-7,0	0,2-0,4
Fraxinus excelsior	Gemeine Esche	5,5-8,5	0,1-0,3
Fraxinus ornus	Blumenesche	7,0-8,5	0,1-0,3
Fresia hybrida		6,0-7,0	0,2-0,4
Fuchsia Hybriden		5,5-6,5	0,3-0,5
Gardenia grandiflora		5,5-6,5	0,2-0,4
Gaultheria procumbens	Rote Scheinbeere	5,5-6,5	0,2-0,4
Gaultheria shallon	Hohe Teppichbeere	5,5-6,5	0,2-0,4
Genista lydia	Ginster	6,5-8,0	0,1-0,3
Genista radiata	Strahlenginster	6,5-8,0	0,1-0,3
Genista sagittalis	Pfeilginster	5,5-6,5	0,2-0,4
Genista tinctoria	Färberginster	5,5-6,5	0,1-0,3
Gerbera Beet		5,0-6,0	0,4-0,6
Gerbera Container		5,0-6,0	0,4-0,6
Gerbera jamesonii		5,0-6,5	0,3-0,5
Ginkgo biloba	Fächerblattbaum	6,0-8,0	0,2-0,4
Gladiolen-Haus		6,0-7,0	0,3-0,5
Gleditsia triacanthos	Lederhülsenbaum	6,5-8,5	0,2-0,4
Gymnocladus clioecus	Geweihbaum	6,5-8,5	0,2-0,4
Halesia carolina	Maiglöckchenstrauch	5,5-7,0	0,2-0,4
Halesia monticola	Aufrechtes Silberglöckchen	6,5-7,0	0,2-0,4
Hamamelis japonica	Zaubernuß	6,0-6,5	0,2-0,4

Botanic Name	German Name	pH-Value	AM-Value
Hamamelis mollis	Lichtmeß-Zaubernuß	6,0-6,5	0,2-0,4
Hamamelis virginisana	Herbstblühende Zaubernuß	6,0-6,5	0,2-0,4
Hedera		5,5-7,0	0,4-0,6
Hedera colchiea	Efeu	6,0-8,0	0,2-0,4
Hedera helix	Gemeiner Efeu	6,0-8,5	0,2-0,4
Hedera helix - goldheart	Bunter Kletterefeu	6,0-7,0	0,2-0,4
Hibiscus		5,5-6,5	0,4-0,7
Hibiscus syriacus	Eibisch	6,5-8,0	0,2-0,4
Hippeastrum-Topf		6,0-7,0	0,3-0,5
Hippophae rhamnoides	Sanddorn	7,0-8,5	0,1-0,3
Holodicus discolor	Scheinspiere	6,0-7,0	0,1-0,3
Hydrangea arb. grandiflora	Ball-Hortensie	6,0-6,5	0,2-0,4
Hydrangea arborescens	Hortensie	6,0-7,0	0,2-0,4
Hydrangea aspera ssp.	Hortensie	5,0-6,0	0,2-0,4
Hydrangea aspera var.	Hortensie	4,0-6,0	0,2-0,4
Hydrangea blau		3,5-4,5	0,3-0,6
Hydrangea hybriden	Bauernhortensie	6,0-6,5	0,2-0,4
Hydrangea paniculata	Pispenhortensie	6,0-7,0	0,2-0,4
Hydrangea petiolaris	Kletterhortensie	6,0-6,5	0,2-0,4
Hydrangea rot/weiß		5,5-6,5	0,3-0,6
Hydrangea sargentiana	Samthortensie	4,0-6,0	0,2-0,4
Hypericum calycinum	Johanniskraut	6,5-8,5	0,1-0,3
Hypericum moserianum	Johanniskraut	6,5-8,5	0,1-0,3
Hypericum patulum	Johanniskraut	6,5-8,5	0,1-0,3
Ilex aquifolium	Stechpalme-Hülse	6,0-8,0	0,2-0,4
Ilex aquifolium - myrtifolium	Lanzen-Hülse	5,5-7,0	0,2-0,4
Ilex crenata	Japanische Stechpalme	5,5-6,5	0,2-0,4
Ilex verticillata	Korallen-Hülse	6,0-8,0	0,2-0,4
Impatiens		5,5-6,5	0,4-0,6
Jasminum nudiflorum	Winter-Jasmin	7,0-8,5	0,2-0,4
Juglans regia	Walnuß	6,5-8,0	0,2-0,4
Juniperus chin. mint julep	Wacholder	6,0-8,0	0,1-0,3
Juniperus chin. old gold	Wacholder	6,0-8,0	0,2-0,4
Juniperus chin. pfitzeriana	Wacholder	6,0-8,0	0,1-0,3
Juniperus chin. plumosa	Wacholder	6,0-8,0	0,2-0,4
Juniperus chinensis blaauw	Wacholder	6,0-8,0	0,2-0,4
Juniperus chinensis hetzii	Wacholder	6,0-8,0	0,1-0,3
Juniperus comm. horizontalis	Wacholder	6,0-8,0	0,1-0,3
Juniperus comm. hornibrokii	Wacholder	6,0-8,0	0,1-0,3
Juniperus comm. meyer	Wacholder	6,0-8,0	0,1-0,3
Juniperus comm. repanda	Wacholder	6,0-8,0	0,1-0,3
Juniperus comm. sabina femina	Sadebaum	6,0-8,0	0,1-0,3
Juniperus comm. sabina tamar.	Sadebaum	6,0-8,0	0,1-0,3
Juniperus comm. suecica	Wacholder	6,0-8,0	0,1-0,3
Juniperus communis hibernica	Wacholder	6,0-8,0	0,1-0,3
Juniperus grey owl	Wacholder	6,0-8,5	0,1-0,3
Juniperus skyrocket	Wacholder	6,0-8,0	0,2-0,4
Juniperus squam. blue star	Wacholder	6,0-7,0	0,1-0,3
Juniperus squam. meyeri	Wacholder	6,0-8,0	0,1-0,3
Juniperus squamata blue car.	Wacholder	6,0-8,0	0,1-0,3
Juniperus virgiana canaertii	Wacholder	6,0-8,5	0,2-0,4
Juniperus virgiana glauca	Wacholder	6,0-8,5	0,2-0,4
Kakteen		6,0-7,0	0,3-0,4
Kalanchoe		5,5-6,5	0,3-0,5
Kalmia angustifolia	Lorbeerrose	5,0-6,0	0,2-0,4
Kalmia latifolia	Berglorbeere	5,0-6,0	0,2-0,4
Kerria japonica	Ranunkelstrauch	5,5-6,5	0,2-0,4
Koelreuteria paniculata	Blasenbaum	6,5-8,5	0,2-0,4
Kolkwitzia amabilis	Kolkwitzie	6,5-8,5	0,1-0,3
Laburnum anagyroides	Goldregen	6,0-8,0	0,1-0,3

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Larix kaempferi	Japanische Lärche	6,0-8,0	0,1-0,3
Larix kaempferi diana	Japanische Lärche	6,0-8,0	0,1-0,3
Larix kaempferi pendula	Japanische Hängelärche	6,0-8,0	0,2-0,4
Larix decidua	Europäische Lärche	6,0-8,0	0,1-0,3
Lathyros odoratus		6,0-7,0	0,3-0,5
Lespedeza thunbergii	Buschklee	6,5-8,0	0,2-0,4
Leucothoe catesbael	Lorbeerkrüglein	4,5-6,5	0,2-0,4
Ligustrum delavayanum	Liguster	6,5-8,0	0,2-0,4
Ligustrum obtusifolium	Liguster	6,0-7,5	0,1-0,3
Ligustrum ovalifolium	Liguster	6,5-8,0	0,1-0,3
Ligustrum vulgare	Gemeiner Liguster	6,0-8,5	0,1-0,3
Lilium hybriden		5,5-7,0	0,3-0,5
Liquidambar styraciflua	Amberbaum	6,0-7,0	0,2-0,4
Liriodendron tulpifera	Tulpenbaum	6,0-7,0	0,2-0,4
Lobelien		6,0-7,0	0,3-0,4
Lonicera acuminata	Heckenkirsche	7,0-8,0	0,2-0,4
Lonicera caprifolium	Heckenkirsche	7,0-8,0	0,2-0,4
Lonicera heckrottii	Duft-Geißblatt	7,0-8,0	0,2-0,4
Lonicera henryi	Immergrünes Geißblatt	7,0-8,0	0,2-0,4
Lonicera japonica	Gelbbuntes Geißblatt	7,0-8,0	0,2-0,4
Lonicera korokowii	Geißblatt	6,5-8,0	0,1-0,3
Lonicera ledeborwrii	Geißblatt	6,5-8,0	0,1-0,3
Lonicera maacklii	Geißblatt	6,5-8,0	0,1-0,3
Lonicera nitida	Geißblatt	6,5-8,5	0,1-0,3
Lonicera pileata	Geißblatt	6,0-8,0	0,1-0,3
Lonicera tatarica	Geißblatt	6,0-8,0	0,1-0,3
Lonicera teilmanniana	Geißblatt	6,5-7,0	0,2-0,4
Lonicera xylosteum	Gemeine Heckenkirsche	7,0-8,5	0,1-0,3
Lycium halimifolium	Bocksdorn	6,5-8,5	0,1-0,3
Magnolia kobus	Magnolie	5,5-7,5	0,2-0,4
Magnolia lilliflora	Magnolie	6,5-8,0	0,2-0,4
Magnolia loebneri	Magnolie	5,5-7,5	0,2-0,4
Magnolia soulangiana	Tulpenmagnolie	5,5-7,0	0,2-0,4
Magnolia stellata	Sternmagnolie	6,5-8,0	0,2-0,4
Mahonia aquifolium	Mahonie	6,0-8,0	0,1-0,3
Mahonia beallii	Mahonie	6,0-8,0	0,1-0,3
Mahonie wintersun	Wintermahonie	6,0-8,0	0,1-0,3
Malus hybrida	Zierapfel	7,0-8,0	0,2-0,4
Matthiola		6,0-7,0	0,4-0,6
Metasequoia glyptostrob.	Urweltmammutbaum	6,0-8,0	0,1-0,3
Microbiota decussata	Sibirischer Fächerwacholder	6,0-8,0	0,2-0,4
Monstera deliciosa		5,0-6,5	0,4-0,7
Morus alba	Maulbeerbaum	7,0-8,5	0,2-0,4
Nerium oleander		5,5-6,5	0,4-0,6
Nothofagus antarctica	Pfennigbuche	5,5-6,5	0,2-0,4
Orchideen epiphyt.		4,5-5,5	0,2-0,3
Pachysandra terminalis	Schattengrün	6,0-8,0	0,2-0,4
Palmen		5,5-7,0	0,3-0,5
Paphiopedilum		4,5-5,5	0,2-0,3
Parrotia persica	Eisenholzbaum	6,5-8,0	0,2-0,4
Parthenocissus quiquefolia	Jungfernrebe	7,0-8,0	0,2-0,4
Parthenocissus trinspidata	Jungfernrebe	7,0-8,0	0,2-0,4
Paulownia tomentosa	Blauglockenbaum	7,0-8,5	0,2-0,4
Pelargonium peltatum		5,5-7,0	0,4-0,6
Pelargonium zonale		5,5-7,0	0,4-0,6
Peperomia		5,0-6,5	0,3-0,5

