

## Product Information

### 52450 Silicate Medium

Silica sol is suitable as a gel forming medium base (replacement for Agar), The carbon , nitrogen sources and other components of your choice can be added.

The gently preparation of silica-based media can be effected at room or lower temperature. There is no need to autoclave or to heat the media.

Silica gels have not been commonly used in microbiological media preparations due to an apparent tediousness in the preparation procedure. Nevertheless there had been requests for such media by our customers. Therefore Sigma-Aldrich created a silicate medium. Offering this silica sol as a base medium we facilitate now the further development of new microbiological media. The substitution of agar by silica is useful for special applications such as cultivation of microorganisms under high pressure or in cases where agar and its hydrolysis products lead to problems. One other fact is that silica makes the media more defined.

**Composition:**

sterile filtered solution with ~1.5% SiO<sub>2</sub>  
pH ca. 1.5

**Directions:**

Adjust the pH of 100 ml Silicate medium to 8.7 (approx. 5 ml 0.1 M NaOH) under aseptically conditions.

Add 10 ml sterile nutrition nutrient solution (e.g. 5.0 g 70172 peptone from casein, 2.5 g 70161 yeast extract and 1.0 g 49140 Glucose in 100ml water). The pH drops to about 8.2. Nutrient composition other than that described may be substituted, but the final pH of the medium should be monitored.

Then add 10 ml sterile artificial seawater solution (e.g. 24 g 71380 sodium chloride, 0.7 g 60129 potassium chloride, 5.3 g 63068 magnesium chloride hexahydrate and 7.0 g 63138 magnesium sulfate heptahydrate in 100 ml water). Mix and pour into sterile petri plates. The pH drops to 7.4. Gelation occurs in 2-3 minutes at 23°C or 10-12 minutes at 0°C. Gelation time will vary depending upon the concentration of salts, silicic acid, pH and temperature.

**References:**

1. A.S.Dietz, A.A.Yayanos, Appl. and Environm. Microbiol. 36, 966 (1978)
2. C.B.Taylor, J. gen. Microbiol. 4,235 (1950)
3. A.A.Yayanos et al., Porc. Natl. Acad. Sci. 78, 5212 (1981)