P3-ultrasil® 110

Description:

Alkaline, liquid detergent for membrane filtration plants

Product strengths:

- good removal of proteins and other organic residues
- low phosphate content
- compatible with most kinds of commonly used membranes

Properties

Concentrate	**Appearance:**	clear, brown liquid *
	Storage stability:	0 - 40 °C in original sealed container
	Solubility:	at 20 °C miscible with water in any proportion
	Density:	1.05 - 1.29 g/cm³
	P content:	0.06 %
	N content:	0.50 %
	Flash point:	not applicable
Application solution	**pH:**	11.9 - 12.5 (1 %, 20 °C, 0 °d water)
	Conductivity:	4.0 mS/cm (1 %, 20 °C, deionized water)

* Parameters subject to incoming goods control

Material compatibility: **P3-ultrasil 110** is, under the application conditions described below, compatible with

- **Metals**

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

Discolourations may occur with copper and brass.

P3-ultrasil 110 is not intended to be used with aluminium.

- **Membrane materials**

alkali-resistant membranes such as polysulphone, fully aromatic polyamide, polyacrylonitrile, polypropylene, α-aluminium oxide and zirkonium dioxide

Polypiperazine amide, polyvinyl difluoride and cellulose have limited resistance.

P3-ultrasil 110 is not intended to be used with cellulose acetate membranes, as they may be damaged.

Polyether urea and electrodialysis membranes may be irreversibly blocked by anionic surfactants.

Application

P3-ultrasil 110 is an alkaline, liquid detergent, containing a combination of organic complexing agents - especially suitable for membranes approved for anionic surfactants, emulsifiers and alkali carriers.

Field of application

P3-ultrasil 110 is suitable for cleaning micro-, ultra- and nanofiltration plants as well as reverse osmosis plants in the

- Dairy Industry
- Beverage 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.

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

P3-ultrasil 110 can also be used in combination with P3-oxonia or P3-ultrasil 02.

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:	0.58

Volume added im ml x 0.58 = % **P3-ultrasil 110**

- **Conductivity**

Specific conductivity of **P3-ultrasil 110**

Concentration control

The dosage of **P3-ultrasil 110** can be performed automatically conductivity-controlled - if desired also volume- or time-proportional (e. g. by means of **P3-Elados EMP**-dosage pumps and inductive conductivity measuring devices **P3-LMI 01** or **P3-LMIT 08**).

Our P3-System brochures are available on request.