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Pernettya mucronata	Torfmyrte	5,0-6,0	0,2-0,4
Perovskia abrotanoides	Blaurute	7,0-8,5	0,2-0,4
Petunia hybrida		5,5-6,5	0,3-0,5
Philadelphus coronarius	Falscher Jasmin	6,5-8,5	0,1-0,3
Philadelphus inodorus var.	Falscher Jasmin	6,5-8,5	0,1-0,3
Philodendron		5,0-6,0	0,4-0,6
Photinia fraserie	Glanzmispel	5,0-6,0	0,2-0,4
Photinia villosa	Glanzmispel	5,0-6,0	0,2-0,4
Physocarpus opulifolius	Blasenspiere	6,0-7,0	0,1-0,3
Picae abies nidiformis	Nestfichte	6,0-8,0	0,2-0,4
Picae abies ohlendorfü	Kegelfichte	6,0-8,0	0,2-0,4
Picea abies	Rotfichte	6,0-8,0	0,1-0,3
Picea abies acrocona	Zapfenfichte	6,0-8,0	0,2-0,4
Picea abies columnaris	Säulenfichte	6,0-8,0	0,2-0,4
Picea abies echiniformis	Igelfichte	6,0-8,0	0,2-0,4
Picea abies inversa	Hängefichte	6,0-8,0	0,2-0,4
Picea abies little gern	Zwergkonifere	6,0-8,0	0,2-0,4
Picea abies maxwellii	Zwergkonifere	6,0-8,0	0,2-0,4
Picea abies procumbens	Zwergkonifere	6,0-8,0	0,2-0,4
Picea abies pumila glauca	Zwergkonifere	6,0-8,0	0,2-0,4
Picea abies pygmaea	Zwergkonifere	6,0-8,0	0,2-0,4
Picea abies virgata	Schlangenfichte	6,0-8,0	0,2-0,4
Picea breweriana	Mähnenfichte	6,0-8,0	0,2-0,4
Picea glauca alberts globe	Kugelfichte	6,0-8,0	0,2-0,4
Picea glauca conica	Zuckerhutfichte	6,0-8,0	0,2-0,4
Picea glauca echiniformis	Blauigelfichte	6,0-8,0	0,2-0,4
Picea koster	Blaufichte	6,0-8,5	0,2-0,4
Picea omorika	Serbische Fichte	6,0-8,0	0,2-0,4
Picea omorika nana	Serbische Kegelfichte	6,0-8,0	0,2-0,4
Picea orientalis	Orientalische Fichte	6,0-8,0	0,1-0,3
Picea orientalis area	Orientalische Gold Fichte	6,0-8,0	0,2-0,4
Picea orientalis nutans	Orientalische Fichte	6,0-8,0	0,2-0,4
Picea pendula bruns	Serbische Hängefichte	6,0-8,0	0,2-0,4
Picea pungens glauca	Blaustechfichte	6,5-8,5	0,1-0,3
Picea pungens glauca globos	Fichte	6,0-8,0	0,2-0,4
Picea pungens hoopsii	Silberfichte	6,0-8,5	0,2-0,4
Picea purpurea	Purpurfichte	6,0-8,0	0,2-0,4
Picea sitchensis	Sitkafichte	6,0-8,0	0,1-0,3
Pieris floribunda	Lavendelheide	4,5-6,0	0,2-0,4
Pieris japonica	Lavendelheide	4,5-6,0	0,2-0,4
Pinus aristata	Fuchsschwanzkiefer	6,0-8,0	0,2-0,4
Pinus cembra	Zirbelkiefer	6,0-8,5	0,1-0,3
Pinus cembra glauca	Blaue Zirbelkiefer	6,0-8,5	0,2-0,4
Pinus cembra nana	Zwergkiefer	6,0-8,0	0,2-0,4
Pinus contorta	Drehkiefer	6,0-8,0	0,2-0,4
Pinus densiflora pumila	Zwergkiefer	6,0-8,0	0,2-0,4
Pinus flexilis glauca	Kiefer	6,5-8,0	0,2-0,4
Pinus koraiensis glauca	Kiefer	6,5-8,0	0,2-0,4
Pinus leucodermis	Bosnische Kiefer	7,0-8,5	0,2-0,4
Pinus mini mops	Zwergkiefer	6,0-8,0	0,2-0,4
Pinus monticola	Kiefer	6,5-8,0	0,2-0,4
Pinus mops	Breitkiefer	6,0-8,0	0,2-0,4
Pinus mughus	Krummholzkiefer	6,0-8,0	0,2-0,4
Pinus mugo gnom	Zwergkiefer	6,0-8,0	0,2-0,4
Pinus mugo montana	Bergkiefer	6,0-8,0	0,1-0,3
Pinus mugo pumilio	Zwergkiefer	6,0-8,0	0,1-0,3
Pinus nigra austriaca	Österreichische Kiefer	6,0-8,5	0,1-0,3
Pinus nigra select	Kiefer	6,0-8,5	0,2-0,4
Pinus parviflora glauca	Blaue Mädchen Kiefer	6,5-8,0	0,2-0,4
Pinus peuce	Rumelische Kiefer	6,5-8,0	0,2-0,4
Pinus pumila glauca	Zwergkiefer	6,5-8,0	0,2-0,4
Pinus schwerinii	Kiefer	6,5-8,0	0,2-0,4
Pinus sil. nana hibernica	Zwergkiefer	6,0-8,0	0,2-0,4
Pinus sil. waterer	Silberkiefer	6,0-8,0	0,2-0,4

Botanic Name	German Name	pH-Value	AM-Value
Pinus silvestris	Gemeine Kieferföhre	6,0-8,5	0,1-0,3
Pinus silvestris fastigiata	Säulenkiefer	6,0-8,0	0,2-0,4
Pinus silvestris glauca	Kiefer	6,0-8,0	0,2-0,4
Pinus strobus lilliput	Zwergkiefer	5,5-7,0	0,2-0,4
Pinus strobus radiata	Zwergkiefer	5,5-7,0	0,2-0,4
Pinus wall. densa hill	Kiefer	5,5-7,0	0,2-0,4
Pinus wallichiana	Tränenkiefer	5,5-7,0	0,2-0,4
Plantanus acerifolia	Platane	7,0-8,5	0,1-0,3
Polygonum aubertii	Blätterknöterich	6,0-8,5	0,1-0,3
Populus alba	Silberpappel	6,5-8,5	0,1-0,3
Populus balsamifera	Balsampappel	6,5-8,0	0,1-0,3
Populus berolinensis	Lorbeerpappel	6,5-8,0	0,1-0,3
Populus canescens	Graupappel	6,0-8,0	0,1-0,3
Populus lasiocarpa	Graupappel	6,0-8,0	0,1-0,3
Populus nigra	Schwarzpappel	6,5-8,0	0,1-0,3
Populus robusta	Holzpappel	6,5-8,0	0,1-0,3
Populus simonii	Birkenpappel	6,0-8,0	0,1-0,3
Populus tremula	Zitterpappel-Espe	6,0-8,5	0,1-0,3
Potentilla arbuscula	Fünffingerstrauch	5,5-7,0	0,2-0,5
Potentilla fruticosa	Fünffingerstrauch	5,5-7,0	0,2-0,5
Primula obconia		5,5-7,0	0,3-0,4
Primula vulg./acaulis		5,5-6,5	0,2-0,4
Prunus avium	Pflaume	7,0-8,5	0,2-0,4
Prunus avium	Vogelkirsche	6,0-8,0	0,1-0,3
Prunus cerasifera	Blutpflaume	7,0-8,5	0,2-0,4
Prunus cixtena	Zierpflaume	7,0-8,5	0,2-0,4
Prunus laurocerasus	Immergrün-Hartriegel	6,5-7,0	0,2-0,4
Prunus laurocerasus	Otto Luyken	6,0-8,0	0,2-0,4
Prunus mahaleb	Weichselkirsche	7,0-8,5	0,1-0,3
Prunus padus	Traubenkirsche	6,0-8,0	0,1-0,3
Prunus sargentii	Zierpflaume	7,0-8,5	0,2-0,4
Prunus serotina	Späte Traubenkirsche	6,0-8,0	0,1-0,3
Prunus serrula	Zierpflaume	7,0-8,5	0,2-0,4
Prunus serrulata	Zierpflaume	7,0-8,5	0,2-0,4
Prunus spinosa	Schlehe	6,0-8,5	0,1-0,3
Prunus subhirtella	Zierpflaume	7,0-8,5	0,2-0,4
Prunus tenella	Zierpflaume	7,0-8,5	0,2-0,4
Prunus triloba	Zierpflaume	7,0-8,5	0,2-0,4
Prunus yedoensis	Zierpflaume	7,0-8,5	0,2-0,4
Pseudosasa japonica	Bambus	6,0-8,0	0,2-0,4
Pseudotsuga menziesii	Douglasie	5,5-7,0	0,1-0,3
Pterocarya fraxinifolia	Flügelnuß	6,0-8,0	0,2-0,4
Pyracantha	Feuerdorn	6,5-8,5	0,1-0,3
Pyrus calleryana	Birne	7,0-8,0	0,2-0,4
Pyrus salicifolia	Birne	7,0-8,5	0,1-0,3
Quercus cerris	Zerreiche	6,5-8,5	0,2-0,4
Quercus coccinea	Scharlacheiche	7,0-8,0	0,2-0,4
Quercus frainetto	Ungarische Eiche	6,0-8,0	0,2-0,4
Quercus macranthera	Persische Eiche	6,0-8,0	0,2-0,4
Quercus palustris	Sumpf-Eiche	6,0-7,5	0,1-0,3
Quercus petraea	Winter-Eiche	6,0-8,0	0,1-0,3
Quercus pontica	Kaukasus-Eiche	6,0-8,0	0,2-0,4
Quercus pseudoturneri	Wintergrüne Eiche	6,0-8,0	0,2-0,4
Quercus robur	Deutsche Eiche	6,0-8,0	0,1-0,3
Quercus rubra	Amerikanische-Roteiche	6,0-7,0	0,1-0,3
Rhamnus catharticus	Kreuzdorn-Faulbaum	7,0-8,5	0,1-0,3
Rhamnus frangula	Faulbaum-Pulverholz	6,0-8,0	0,1-0,3
Rhododendron diamant	Azaleen	4,0-5,5	0,2-0,4
Rhododendron Gristeder	Alpenrose	4,0-6,5	0,2-0,4
Rhododendron Hybriden	Alpenrose	4,0-6,5	0,2-0,4
Rhododendron japanische	Azaleen	4,0-5,5	0,2-0,4
Rhododendron kosteranum	Azalea mollis + pontica	4,0-5,5	0,2-0,4

