Ultrasil® 125

Description:

Strong alkaline, liquid detergent for membrane filtration plants

Product strengths:

- excellent soil removal
- good removal of mineral scale
- compatible with most kinds of commonly used membranes

Properties

Concentrate	**Appearance:**	clear light yellow to yellow liquid *
	Storage stability:	-10 - 40 °C in original sealed container
	Solubility:	at 20 °C miscible with water in any proportion
	Density:	1.33 - 1.36 g/cm³ (20 °C) *
	P content:	< 0.10 %
	N content:	0.80 %
	COD:	120 - 140 mg O_2/g
	Flash point:	not applicable
Application solution	**pH:**	12.3 - 13.1 * (1 %, 20 °C, 0 °d water)
	Conductivity:	12 - 13 mS/cm (1 %, 20 °C, deionized water)

* Parameters subject to incoming goods control

Material compatibility: **Ultrasil 125** is, under the application conditions described below, compatible with

- **Metals** austenitic CrNi steels (quality at least DIN 1.4301 = AISE 304)

  Discolorations may occur with copper and brass.

  Ultrasil 125 is not intended to be used with aluminium.

Membrane materials

alkali-resistant materials such as polysulphone, fully aromatic polyamide, polyacrylonitrile, polypropylene, α-aluminium oxide, zirkonium dioxide are applicable.

Polypiperazine amide, polyvinyl difluoride and cellulose have limited resistance.

Ultrasil 125 is not intended to be used with cellulose acetate membranes as they may be irreversibly damaged.

Polyether urea and electrodialysis membranes may be irreversibly blocked.

Application

Ultrasil 125 is a strong alkaline, liquid detergent, containing a combination of organic and inorganic complexing agents - especially suitable for membranes approved for anionic surfactants, emulsifiers and alkali carriers.

Field of application

Ultrasil 125 is suitable for cleaning micro-, ultra- and nanofiltration plants as well as reverse osmosis plants in the dairy industry.

Mode of application

Following a suitable pre-rinse with water, concentrations of 1.5 to 3.0 % up to a temperature of 85 °C are recommended.

In exemptions, higher concentrations and temperatures are permitted. After cleaning, all treated surfaces should be rinsed with water until residue-free.
As an additional control, measurement of surface tension in the rinse water is recommended.

Generally, the manufacturers' limitations, especially regarding pH and temperature stability of membranes and modules should be adhered to.

Specific cleaning recommendations can only be given after intensive technical consultation.

Important indications !

- Effluent, containing chemicals, must only be discharged according to the local regulations
- Chemicals containing effluent must only be discharged into the biological treatment station after passing the neutralization- and buffer tank
- When discharging chemically polluted effluent, it is essential to pay specific attention to the bacteria toxicity of this water. This is especially important when dealing with biocide containing effluents and anaerobic sewage plants
- In case of doubt please seek advice from our technical service

Monitoring

Concentration determination

- **Titration**

Receiving flask:	50 ml application solution
Titration solution:	0.5 n HCl
Indicator:	Phenolphthalein
Titration factor:	0.18

Volume added in ml x 0.18 = % **Ultrasil 125**

- **Conductivity**

Specific conductivity of **Ultrasil 125**

Concentration control

We recommend the use **of Elados EMP / EcoPro / EcoAdd** diaphragm pumps for metering and for control the use of **LMIT 09** inductive conductivity meters.

