

1 CAS51D-xxA*xx - Nitrate Sensors

Order code	Cuvette	Required Concentrations		
CAS51D-xxA1xx	8mm	0 mg/l NO ₃ -N	10 mg/l NO ₃ -N 5 mg/l NO ₃ -N**	20 mg/l NO ₃ -N 10 mg/l NO ₃ -N**
CAS51D-xxA2xx	2mm	0 mg/l NO ₃ -N 2 mg/l NO ₃ -N**	25 mg/l NO ₃ -N 20 mg/l NO ₃ -N* 10 mg/l NO ₃ -N**	50 mg/l NO ₃ -N

* Concentrations are needed for software version 01.05.06 or older

** Concentrations are needed for software version 01.04.08 or older. The 2 mg/l NO₃-N solution has to be diluted out of the 10 mg/l NO₃-N solution

2 CAS51D-xxC*xx - SAC Sensors

Order code	Cuvette	Required Concentrations		
CAS51D-xxC1xx	40mm	0 mg/l KHP = 0.0 m ⁻¹ SAC	30 mg/l KHP = 23.7 m ⁻¹ SAC	60 mg/l KHP = 47.5 m ⁻¹ SAC
CAS51D-xxC2xx	8mm	0 mg/l KHP = 0.0 m ⁻¹ SAC 10 mg/l KHP* 7.9 m ⁻¹ SAC	150 mg/l KHP = 118.6 m ⁻¹ SAC	300 mg/l KHP = 237.3 m ⁻¹ SAC
CAS51D-xxC3xx	2mm	0 mg/l KHP = 0.0 m ⁻¹ SAC 10 mg/l KHP* = 7.9 m ⁻¹ SAC	600 mg/l KHP = 474.5 m ⁻¹ SAC 400 mg/l KHP* = 316.3 m ⁻¹ SAC	1200 mg/l KHP = 949.0 m ⁻¹ SAC 800 mg/l KHP* = 632.7 m ⁻¹ SAC

* Concentrations are needed for software version 01.02.06 or older

General

CAY451-V10C01AAE is a solution which contains 10.627 g/L KHP (potassium hydrogen phthalate), which is equal to (5000 mg/L TOC).

A 1000 mg/l KHP solution is prepared out of this 10.627 g/l parent solution. The different required standard solution will be mixed out of this 1000 mg/l KHP solution.

Required material

- 4 x 1 l graduated flasks
- 4 x 1 l graduated cylinders
- DI water or Ultrapure water (especially recommended for the low concentrations)

Preparation of the stock solution

- 1000 mg/l KHP stock solution:

Measure 94.1 ml of the parent solution and fill it into a 1 l graduated flask. Now fill the flask with DI or ultrapure water to the ring mark of the flask. Now we have 1 l of the stock solution with a concentration of 1000 mg/l KHP.

For the preparation of standard solutions for the sensor CAS51D-xxC3xx (2 mm Sensor) with firmware version 01.02.06 or older, 2 l of the stock solution are required!

- 2000 mg/l KHP stock solution; only needed for **CAS51D-xxC3xx (2 mm Sensor) with firmware version 01.03.11 or newer**: Measure 188,2 ml of the parent solution and fill it into a 1 l graduated flask. Now fill the flask with DI or ultrapure water to the ring mark of the flask. Now we have 1 l of the stock solution with a concentration of 2000 mg/l KHP.

Be very careful in the preparation of the stock solution! If failures happen here, all standard solutions will be incorrect

Preparation of the standard solutions

CAS51D-xxC1xx

For the SAC sensor with 40 mm cuvette, 3 standard solutions with 0 mg/L, 30 mg/L and 60 mg/L KHP are required.

0 mg/L KHP

No stock solution required. Only DI or ultrapure water

30 mg/L KHP

Fill 30 mL of the stock solution into a 1 l graduated flask. Fill the flask with DI or ultrapure water to the ring mark.

60 mg/L KHP

Fill 60 mL of the stock solution into a 1 l graduated flask. Fill the flask with DI or ultrapure water to the ring mark.

CAS51D-xxC2xx

For the SAC sensor with 8 mm cuvette, 3 standard solutions with 10 mg/L, 150 mg/L and 300 mg/L KHP are required.

10 mg/L KHP

Fill 10 mL of the stock solution into a 1 l graduated flask. Fill the flask with DI or ultrapure water to the ring mark.

150 mg/L KHP

Fill 150 mL of the stock solution into a 1 l graduated flask. Fill the flask with DI or ultrapure water to the ring mark.

300 mg/L KHP

Fill 300 mL of the stock solution into a 1 l graduated flask. Fill the flask with DI or ultrapure water to the ring mark.

CAS51D-xxC3xx

For the SAC sensor with 2 mm cuvette, 3 standard solutions with 0 mg/L, 600 mg/L and 1200 mg/L KHP are required. The **2000 mg/l KHP stock solution** is needed.

0 mg/L KHP

No stock solution required. Only DI or ultrapure water

600 mg/L KHP

Fill 300 mL of the stock solution into a 1 l graduated flask. Fill the flask with DI or ultrapure water to the ring mark.

1200 mg/L KHP

Fill 600 mL of the stock solution into a 1 l graduated flask. Fill the flask with DI or ultrapure water to the ring mark.

For **firmware version 01.02.06 or older** 3 standard solutions with 10 mg/L, 400 mg/L and 800 mg/L KHP are required. You need **21 l of the 1000 mg/l KHP stock solution** to prepare these 3 standard solutions

10 mg/L KHP

Fill 10 mL of the stock solution into a 1 l graduated flask. Fill the flask with DI or ultrapure water to the ring mark.

400 mg/L KHP

Fill 400 mL of the stock solution into a 1 l graduated flask. Fill the flask with DI or ultrapure water to the ring mark.

800 mg/L KHP

Fill 800 mL of the stock solution into a 1 l graduated flask. Fill the flask with DI or ultrapure water to the ring mark.