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Rhododendron sommergrüne	Großblumige Azaleen	4,0-5,5	0,2-0,4
Rhododendron yakusimanum	Alpenrose	5,5-7,0	0,2-0,4
Rhododendron Zwergformen	Alpenrose	4,0-6,5	0,2-0,4
Rhus typhina	Essigbaum	6,0-8,0	0,1-0,3
Ribes alpinum	Johannisbeere	6,0-8,0	0,1-0,3
Ribes aureum	Gold-Johannisbeere	5,0-6,0	0,1-0,3
Ribes divaricatum	Stachelbeere	6,0-8,0	0,1-0,3
Ribes sanguineum	Stachelbeere	6,0-8,0	0,1-0,3
Robinia hispida	Scheinakazie	7,0-8,0	0,1-0,3
Robinia pseudoacacis	Scheinakazie	7,0-8,5	0,1-0,3
Rose blanda	Wildrosen	7,0-8,5	0,1-0,3
Rose canina	Hundsrose	6,5-8,5	0,1-0,3
Rose carolina	Sandrose	5,5-6,5	0,1-0,3
Rose glauca	Blaue Hechtrose	6,0-8,0	0,1-0,3
Rose multibrocteata	Wildrose	6,0-8,0	0,1-0,3
Rose multiflora	Wildrose	5,5-7,0	0,1-0,3
Rose nitida	Glanzrose	6,0-7,0	0,1-0,3
Rose pimpinellifolia	Dünenrose	7,0-8,5	0,1-0,3
Rose polyantha	Beetrosen	6,5-8,0	0,2-0,4
Rose polyantha	Edelrosen	6,5-8,0	0,2-0,4
Rose polyantha	Strauchrosen	6,5-8,0	0,1-0,3
Rose polyantha	Kletterrosen	6,5-8,0	0,2-0,4
Rose polyantha	Zwergbangalrosen	6,5-8,0	0,2-0,4
Rose rubiginosa	Zaunrose	7,0-8,5	0,1-0,3
Rose rugosa	Apfelrose	5,5-7,0	0.1-0,6
Rose rugotida	Zwergrose	5,5-6,5	0,1-0,3
Rosen - Freiland		5,5-7,0	0,2-0,4
Rosen - Haus		5,5-7,0	0,3-0,6
Rubus calycinoides	Teppich-Brombeere	6,0-8,0	0,2-0,4
Rubus fruticosus	Gemeine Brombeere	6,0-8,0	0,1-0,3
Rubus idaeus	Gemeine Himbeere	6,0-8,0	0,1-0,3
Rubus leucodermis	Himbeere	6,0-8,0	0,1-0,3
Rubus odoratus	Zimt-Himbeere	7,0-8,0	0,1-0,3
Rubus phoenicolasius	Japanische Weinbeere	7,0-8,0	0,1-0,3
Rubus tricolor	Japanische Weinbeere	5,5-7,0	0,2-0,4
Saintpaulia ionantha		5,0-6,5	0,3-0,5
Salix acutifolia	Weide	5,5-8,0	0,1-0,3
Salix alba	Trauerweide	5,5-8,0	0,1-0,3
Salix aurita	Ohrweide	5,5-7,0	0,1-0,3
Salix balsamifera	Gelbe Stein-Weide	6,0-8,0	0,1-0,3
Salix caprea	Salweide	4,0-8,0	0,1-0,3
Salix cinerea	Aschweide	5,5-7,0	0,1-0,3
Salix daphnoides	Reifweide	7,0-8,5	0,1-0,3
Salix purpurea	Korbweide	6,5-8,5	0,1-0,3
Salix purpurea nana	Kugelweide	6,5-8,5	0,1-0,3
Salix purpurea pendula	Hängeweide	6,5-8,0	0,1-0,3
Salix repens	Kriechweide	5,5-7,0	0,1-0,3
Salix rosmarinfolia	Rosmarinweide	6,0-8,0	0,1-0,3
Salix sekka	Drachenweide	5,5-7,0	0,1-0,3
Salix smithiana	Küblerweide	5,5-6,5	0,1-0,3
Salix tortuosa	Zickzackweide	6,0-8,0	0,1-0,3
Salix viminalis	Hanfweide	6,0-8,5	0,1-0,3
Salix werhahnii	Engadinweide	6,0-8,0	0,1-0,3
Salvia splendens		6,0-7,0	0,4-0,6
Sambucus canadensis	Holunder	6,0-8,0	0,1-0,3
Sambucus nigra	Schwarzer Holunder	6,0-8,0	0,1-0,3
Sambucus racemosa	Trauben Holunder	6,0-7,0	0,1-0,3
Sansevieria		5,0-6,5	0,3-0,5
Sciadopitys verticillata	Schirmtanne	5,5-7,0	0,2-0,4
Selaginella		4,5-5,5	0,3-0,5
Senecia Cineraria		5,5-6,5	0,4-0,6
Sequoiadendron giganteum	Mammutbaum	6,0-8,0	0,1-0,3

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Sinarundinaria murilae	Winterhafter Bambus	6,5-7,5	0,2-0,4
Sinarundinaria nitida	Halbrohrbambus	6,5-7,5	0,2-0,4
Sinningia speciosa		5,0-6,5	0,3-0,6
Skimmia foremanii	Skimmie	6,0-8,0	0,2-0,4
Skimmia japonica	japanische Skimmie	6,0-8,0	0,2-0,4
Solanum pseudocaps.		5,5-6,5	0,3-0,5
Sophora japonica	Schnurbaum	6,5-8,5	0,2-0,4
Sorbaria sorbifolia	Federspiere	6,0-8,0	0,1-0,3
Sorbus americana	Eberesche	6,0-8,0	0,2-0,4
Sorbus aria	Mehlbeere	6,0-8,0	0,1-0,3
Sorbus aucuparia	Gemeine Eberesche	6,0-8,0	0,1-0,3
Sorbus edulis	Eßbare Eberesche	6,0-8,0	0,1-0,3
Sorbus fastigiata	Säuleneberesche	6,0-8,0	0,1-0,3
Sorbus intermedia	Schwedische Mehlbeere	6,5-8,5	0,1-0,3
Sorbus koehneana	China Mehlbeere	7,0-8,0	0,2-0,4
Sorbus lombarts hybriden	China Mehlbeere	6,0-8,0	0,2-0,4
Sorbus serotina	China Mehlbeere	6,0-8,0	0,2-0,4
Sorbus thuringiaca	thüringische Säuleneberesche	6,0-8,0	0,2-0,4
Sorbus vilmorinii	Kübel-Eberesche	6,0-8,0	0,2-0,4
Spirea albiflora	Weiße Zwergspiere	6,0-8,0	0,2-0,4
Spirea arguta	Schneespiere	6,0-8,0	0,1-0,3
Spirea decumbens	Polsterspiere	6,0-8,0	0,2-0,4
Spirea froebelii	Kleine Spiere	6,0-8,0	0,1-0,3
Spirea grefsheim	Mittlere Spiere	6,0-8,0	0,1-0,3
Spirea little princess	Zwerg Spiere	6,0-8,0	0,1-0,3
Spirea nipponica	Hohe Spiere	6,0-8,0	0,1-0,3
Spirea prunifolia	Mittlere Spiere	6,0-8,0	0,1-0,3
Spirea thunbergii	Zwergspiere	6,0-7,0	0,2-0,4
Spirea vanhouttei	Prachtspiere	6,0-8,0	0,1-0,3
Staphylea colchica	Pimpernuß	6,0-8,0	0,2-0,4
Statice fatarica		6,0-7,0	0,3-0,4
Stephanandra crispa	Kranzspiere	5,5-6,5	0,1-0,3
Stephanandra incisa	Kranzspiere	6,0-7,0	0,2-0,4
Stranvaesia davidiana	Stanvaesie	6,0-8,0	0,2-0,4
Strelitzien		5,0-6,5	0,4-0,6
Streptocarpus hybriden		5,0-6,5	0,3-0,5
Symphoricarpus albus	Schneebeere	6,0-8,0	0,1-0,3
Symphoricarpus orbiculatos	Korallenbeere	6,0-8,0	0,1-0,3
Syringia		6,0-7,0	0,2-0,4
Syringia chinensis	Königsflieder	6,0-8,5	0,2-0,4
Syringia josikaea	Ungarischer Flieder	5,5-6,5	0,2-0,4
Syringia microphylla	Kleiner Strauchflieder	5,5-6,5	0,2-0,4
Syringia reflexa	Bogenflieder	5,5-6,5	0,2-0,4
Syringia saugeana	Roter Königsflieder	6,0-8,0	0,2-0,4
Syringia swegiflexa	Perlenflieder	5,5-6,5	0,2-0,4
Syringia velutina	Samtflieder	5,5-6,5	0,2-0,4
Syringia vulgaris	Gemeiner Flieder	6,0-8,5	0,1-0,3
Tamarix odessana	Sommer-Tamariske	6,0-8,5	0,1-0,3
Tamarix parviflora	Frühlings-Tamariske	7,0-8,5	0,1-0,3
Tamarix pentandra	Heide-Tamariske	7,0-8,0	0,1-0,3
Taxodium distichum	Sumpfzypresse	4,5-6,5	0,1-0,3
Taxus bac. aureovariegata	Eibe	6,0-8,5	0,2-0,4
Taxus bac. dovastoniana	Buschige Eibe	6,0-8,5	0,2-0,4
Taxus bac. fast. aureomarg.	Eibe	6,0-8,5	0,2-0,4
Taxus bac. fastigiata	Eibe	6,0-8,5	0,2-0,4
Taxus bac. nis. präsident	Eibe	6,0-8,5	0,1-0,3
Taxus bac. nissens corona	Eibe	6,0-8,5	0,1-0,3
Taxus bac. overeynderi	Eibe	6,0-8,5	0,1-0,3