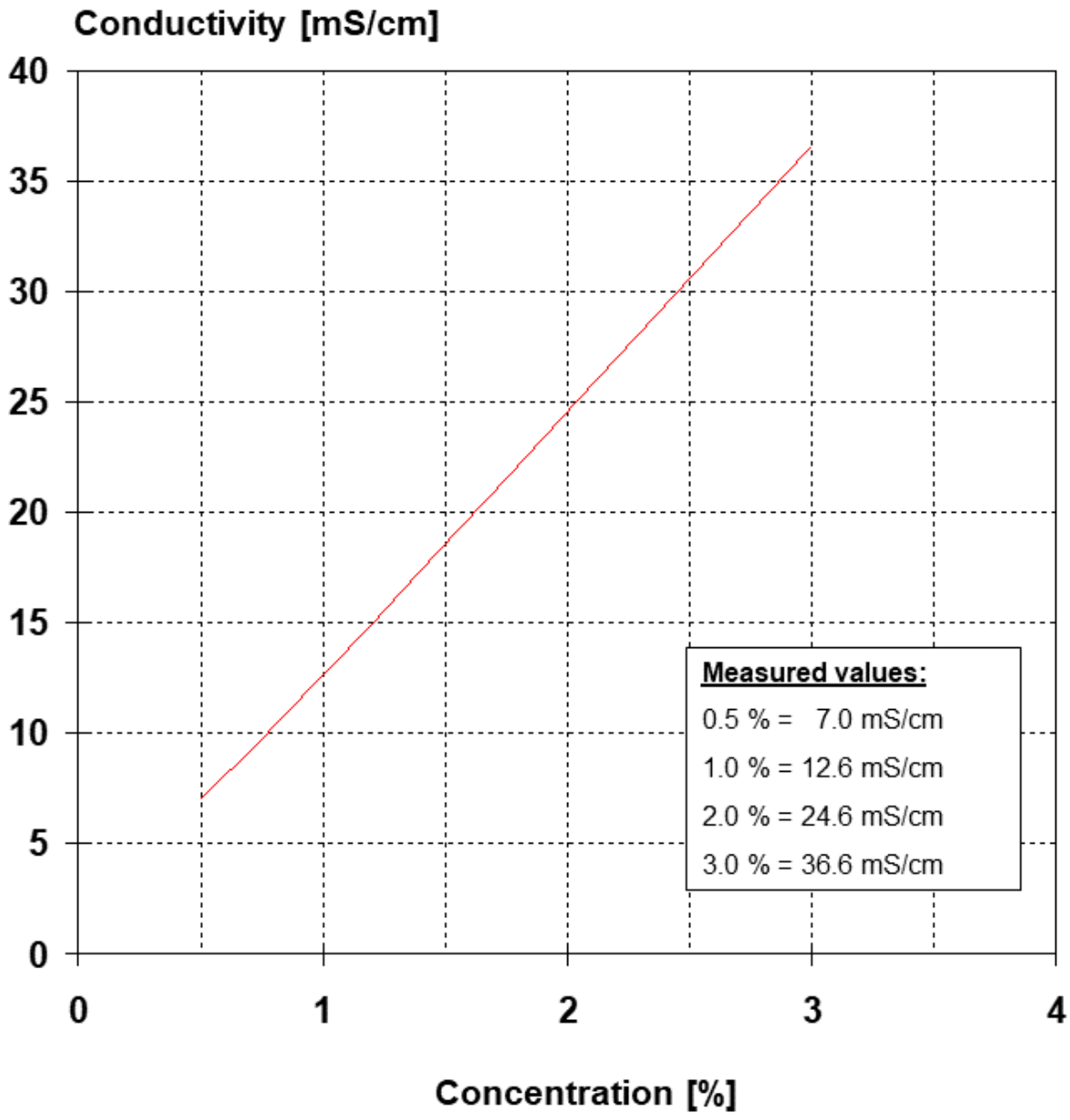
Please visit www.ecolab-engineering.com for more information.

Safety

The relevant hazards identifications of **Ultrasil 125** are given in the EC Safety Data Sheet. If any questions arise in this context please contact your Ecolab representative.

