

SILICON Si

GENERAL:

In regions with silicon free rocks (limestone regions) hard waters with low silicon contents are usual. In rivers and streams 6 ppm on the average, in source-waters up to 50 mg/l and in extreme cases up to 2000 mg/l Si are contained. Since no negative physiological effects of silicon are known, there exist no limit values for drinking water.

Boiler feed- and tank-water shall be as silicon-free as possible, because especially at high pressures, rock hard SiO₂ can deposit on thermally loaded areas. Such deposits hinder the heat transfer and cause a higher fuel consumption. Because of that reason a precise observation of the silicon content is necessary.

METHOD:

Watersoluble silicon ("dissolved silic acid") reacts with sulphur-bearing ammonium heptamolydat-solution (reagent 1) to a yellow β -silicomolybdenum acid. The analogue, potentially existing phosphorus-compound is destroyed selectively by means of tartaric acid (reagent 2). A following partial reduction of the molybdenum by means of a bisulphite-combination (reagent 3) leads to a conversion into β -silicomolybdene-blue.

TECHNICAL DATA:

| | Silicon |
|----------------------|-------------------------------------|
| Measuring range | 0.03 ... 3.0 mg/l Si |
| Resolution | 0.01 mg/l Si |
| Method accuracy | acc. APHA 4500-Si E |
| Repeatability | max. deviation < 2% full scale |
| Max. meas. frequ. | 15 minutes |
| Measuring system | |
| Reagents | 3 |
| Reagents consumption | 0,7 ml / measuring |
| Disturbances | PO ₄ & Al simultaneously |

TECHNICAL MODIFICATIONS RESERVED