Botanic Name	German Name	pH-Value	AM-Value
Taxus bac. repandens	Eibe	6,0-8,5	0,2-0,4
Taxus bac. robusta	Eibe	6,0-8,5	0,2-0,4
Taxus bac. semperaurea	Eibe	6,0-8,5	0,2-0,4
Taxus bac. summergold	Eibe	6,0-8,5	0,2-0,4
Taxus bac. washingtonü	Eibe	6,0-8,0	0,2-0,4
Taxus baccata	Gemeine Eibe	6,0-8,5	0,1-0,3
Taxus cuspidata nan	Zwergeibe	6,0-8,0	0,2-0,4
Taxus media brownii	Eibe	6,0-8,5	0,1-0,3
Taxus media densiformis	Eibe	6,0-8,5	0,1-0,3
Taxus media farmen	Eibe	6,0-8,5	0,1-0,3
Taxus media hicksii	Eibe	6,0-8,5	0,1-0,3
Taxus media hillii	Eibe	6,0-8,5	0,1-0,3
Taxus media strait hedge	Eibe	6,0-8,5	0,1-0,3
Thijopsis dolobrata	Hibalebensbaum	6,0-8,0	0,2-0,4
Thuja occid. columna	Lebensbaum	6,0-8,0	0,1-0,3
Thuja occid. danica	Lebensbaum	6,0-8,0	0,2-0,4
Thuja occid. europagold	Lebensbaum	6,0-8,0	0,2-0,4
Thuja occid. holmstrup	Lebensbaum	6,0-8,0	0,1-0,3
Thuja occid. recurva nana	Lebensbaum	6,0-8,0	0,1-0,3
Thuja occid. rheingold	Lebensbaum	6,0-8,0	0,2-0,4
Thuja occid. smaragd	Lebensbaum	6,0-8,0	0,1-0,3
Thuja occid. sunkist	Lebensbaum	6,0-8,0	0,2-0,4
Thuja occid. tinny tim	Lebensbaum	6,0-8,5	0,2-0,4
Thuja occidentalis	Abendländischer Lebensbaum	6,0-8,0	0,1-0,3
Thuja orientalis aurea	Lebensbaum	7,0-8,5	0,2-0,4
Thuja plicata aurescens	Lebensbaum	6,0-8,0	0,1-0,3
Thuja plicata excelsa	Lebensbaum	6,0-8,0	0,1-0,3
Thuja standishii	Lebensbaum	6,0-8,0	0,1-0,3
Tilia americana	Amerikanische Linde	6,0-8,0	0,2-0,4
Tilia cordata	Winter Linde	6,0-8,0	0,1-0,3
Tilia euchlora	Krim Linde	6,0-8,0	0,2-0,4
Tilia intermdedia	Holländische Linde	6,0-8,0	0,2-0,4
Tilia pallida	Kaiser Linde	6,0-8,0	0,2-0,4
Tilia platyphyllus	Sommer Linde	6,0-8,0	0,2-0,4
Tsuga canadensis	Hermlockstanne	5,5-7,0	0,2-0,4
Tsuga canadensis nana	Tanne	5,5-7,0	0,2-0,4
Tsuga canadensis pendula	Tanne	5,5-7,0	0,2-0,4
Tsuga heterophylla	Tanne	6,0-8,0	0,1-0,3
Ulmus carpinifolia	Feld Ulme	6,5-8,5	0,1-0,3
Ulmus glabra	Berg Ulme	7,0-8,5	0,1-0,3
Ulmus wredei	Gold Ulme	6,0-8,0	0,2-0,4
Vaccinium vitis idea	Preiselbeere	4,5-6,0	0,2-0,4
Vaccinium corymbosum	Heidelbeere	4,5-6,0	0,2-0,4
Verbenen		5,5-6,5	0,3-0,5
Viburnum bodnantense	Winterschneeball	4,5-6,0	0,2-0,4
Viburnum burkwoodii	Winterschneeball	6,0-8,0	0,2-0,4
Viburnum carcephalum	Großblumiger Schneeball	6,0-7,5	0,2-0,4
Viburnum cariesii	Schneeball	6,0-7,5	0,2-0,4
Viburnum davidii	Schneeball	6,0-7,5	0,2-0,4
Viburnum fragrans	Duftschneeball	6,0-8,0	0,2-0,4
Viburnum lautana	Wolliger Schneeball	6,0-8,5	0,1-0,3
Viburnum opulus	Gemeiner Schneeball	6,0-8,5	0,1-0,3
Viburnum plicatum	Schneeball	6,0-8,0	0,2-0,4
Viburnum rhytidophyllum	Immergrüner Schneeball	6,0-8,5	0,1-0,3
Vinca minor	Immergrün	6,0-8,0	0,1-0,3
Viola-Freiland		6,0-7,0	0,1-0,3
Viola-Topfkultur		5,5-6,5	0,3-0,4
Vriesea splendens		4,5-5,5	0,2-0,4
Weigela florida	Weigelie	6,0-7,0	0,2-0,4

Botanic Name	German Name	pH-Value	AM-Value
Weigela purpurea	Weigelie	6,0-7,0	0,2-0,4
Wisteria sinensis	Blauregen	6,0-7,0	0,2-0,4
Zantadeschia-Calla		5,0-6,0	0,4-0,6
Zygocactus hybriden		5,0-6,5	0,3-0,5

Public Green Spaces:

		pH-Value	AM-Value
Golf grass		5,5-6,0	0,2-0,4
Park lawn		5,5-6,5	0,1-0,3
Sports field grass		5,5-6,5	0,1-0,4
Ornamental lawn		5,5-6,0	0,2-0,4

Vegetables (in greenhouse):

	pH-Value	AM-Value
Salad	6,0-7,5	0,3-0,5
Beans	6,0-7,5	0,3-0,5
Radish	5,5-7,5	0,3-0,5
Cauliflower	6,5-7,5	0,4-0,7
Cucumber	5,5-7,5	0,4-0,7
Turnip-cabbage	6,5-7,5	0,3-0,6
Parsley	6,0-7,5	0,4-0,5
Tomato	6,0-7,5	0,4-0,7

Vegetables (outside):

	pH-Value	AM-Value
Salad	5,5-7,5	0,2-0,4
Cauliflower	6,5-7,5	0,3-0,5
Radish	5,5-7,0	0,2-0,5
Beans	6,0-7,5	0,2-0,4
Endive	6,0-7,5	0,3-0,4
Peas	6,0-7,5	0,2-0,3
Cucumber	5,5-7,5	0,3-0,5
Carrot	6,0-7,5	0,3-0,4
Turnip-cabbage	6,0-7,5	0,2-0,4
Sweet pepper	6,0-7,5	0,2-0,5
Parsley	6,0-7,5	0,2-0,4
Leek	6,0-7,5	0,2-0,5
Radish	5,5-7,0	0,2-0,3
Rhubarb	5,5-7,0	0,3-0,6
Brussels sprouts	6,0-7,5	0,2-0,5
Red cabbage	6,5-7,5	0,3-0,4
Celery	6,0-7,5	0,3-0,5
Asparagus (April until middle of June)	6,0-7,0	0,2-0,3
Asparagus (middle of June until August)	6,0-7,0	0,3-0,5
Spinach	5,5-7,5	0,2-0,4
Tomato	5,5-7,5	0,3-0,5
White cabbage	6,5-7,5	0,3-0,5
Savoy	6,0-7,5	0,2-0,4
Onion	6,0-7,0	0,2-0,4