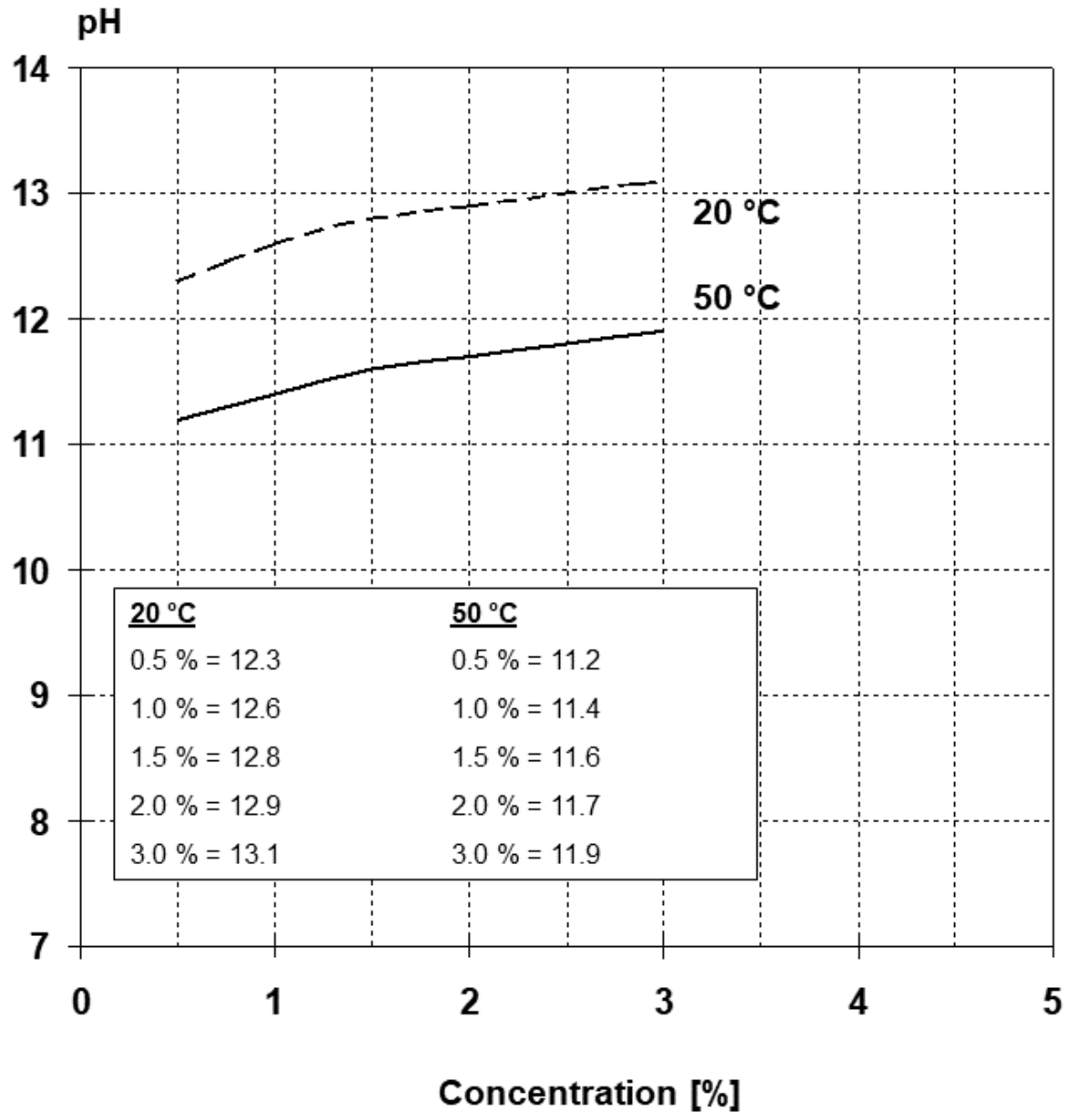
Ultrasil 125

Spec. Conductivity (20 °C, 0 °d)
Temperature coefficient: α: 1.6 %/°C



Ultrasil 125

pH-value (16 °d)



20 °C	50 °C
0.5 % = 12.3	0.5 % = 11.2
1.0 % = 12.6	1.0 % = 11.4
1.5 % = 12.8	1.5 % = 11.6
2.0 % = 12.9	2.0 % = 11.7
3.0 % = 13.1	3.0 % = 11.9

General recommendations for a successful cleaning of membrane filtration equipment

Crossflow-microfiltration

During the first 1 - 3 minutes (depending on the plant size) of the cleaning process the plant should be set to the highest possible feed flow and the lowest possible filtration rate.

Afterwards the filtration capacity should be increased.

Whenever the membranes permit the highly effective back flushing from the permeate side, this procedure should be applied right at the beginning of the cleaning process.

During the disinfection of the filtration plant, the filtration capacity should be set to an average value.

Ultrafiltration

Ultrafiltration plants should be cleaned with applying a high feed flow and a low filtration capacity. Nevertheless, closing of the permeate side as standard procedure should be omitted. Especially when cleaning plants with a large dead volume on the permeate side the permeate volume should be drained before cleaning starts, or the permeate side should be cleaned using an individual cleaning circuit with a small, separate circulation pump.

Indication!

The pressure on the permeate side should never exceed the pressure on the concentrate side!

As suggested for crossflow-microfiltration, during the disinfection process an average filtration capacity should be established.

Nanofiltration, Reverse Osmosis

For cleaning nanofiltration and reverse osmosis plants, the highest feed flow and the lowest possible pressure and filtration rate should be chosen. Plants with a large dead volume on the permeate side should be cleaned as described above.

During disinfection, the pressure should be adjusted to obtain about half the nominal flux capacity of the membranes.

For recommendations of cleaning and sanitising agents, suitable for the type of membranes and filtration process please consult our technical Ultrasil data sheets.

This leaflet only describes general standard procedures. In certain plants, recommendations may be different from the above. In case of any contradiction the plant and membrane manufacturers' directions must be strictly followed.

The statements, information and data presented herein are believed to be accurate and reliable. The information describes the characteristic features of **Ultrasil 125** in ordinary use but cannot be taken as a guarantee, express warranty or implied warranty for the suitability for a particular purpose and shall not extend mandatory warranty rights (if any). The specifications and performance may vary subject to the operational conditions. Since numerous parameters will influence product performance and applicability, this information does not exonerate the user from liability with respect to the suitability of the product and the appropriate safety measures to be taken. Moreover, a possible infringement of patent rights must be avoided at all times.

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