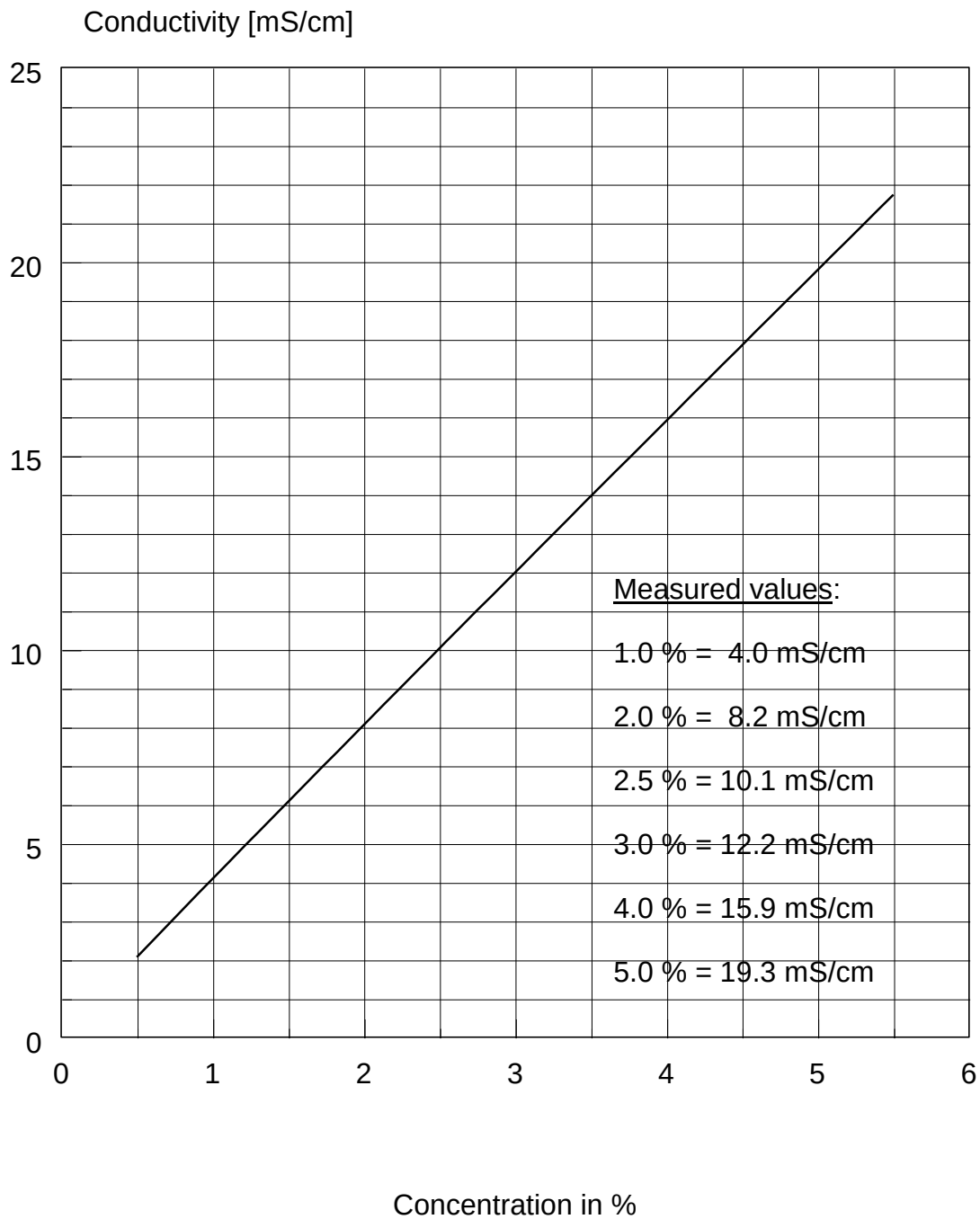
Safety

The relevant hazards identifications of **P3-ultrasil 110** are given in the EC Safety Data Sheet. If any questions arise in this context please contact your Ecolab representative.

P3-ultrasil 110

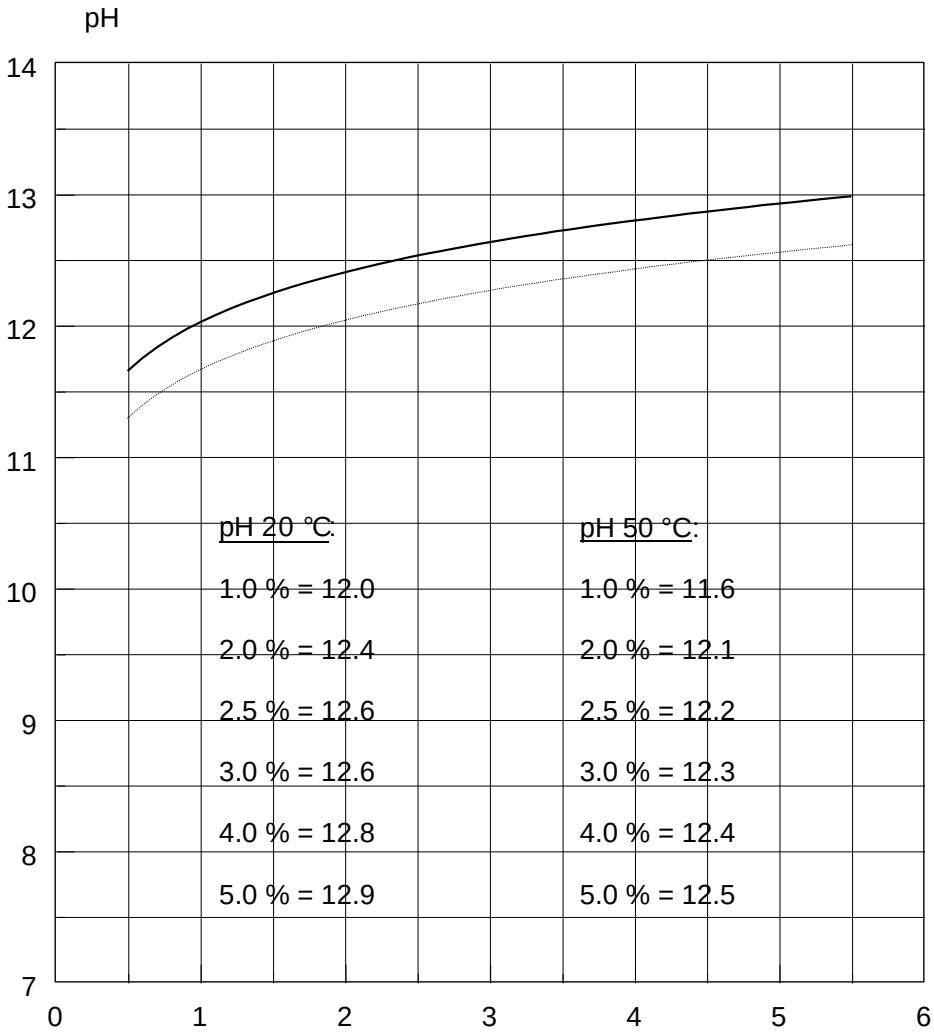
Specific conductivity (20 °C, 0 °d)

Temperature coefficient: α: 2.07 % / °C



P3-ultrasil 110

pH-values (16 °d)



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 P3-ultrasil data sheets.

This leaflet only describes general standard procedures. Regarding a specific plant inconsistent recommendations may be found. In case of any contradiction the plant and membrane manufacturers directions must be strictly followed.

(Version April 2001)

LENNTECH
info@lenntech.com Tel. +31-152-610-900
www.lenntech.com Fax. +31-152-616-289

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