Fruits:

	pH-Value	AM-Value
Apple (top layer)	6,0-7,5	0,2-0,4
Apple (30-60 cm soil depth)	6,0-7,5	0,2-0,3
Apricot	6,0-7,0	0,2-0,4
Pear	5,0-7,5	0,2-0,4
Blackberry	6,0-7,5	0,2-0,4
Strawberry	6,0-7,0	0,2-0,4
Hazelnut	6,0-7,0	0,2-0,3
Blueberry	3,5-5,0	0,2-0,3
Red / Black currant	6,0-7,5	0,2-0,4
Sour cherry	6,0-7,0	0,2-0,4
Sweet cherry	6,0-7,5	0,2-0,4

Botanic Name	German Name	pH-Value	AM-Value
Almond		6,0-8,0	0,1-0,3
Peach		6,0-7,5	0,2-0,4
Plum		6,0-7,5	0,2-0,4
Grape (top soil)		6,0-7,5	0,2-0,4
Grape (30-60 cm soil layer)		6,0-7,5	0,2-0,3
Gooseberry		6,0-7,5	0,2-0,4
Lemon		6,0-7,5	0,1-0,3

Tropical and Sub-Tropical Fruits:

Ananas		5,0-6,0	0,2-0,3
Orange, Lemon		6,0-7,5	0,3-0,5
Avocado		6,0-7,0	0,2-0,4
Banana		5,5-7,0	0,2-0,3
Cotton		5,0-6,0	0,2-0,4
Coffee		6,0-7,0	0,2-0,4
Rice		5,0-6,5	0,3-0,4
Soy beans		6,0-7,0	0,2-0,3
Tobacco		5,5-7,0	0,2-0,4
Tea		6,0-7,0	0,2-0,3
Sugar cane		6,0-8,0	0,3-0,5

Agricultural Plants:

Barley		6,5-7,5	0,2-0,4
Oat		5,5-7,0	0,2-0,4
Potato		5,0-6,5	0,2-0,5
Maize		5,5-7,5	0,3-0,5
Rye		5,5-7,0	0,2-0,3
Wheat		6,0-7,5	0,2-0,4
Sugar beet		6,0-8,0	0,3-0,5
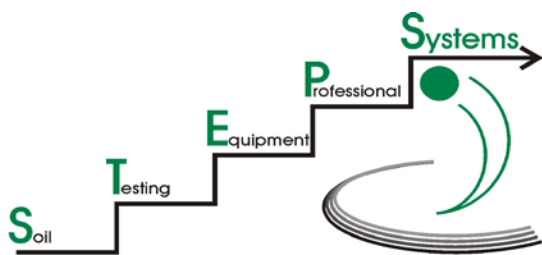
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Table for Optimal EC-Values

This EC-table can facilitate and make safer the fertigation. These concentration specific figures are needed for the conductivity controllers, as well as to control with hand-held instruments. The conductivity of the desired concentration is product-related and to be read from the table, and then added the irrigation water-EC-value. Then the sum of both conductivities is the value to be measured in the solution.

Deviations can indicate an error in the fertilization. Less known but very helpful is the measurement of the stock solution.

By means of checking the EC-value, a partially filled stock solution container can be refiled without weighing the container.

In order to meet these demands, it is necessary pay attention to the measuring range 0-2 EC, 0-20 EC and 0-200 EC.

All values were determined at 25 °C reference temperature. The tables are not complete and do not include all fertilizers.

Note: Urea has no conductivity.

No responsibility is taken for the correctness of the fertilizer conentrations given in the table.

Product:		Single nutrient content in %								EC in ready-to-use solution								
										Fertilizer solution				Stock solution				
		Urea	NO3	NH4	total N	P2O5	K2O	MgO	Ca	0,5‰	1,0‰	1,5‰	2,0‰	1%	5%	10%	20%	liquid
Aglukon	Alkril	-	9,2	10,8	20	-	16	2	-	0,8	1,6	2,2	3,1	12	50	103	184	
	Alkrisal	-	6,8	13,2	20	5	10	2	-	0,8	1,5	2,1	2,8	11	54	96	172	
	Poly Crescal	-	3,8	10,2	14	10	14	2	-	0,8	1,4	2,1	2,7	9	46	85	150	
	Poly Fertisal	-	1,0	7,0	8	14	18	4	-	0,8	1,4	2,0	2,6	9	40	73	122	
Compo	Hakaphos Grün	-	7	13	20	5	10	2	-	0,86	1,63	2,37	3,1	13,3	55,6	101	169	
	Hakaphos Blau	-	4,5	10,5	15	10	15	2	-	0,8	1,52	2,2	2,87	12,9	52,2	91,2	153	
	Hakaphos Rot	-	3	5	8	12	24	4	-	0,76	1,45	2,1	2,7	11,2	44,9	79,4	133	
	Hakaphos Gelb	-	8,6	11,4	20	-	16	1	-	0,8	1,53	2,23	2,9	12,8	53,8	97,4	168	
	Hakaphos soft Elite	-	13	11	24	6	12	2	-	0,76	1,45	2,1	2,7	12,8	54,9	99,2	170	
	Hakaphos soft Ultra	-	10,3	7,7	18	12	18	2,4	-	0,72	1,36	2	2,65	11,8	49,3	89	148	
	Hakaphos soft Spezial	-	9,7	6,3	16	8	22	3	-	0,7	1,37	2,03	2,64	11,7	49,3	88	147	
	Hakaphos soft Plus	-	7,6	6,4	14	6	24	3	-	0,75	1,45	2,14	2,77	12,1	50,3	89,9	152	
	Hakaphos soft Novell	-	7,5	3,5	11	11	30	3	-	0,67	1,27	1,89	2,48	10,8	45,2	79,7	135	
	Hakaphos soft Extra	-	7,3	2,7	10	20	30	2	-	0,6	1,15	1,7	2,24	9,9	41,3	73,3	120	
	Hakaphos basis 2	-	3	-	3	9	40	4	-	0,69	1,32	1,94	2,51	10,7	43,9	77,6	131	
	Hakaphos basis 3	-	3	-	3	15	36	4	-	0,67	1,28	1,88	2,4	10,3	41,4	71,5	120	
	Hakaphos basis 4	-	4	-	4	16	32	6	-	0,65	1,15	1,73	2,26	9,5	38	66,1	106	
	Hakaphos basis 5	-	4	1	5	20	30	5	-	0,61	1,15	1,68	2,19	9,3	37,8	64,8	101	
	NovaTec Solub 21	-	-	21	21	-	-	-	-	1	1,97	2,85	3,7	15,5	62,9	112	191	
	NovaTec Solub 20+5+10	-	5,8	14,2	20	5	10	1,3	-	0,86	1,62	2,42	3,14	13,4	54,2	99	170	
	NovaTec Solub 16+10+17	-	5	11	16	10	17	-	-	0,78	1,5	2,22	2,86	12,4	51,1	91,2	155	
	NovaTec 18 fluid	-	9	9	18	-	-	-	-	0,59	1,15	1,69	2,22	10,3		83,1	151	
	Kamasol brillant Grün	8,5	1,5	-	10	4	7	-	-	0,16	0,29	0,44	0,57	2,6	10,7	19,5	35,1	
	Kamasol brillant Blau	3,8	1,4	2,8	8	8	6	-	-	0,24	0,44	0,66	0,86	4	17,1	31,4	56,3	
	Kamasol brillant Rot	4	(1)	-	5	8	10	-	-	0,2	0,38	0,57	0,75	3,5	15,4	28,3	52	
Euflor	Flory 1 MEGA	-	13	11	24	6	12	2	-	0,8	1,4	2,1	2,7	12	52	95	166	
	Flory 2 MEGA	-	11	5	16	6	26	3,4	-	0,7	1,3	2	2,6	11	47	85	146	
	Flory 3 MEGA	-	10	8	18	12	18	2	-	0,7	1,3	1,9	2,5	11	46	82	142	
	Flory 4 MEGA	-	7,4	2,6	10	20	30	2,7	-	0,6	1,1	1,7	2,2	9	39	70	118	
	Flory 5 Mega	-	8,4	2,7	11	11	33	2	-	0,7	1,3	1,9	2,5	112	46	82	139	
	Flory 6 MEGA	-	10	8	18	18	18	-	-	0,6	1,2	1,8	2,4	12	50	89	149	
	Flory 8 MEGA	-	10,4	7,6	18	-	22	3,3	-	0,7	1,4	2,1	2,7	13	53	95	163	
	Flory 1 (rot)	-	8,5	11,5	20	5	10	2	-	0,8	1,5	2,2	2,9	12	52	93	160	
	Flory 1 (spezial)	-	6	12	18	6	12	2	-	0,8	1,5	2,2	2,9	12	50	91	157	
	Flory 2 (blau)	-	8,5	6,5	15	5	25	2	-	0,7	1,4	2,1	2,7	12	48	87	150	
	Flory 2 (spezial)	-	10,5	5,5	16	9	22	4	-	0,7	1,3	2	2,6	11	46	83	141	
	Flory 3 (grün)	-	4,5	10,5	15	10	15	2	-	0,8	1,5	2,1	2,8	12	48	86	146	
	Flory 4 (weiß)	-	2,5	5,5	8	16	24	4	-	0,7	1,3	1,9	2,5	10	42	73	121	
	Flory 8 (NK)	-	11,6	8,4	20	-	16	1,5	-	0,8	1,5	2,3	3	13	52	95	165	
	Flory 9 (Hydro)	-	10	5	15	7	22	6	-	0,7	1,3	2	2,6	11	46	82	138	
	Flory Basis 1	-	-	-	-	14	38	5	-	0,6	1,3	1,9	2,5	10	40	71	117	
	Flory Basis 2	-	3	-	3	15	35	5	-	0,6	1,2	1,7	2,3	9,5	38	67	110	
	Flory Basis 3	-	2	-	2	11	39	4	-	0,6	1,3	1,9	2,5	10	42	74	122	
	Flory Basis 4	-	4	-	4	8	40	4	-	0,6	1,3	1,9	2,6	11	44	78	128	
	Flory Basis 5	-	4	1	5	20	30	5	-	0,5	1,1	1,6	2,1	9	36	63	105	
	Flory Basis 6	-	6	-	6	14	37	4	-	0,5	1,2	1,7	2,2	10	40	70	117	
	Flory Basis 7	-	0,8	3,20	4,00	16	32	6	-	0,6	1,2	1,7	2,2	10	37	65	107	
	Florymonid flüssig EC/l	-	9	9	18	-	-	-	-	0,6	1,2	1,8	2,4	10	45	85	159	

| Product: | Single nutrient content in % | | | | | | | | EC in ready-to-use solution | | | | | | | | |
| | | | | | | | | | Fertilizer solution | | | | Stock solution | | | | |
	Urea	NO3	NH4	total N	P2O5	K2O	MgO	Ca	0,5‰	1,0‰	1,5‰	2,0‰	1%	5%	10%	20%	liquid
Universol Basis	-	4	-	4	19	35	4,1	-	0,6	1,2	1,8	2,4	9,6	40,4	70,3	114	
Universol Violett	0,5	7	3	10	10	30	3,3	-	0,65	1,3	1,95	2,6	11,1	48,2	84,9	141	
Universol Gelb	0,4	3,1	8,9	12	30	12	2,2	-	0,6	1,2	1,8	2,4	9,9	41,4	71,7	117	
Universol Orange	0,4	10,5	5,3	16	5	25	3,4	-	0,7	1,4	2,1	2,8	12	52,6	93,2	157	
Universol Blau	0,5	10	7,7	18	11	18	2,5	-	0,65	1,3	1,95	2,6	11,6	50,7	90	152	
Universol Grün	0,4	11,7	11	23	6	10	2,7	-	0,75	1,5	2,25	3	12,8	56,3	101	170	
Universol Weiß	-	13,4	1,7	15	-	19	2	9	0,6	1,2	1,8	2,4	10,5	45,7	80,3	134	
Universol Spezial	0,4	8,2	-	9	3	39	3,5	-	0,65	1,3	1,95	2,6	10,1	43,7	76,3	124	
Universol Special 104	1,1	12	5,9	19	6	27	2,4	-	7	1,4	2,1	2,8					
Universol Special P	0,4	8,2	-	9	-	39	3,5	-	0,65	1,3	1,95	2,6	6,9	29,4	50,3	80	
Peters Professional Allrounder	13,1	4,5	2,4	20	20	20	0,7	-	0,4	0,8	1,2	1,6					
Peters Prof. Foliar Feed	20,5	3,6	2,9	27	15	12	0,8	-	0,3	0,6	0,9	1,2	9,3	41,5	74,7	128	
Peters Prof. Combi-Sol 6-18-36	-	6	-	6	18	36	3	-	0,55	1,1	1,65	2,2					
Peters Prof. Blossom Booster	-	5,2	4,8	10	30	20	2	-	0,5	1	1,5	2	9,5	40,6	71,7	117	
Peters Prof. Grow Mix	13,3	6,3	1,4	21	7	21	3	-	0,4	0,8	1,2	1,6	9,3	40,1	70	114	
Peters Professional Plant Starter	2,4	-	7,6	10	52	10	-	-	0,5	1	1,5	2					
Agrolution 114	-	10	-	10	100	40	-	-	0,7	1,4	2,1	2,8					
Agrolution 335	5,2	7,4	2,4	15	13	25	-	-	0,8	1,6	2,4	3,2					
Agrolution 316	2	11	0	13	5	28	2,5	2	0,65	1,3	1,95	2,6					
Agrolution 313	2,3	11,7	0	14	7	14	-	14	0,65	1,3	1,95	2,6					
Agrolution324	3,2	10,6	0,2	14	8	22	2	5	0,7	1,4	2,1	2,8					
Agrolution 214	-	11,7	0,3	12	6	29	-	7	0,65	1,3	1,95	2,6					
Agrolution 125	1,1	5,9	-	7	14	35	3,5	-	0,65	1,3	1,95	2,6					
Solinure GT 1	-	9	1	10	5	39	2	-	0,7	1,4	2,1	2,8					
Solinure GT 2	-	7	-	7	19	38	2	-	0,55	1,1	1,65	2,2					
Solinure GT 3	1,8	8,1	2,1	12	5	35	2	-	0,7	1,4	2,1	2,8					
Solinure GT 4	-	6,1	7,9	14	6	23	2	-	0,7	1,4	2,1	2,8					
Solinure GT 5	10,3	5,9	3,8	20	20	20	-	-	0,45	0,9	1,35	1,8					
Solinure GT 8	20,8	1	1,2	23	10	10	5,6	-	0,35	0,7	1,05	1,4					
Solinure GT 9	-	2,1	8,9	11	35	11	2	-	0,6	1,2	1,8	2,4					
pH stabilisierend für weiches Wasser in einer Stammlösung																	
Peters Excel CalMag Grower	2,5	10,2	1,3	14	6	14	2,5	6,5	0,5	1	1,5	2	10,6	45,8	76,5	130	
Peters Excel CalMag Finisher	1,8	10,2	-	12	6	20	2	6,5	0,5	1	1,5	2	10,7	46,4	80,3	131	
Universol Soft Water 312R	1,2	12,3	5	18	7	12	2	6	0,6	1,2	1,8	2,4					
Universol Soft Water 113R	1,2	10	0,1	11	11	31	2	2	0,55	1,1	1,65	2,2					
Universol Soft Water 213R	-	11,9	2,4	11	7	22	2	5	0,6	1,2	1,8	2,4					
pH stabilisierend für hartes wasser in einer Stammlösung																	
Peters Excel Hard Water Grow Special	4,2	10,3	3,5	18	10	18	2	-	0,5	1	1,5	2	12	40,3	70,9	118	
Peters Excel Hard Water Finisher	3,9	8,9	1	14	10	26	2	-	0,45	0,9	1,35	1,8	11,1	38	66,6	110	
Peters Excel Extra Acidifier	6,1	8,9	0	15	15	25	0,9	-	0,4	0,8	1,2	1,6	11,7	40,3	70,9	118	
Universol Hard Water 211	4	11,2	8,2	23	10	10	2	-	0,65	1,3	1,95	2,6					
Universol Hard Water 225	4	5,8	1,8	11	10	28	2	-	0,6	1,2	1,8	2,4					
Gabi Plus N	15	6	6	27	-	-	-	-	0,4	0,9	1,3	1,7	8	33	61	108	173
Gabi N Super	15	6	6	27	-	-	1	-	0,4	0,8	1,2	1,7	8	33	61	108	157
Gabi Plus P	-	-	-	-	20	-	-	-	0,1	0,3	0,4	0,6	2	10	18	31	62
Gabi Plus K	-	-	-	-	-	20	-	-	0,4	0,6	0,9	1,2	6	26	48	89	
Gabi Plus Mg	-	-	-	-	-	-	8	-	0,3	0,6	0,8	1,1	5	21	39	69	155
Gabi Plus SinPhos Ca	3	-	-	3	-	-	-	15	0,5	0,9	1,3	1,7	7	32	57	99	163
Gabi Plus N-K	13	-	-	13	-	11	-	-	0,2	0,4	0,5	0,7	3	15	28	51	119
Gabi Plus P-K	-	-	-		13	14	-	-	0,2	0,4	0,6	0,8	3	15	27	49	137
Gabi Hydro	-	2	2	4	2	5	0,5	-	0,2	0,4	0,6	0,8	4	17	31	57	191
Gabi Plus D	-	2	2	4	2	5	0,5	-	0,2	0,4	0,6	0,8	4	17	31	56	184
Gabi Plus 6-12-6	5	1	-	6	12	6	-	-	0,2	0,4	0,5	0,7	3	13	24	41	101
Gabi Plus Super	5	1,5	1,5	8	8	6	-	-	0,2	0,4	0,6	0,8	3	14	26	46	126
Gabi Plus Standard	9	1	-	10	4	7	-	-	0,1	0,2	0,3	0,4	2	9	17	31	88
Gabi Plus 12-8-11	11	1	-	12	8	11	0,5	-	0,2	0,4	0,5	0,7	3	13	25	42	93
Gabi Plus 5	12	1	-	13	3	7	1	-	0,2	0,3	0,4	0,6	3	11	21	36	89
Gabi Plus Z	14	1	-	15	4	7	-	-	0,1	0,2	0,3	0,4	2	9	17	30	72
Schwefels.Ammoniak	-	-	-	21	-	-	-	-	1,0	1,9	2,8	3,7	17	63	109	186	
Kalisulfat	-	-	-	-	-	50	-	-	1,0	1,7	2,4	3,4	14	54	97		
Monokaliumphosphat	-	-	-	-	52	34	-	-	0,5	0,8	1,2	1,6	7	28	47	78	
Kalksalpeter	-	14,5	1,0	16	-	-	-	-	0,6	1,1	1,6	2,1	11	42	66	103	

Everris / ICL

Gabi

	Product:	Urea	NO3	NH4	total N	P2O5	K2O	MgO	Ca	0,5‰	1,0‰	1,5‰	2,0‰	1%	5%	10%	20%	liquid
	Single nutrient content in %									**EC in ready-to-use solution**								
										Fertilizer solution				**Stock solution**				
Hauert	Plantaaktiv Azal 412	-	13,2	10,8	24	6	12	2	-	0,8	1,5	2,2	2,8					
	Plantaaktiv Azal 312	-	6	12	18	6	12	2	-	0,8	1,5	2,2	2,8					
	Plantaaktiv Typ K		11	5	16	6	26	3,3	-	0,7	1,4	2	2,6					
	Plantaaktiv Typ A	-	10	8	18	12	18	2	-	0,7	1,4	2	2,6					
	Plantaaktiv Typ B	-	7,4	2,6	10	20	30	2,6	-	0,6	1,2	1,8	2,4					
	Plantaaktiv Typ NK	-	10,4	7,6	18	-	22	3,3	-	0,8	1,5	2,2	2,9					
	Plantaaktiv Typ Hydro	-	10	5	15	7	22	6	-	0,7	1,4	2	2,6					
Manna	Manna LIN ACIDIC	5,7	8,8	3,5	18	14	18	2	-	0,7	1,35	1,95	2,55					
	Manna LIN ACIDIC K Plus	-	7,5	4,5	12	14	28	2	-	0,75	1,45	2,1	2,72					
	Manna LIN BASIS	-	3	-	3	19	35	3	-	0,5	1,2	1,7	2,3	10	41	72	119	
	Manna LIN K spezial	-	13	6	19	5	25	2	-	0,7	1,3	1,94	2,56					
	Manna LIN M spezial	-	11	7	18	12	18	2	-	0,65	1,25	1,83	2,42	13	50	91	150	
	Manna LIN A spezial	-	13	11	24	5	11	3	-	0,66	1,26	1,88	2,45					
	Manna LIN B spezial	-	7	5	12	12	24	4	-	0,64	1,22	1,77	2,31					
	MANNA LIN K Plus	-	7,2	2,8	10	10	30	3	-	0,71	1,34	1,99	2,56					
	Manna LIN K	-	8,3	6,5	15	5	25	2	-	0,75	1,49	2,28	2,94					
	Manna LIN M	-	4,5	10,5	15	10	15	2	-	0,7	1,35	1,98	2,58	13	51	92	154	
	Manna LIN A	-	7	13	20	5	10	2	-	0,6	1,2	1,8	2,3	13	51	88	136	
	Manna LIN B	-	2,5	5,5	8	12	24	4	-	0,64	1,22	1,77	2,31					
	Manna Lin Soft A	3	11,5	4,5	19	10	15	-	5	0,75	1,43	2,14	2,78					
	Manna Lin Soft K	1,25	12,3	0,5	14	5	32	-	5	0,69	1,33	1,96	2,6					
	Manna LIN F	2,4	2,5	3,1	8	8	6	-	-	0,24	0,52	0,66	0,93	4	16	28	50	
	Manna LIN Protekt	3	-	-	3	27	18	-	-	0,21	0,4	0,6	0,79					
	Wuxal Top N	12	-	-	12	4	6	-	-	0,1	0,2	0,3	0,4	2	12	15	42	115
	Wuxal Super	2	2,3	3,7	8	8	6	-	-	0,3	0,5	0,8	1	4	18	33	61	272
	Wuxal P-Profi	-	-	5	5	20	5	-	-	0,3	0,55	0,81	1,05					
	Wuxal Top K	-	1	4	5	8	12	-	-	0,27	0,51	0,77	0,99					
	Wuxal Calcium	1,5	8,5	-	10	-	-	2	15	0,42	0,88	1,16	1,5					
	Wuxal Microplant	3,6	-	1,4	5	10	-	-	-	0,27	0,53	0,75	0,98					
	Fertisal 20-5-10	-	7	13	20	5	10	2	-	0,75	1,44	2,08	2,72					
	Fertisal 8-12-24	-	2,5	5,5	8	12	24	4	-	0,64	1,22	1,77	2,31					
	Fertisal 15-10-15	-	4,5	10,5	15	10	15	2	-	0,7	1,35	1,98	2,58					
	Multi KMg spritzfähig	-	12	-	12	-	43	2	-	0,56	1,09	1,81	2,42	7,5	42	73	126	
	Multi K Kaliumnitrat	-	13	-	13	-	46	-	-	0,55	1,1	1,54	2,15	10	47	86	153	
	Haifa MAP	-	-	12	12	61	-	-	-	0,35	0,66	0,96	1,24	5,9	27	46	74	
	Haifai MKP	-	-	-	-	53	34	-	-	0,4	0,73	1,08	1,4	6,6	30	54	88,5	
	MAGNISAL	-	11	-	11	-	-	16	-	0,4	0,75	1,1	1,45	6,8	29	50	78,2	
Planta	Ferty 1 MEGA	-	13	11	24	6	12	2	-	0,8	1,5	2,2	2,8	13	56	101	174	
	Ferty 2 MEGA	-	11	5	16	6	26	3,4	-	0,7	1,4	2	2,6	12	50	91	152	
	Ferty 3 MEGA	-	10	8	18	12	18	2	-	0,7	1,4	2	2,6	12	49	88	149	
	Ferty 4 MEGA	-	7,4	2,6	10	20	30	2,7	-	0,6	1,2	1,8	2,4	10	41	73	122	
	Ferty 6 MEGA	-	10	8	18	18	18	-	-	0,7	1,3	1,9	2,5	11	46	84	145	
	Ferty 8 MEGA	-	10,4	7,6	18	-	22	3,3	-	0,7	1,5	2,2	2,8	13	53	95	163	
	Ferty 1 Rot	-	8,5	11,5	20	7	10	2	-	0,8	1,5	2,3	3	13	54	96	164	
	Ferty 2 Blau	-	8,5	6,5	15	5	25	2	-	0,7	1,4	2,1	2,7	13	53	93	159	
	Ferty 3 Grün	-	4,5	10,5	15	10	15	2	-	0,8	1,5	2,2	2,9	12	52	90	153	
	Ferty 4 Weiß	-	2,5	5,5	8	16	24	4	-	0,7	1,3	1,9	2,5	11	42	76	129	
	Ferty 5	-	0,1	5,9	6	36	20	2	-	0,6	1,1	1,6	2,1	9	35	60	99	
	Ferty 6	-	1,1	8,9	10	40	10	2	-	0,6	1,1	1,6	2,1	9	36	61	100	
	Ferty 8	-	9,2	10,8	20	-	16	2	-	0,8	1,6	2,4	3,1	14	59	106	183	
	Ferty 9	-	10	5	15	7	22	6	-	0,7	1,3	2	2,6	11	48	85	140	
	Ferty Hydrangea	-	14,7	2,8	17,5	-	18	-	11	0,7	1,3	1,9	2,5	11,5	49	87		
	Ferty Primula	-	9,5	2	11,5	10	35	2	-	0,7	1,3	1,9	2,5	11	47	74	143	
	FERTIPLANT Universal	10,2	5,8	4	20	20	20	-	-	0,5	0,9	1,4	1,8					
	FERTIPLANT Blattgrün Booster	26	1	3	30	10	10	-	-	0,3	0,6	0,9	1,1					
	FERTIPLANT Orchids	11	5,8	3,2	20	14	20	2	-	0,5	1	1,5	2					
	FERTIPLANT Phalenopsis	7	7,6	2,4	17	12	26	2	-	0,5	1,1	1,6	2,1					
	FERTIPLANT Jungpflanzenstarter	-	1,4	8,6	10	52	10	-	-	0,5	0,9	1,3	1,7					
	FERTIPLANT Phosphor-Booster	-	6,7	8,3	15	30	15	-	-	0,6	1,1	1,7	2,2					
	FERTIPLANT Topfpflanzen Spezial	-	10,5	4,5	15	15	30	-	-	0,6	1,2	1,8	2,4					

	Product:	Urea	NO3	NH4	total N	P2O5	K2O	MgO	Ca	0,5‰	1,0‰	1,5‰	2,0‰	1%	5%	10%	20%	liquid
						Single nutrient content in %				EC in ready-to-use solution Fertilizer solution				Stock solution				
Planta	FERTIPLANT 10+20+30	-	5,9	4,1	10	20	30	-	-	0,7	1,3	1,9	2,4					
	FERTIPLANT Blütenwunder	-	3,5	6,5	10	30	20	1	-	0,6	1,2	1,7	2,2					
	Ferty Basis 1	-	-	-	-	14	38	5	-	0,6	1,2	1,8	2,3	9,5	38	60	91	
	Ferty Basis 2	-	3	-	3	15	35	5	-	0,6	1,2	1,7	2,2	9	37	58	89	
	Ferty Basis 3	-	2	-	2	11	39	4	-	0,7	1,4	2,1	2,7	10	38,5	68	106	
	Ferty Basis 4	-	4	-	4	8	40	4	-	0,6	1,4	1,9	2,6	9,5	38	62	110	
	Ferty Basis 5	-	4	1	5	20	30	5	-	0,5	1,1	1,6	2,2	9	36	60	100	
	Ferty Basis 6	-	6	-	6	14	37	4	-	0,5	1,2	1,7	2,3	9,5	40	72	120	
	Ferty Basis 7	-	0,8	3,2	4	16	32	6	-	0,6	1,4	1,9	2,6	10	42	74	124	
	Fertiplant Acid 12+7+24 weich	-	12	-	12	7	24	2	7	0,7	1,3	1,9	2,5		44	76	125	
	Fertiplant Acid 15+10+15 weich	-	11,8	3,2	15	10	15	2	7	0,7	1,3	1,9	2,5		44	93	125	
	Fertiplant Acid 16+10+25 hart	-	11,2	4,8	16	10	25	2	-	0,7	1,4	2	2,7		48	85	143	
	Fertiplant Acid 19+10+19 hart	-	11,8	7,2	19	10	19	2	-	0,8	1,5	2,2	2,9		53	94	160	
	Agriplant 1	-	6,8	13,2	20	5	10	2	-	0,8	1,6	2,3	3			90	153	
	Agriplant 2	-	4	8	12	5	24	2	-	0,9	1,7	2,4	3,1			93	157	
	Agriplant 3	-	2,5	11,5	14	10	14	2	-	0,8	1,6	2,3	3			89	149	
	Agriplant 3S	-	5,2	9,8	15	15	15	2	-	0,7	1,4	2,1	2,8			81	136	
	Agriplant 4	-	2,5	5,5	8	14	25	3	-	0,7	1,4	2,1	2,7			80	132	
	Agriplant 5	-	7,5	11,5	19	-	15	2	-	0,9	1,7	2,4	3,1			102	175	
	Agriplant 6	-	10,5	4,5	15	5	30	2	-	0,7	1,4	2	2,6			81	136	
	Agriplant 7	-	3,8	2,2	6	12	36	2	-	0,7	1,4	2	2,6			80	135	
	Agriplant 7S	-	10,1	1,9	12	10	36	2	-	0,6	1,3	1,9	2,51	12	49	87	145	
	Agriplant 8	-	0,8	9,2	10	40	10	2	-	0,6	1,1	1,6	2,1			61	100	
Terraflor	Formel 1 / De Weert 1	-	-	-	16	3	4	-	-	0,5	1,0	1,4	1,8					
	Formel 2 / De Weert 2	-	-	-	10	4	7	-	-	0,2	0,4	0,6	0,8					
	Formel 3 / De Weert 3	-	-	-	9	0	7	-	-	0,2	0,3	0,4	0,6					
	Formel 5 / De Weert 5	-	-	-	5	10	15	-	-	0,3	0,6	0,9	1,2					135
	Formel 6 / De Weert 6	-	-	-	0	15	5	-	-	0,2	0,3	0,5	0,6					
	Terraflor-AZ	-	4	-	4	-	14	2	-	0,4	0,7	1,1	1,5	6	23	38	60	
Yara	Kristalon orange	-	4,5	1,5	6	12	36	3	-	0,7	1,3	1,9	2,5	10	41	71	118	
	Kristalon rot	-	10,1	1,9	12	12	36	1	-	0,7	1,3	1,9	2,6	11	43	75	122	
	Kristalon gelb	-	3,9	9,1	13	40	13	-	-	0,5	1	1,5	2	9	33	62	98	
	Kristalon weißmarke	-	11,3	3,7	15	5	30	3	-	0,7	1,3	1,9	2,6	12	45	80	133	
	Kristalon spezial	9,1	5,3	3,6	18	18	18	3	-	0,5	0,9	1,5	1,9	9	36	62	88	
	Kristalon lilamarke	-	1,8	17,2	19	6	6	2	-	0,9	1,6	2,2	3,1	13	50	90	145	
	Kristalon blaumarke	-	11,9	7,1	19	6	20	3	-	0,7	1,5	2	2,6	12	49	85	137	
	Kristalon grünmarke	-	9,8	8,2	18	18	18	-	-	0,66	1,26	1,85	2,5	11,2	47,7	86	135	
	Kristalon azur	-	7,3	12,7	20	5	10	2	-	0,8	1,5	2,3	3	12	53	90	140	
	Kristalon azur spezial	-	9,1	6,9	16	11	16	4	-	0,7	1,4	2	2,6	12,3	46,3	82	135	
	Kristalon braun	-	3	-	3	11	38	4	-	0,7	1,3	2	2,5	10	41	71	115	
	Kristalon Scarlet	-	7,5	-	7,5	12	36	4	-	0,7	1,3	1,7	2,4	10	42	76	121	
	Kristalon Vega	-	9	8	17	6	25	-	-	0,7	1,2	1,8	2,4	11	40	75	120	
	Kristalon Gena	-	9,5	2,5	12	12	36	-	-	0,7	1,3	1,9	2,5	11	40	76	130	
	Yara Liva CalciNit	-	14,4	1,1	15,5	-	-	-	19		1,24							
	Krista-K Kaliumnitrat	-	13,5	-	13,5	-	46	-	-		1,35							
	Krista-MAP	-	-	12	12	61		-	-	0,4	0,7		1,4	6,3	33,2	46,5		
	Krista-MKP	-	-	-	-	52	34	-	-	0,4	0,7		1,4	6,5	33,5	46,8		
	Krista-SOP	-	-	-	-	-	52	-	-	0,8	1,5		3	10,6	41,9	82		
	Krista-MgS	-	-	-	-	-	-	16	-	0,4	0,7		1,4	6,5	33,5	46,7		
	Krista-Mag	-	-	-	11	-	-	15	-	0,5	0,9		1,7	8,1	45	88		
	Kristalon Calcium rot	-	10,6	0,4	11	11	24	1,6	6	0,7	1,3		2,35	9,9		66	102	
	Kristalon Calcium blau	-	12	3	15	5	17	2	6	0,8	1,3		2,45	10,5		72	113	
	Kristalon Calcium grün	-	9,9	4,1	14	14	14	2	6	0,7	1,3		2,25	9,7		66	104	
	Kristalon Calcium weiß	-	11,7	0,3	12	5	25	2	6	0,7	1,4		2,36	10,2		69	107	
	Kristalon Acid rot	-	9,7	1,3	11	11	32	2	-	0,8	1,6		2,6	11,1		75	120	
	Kristalon Acid blau	-	7,9	8,1	16	6	17	2,5	-	0,8	1,7		2,8	11,9		81	130	
	Kristalon Acid grün	-	9,2	6,8	16	16	16	3,8	-	0,8	1,6		2,6	11,2		76	120	
	Kristalon Acid weiß	-	8,8	4,2	13	6	26	3	-	0,8	1,6		2,7	11,4		77	125	
	Kristalon Acid gelb	-	3,5	7,5	11	38	11	3	-	0,6	1,2		2	8,8		56	87	

Salt toleration of plants

Degree of salt toleration	Plants	EC value for substrates (ratio 1:5; substrate:water)	Max. EC value of irrigation water, per mil = tolerable concentration of fertilisation	Acceptable carbonate hardness
very salt sensitive plants	Orchids, Nephrolepis Bromelia, seedings Propagation, Azalea, Erica, Calluna	0,2 - 0,3	up to 0,63 EC → 0,25 per mil up to 0,47 EC → 0,50 per mil up to 0,31 EC → 0,75 per mil up to 0,16 EC → 1,00 per mil	5
salt sensitive plants	Azalea, Erica, Araceen, all types of young plants	0,4 - 0,6	up to 0,78 EC → 0,25 per mil up to 0,63 EC → 0,50 per mil up to 0,47 EC → 0,75 per mil up to 0,31 EC → 1,00 per mil up to 0,16 EC → 1,50 per mil	10
not strongly salt sensitive plants	Begonia, Cyclamen, Freesia, Gerbera, Roses	0,8 - 1 ,0	up to 1,00 EC → 0,25 per mil up to 0,78 EC → 0,50 per mil up to 0,63 EC → 0,75 per mil up to 0,47 EC → 1,00 per mil up to 0,31 EC → 1,50 per mil	10 up to max. 15
plants tolerating higher salt concentration	Chrysanthemum, Carnations	1 ,5 - 2 ,0	up to 1,56 EC → 0,25 per mil up to 1,25 EC → 0,50 per mil up to 0,94 EC → 0,75 per mil up to 0,63 EC → 1,50 per mil up to 0.47 EC → 1,50 per mil	15
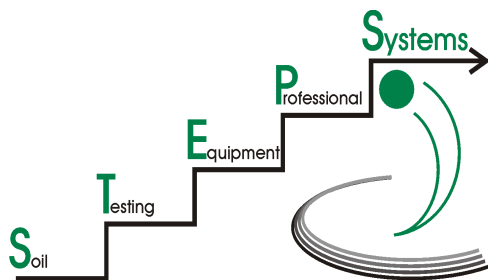
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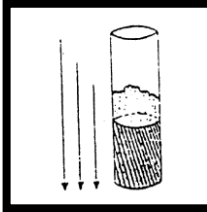# Determination of substrates' salinity

1. Take a representative substrate sample
2. Thoroughly stir the substrate in order homogenise the sample
3. Determination of salinity in homogenised sample (see icons 1-8)
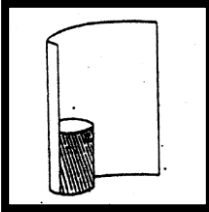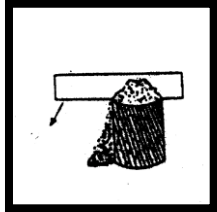

(1) Cylindrically enwrap the enclosed 100 ml measuring cup with a firm DIN-A4-sheet of paper.
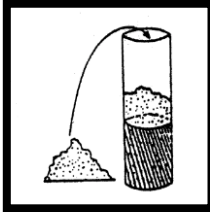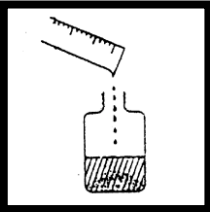

(2) Fill sample loosely above the top of the cup.

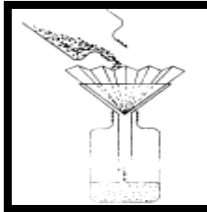**(3)** To compress sample toss the cup 10x on a solid surface.

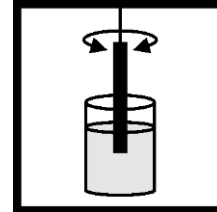
(4) Remove paper and surmounting sample.

(5) Fill measured 100 ml sample in 1-ltr-wide-necked-bottle.

(6) Add **500 ml** distilled water, close bottle and shake several times.

(7) Filter the mixture after 10 min. with fluted filter.

**(8)** Measure conductivity in filtrate.

1. Calculation of salinity:

Conductivity (in mS) x 0,528 x 5 = salinity in g/ltr. substrate

E.g.: A EC-measurement of 0,37 mS (= 370 µS) results in a salinity of:

0,37 x 0,528 x 5 = 977 mg salt/l substrate

2. Benchmarks:

Substrates for salt-sensitive cultures, piquet substrates	500 – 1000 mg/ltr.
Substrates for less sensitive cultures, pot substrates	1000 – 2000 mg/ltr.
Substrates for salt compliant cultures, e.g. chrysanthea	2000 – 3000 mg/ltr.
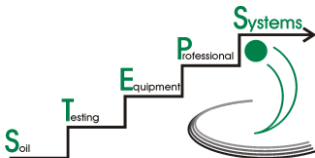
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